The social implications of the architecture at Ppnb Ghwair I

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THE SOCIAL IMPLICATIONS OF THE ARCHITECTURE AT PPNB GHWAIR I

by

Ramzy Ladah

Bachelor of Arts
University of Nevada, Las Vegas
2003

A thesis submitted in partial fulfillment of the requirements for the

Master of Arts in Anthropology
Department of Anthropology
College of Liberal Arts

Graduate College
University of Nevada, Las Vegas
May 2006
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is approved in partial fulfillment of the requirements for the degree of

Master of Arts in Anthropology

Examination Committee Chair

Dean of the Graduate College
ABSTRACT

The Social Implications of the Architecture at Early Neolithic Ghwair I.

By

Ramzy Ladah

Dr. Alan Simmons, Examination Committee Chair
Professor, Chair of the Anthropology Department
University of Nevada, Las Vegas

Investigations at the Pre-Pottery Neolithic B (PPNB) Village of Ghwair I in the Wadi Feinan in Southern Jordan have yielded important information concerning the development of social structure during the early Neolithic. The architecture at the site becomes more complex throughout occupation exhibiting more compartmentalization along with the emergence of certain special structures. This along with the location of certain key artifacts and an infant burial in association with the architecture all indicate that the social structure became more complex throughout PPNB occupation. This further corroborates the association between sedentism, domestication, demographic changes and an increase in social complexity.
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ACKNOWLEDGMENTS

I owe my gratitude to a number of individuals without whom I could not have completed this Thesis. Each and every one of my committee members, Dr. Harry, Dr. Roth and Dr. Karakouzian, helped me a great deal in refining this thesis and complete the Master’s program in a timely fashion. Most of all, I would like to thank Dr. Simmons, my advisor and mentor through my years of graduate and undergraduate study, who has always guided me in the right direction, given me wonderful opportunities and taught me a great deal about success. I would also like to thank Dr. Mohammad Najjar for his valuable guidance in interpreting the architecture at Ghwair and his hospitality at his residence in the Wadi Feinan. I also owe my thanks to the Jordanian Bedouin tribe of Al-Rashaydeh and their Sheikh Abu Fawwaz for their kindness and hospitality in the Wadi Feinan. Finally, I would like to thank my parents, my father Michael Salim Ladah and my mother Khatoun Ladah, whose roots stem from the very ancient Near Eastern cultures investigated in this thesis, and who have always motivated me to strive toward success in every aspect of my life.
CHAPTER 1

INTRODUCTION

Purpose of Research

Two crucial and related transitions during the Late Pleistocene and Early Holocene of the Near East were immensely important in shaping the trajectory of modern human society. These included the transition from a highly mobile settlement system to a more sedentary one and the transition from a hunting and gathering based economy to one employing food production. These transitions occurred on a continuum known as the “Neolithic Revolution”, as originally coined by V. Gordon Childe (1952). Among other things this “revolution” is characterized by major changes in social structure, marking the emergence of the earliest evidence of complex social institutions. Although these transitions occurred independently, sedentism often was the base for domestication and together they mark the emergence of the earliest evidence of complex societies and the emergence of certain elaborate social mechanisms in the Near East (Bar-Yosef and Meadow 1995). As Kuijt and Goring-Morris (2002: 361) point out, these transitions include the aggregation of populations into large villages occupied year round and the “reorganization of the processes and structures by which human social interactions occurred.” This “reorganization” of social structure or the eventual shift from egalitarian
to non-egalitarian based social systems is a major focus of researchers studying the Neolithic.

Ever since the term "Neolithic Revolution" was used by Childe, a wealth of knowledge concerning the origins and consequences of these transitions have come to light. However, one weakness in research concerning the "Neolithic revolution" is seemingly a greater concentration on the economic rather than on the social aspects of this transition. As Kuijt (2000: 311) states "Only recently have studies begun to explore the nature of changes in social organization over this period...". Instead of primarily focusing on the when, where and how of the domestication of plants and animals, research is just beginning to focus on how sedentism and food production are linked to changes in social organization at the household, community and regional level (Kuijt 2000). The purpose of this study is to expand the current body of knowledge on how the two threshold events of sedentism and food production are connected and intertwined with changes in social organization. This will be done through an in-depth study of the architecture and its implications for the social organization at the early Neolithic village of Ghwair I in the Southern Levant and the social development that is expected to have taken place at the household, community and possibly regional level there during habitation.

The Near East traditionally has been and still is a major focal point for research concerning both the economic and social transitions associated with the adoption of agriculture. As Bar Yosef and Meadow (1995: 36) note "Only for the Levantine Near East are there sufficient relevant data to constrain explanatory hypotheses significantly and to enable truly substantive attempts to explain the transition to agriculture."
Likewise, the “Neolithic Revolution” is a broad-ranging event that occurred on nearly a
global scale. In these regards this study and its implications, coupled with existing data
on the subject, have broad ranging implications on the nature of social changes tied to the
transitions to agriculture. Furthermore, as Hole (2000: 191) points out “it is not too much
to say that the basic foundations of what we consider to be our civilization were
established during the Neolithic.” These investigations aim to shed new light on the
major social transitions that eventually lead to the formation of the state and modern
industrial society as we know it.

Ghwair and Its Context

Ghwair I was originally investigated by Dr. Mohammad Najjar in 1993 as a part of
the joint Jordanian-German Archaeometallurgical survey project in the Wadi Feinan
(Najjar 1994). The same project, starting in 1980, identified the Wadi Feinan as an
important source of copper from the Chalcolithic Period up into more recent historical
periods (Hauptmann 1990). Initial test excavations at Ghwair I revealed it to be a
“modest sized” Pre-Pottery Neolithic B village dating from approximately 8,880 to 8,390
conventional years BP (Simmons and Najjar 2000) and covering somewhere around 1.3
hectares (or approximately 3 acres) with several exposed architectural features eroding
out of a wadi cut at the western edge of the site. A joint University of Nevada Las Vegas
(UNLV) and Jordanian Department of Antiquities project, co-directed by Dr. Alan
Simmons and Dr. Mohammad Najjar, later conducted five major seasons of excavation at
the site. These successive seasons revealed a remarkably small and well preserved Pre-
Pottery Neolithic B (PPNB) village of particular interest due to its exceptionally preserved architectural features (Simmons and Najjar 2003).

Excavations at Ghwair I exposed a total of 768 square meters, not including some rescue excavations conducted after the major excavation seasons, and uncovered evidence of three major architectural phases and several sub-phases of construction during the approximately 500 years of Neolithic occupation (see Simmons and Najjar 2003). The architecture uncovered at the site turned out to be much more complex than was initially estimated, revealing variable sizes and types of structures, open spaces, and complex internal features. Furthermore, Ghwair I exhibits a great deal of evidence of symbolic and ritualistic practice including variable human mortuary practices, the employment of animal horns in ritual contexts and caches of cultic objects (Simmons and Najjar 2003). As will be discussed, these are all crucial lines of evidence for the reconstruction of social structure and the study of the development of social mechanisms and changes in social order.

Descriptive Outline

This thesis primarily addresses evidence for certain aspects of social complexity at the early Neolithic site of Ghwair I located in southern Jordan such as architecture and cultic artifacts. The excavation seasons at Ghwair I revealed that the village was occupied for approximately 500 years during the Middle Pre-Pottery Neolithic B (PPNB) [ca. 9,300 to 8,300 conventional years BP (Kuijt and Goring-Morris 2002: 366)] as demonstrated through 22 radiocarbon dates. As will be discussed, the PPNB is
characterized by a number of well developed cultural and social complexities that are commonly found among well-established sedentary agricultural communities.

This thesis will investigate the social order at Ghwair I through, among other things, an in-depth analysis of the built environment there. This investigation will include both synchronic and diachronic aspects of the architecture and will address several specific research questions (see Chapter 2). Comparisons of roughly contemporary structures or rooms within the different phases of construction will help determine the presence and extent of certain aspects of social complexity and the overall prevailing social order. This will include attempting to determine the function and possible usage of different rooms, structures and areas of the site.

This investigation will attempt to detect whether or not the social complexity increased during the 500 years of PPNB occupation. There is a great deal of theoretical literature discussing the strong relationship between architecture and social structure. will be discussed in greater detail in Chapter 4, there is a great deal of literature showing that there is a cross-cultural positive correlation that exists between a number of architectural features present in the architecture of a culture and degree of social complexity present within that culture. These include the degree of partitioning or compartmentalization of the architecture, monofunctional uses of structures, and energy investment in special, ritual and/or public structures (Lawrence and Low 1990; Kent 1990; for more see Chapter 4). Thus, architectural changes throughout the three major phases of construction or development will be a crucial component in determining possible changes occurring in social structure at the site during early Neolithic habitation. These will include changes in size, access to, partitioning of and location of structures.
and storage installations, changes in public communal areas and special structures and access to them, and changes in inter-household spatial organization.

The location of certain burials and key artifacts, including game boards, possible ritualistic tool caches, tokens and figurines within Ghwair I will also be an important component of the thesis, as artifacts are often used to determine the function of structures and rooms (Simmons and Najjar 2003). These data will supplement the understanding of the architecture by tying in the artifact and burial spatial distribution over the site with the architecture. This will serve, in certain cases, to help confirm or reshape any social implications determined purely through the architectural data. Such implications include the functions of structures and rooms and possibly trends of change in both public and household ritual.

Finally, an attempt to relate site size to the social order at Ghwair I will be another important component of the thesis. This will help to determine if the social order at Ghwair I is relatively simple as might be expected for a relatively small village or whether it is relatively complex. This will serve to help bring Ghwair I into a broader perspective of the Levantine Neolithic world by serving to place it in the context leading from the Epipaleolithic into the later half of the Early Neolithic period. Furthermore, this will address certain models of social complexity, concerning specifically the increase in social complexity and its relationship to site size and population thresholds. Overall, this thesis will contribute original ideas and data to the current body of knowledge on early Neolithic social structure and organization, further helping us understand the nature of the major social changes occurring during the 'Neolithic Revolution'.
Social Complexity

Since complexity is an ambiguous and confusing term, a clarifying discussion of the term “social complexity” is in order. As McGuire (1983: 91) points out, social complexity is what separates “the late Pleistocene world of independent, internally homogenous human societies from the modern world of interdependent, internally heterogeneous industrial nations.” Carneiro (1978: 205-206) notes that between 8000 and 10,000 BC the world population was somewhere between 5 and 10 million people. During the ensuing Neolithic period there were in existence several hundred thousand autonomous political units. Today the world population is somewhere over 6 billion people and yet there are only about 150 autonomous political units in existence (Carneiro 1978: 205-206). This progressive increase in population size and yet decrease in number of worldwide political units can be attributed to socio-cultural evolution. Without such development, modern industrial society as we know it could never have come into existence. Furthermore, the causes of such developments have been a controversial topic in anthropological studies ever since the discipline was in its infancy.

In relatively simple terms, complexity specifically “concerns the degree of internal differentiation and intricacy of relations within a system.” (Paynter 1989: 369). In these regards, simple societies are internally relatively homogenous and are characterized by “relatively similar social entities whose members interact with one another in similar ways.” (Paynter 1989: 369). On the other hand, complex societies are characteristically internally heterogeneous and “involve many different social entities, whose members affect each other along intricate pathways.” (Paynter 1989: 369) Thus, the more complex a society, the more internal differentiation and heterogeneity it should display.
Social complexity is a complex concept in itself with a number of different aspects lumped into one all encompassing term. Yet, as McGuire (1983: 92-93) points out "If archaeologists are to arrive at a better understanding of cultural evolution" then they must break down highly complicated terms such as social complexity into "their constituent variables and study the interaction of these variables." Since it is useful to dismantle and break down abstract, broad, and complicated terms such as social complexity (Rapoport 1990: 10), a discussion pertaining to certain aspects of social complexity that relate to this thesis follows.

First of all, social structure basically involves two different variables: inequality and heterogeneity (Blau 1977). The latter of these refers to "the distribution of populations between groups" (McGuire 1982: 93). The former, inequality, is a highly important aspect of complexity and yet as Paynter (1989: 370) points out "The relationship of complexity and inequality produces one of the great divides in social theory." Without dwelling too much on this, there is apparently a definitive relationship between inequality and complexity even though the nature of this relationship is not very clear. In simple terms, social inequality refers to the combination of the two processes of inequality and dominance. The first of these, inequality, is "the social evaluation of whatever differences are regarded as relevant in a given society or situation." The second, dominance, in these regards refers to "the behavioral expressions" of the differences in inequality (Berreman 1981: 8). Inequality and heterogeneity are not always positively correlated, yet that topic is beyond the scope of this thesis. It is important that the reader keep in mind that social inequality is one of many aspects of social complexity.
Furthermore, there are two major ways that the phenomena of inequality and dominance are organized in societies. These include unranked or egalitarian social organization and forms of ranked social organization.

Egalitarian or unranked social organization is a broad ranging, wide encompassing form of social organization “...in which the division of labor is almost exclusively on the basis of age, sex and personal characteristics.” (Fried 1960: 715) In such societies there are just as many “positions of prestige in any given age / sex grade as there are persons capable of filling them.” (Berreman 1981 :8) Furthermore, in egalitarian / unranked societies “accumulation is not valued; generosity and reciprocity are criteria for esteem and high status.” Also, in unranked societies “status tends to be individual or situational rather than categorical.” Along these same lines in unranked societies “Prestige is more competed for than power and wealth.” (Berreman 1981 :8)

Egalitarian / unranked social organization stresses “generosity and reciprocity” instead of accumulation of wealth. Yet, this does not specifically mean that such societies are completely devoid of individuals who will try to accumulate wealth. Interestingly, when individuals in egalitarian/unranked societies do attempt to accumulate wealth, others within the society will explicitly attempt to limit such accumulation. Woodburn (1982: 432) points this out in the following: “...individuals or groups within their own egalitarian societies may try to acquire more wealth, to assert more power or to claim more status than other people, and (other individuals or groups) are vigilant in seeking to prevent this.”

In systems of ranked social organization, inequality is institutionalized into a “hierarchy of statuses - superior and inferior positions of prestige and dominance - that
extend beyond age, sex, personal characterization and intrafamilial roles.” (Fried 1960: 717). Fried (1960: 717) suggests that “the rank society is characterized by having fewer positions of valued status than individuals capable of handling them.” This would imply that such societies have a limited number of positions of valued status and thus only a limited number of people will be associated with such status. As we shall see, the nature of ranked social organization has important implications for control of resources, including subsistence and human resources, and manipulation of the symbolic realm.

There are two major modes or ways that ranking can take place in ranked societies including through kin / role ranking and through stratification (Berreman 1981; Fried 1960).

The first of these, kin / role ranking, is where ranking “depends on position in the kin system.” In such a system “ranking may also depend on particular roles” that are either kin or activity based. In such societies hereditary inequality or ascribed status is found (Berreman 1981: 8). In a kin / role ranking system, someone born into a certain lineage or clan may automatically have more prestige than someone born into a different, lower ranked lineage or clan. This has obvious implications for jealousy, inequality, dissatisfaction and possibly even for rebellion and societal collapse.

The second of these forms of ranking, social stratification, is where each member of a particular society is ranked “relative to one another according to certain shared, non-kin characteristics defined by the society as important and used to allocate access to the basic resources that sustain life in the society.” (Berreman 1981:10). In stratified social systems categories of people form different strata; people from similar strata share certain similar characteristics defined by the society as having similar importance. Furthermore,
in such societies access to the means of subsistence is similar for people within the same strata, and people in higher strata have more access to subsistence and/or non-subsistence resources than people from lower strata. Stratification is commonly employed by modern industrial societies; how early evidence of stratification is detectable in the archaeological record is a controversial topic (Berreman 1981: 10-11).

Systems of Classification

A number of different classification systems for socio-cultural development have been proposed and utilized by Anthropologists. The most widely known one, the "Neoevolutionary" model of social development originally suggested by Service (1962) has received a great deal of attention from anthropologists since its emergence in the literature. This 'hotly debated' model of social development traces an increase in social complexity over time through a progressive "stepladder" based on the ethnographic categories progressing from bands to tribes, then chiefdoms and finally culminating in the highest socially complex form, the state (Yoffee 1993: 60). Furthermore, a number of anthropologists have also used such classification systems in order to investigate exactly what causes an increase in complexity over time.

Many anthropologists have questioned the usefulness of the "Neoevolutionary" approach to the study of social complexity (Spencer 1990; Bawden 1989). These researchers have chosen to modify or mold the Neoevolutionary system into a slightly deviated and more widely applicable system. As Paynter (1989: 369) points out, "empirical studies based on the neoevolutionary program coupled with new theoretical
perspectives have led increasing numbers of archaeologists away from a concern with complexity and towards considerations of social equality and inequality.”

The “dissatisfaction with Service’s band-tribe-chiefdom-state model of sociocultural complexity” has also led a number of researchers to reexamine hierarchy and investigate heterarchy (Crumley 1995 :1). The relations between heterarchy and hierarchy offer new perspectives on agency, conflict, resolution and cooperation. Heterarchy is “the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways.” (Crumley 1995 :1). Hierarchy, on the other hand, entails “…elements which on the basis of certain factors are subordinate to others and may be ranked.” (Crumley 1995 :1). Furthermore, there are scalar hierarchies and there are control hierarchies. A prime example used by Crumley (1995) for a scalar hierarchy is global-regional-local climate where any level can affect any other. A prime example of a control hierarchy is the American court system where “decisions at higher levels affect the operation of lower levels.” (Crumley 1995 :2). Whether or not a hierarchy is detectable at Ghwair I and how much heterarchical differences are detectable will be important components of this thesis.

For this thesis, I use Johnson and Earle’s (1987; 2000) evolutionary scheme simply because it is more recent and more clearly delineated than other typologies. Furthermore, it is highly useful in the study of social aspects relating to PPNB Ghwair I. This scheme employs a system based on Service (1962) and Fried’s (1967) classification systems that is more globally applicable. Johnson and Earle’s system is important for this thesis and employs the following stages or levels (1987: 19; 2000: 32-34): 1) the family level group that may be organized into the camp or the hamlet, 2) the local level group that may be
organized at the acephalous local group or into a big man collectivity, and 3) The polity that is organized at the regional level into either the chiefdom or the state. Importantly, this system has a strong multilinear emphasis taking the stance that social complexity can take a number of different pathways in its development. A short description of these different stages or levels as described by Johnson and Earle (2000) ensues:

The family level group organized into the camp is capable of “great self sufficiency” moving in and out of camps or hamlets “opportunistically as problems or opportunities arise.” (Johnson and Earle 2000: 32-33). The family camp is characterized by low density foraging societies (> one person per ten square miles). Camp groups with populations of twenty five to fifty people may form when there are highly localized resources or when “a group larger than the individual family is required for risk management or for a particular subsistence activity.” (Johnson and Earle 2000: 32-33). The camp may then break up into individual families that exploit both low density and more widely dispersed resources. In these societies, the division of labor is organized simply by sex and family leadership is “ephemeral and context specific.” (Johnson and Earle 2000: 32-33). In such societies warfare is uncommon although, interestingly, homicide is common. Also, ceremonialism is “ad hoc and little developed” and the camp does not claim exclusive access or territorial rites to a given area and likewise will not necessarily defend it from foreigners (Johnson and Earle 2000: 33).

The family level group organized into the hamlet is characterized by higher density (anywhere from one person per 10 square miles to two people per square mile). In such societies, “families cluster into a settlement group or hamlet (twenty five to thirty five persons) on a more permanent basis.” Furthermore, the subsistence economy focuses
primarily on wild foods, yet sometimes "in conjunction with the beginnings of horticulture or herding." Storage becomes more common at this point and during the annual cycle individuals, families or small groups move out of the hamlet for a limited time to exploit "specific resources" (Johnson and Earle 2000: 33). Likewise, from year to year as families, individuals or small groups leave and return the hamlet breaks up and reforms as households relocate to optimize resource procurement (Johnson and Earle 2000: 33). As far as political organization is concerned, the hamlet does not form any type of "clearly demarcated political group." At this level leadership is still minimal and context specific and ceremonialism is still "little developed". Furthermore, the territory of the hamlet is still not defended by the inhabitants and likewise warfare is still minimal (Johnson and Earle 2000: 33).

Local groups consist of a number of families that "form under some common interest such as defense or food storage." Subdivisions within these local groups tend to be based on kinship lines such as "corporate lineages or clans." The acephalous local group is common among societies with densities exceeding one person per square mile that are usually organized into "village-sized settlements." Subsistence is usually based on domesticates, although in certain cases highly productive wild resources such as maritime resources may be the focus. Settlement sizes are somewhere around 100 to 200 persons that are "subdivided into clan or lineage segments of hamlet size" of somewhere around twenty five to thirty five people (Johnson and Earle 2000: 33). Furthermore, this local group forms "a ritually integrated political group and may have a headman; but it typically fragments into its constituent kin groupings either seasonally or periodically as a result of internal disputes." At this level, ceremonialism is highly important as, among
other things, it functions for “publicly defining groups and their interrelationships” within the community. Furthermore, at the local group level territorial defense becomes much more common and resources are held “exclusively by kin groups.” (Johnson and Earle 2000: 33)

The big man local group is generally found in societies with higher population density in areas where territoriality and warfare are high. Subsistence economy is usually focused on agriculture, pastoralism, or highly productive wild resources. The community consists of somewhere around three hundred to five hundred people “that either live together in a village or are dispersed throughout the well-defined territory of the group.” In this type of social organization the big man represents the local group in “risk management, trade, and internal dispute settlement.” Furthermore, this big man is a “strong, charismatic leader” who is “essential for maintaining internal group cohesion and for negotiating intergroup alliances.” (Johnson and Earle 2000: 34) Interestingly, the big man collectivity can collapse if the big man can no longer hold the community together and convince its members to stay within its confines. Johnson and Earle (2000: 34) point this out in the following: “His power…is dependent on his personal initiative; If his followers desert him for a competitor, little may be left of the reputation he has tried to build for himself, and his local group, or of the alliances he has contracted.” In such regards the big man and his power are dependent primarily on his individual abilities and acquired status throughout his lifetime. Furthermore, as Kosse (1990: 281) points out, in the big man collectivity “Relationships are largely egalitarian, although decision-making tends to be limited to adult males.”
As Flannery (1972: 402) points out, “One of the thorniest problems in cultural
evolution is the origins of hereditary inequality— the leap to a stage where lineages are
ranked with regard to each other, and men from birth are of chiefly or commoner descent,
regardless of their own individual capabilities.”

According to Johnson and Earle (2000: 34), the subsistence economy in the chiefdom
and management thereof are similar to that found in the big man collectivity.
Furthermore, as the regional integration of the polity develops, “clearly defined offices of
leadership emerge at the local and regional levels and are occupied by leaders of a
hereditary elite.” In these regards it is apparent that hereditary inequality or ascribed
status is an important aspect of the polity.

Furthermore, the chiefdom and the state are the two ethnographic categories in the
neoevolutionary scheme that have recently received the most attention. Wright (1977:
381) claims “a chiefdom can be recognized as a cultural development whose centralized
decision-making activity is differentiated from, though it ultimately regulates, decision
making regarding local production and local social processes; but it is not itself internally
differentiated. It is thus internally but not externally specialized.” Furthermore, a chief
tends to avoid delegating authority, meaning he is the sole manager of his chiefdom.
Without delegating authority there is only so large an area that an individual can rule or
control. This means that “there is a spatial limit to the territory that a regional chief can
effectively rule.” (Spencer 1990: 7) Spencer (1982: 6-7) proposes that the “optimal” size
for a chief’s domain should include an area of approximately a half day travel from a
regional center or an area of approximately 56 km diameter.
As Spencer (1990: 1) points out, “of the many recent problems which have attracted the attention of Anthropologists, few have provided as enticing, enduring, and intractable as the evolution of states...”. Although this is a primary issue of interest in anthropological studies of socio-cultural evolution, it will not be discussed here because there is no evidence for state formation at Ghwair 1.

Discussion

An interesting and potentially highly useful study in regards to social complexity is that investigated by Kosse (1990). In her study Kosse (1990: 275) claims that “the constraints that limit group size” have specific and important implications for “the formation of hierarchies and thus social complexity.” Kosse (1990: 275-276) claims that when groups reach certain thresholds, they require a certain amount of complexity and thus a certain type of social order. Kosse (1990: 275-276) explains this in the following: “…a new level of integration will appear when the size of the top decision making unit exceeds a critical threshold. The critical threshold has a constant size which is determined by the information-processing limitations of the individual.”

Kosse (1990: 284) supports this assertion with ethnographic evidence that once more than 150 people are “in frequent face-to-face interaction, information flow begins to be regulated by more formal, ritual channels.” Forge (1972: 371) supports this assertion with ethnographic studies from New Guinea claiming that ”…below 35 men (the number of adult men expected in communities of 150 people) basic relationships of kinship and affinity, together with reciprocal assistance, are quite capable of ordering social relationships.” Yet, as Forge (1972) points out, above this level of 150 adult men basic
relationships of kinship and affinity break down and more complex organizational levels are needed.

The next major threshold seems to be when community size exceeds 500 plus or minus 100 individuals. Kosse (1990: 284) claims that in communities exceeding 500 individuals that “the regulation of individuals is probably restricted to adult males with real decision making power in the hands of even fewer individuals.” An example of such adult males may potentially be big men with decision making power. These big men would likely be elders that constitute a religious elite of some sort. As Bernard and Killworth (1973; 1979) point out, in communities exceeding 500 individuals but under 2,500 individuals, information can still be transmitted to everyone in the community in an informal fashion although at this point information transfer begins to break down and takes place slower with more possible mistakes.

Kosse also claims that once refined, this model may be used to both predict the social complexity/order of a community from the size of the community and vice versa. These proposed thresholds and where Ghwair I falls among them will be investigated in Chapter 6 of this thesis.

Finally, there have been debates between archaeologists working in the Near East over what social segment would have accepted the risk and benefits associated with production during the PPNB. While some claim that only individuals within specific nuclear families would have shared with one another, others claim that it was at the extended family level that individuals would have been included and excluded from sharing. This will be discussed in greater detail in Chapter 4 when discussing the background on the Levantine Late EpiPeleolithic and Pre-Pottery Neolithic architecture.
Many if not most of the issues concerning social complexity discussed in this introduction will be investigated when placing Ghwair I in a context of socio-political development. Now that many of the aspects of social complexity have been introduced in this chapter, a discussion of the research design for this thesis including the hypothesis, research directions and methodology is in order.
CHAPTER 2

RESEARCH DESIGN

Hypothesis and Research Directions

The main hypothesis of this thesis is that the social structure of the community at Ghwair I changed during its occupation. It is expected that such changes in the social structure will be detectable primarily through changes in the architecture. Chapter 3 will show how sedentism, the introduction of an agricultural economy and delayed return systems lit the fuse, so to speak, for the development of social complexity. Chapter 4 will show how this increase in social complexity is detectable through a number of lines of evidence including the built environment, site size, mortuary practices, cultic artifacts, the ritual implications of all of these, and the symbolism embedded in them. Thus, these lines of evidence, primarily concentrating on the architecture, will be used to investigate the hypothesis.

The hypothesis will be investigated primarily by separating the different phases of occupation, looking at them independently and then comparing these different phases. Things that we will be looking for to indicate an increase in complexity from phase to phase of occupation include increasing compartmentalization or internal partitioning of architecture, increasing monofunctional uses of areas or rooms, increasing signs of social differentiation or heterarchy such as increasing differences in social roles and evidence of
specialization, evidence of emergent or increasing ascribed status, any evidence for an emergent hierarchy or any increasing signs of a hierarchical society, and any evidence for the emergence of or an increase in social-political complexity.

Chapter 5 will investigate the architectural evidence including a comparison of different rooms and areas within phases, evidence of specialization and monofunctional uses of areas, compartmentalization or internal partitioning during specific phases, and diachronic trends of change in these from phase to phase. Chapter 5 will also investigate important non-architectural artifactual evidence such as that from mortuary remains, lithic, faunal, groundstone, and cultic artifacts. This evidence will help reinforce or reshape the evidence from the architecture using other lines of evidence (such as artifact distribution and site size) to more holistically approach certain issues of complexity.

Chapter 6 will be used to further investigate some additional research directions and to place Ghwair I into a context in terms of site size and socio-political development. As discussed in Chapter 1 there are certain models that relate social complexity and its increase specifically to thresholds in population size. There are also a number of models incorporating formulas that estimate population size from aspects of the built environment such as site size, roofed area, etc. These formulas will be used to estimate the population size at Ghwair I at its pinnacle and to compare the population size to the complexity at the site. It will also serve to place Ghwair I into the context of the developmental sequence of socio-political complexity leading up to chiefdoms and state organization as drawn out by Johnson and Earle 2000 (as was discussed in the introduction) Chapter 6 will also serve to synthesize the thesis and discuss the broad theoretical implications of the study.
Methodology and Data Requirements

The data needed to investigate the hypothesis and research directions as outlined above are twofold. These include those collected by the author in the field and those previously collected and analyzed by other researchers. The required data that needed to be collected in the field were comprised primarily of that relating to the architecture. Detailed scaled drawings on the two major and most important excavation areas at Ghwair I were available in the UNLV Archaeology laboratory. Nonetheless, these did not shed enough light on the phases of development at the site or minute details of internal features among other things. The collection of these minute details was necessary in order to investigate the hypothesis and research directions. Furthermore, the second set of data needed included primarily that collected and analyzed during and after the excavation seasons by MA graduate students at UNLV under the direction of Dr. Alan Simmons. These data were collected from theses and published reports of their findings.

The field data relating to the architecture were collected primarily over two periods in Jordan. The first period of data collection at Ghwair I took place during the summer of 2004. After participating in an archaeology conference at Petra in Southern Jordan the author had the chance to visit Ghwair I for the first time, traveling to the Wadi Feinan with Dr. Simmons and Dr. Najjar, the projects’ co-directors. Furthermore, during the winter of 2005 the author traveled to Ghwair I once again meeting Dr. Najjar at the Neolithic village and having the opportunity to pay special attention to minute details at the site.
Incidentally on both visits, and most memorably on the second visit, I also had the honor to meet and be guided to the site by a number of members of the extremely humble and hospitable Al-Rashaydeh Tribe residing in the Wadi Feinan. During these two visits to Ghwair I familiarized myself with the site, taking a numerous photographs and collecting invaluable data on the shape and size of structures, internal features, structural development and other data important to the pursuing investigations.

Library research allowed for access to publications on the Neolithic of the region and previously written theses on the lithics and groundstone of Ghwair I by former Master’s students allowed for access to crucial information. Furthermore, a number of architectural plans drawn by Qutaiba(2000) during the major excavation seasons served a pivotal purpose in retracing the developmental progression of the architecture at the site along with details on internal features ect. Yet, before discussing the investigations pertaining to that outlined in this research design above a discussion on the background of the cultural context of Ghwair I is in order.
CHAPTER 3

CULTURAL AND ENVIRONMENTAL CONTEXT

A) Levantine Late EpiPaleolithic and Early Neolithic Chronology

In the Levantine Near East the transitions associated with the adoption of agriculture occurred during the period between ~13,000 and 7,500 conventional years BP, spanning the late Epipaleolithic and the Pre-Pottery Neolithic of the Levant and the greater Near East. In the Southern Levant, this period began with the Natufian cultural complex, which lasted from ~13,000/12,800 BP to 10,300/10,200 BP. It was followed by the Pre-Pottery Neolithic A (PPNA) from ~10,300/10,200 to 9,400 BP and was subsequently replaced by the Pre-Pottery Neolithic B (PPNB) from ~9,500 to 7,500 conventional years BP. The PPNB is further subdivided into the Early PPNB (EPPNB) from 9500-9300 BP, Middle PPNB (MPPNB) from 9300-8300 BP, Late PPNB (LPPNB) from 8300-7900 BP and Final PPNB/PPNC from 7,900 to 7,500 BP. These periods are primarily characterized by differences in settlement patterns, architecture and artifact types; specifically lithic typologies (Bar-Yosef 1998; Kuijt and Goring-Morris 2002: 366). It must be noted that the Pre-Pottery Neolithic varies slightly throughout the Levant and the greater Near East and that these dates only conform to the available data for the Southern Levant. Ghwair I falls into the Middle PPNB period.
Table 1  Southern Levantine Late Epipaleolithic and Early Neolithic Chronologies
Conventional C14 Years Before Present (BP). See Figure 1 for the geographical location of PPNB sites.

<table>
<thead>
<tr>
<th>Late Epipaleolithic and Pre-Pottery Neolithic General chronologies</th>
<th>PPNB sub-phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natufian ~13,000/12,800-10,200BP</td>
<td>Early PPNB ~9,500-9,300 BP</td>
</tr>
<tr>
<td>PPNA ~10,200-9,400 BP</td>
<td>Middle PPNB ~9,300-8,300 BP</td>
</tr>
<tr>
<td>PPNB ~9,500-7,500 BP</td>
<td>Late PPNB ~8,300-7,900 BP</td>
</tr>
<tr>
<td></td>
<td>Final PPNB/PPNC ~7,900-7,500 BP</td>
</tr>
</tbody>
</table>

B) Environment

Modern Environment

Ghwair I is located approximately 200 kilometers southwest of Amman, the capital of Jordan, and 120 kilometers north of Aqaba (see figure 1 on page 28 for location). It is located above the Wadi Ghwair, which connects with the Wadi Feinan system draining into the ‘Arabah. The Wadi Feinan region is at “the base of a series of west-draining steep and deeply incised wadis at the southern end of the Dead Sea Rift Valley.” (Finlayson et, al 2000: 3). The arabic word Ghor is generally used to refer to the Dead Sea Rift Valley, also known as the Jordan valley, and translated means depression. The arabic word Ghwair is related to the word Ghor but instead Ghwair translates as small depression referring specifically to the Wadi Ghwair. The floor of the Wadi Ghwair is lower in modern times than it was in the past. This is apparent from calcium deposits on

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the surrounding rocky hillside along with a layer of cobbles apparent in the walls of the modern wadi variably standing at between approximately 1 and 5 meters above the modern wadi bed. Likewise, Ghwair I is located considerably above the level of the wadi floor and is located on a hill overlooking the Wadi Ghwair. Ghwair I would not have been a riverside settlement at the time of occupation but would have been located on a hillside, albeit it would not have been quite as elevated above the wadi in the past as it is today (Finalyson et. al 2000: 7).

The Feinan region where Ghwair lies is extremely arid today, although often intensive rainfall can occur in the winter creating potential danger to local inhabitants. Furthermore, the Wadi Feinan region has supported “substantial human occupation” going back to at least the middle Paleolithic as determined through the finding of a Levallois “tortoise-shell” core in the Wadi Ghwair (Simmons and Najjar 2003: 407; Finalyson et. Al 2000: 5, 9). As for Neolithic occupation there are at least 2 other PPNB sites 20 km to the west of Ghwair I and an earlier PPNA site (Wadi Feinan 16) and a Pottery Neolithic site located even closer to Ghwair I (Simmons and Najjar: 409).

Ghwair I is within the Near Eastern sub-region referred to as the Mediterranean Levant, and more specifically the southern portion of the Mediterranean Levant. The Mediterranean Levant is a highly heterogeneous and yet relatively narrow strip of land approximately 1100 km long and variably 250-350 km wide (Bar-Yosef 2002: 99). This region is further subdivided into three major sub-regions referred to as the Northern, Central and Southern Levant. The Central Levant is often lumped with the Southern Levant and referred to as the South-Central Levant (Kuijt 2000: 5). The Northern Levant includes Southeastern Anatolia, Northern Iraq and Syria, and parts of Western Iran.
Figure 1  Map of Levantine Corridor and Levantine Geography

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Likewise, the South-Central Levant includes Southern Syria, Lebanon, Jordan, historic Palestine, and the Sinai Peninsula of Egypt (Kuijt and Goring-Morris 2002).

Ghwair I lies within the Southern Levant and, depending upon exactly where one marks its southern boundary, likely on the southern fringes of the hypothetical zone known as the “Levantine Corridor” (see Figure 1 on page 27). The “Levantine Corridor” as coined in archaeological reference to the Neolithic is used to refer to an even narrower strip of land that covers a thin portion of the Levant. This corridor in reference to the ‘Neolithic Revolution’ has a north-south axis running from the Euphrates Valley in Upper Mesopotamia to the Southern Jordan Valley. On an east-west transect the Levantine Corridor covers the middle region between the coastal plain and Syro-Arabian desert. This corridor extends northward into Southeastern Anatolia, penetrating into the Taurus Mountain Range, and southward into the Wadi ‘Arabah region of Southern Jordan. Furthermore, this “Levantine Corridor” has been extremely important for the emergence and fluorescence of early farming communities leading many to hint at this region as the origin of one or more “core” areas or as the original “locus” where the Neolithic Revolution in the Near East was initiated (Bar-Yosef 1991; Bar-Yosef and Belfer-Cohen 1989; Bar-Yosef and Meadow 1995; Bar-Yosef 2001; Byrd 1994).

The Mediterranean Levant in general incorporates highly variable topographic zones. It extends from the southern portion of the hilly flanks of the Taurus-Zagros arc in Southeastern Anatolia to the Sinai Peninsula in modern day Egypt. The variable topography this strip of land encompasses includes a variable coastal plain, the Orontes-Jordan Rift valley, which is a part of the Great Rift Valley continuing into Africa, a second mountain range inland that is parallel to the one on the coast, and an eastward
Figure 2  Map of Select Pre-Pottery Neolithic B Sites in the Levant

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sloping plateau that is dissected by a number of eastward flowing wadis. These wadi’s flow from the inland mountain range toward the great Syro-Arabian desert in the east that extends eastward to Mesopotamia (Bar-Yosef 1998: 159; Bar-Yosef and Meadow 2000: 42).

The narrow strip of land referred to as the Mediterranean Levant also incorporates highly variable vegetational zones all within an extremely short transect. It encompasses Mediterranean park and woodland vegetation, Irano-Turanian shrub and steppic vegetation and the Saharo-Arabian vegetation in the eastern Syro-Arabian desert. In comparison, the Levant is approximately a third of the size of the north-west coast of North America and about a fifth of the size of New Guinea and yet has 0.0855 species per km squared, this equaling to over twice that found in Greece and California (Bar-Yosef 2001: 2; Danin 1988).

This region also encompasses highly variable climatic zones. The Levant is characterized by intense seasonality with very cold and wet winters and hot and dry summers. Furthermore, climate and amounts of precipitation are also highly variable within the Mediterranean Levant. For example, today the annual precipitation in the Anti-Lebanon Mountains can reach up to 2000 mm, while on the Israeli/Palestinian coastal plain it averages 800 mm and yet in the arid regions further south it is less than 200 mm (Bar-Mathews 1997: 155). This massive environmental heterogeneity likely played a major part in human behavior in the region in the past. This degree of environmental heterogeneity has lead many researchers to use reconstructions of the peleooenvironment to help understand the behavior of past peoples. As such an overview
of the paleoenvironment leading up to and during the Neolithic of the Near East will follow.

Paleoenvironment

In the late 19th century Raphael Pumpell postulated that environmental degradation at the close of the glacial period led to the domestication of plants around remaining inland water sources. V. Gordon Childe later expanded the ideas of environmental determinism coming up with his "Oasis hypothesis" model in reference to the agricultural revolution. Since the emergence of environmental determinism, paleoenvironmental studies have played a crucial role in archaeologists' interpretations of past human behavior; especially in reference to the transitions to agriculture (Wright 1993). Furthermore, in recent years our general understanding of the Near Eastern paleoclimate and its variability has been improved greatly due to many new studies on global climate change and its affect on environments (Bar-Matthews 1999). These include the use of fossil pollen records obtained from terrestrial and lacustrine sources, glacial retreat and advance records, ice and deep sea core data, lake level fluctuations and, most recently, high resolution studies of the oxygen and carbon isotopic composition of speleotherm growth layers from caves (Grossman and Belfer-Cohen 1999; Bar-Mathews 1997; 1999; Bar-Yosef 1998; 2001).

A synopsis of the paleoclimatic regime of the Late Pleistocene and Early Holocene of the Levantine region follows (note: both conventional years BP and calibrated or calendar years BP are occasionally used in the following section due to different sources):
~21,000 – 17,000 BP

Evidence shows that during the Last Glacial Max (LGM), beginning in the Near East somewhere around 21 k calibrated years BP and reaching its peak around 19 k calibrated years BP, the Levantine region would have been mostly cold and dry in respect to modern times. During this period the Eastern Mediterranean region would have experienced colder temperatures ranging between ~12 and 16 degrees Celsius and less annual precipitation ranging between ~300 and 450 mm (Bar-Mathews et. al 1997: 161-164). These colder and less rainy conditions would have led to a “scarcer bush type vegetation dominated by C4-type plants” (Bar-Mathews et. al 1997: 162) with a possible exception being the hilly coastal areas that may have been heavily forested (Bar-Yosef 1998: 99). There was a sharp drop in Carbon and Oxygen isotopic levels around 17 k calibrated years BP indicating the end of the Last Glacial Maximum and a considerable increase in temperatures (Bar-Mathews 1999: 90).

~17,000 to 15,000 BP

Overall, temperatures and annual precipitation would have both increased considerably during this period. Around 16.5 k calibrated years BP (~15,000 conventional years BP) there was a sudden increase in O18 and O13 levels that may be associated with a short global cooling and aridification event with the climate briefly lapsed to glacial conditions (Bar-Mathews et. al 1997: 164). After this short event temperatures were approximately 2.5 degrees greater, from 14.5 to 18.5 degrees, prevailed along with greater annual precipitation, from 375 to 540 mm, that would have provided for a lusher environment (Bar-Mathews et. al 1997: 164-165). The precipitation increase generally would have taken place over the entire region since the end of the
LGM, with exception of the short aridification event mentioned above, and more intensively at the end of this period around ~14,500 conventional years BP (Bar-Yosef 2001: 99).

~15,000 to 10,000 BP

Overall, there was likely a slight increase in temperatures during this period along with an increase in precipitation, with the exception of a few short and yet major and sudden regressions back to glacial conditions. Average precipitation during this period ranged from ~500 to 725 mm. Around 14,500 calibrated years BP (or ~13,000 conventional years BP) there was a spike in oxygen levels possibly associated with the final shrinking of certain paleolakes in the region. This spike may also be associated with the Heinrich event, which was an "abrupt global reversal toward colder glacial conditions." (Bar-Mathews et. al 1997: 164-165) Yet, these conditions would not have lasted long before the culmination of the Bolling-Allerod event. This Bolling-Allerod event represented a pluvial period that enjoyed further increase and peak of rainfall at around 13,500 calibrated years BP (or ~11,500 conventional years BP).

After the Bolling-Allerod event, another global relapse to cold and dry glacial conditions known as the Younger Dryas took place from ~11,000 to 10,000 conventional years BP (or between ~13,200 and 11,400 calibrated years BP). The ten short warm-cold cycles of the Younger Dryas, as have been detected in drops in CO2 levels, were likely dramatic shifts in climate felt around the globe. There is a great deal of evidence for aridity in the Eastern Mediterranean during this period including that from pollen data, dune migration and low lake levels (such as at Lake Lisan and Lake Teibe) (Bar-Mathews et. al 1997: 65). Interestingly, the Younger Dryas overall cold and dry event
may have had a delayed effect on vegetation and other subsistence resources in the Levant causing the environmental degradation to last slightly later than the end of the actual climatic event (Bar-Mathews 1999; Grossman and Belfer-Cohen 1999; Richerson et. al 2001). Furthermore, after the end of the Younger Dryas cold and arid event over this time span, the Eastern Mediterranean would have received large amounts of annual precipitation ranging from ~680-850 mm (Bar-Mathews et. al 1999).

-10,000 to 7,000 BP

The Early Holocene, with the exception of a few short events, from ~10,000 conventional years BP onwards experienced a highly important environmental amelioration. This period would have been characterized by a relatively warm, wet, stable and CO₂ rich environment in comparison to the previous periods mentioned above (Richerson et. al 2001: 394). Annual precipitation during this period would have reached around 675-950 mm providing wetter conditions (Bar-Mathews et. al 1997: 165). These conditions would have allowed for a lusher and more favorable environment that would have allowed early Neolithic people to more easily attain subsistence resources. As we shall see, this correlates well with the earliest evidence of plant and animal domestication and the flourishing and expansion of Neolithic villages during the Early Neolithic. This also correlates with the emergence of the PPNB settlement of Ghwair I and its flourescence.

Importantly, this environmental amelioration has an exception of at least one short event. This short event took place between ~7,200 and 7,000 conventional years BP (~8,200-8,000 calibrated or calendar years BP) when evidence suggests there was “a sudden cooling event and simultaneous decrease in rainfall intensity.” (Bar-Mathews
1999: 91; Bar-Yosef 2001: 99; Bar-Yosef 1998: 161; Richardson et. al 2001). Similar to the Younger Dryas, except not as intense, this event likely had a drastic effect on humans and their quality of life in the region and may have had a delayed effect on the vegetation of the region affecting subsistence resources longer than the event actually lasted. This event likely would have most seriously affected settlements in areas that were in more arid regions. These regions would have included the internal Syro-Arabian Desert along with the southern Jordanian Wadi ‘Arabah region where Ghwair I lies.

C) Levantine Late EpiPaleolithic and Early Neolithic Overview

Sedentism, Food Production, and Delayed Return Mechanisms

Before discussing the social mechanisms and cultural complexities of the PPNB and the chronology of their development, it is important to briefly first touch upon the processes or transitions that sparked their development. The first of these transitions has been referred to by Henry (1985; 1991) as the “preagricultural” revolution and can be traced back to the Natufian in the late Epipaleolithic. The exact cause of sedentism (or semi-sedentism) on both a worldwide scale and on the regional scale of the Near East are widely debated (see Rosenberg 1998). Rice (1975: 97) states: “sedentary settlement systems are those in which at least part of the population remains at the same location throughout the year.” The sedentary (or semi-sedentary) livelihood at many Natufian sites has been asserted mainly through the evidence of occurrences of higher frequencies of house commensals such as rats, mice and sparrows in Natufian deposits than in the deposits of previous cultural entities. Yet, there are also other lines of evidence supporting this assertion including an more intense focus on the built environment, more
evidence of burials, and limited evidence for storage (Bar-Yosef 1998; 2001; 2002; Bar-
Yosef and Meadow 1995; Belfer-Cohen and Bar-Yosef chapter 3; Byrd 1989; Tchernov
1991: 315). By the PPNB there is a great deal of evidence for sedentism as attested from
both economic and biological evidence.

There are two alternative types of explanations on why sedentism occurred. The
first, known as the pull models, speculate that sedentism was caused by humans being
attracted to rich resources within a restricted territory. In this case the “law of least
effort” would have enticed humans to extend their stay at one locale due to its proximity
to rich resources. The second set of explanations claims that humans were pushed into
sedentism through possible social and economic circumstances (Bar-Yosef 2001: 5-6),
such as would be caused by environmental change coupled with population pressures.
Whatever the exact cause, the increase in sedentary livelihood coincides with the
appearance the earliest small villages or hamlets (Bar-Yosef chapter 5: 108). This
emergence of small villages (hamlets) goes hand in hand with the emergence of
numerous elaborate social mechanisms (Bar-Yosef 2002; Belfer-Cohen 1991).

Although there is some debate as to whether sedentism is the cause or the effect, it is
often associated with more complex organizational systems, including the emergence of
numerous social mechanisms which “helped to resolve the resulting tensions imposed by
sedentism.” (Belfer-Cohen and Goring-Morris 2002: 144) Naturally with sedentism
comes overall population increase, larger community size and increasing population
density. These entail tight interaction between individuals, forcing them to share
territories or even living quarters with others who may or may not be related in some
way. This close interaction causes internal conflicts such as those both within and
among social groups and among individuals. As Belfer-Cohen (1991: 176) states, "sedentism and larger community size calls for a specific social organization." As a large number of people are forced to live in close proximity to one another, certain social mechanisms became a necessity to maintain order and to inflict a sense of group identity and community cohesion (Belfer-Cohen 1991; Bar-Yosef and Belfer-Cohen 1999).

As Bar-Yosef and Meadow (1995: 68) point out, the emergence of sedentism (or semi-sedentism) was a "threshold event...followed by another threshold event, the establishment of early farming communities." Along these lines the next major transition or threshold event setting the stage for socio-cultural complexities including elaborate social mechanisms and institutions was the incorporation of food production into the subsistence economy. Although paleobotanical evidence for domesticated plants is still controversial, many have asserted that the earliest evidence for plant domestication is found in the PPNA (Bar-Yosef 2001). Likewise, the 'Neolithic revolution' was likely initiated either by the Late Natufians or "by contemporary foragers..." (Bar-Yosef 2002: 116). Along these lines the evidence suggests that, in the Levantine Near East, the chronology of events was played out in the order of sedentism occurring first and food production occurring second.

Theories on the origins of food production are plentiful and ubiquitous and many have focused on climatic changes as a major stimulus. The Younger Dryas global climatic event that caused a short cold and dry spell in the Levant somewhere around the Pleistocene-Holocene transition, as discussed earlier, decreased the natural distribution of C3 plants (Bar-Yosef 1998; Richerdson et. al 2001). While some Late Natufian groups responded to this climatic event by increasing their mobility, other groups apparently
responded to it in a different fashion. This decline in the natural distribution and availability of resources likely stimulated certain other Natufian or contemporary groups to experiment with systematic cultivation during the Younger Dryas that possibly led to the domestication of plant resources during the PPNA (Bar-Yosef 1998).

Strong evidence of animal domestication in the Southern Levant does not become apparent until the Late PPNB. At PPNB sites in the Jordan Valley and its periphery, including Ghwair I, the faunal assemblages are dominated by goats as opposed to the gazelle dominated faunal assemblages of the Natufian and PPNA. Horowitz et. Al (1999: 69) suggests that although MPPNB goats are still morphometrically wild, lacking the diagnostic traits such as twisted horncores that are generally associated with domestication, “they are in the process of being domesticated under incipient domestication.” This suggests that, in the Levantine Near East, plant domestication preceded animal domestication.

The dependence and reliance on both domesticated floral and faunal resources increased during the Neolithic. This occurred during the entire Pre-Pottery Neolithic sequence with animal husbandry being added to the food producing repertoire in the PPNB. Further supporting this is the drastic decrease in utilization of wild resources such as gazelle from the Natufian throughout the Pre-Pottery Neolithic (Bar-Yosef 1998). The domestication of certain plant resources and the incorporation of food production into the subsistence economy correlates with a further increase in both community size and evidence for more complex organizational systems for a number of reasons.

This increasing dependence on food production in the Early Neolithic is also characterized by the increasing evidence of delayed return systems requiring the use of
storage. Simple hunting and gathering/foraging economies attain immediate returns in which “people obtain a direct and immediate return from their labour. They go out hunting and gathering and eat the food obtained the same day or casually over the days that follow.” (Woodburn 1982: 432). Furthermore, in immediate return systems characteristic of simple hunter-gatherers food is generally not elaborately processed or stored. Also, “relatively simple, portable, utilitarian, easily acquired, replaceable tools...not involving a great deal of labor” are used for acquiring subsistence resources in immediate return systems (Woodburn 1982: 432). Such simple hunting and gathering societies employing immediate return systems generally have an egalitarian form of social organization. However, it is important to note that there are socially complex hunter-gatherers who do not employ an unranked, egalitarian form of social organization. Yet, as Woodburn (1982:432) states “It is noteworthy that although very many societies are in some sense egalitarian, those in which inequalities are at their minimum depend on hunting and gathering for their subsistence.”

In contrast to immediate return systems, delayed return systems “have basic implications for social relationships and social grouping: they depend for their effective operation on a set of ordered, differentiated, jurally defined relationships through which crucial goods and services are transmitted.” (Woodburn 1982: 433) Importantly, all food production systems, except those based on wage or slave labour, are delayed return systems for the individuals involved in the work. This is basically because “the yield on the labor” invested in crops and/or domestic animal herding “is only obtained months or years later.” (Woodburn 1982: 433)
Economies employing food production also generally harvest at certain intervals of the year and are forced to store harvested resources to be consumed during periods of shortage between harvests (Henry 1985; 1991; Wills 1995). Likewise, delayed return systems employing storage require certain control over the stored resources in order to maintain balance between individuals and groups within communities. Furthermore, farming beckons the mechanized control of production, storage, and distribution that requires more formal social mechanisms. In this very way the economic transitions from hunting and gathering to farming results in more institutionalization and centralization of power in order to properly enforce social rules and the new form of social order (Belfer-Cohen and Goring-Morris 2002; Bar-Yosef and Belfer-Cohen 1991; Bar-Yosef and Meadow 1995).

The employment of delayed return systems leads to a number of major changes. These include the breakdown of the egalitarian based social structure common in simple hunting and gathering societies and the implementation of more formal and apparent social heterogeneity and inequality that is common among complex large scale agricultural communities. Likewise, societies of increasing complexity did not begin arising until after the introduction of agriculture, pointing at the importance of this event for socio-cultural evolution (Carneiro 1978). As Bar-Yosef and Belfer Cohen (1991: 181) point out, the social changes stemming from the two "critical thresholds" or events of sedentism and food production were "'points of no return' for the Levant" and are clearly expressed in a number of ways. These include changes in "...site size, intersite variability and content, and in the presence of sacred locations outside the domestic"
habitation areas.” These changes are important and how they are expressed through the archaeological record will be discussed next.

Site Size

Site size is important as it is often an indicator of population size and many have used population size as an indicator of social complexity (Hole 2000; Kosse 1994). Yet, as Hole (2000: 194) explains, site size is not always an accurate indicator of population size or social complexity as there are many reasons why a site may have been or appears to have been large that can be misleading. Keeping this in mind, a major result of the two major transitions in livelihood is a considerable increase in site size and many have attributed this to an increase in community/population size.

As Bar-Yosef and Belfer-Cohen (1989a: 61) point out, site size is determined by “the environmental potential for a stable subsistence system...” and on “the degree of reliance on cultivation as the primary food resource.” Thus, it is not surprising that both demography and community size from the earliest evidence of intensive building in the Early Natufian into and through the PPNB increase in the core Mediterranean zone. The five largest Late Natufian sites are each approximately 0.2 hectares in size, likely consisting of somewhere around 50 people. By contrast, PPNA communities averaged around 1 hectare in size and likely consisted of over 300 people; by the Middle PPNB communities averaged somewhere around 3 hectares in size and accommodated somewhere over 700 people (Kuijt 2000: 85; Byrd 2000). This increase in site size is also mirrored by an increase in the number and size of domestic and non-domestic structures, as will be further discussed, at sites over this time span. With the initial onset
of sedentism and then the incorporation of food production, we see major, almost exponential, increase in site and community size; this beckoned the development of and elaboration of regular social mechanisms in order to cope with, among other things, major demographic changes (Byrd 1994).

Many, such as Rollefson (1987: 31) have used site size as an indicator of religious/population centers claiming larger sites to be regional central focal points. As Hole (2000:194) explains, this may lead one to assume that smaller sites would be less complex, although there is abundant ethnographic evidence showing that “even very small communities may hold the kinds of special structures that commonly imply specialization and social complexity.” The modestly sized PPNB village of Ghwair I has special structures and evidence of social complexity that might be expected from a larger village. This complexity and its relationship to Ghwair’s site and population size will be further investigated in Chapter 6.

Ritual and Symbolism

There was an “explosion of symbolism” throughout the late Epipaleolithic and Early Neolithic time span that reaches what could be considered a pinnacle during the PPNB (Cauvin 2000). As insinuated earlier, the PPNB is the time period during which Early Neolithic village communities “were at their height” and the growth of existing village communities and the “budding-off” of new ones are more apparent and pronounced than previously. Furthermore, the PPNB is the period during which agriculture spread widely throughout the fertile regions of the Levant by colonization and adoption by indigenous hunter-gatherers (Bar-Yosef and Belfer-Cohen 1989: 59, 62; Byrd 1992; 1994).
Numerous indicators of well developed social mechanisms and cultural complexities are found during the PPNB coinciding with the evidence of food production. These include elaborate ritual buildings occasionally referred to as temples or shrines, statues, masks, wall and floor paintings and frescoes, elaborate incised stones and bones, all sorts of caches, horns found in symbolic or ritualistic contexts, decorated and deformed human skulls, elaborate and highly variable mortuary practices, human and animal figurines, and other symbolic human-animal associations (Cauvin 2000; Verhoeven 2002; Rollefson 1983; 1986; 1997; 1998).

Ritual and symbolism are undoubtedly intertwined and ritual behavior has often been viewed as “a framework in which people and communities define and modify social relationships.” Along these same lines social mechanisms and organization are established, upheld, modified and transformed through the symbolic and ritualistic realms. Furthermore, as Belfer-Cohen and Goring-Morris (2002: 144) state “there is a wide-ranging consensus that the search for these (social) mechanisms should be focused in particular on the ritual and symbolic aspects of the archaeological record.” Ritual can be used to uphold and/or breakdown egalitarian social systems, as a social mechanism to level inequalities, and to “maintain or increase” community cohesion (Kuijt 2000: 137; 1996: 313).

Ritual framing is viewed as the way in which people, activities and/or objects are all distinguished from the domestic. Likewise, the framing and distinguishing of the symbolic/ritualistic becomes tighter, more common, more elaborate and more easily recognizable over this time span becoming especially apparent in the PPNB (Verhoeven 2002; Goring-Morris and Belfer-Cohen 2002). This is indicated through a number of
lines of evidence used to detect or interpolate social organization in which symbolism and ritual are undoubtedly embedded. These include site size and settlement patterns, architecture, mortuary practices, artifact distribution, art including cultic objects, and long distance exchange networks. These lines of evidence are a reflection of the prevailing social order and through them and the symbolism and ritual embedded in them social organization can be better understood (Bar-Yosef and Belfer-Cohen 1989, Kuijt 2000).

As the research in this thesis aims to corroborate, the development of each of the social mechanisms and complexities of the PPNB has its origins in the two fundamental processes of sedentism and food production. As these processes developed and as societies became increasingly more sedentary and more dependent on food production from the Natufian to the PPNB, social mechanisms became more apparent and detectable in the archaeological record. In these regards it is important to keep in mind that these mechanisms and the symbolic evidence for their emergence did not magically appear in the Neolithic but instead developed over a significant time span. As Goring-Morris and Belfer-Cohen (2002:67) state “…many, if not most, of the dominant themes of the Pre-Pottery Neolithic symbolic world actually represent the culmination of earlier shamanistic Paleolithic belief systems.” Thus, it is important to draw upon the evidence of these mechanisms from the Late Epipaleolithic as well as the early Neolithic when discussing their development.

Mortuary Practices

Hayden (1990; 1995) has stated that it is simply at the level of the individual that social differentiation first emerged leading to the promotion of differentiation between
groups. Mortuary practices as a reflection of social organization can express specific beliefs and world paradigms or views through rich symbolic expression and are an important ritual for social differentiation at the individual level (Kuijt 2000). With population increases and close interaction between people becoming common with the onset of a sedentary livelihood, centralization and ranking as social mechanisms became important in order to coordinate activities of the group and restrict hostility between subgroups or factions in attempt to maintain some type of social order (Wright 1978: 218). Wright (1978) originally proposed the multiple burials of the Early Natufian layers of El-Wad to be indicative of the presence of a non-egalitarian social structure and ranking within Natufian society. At El-Wad, Wright found the presence of Dentalium shells to occur only in certain group burials. Furthermore, among the group burials in which dentalium shells were found the shells were usually only associated with one member of each group. This observation led Wright to conclude that these shells were “directly related to a specific status position with the subgroup.” The presence of these shells only within certain groups also indicated to Wright that this specific high status ranked position was restricted to only this local social group or faction within the society. Overall, Wright interpreted this as indicating a large amount social differentiation in the Early Natufian and data from other Early Natufian sites such as Erq-al Ahmar and Hayonim were further cited as supporting this (Wright 1978: 215-219).

Henry (1989) further used Wright’s interpretation among other evidence to propose that the Natufian cultural complex was organized into a chiefdom form of social organization. More recently, Byrd and Monahan (1995) have argued against hereditary social inequality during the Early Natufian and see the differences between group burials
as "group markers" for social relations instead of evidence of social differentiation. Furthermore, Belfer-Cohen (1995) claims that the common occurrence of dentalium shells at sites in the Late Natufian even after burial decoration ceased proves that they were not of any type of special significance and that there is no evidence of social differentiation in the Natufian. As Flannery (1994) points out in reference to Henry's and Wright's views of possible social inequality and a chiefdom form of social structure in the Natufian "...cooler heads have since prevailed." The issue is still up for debate and many argue that some type of social differentiation on some level likely developed during the Natufian, laying the foundation for which greater social differentiation could be built upon throughout the Neolithic.

One tradition that became extremely important during the Neolithic relating to displays of social differentiation was the post-mortem removal of the cranium and the burying of the skull separately from the skeleton. This tradition has its origins in the Natufian, being observed at such sites as Erq el-Ahmar, Ain Mallaha, Hayonim cave and Terrace and Ain el-Saratan (Goring-Morris 2000: 107, 124; Belfer-Cohen 1988; 1991). In the Early Natufian layers of Erq el-Ahmar six individuals represented by only their crania were found in a single feature illustrating a pattern of collective post-mortem removal, use, and caching "of skulls from marked graves as part of a secondary mortuary practice." (Kuijt 1996: 324). The isolated crushed skull of a child was also found at Natufian Hayonim cave and a detached skull was found on a floor facing a hearth at Natufian Ain Mallaha (Bienert 1991: 9).

These secondary burials and the separate burial of skulls become increasingly common in the PPNA such as at Jericho in the Jordan Valley and Tell Mureybet and Jerf...
Al Ahmar on the Northern Euphrates in Syria. At PPNA Jericho, groups of skulls were commonly found arranged in a circle facing the center in some cases and arranged in three rows all facing the same direction in another case. Also, what have been termed as “foundation sacrifices”, where skulls are found under the foundation of buildings and near the junction of a wall and the floor, are common at PPNA Jericho and Tell Mureyebet (Bienert 1991: 9-10) Another interesting association between mortuary practices and architecture occurs at PPNA Jericho where at some time the passage/stairway leading to the top of the famous tower was abandoned and a dozen complete skeletons were buried inside this passageway and sealed off marking possible ritual “dedicatory caches” (Kuijt and Goring-Morris 2002: 378). Kuijt (1996: 324) claims that these burials represent a “stark contrast to the common mortuary practices” at PPNA Jericho and must have been due to “some unusual circumstance.” Furthermore the burial of these individuals within the tower may have served the same purpose and “symbolized the same beliefs” as cranial removal and may have “symbolically replaced the need for actual cranial removal” rendering it unnecessary. (Kuijt 1996: 325).

By the time of the PPNB, highly variable and exclusionary mortuary practices are employed which were used to “symbolically and physically differentiate some individuals and houses over others.” This means that by the PPNB certain mortuary practices were used not only to distinguish individuals but also to distinguish social groups from each other at the family or possibly larger scale. These exclusionary mortuary practices serve as strong supporting evidence of social differentiation during the PPNB (Goring-Morris 2000; Kuijt 2000: 142). The “cult of the ancestors” or ‘skull cult’ as it has often been referred to serves as a prime example of the differential mortuary
practices of the PPNB. This cult involves the widespread employment of variable mortuary practices including the burying of isolated skulls lacking mandibles, isolated skulls with the mandible and often parts of the cervical vertebrae attached, skulls with long bones and, most importantly, the ritual use and burial of plastered or decoratebd skulls without the mandible or cervical vertebrae attached (Bienert 1991:19).

The secondary removal of the cranium of the deceased and the use of the crania for certain special symbolic/ritual purposes has been observed in the PPNB throughout the Levant, Central and Southeastern Anatolia, and the Northern Zagros range. The widespread distribution of this tradition, occurring as far north as Nevali Cori in Southeastern Anatolia and Qermez Dere in Northeastern Iraq and as far south as Nahal Hemar south of the Dead Sea, points at some sort of homogeneity of religious traditions, institutions and ideology (Akkermans and Schwartz 2003: 91; Bienert 1991). In certain cases the decoration of these crania with red ochre, plaster, bitumen, azurite, malachite, cowrie and bivalve shells occurs and this serves to distinguish certain individuals from others. Frequently these skulls, decorated or not, have been found in caches which are often associated with physical structures or the built environment. Young children have also often been accorded with postmortem skull decapitation, likely indicating ascribed status and ‘Ain Ghazal is a prime example of this with children from 15 to 18 months of age being accorded with this tradition (Akkermans and Schwartz 2003: 92; Rollefson 2000: 171). As Flannery (1972: 402) points out, “The rise of multigenerational descent lines can be seen in some prehistoric Near Eastern villages, where ancestors’ skulls were saved and their features reconstructed or where their secondarily-reburied skeletons were stored under the floors of their descendants’ houses.” In such regards these mortuary
practices may be confirming evidence of a greater concentration and awareness of hereditary lineage in the Late Epipaleolithic and Early Neolithic of the Near East.

This skull cult most likely focused on the "veneration of semimythical heroes" and likely in general is a reflection of ascribed status. Likewise, at some MPPNB sites such as Kfar Hahoresh (a very unusual site for the MPPNB) certain individuals were also singled out for more elaborate treatment of their skulls such as facial modeling with plaster which likely reflects some type of attained status (Goring-Morris 2000: 114). The context of certain of these modeled or decorated skulls also suggests that they may have been put “on exhibit” for display and were likely associated with public and/or private rituals. It is also of interest that many of skulls identified with skull deformations came from skull caches. This skull deformation may have served to select and treat differently these individuals during life while subsequently also distinguishing these individuals through the cranial removal, decoration and caching in death (Kuijt 2000: 157).

Skull caches may have represented relationships between numerous households and may have served to promote cohesion between households serving to lessen tensions within communities (Kuijt 1996). These mortuary practices were probably communal acts involving entire communities in ceremonial contexts as Akkermans and Schwarts (2003: 96) state, “…the practice of reburial and the considerable symbolic behavior associated with it was probably not an individual act but involved the entire community.” Furthermore such mortuary rituals likely were used by those carrying out or initiating the burial for their own personal status benefit or to “enhance their position within the community..”. (Akkermans and Schwartz 2003:
are correct in this assertion then this also serves as some of the earliest evidence for the use of ritual and ideology for personal status benefit.

A number of unusual MPPNB sites display that during the MPPNB numerous sites may have functioned as primarily ritual and cultic centers. Sites such as Kfar Hahoresh were used as burial grounds likely being visited by kin from surrounding areas on a periodic basis. The contention being human remains are “generally quite rare, certainly in comparison to their (site) size and duration” during the Pre-Pottery Neolithic of the Southern Levant suggests that such mortuary sites/burial grounds became highly important (Goring-Morris 2000: 116). MPPNB Kfar Hahoresh also has other signs of strong ritualistic association such as the evidence of communal feasting there, certain funerary structures that were purposely built over burials to mark their place, and the association of numerous animal carcasses with human burials. All of this indicates a “fluorescence of ritual and ceremonial aspects of material culture” during the PPNB (Goring-Morris 2000: 106). Sometimes abandoned structures also may have been used as burial grounds such as at the MPPNB sites of Yiftahel and Beidha, although most times burials were placed in the floor of houses. Sometimes plaster in the floor of houses was even removed in order to dig a subfloor burial pit for the placement of the dead. Numerous authors regard the skull cult and the use of sites as depositories as an association between ancestor worship, sedentism and land ownership. As shown, these changes in ideology and social structure begin emerging in the Natufian and become more magnified throughout the Neolithic and especially in the PPNB (Bienert 1991: 20).
Art and Ritualistic/Cultic Artifacts

The increase or intensification of art has often been viewed as another important social mechanism. As Belfer-Cohen and Bar-Yosef (2000:25) state: “intensive artistic activity can be regarded as a means of relieving scalar stress caused by intensive social interactions, which a sedentary mode of living entails.” Examples of art in the Natufian such as carvings on bone sickle shafts and figurines of young undulates, dogs, owls, and other animals are common as well as worked shells. Natufian art is dominated by animal motifs including body decorations and burial ornaments such as animal bones and teeth and shells. Some of these objects were likely cultic in origin including elaborate necklaces made of shell and animal teeth and tend to be primarily zoomorphic.

Human figurines shaped from limestone and clay were more commonly used in the PPNA than in the earlier Natufian and often depicted standing or kneeling females and concentrate on the female and female sexual characteristics that become even more common in the PPNB (Bar-Yosef 2002; Wright 2000: 98; Cauvin 2000: 27-30). This ‘mother goddess’ symbol became much more common and explicit in its display of sexual characteristics throughout the Neolithic and into the PPNB. Cauvin (2000) attributes the spread of this symbol among others to a ‘revolution of symbols’ claiming that it was a driving force behind the Neolithic revolution.

Often, human figurines of the PPNB are missing their heads as Rollefson (1986: 47) states in reference to a figurine found in the MPPNB levels of ‘Ain Ghazal “The head appears to have been mutilated in antiquity, paralleling the treatment of other human figurines” of the Levantine PPNB. These headless figurines are interesting as they seem to parallel the tradition of post-mortem cranial removal which becomes so common in the
PPNB, which may reflect the ritual death of the figurine at the death of its owner. So-called "fertility figurines" or mother goddesses are also common in the MPPNB and Rollefson (2000: 167-168) proposes that they may have served a ritualistic/magic role of serving as "symbolic guardians" of pregnant mothers as they approached the dangerous time of full term.

Cow figurines also become very common during the PPNB, likely serving a very important ritual role. At MPPNB Ain Ghazal approximately 90% of the identifiable figurines recovered were of cows including a cache of 23 cow figurines and yet none of the cattle bones recovered showed any clear morphological indications of domestication. Furthermore, a few of these cattle figurines "bore thread impressions around the neck" which may be a display of some sort of taming process. Some of these cattle figurines were perhaps even ritually killed with flint bladelettes before the clay dried, and this further indicates a ritual or magic purpose of these figurines (Rollefson 2000: 167). This further indicates the important ceremonial nature of cows during this period and has been connected to what has come to be known as the "Bull cult" of the PPNB which is also widespread across the Near East. Cauvin (2000) stresses the quick spread of the mother Goddess symbol (female sex theme) and the Bull cult across nearly the entire Near East and uses the PPNB site of Catalhoyuk in central Anatolia as an example of this where representations of both symbols are ubiquitous and often intertwined (ex/ the mother goddess giving birth to Bulls). As a driving force behind the Neolithic revolution or not, all of these artistic/cultic ritual objects indicate an increase in evidence of religion as another emergent social mechanism during this time period.
Other interesting art and cultic objects begin appearing during this segment of time that may have had ritualistic uses. At the Late Natufian sites of Nahal Oren and Hayonim Terrace certain objects referred to as “Stone Pipes” were found. These objects were apparently used to mark graves and yet Bar-Yosef (2001: 14) claims that they may have been used as a “means for communicating with the dead” (Bar-Yosef 2001:14; Bar-Yosef 1998; Belfer-Cohen 1988: 297). Emerging during the PPNB are certain interesting objects also present at Ghwair I referred to as “game boards”. The first of these gameboards was recovered during Kirkbride’s excavations at PPNB Beidha nearby Ghwair I. They are generally limestone “subrectangular slabs” with two rows of a number of circular depressions that were seemingly created by pecking. Within the last 20 years or so a number of these objects from the Neolithic and later periods have been recovered and a number of similar gameboards were recovered from the great Egyptian and Mesopotamian civilizations. Modern examples of similar gameboards exist in the Arab world today with the game being referred to as mancala (Anon 1990; Grunfeld 1975). Rollefson (1992: 1) claims that these objects verify that “Neolithic people had leisure time to win or lose at games of chance or skill…” Alternatively, other explanations have emerged for the use of these “gameboards” during the Near Eastern Neolithic including one by Goring-Morris and Belfer-Cohen (2002: 72) claiming that these devices “could represent divination or fatidic devices, especially since there is a later long history of divination in the Near East.”

The finding of caches of cultic objects and paraphernalia at PPNB sites is further evidence of well established and organized religious institutions during the Middle PPNB with certain “distinguished members of the community who served the cult.” (Bar-Yosef
and Belfer-Cohen 1989: 63). These cultic objects also include anthropomorphic statues at about half life size from MPPNB Jericho and ‘Ain Ghazal. These statues were likely widely used at other PPNB sites as well only waiting upon discovery. At MPPNB Tell Ramad headless clay statuettes were found in association with at least a dozen plastered and ochre painted skulls (Bienert 1991:15). According to Bienert (1991:15), the statuettes had “abnormally thick” necks and they may have been used as some sort of support for placing skulls removed during secondary burials in order to place the skulls on display. Similar practices are well known from ethnographic studies and putting such cultic objects on display further verifies how well developed certain religious institutions were by the PPNB (Bienert 1991:15). Art and cultic objects and their relationship to the architecture at Ghwair I will be investigated in Chapter 6.

As shown above the social and cultural complexities of the PPNB developed throughout the Pre-Pottery Neolithic and even the Epipaleolithic. The emerging social mechanisms became necessary with the onset of sedentism and delayed return systems involving food production and storage in order to establish order and avoid anarchy within early farming communities. Now that we have provided a background to the social and cultural setting of the PPNB and its development, we will next outline a background on the methods by which social structure is reconstructed through architecture and an overview of the architecture during this segment of time.
CHAPTER 4

ARCHITECTURE AND SOCIAL RECONSTRUCTIONS

A) Theoretical Framework

The built environment generally refers to the "products of human building activity" that includes any type of "physical alteration of the natural environment". This includes the act of building that may serve a number of functions including economic, domestic, public, and religious/ritual (Lawrence and Low 1990). As Adams (1989: 47) explains, the most common basis for classification of forms of the built environment is function such as residential, religious, public, storage, work and other types of constructions. Furthermore, the built environment not only includes structures or architectural features that have been constructed but also spaces or areas that have been created or formed by the intentionally planned and utilized layout of a community.

Aspects of the built environment and specifically architecture have long been a tool used by scholars to investigate social processes. Lewis Henry Morgan was the first anthropologist to recognize that architecture has social implications and to use it to get at certain aspects of societies (Adams 1982: 49). As Rathje and Schiffer (1982: 65) explain, since architecture and built structures are visible and serve as a center of attention they tend to serve as a medium for symbolic, ideological, political and social expressions. Furthermore, the built environment is a reflection of social processes taking place within
a society and is used to "communicate and assert status, power, roles, ect." (Giddens 1984; Rapoport 1990: 11). In similar regards, Foucault (1977: 170-177; 1982: 239-256) points out that the built environment is a highly integral and crucial realm where struggles for social power take place. In these regards the built environment can be seen as a stage used for the manipulation and transfer of authority. The study of the built environment therefore is highly useful for understanding social structures and processes of change in the presiding social order.

The relationship between society, culture and the built environment is interactive "...in that people both create, and find their behavior influence by, the built environment." (Lawrence and Low 1990: 454). Furthermore, the built environment is based on certain culturally set criteria including a "value-based learned code of behavior." This code is embedded and emphasized through the built environment expressing certain "institutionalized norms" (King 1976: 384). The built environment establishes these institutionalized norms by sending off certain cues to individuals. These cues are meant to convey the rules and appropriate behavior in the setting and give off meaningful hints that, if interpreted correctly, remind individuals of how to act in that setting (Rapoport 1990). Yet, usual everyday activities may not require many or any cues while rarer and more important activities such as those related to ritual activity likely require more cues. Furthermore, these cues are likely more obvious and detectable in settings (or structures) closely related to ritual activity due to a greater need to institutionalize or control behavior in such settings (Rapoport 1990).

In these regards the built environment is a "behavior setting" or a "setting for human activities" that is designed to support and guide certain desired behaviors. Along these
same lines the built environment is designed to enhance and accommodate certain behaviors, activities and lifestyles and make them easier to act out while inhibiting and preventing certain other behaviors, activities or lifestyles that are undesirable to the designer(s). (Rapoport 1976; 1990: 11; Lawrence and Low 1990)

Interestingly, as Rapoport (1990) points out, the degree of cues apparent in a community is also dependent on the degree of sociopolitical complexity of the community. This would mean that there is a positive correlation between complexity and the cues meant to direct behavior, meaning that as societies become more complex there is also more of an institutionalized attempt to control behavior. Rapoport (1990: 18) points this out by claiming that “…for any given activity one can predict that the differentiation among settings, and the redundancy of the cues in them, will go up as one moves from small, traditional societies to large, complex heterogeneous one.” This means, in Rapoport’s (1990: 18) own words that “as scale, size, complexity, and heterogeneity of a society go up, more cues as well as stronger cues are needed to communicate effectively.” It is also suggested that specialized settings that are set aside for specific situations and sets of activities become more apparent and more common through their cues the more socially complex a community is (Rapoport 1990: 17).

King (1976) discusses a model of equilibrium between humans and their built environment. According to this model human settlement is a cultural product that is a relatively “harmonious, interacting system of parts.” According to King (1976: 366), the built environment sets certain expectations that are mirrored and legitimized by “…the prevailing world view and value system.” In these regards there is a great deal of symbolism embedded in the built environment. Furthermore, there is a balance between
humans and their built environment that is achieved through certain returns they receive from this environment. Likewise, when the built environment no longer serves to meet these expected returns then this equilibrium is no longer in order and a situation develops that King (1976:355) refers to as “breakdown”. Breakdown in this equilibrium results in a “dissatisfaction with space-related activities” and this dissatisfaction may lead to a number of different courses of action including remodeling or changing the built environment to regain equilibrium (McCoughlin 1970; King 1976).

Likewise, trends in changing architecture also have implications for changes in social structure. In these regards humans change or adapt their built environment to conform to “their behavioral needs or functional requirements.” Thus, when the built environment no longer fulfills these needs people “…seek to correct the problem through construction, renovation, or moving to a different building.” (Lawrence and Low 1990:460). In these regards changes in building form or settlement plan correspond to changes in behavior, functional needs and/or changes in the physical environment. Likewise, an increase in cues meant to direct behavior would indicate an increasing need and/or intent to control the behavior of a society.

There are a number of internal social changes or emergent needs at both the community and household level that may entice humans to change their built environment. As King (1976: 373) exemplifies, a family may need to accommodate grandparents. The possible solutions to such a situation include locational solutions such as moving houses, development solutions such as adding onto the current house by building an extra room, or behavioral solutions such as rescheduling activities to accommodate the new members of the household. Annual rebuilding activities give
individuals the ability to make adjustments to changes in social organization at the household level (Goody 1971). Aspects of domestic structures such as size of the structures, organization of their interior, spatial relations with exterior areas and the symbolism embedded within these structures can be used to interpret household and family size, structure, organization, and degree of autonomy.

Kent (1990) discusses a cross-cultural study of the architecture of a number of different societies with different levels of socio-political complexity. In her study, Kent divides the societies into five different categories of sociopolitical complexity based on a number of key social attributes. From the study a consistent and reliable pattern emerges that displays that as specialization, hierarchies and stratification increase “...the frequency of functionally restricted activity loci and partitioned architecture...” also increases. Specifically, Kent (1990: 148) claims that there is “...an intimate and predictable interrelationship between how groups organize their built environment and how they organize their use of space within that built environment. This interrelationship seems to be one of space use conditioning architectural partitioning and features.” This corroborates the relationship on a global and cross-cultural scale between the degree of social complexity and the degree of compartmentalization or partitioning of architecture. Lawrence and Low (1990: 462) also point this out by stating that “increasing social complexity in the form of specialization and stratification is expressed in the increased partitioning and monofunctional uses of spaces in built forms.” Thus, one way to detect archaeologically an increase in social complexity is to detect increasing internal partitioning and segmentation of architecture, or an increase in compartmentalization.
Another signal of increasing social complexity would be increasing evidence of functionally restricted activity loci or monofunctional areas in the community.

An increase in energy investment in large community-scale construction events may be indicative of increasing attempts at community integration and success in organizing large groups that would be needed for such events (Abrams 1989). As Byrd (1994: 644) states in reference to public structures or areas used for group gatherings or ritual events, “Increases in the size and structural elaboration of these public buildings or spaces over time (indicating greater energy investment), imply the growing importance of political institutions related to community regulatory mechanisms.” In other words, increasing evidence of energy investment in public ritual structures or areas indicates increasing socio-political authority and centralization thereof needed to coordinate and regulate interactions within the community.

Moore (1996: 4) ties public buildings or areas to personal benefit motives of individuals or groups within a community. He (1996: 4) also points out that, “Public architecture also may be used, in a very tangible way, as stages on which social dramas occur...“ and that such public areas are”...physical testimonies to the use of power.” In these regards, public or communal structures are useful in the interpretation of social structure and changes in social order at the community level as they are generally associated with communal ritual. This communal ritual may be used to reinforce the community social order or change the existing structure in order to benefit individuals or groups within the community (Hodder 1990). As will be discussed in more depth further on, this communal ritual may possibly be controlled by elites, such as a religious
authority, who may wield a great deal of power and influence over the community as a whole (Flannery 1972: 2000; 2002; Naveh 2003; Johnson and Earle 2000; Kuijt 1994).

Despite the close relations between architecture and social order we must keep in mind that people will also modify their behavior to conform to the limitations of the physical environment. Some examples of changes in the physical environment that would place certain limitations on humans and force them to modify their built environment include natural disasters such as a flood, earthquake, or major climatic changes. These external changes may even cause abandonment of settlements if the natural disaster renders the location uninhabitable with the technology available. Thus, changes in the built environment may also correspond to physical and environmental instead of social changes that may place limitations on human behavior.

B) Levantine Late Epi-Paleolithic and Early Neolithic Architecture

Domestic Structure

The structures of Epi-Paleolithic entities preceding the Natufian include what are described as rare simple pit houses. No structures dedicated to ritual or communal usage are known from this period (Bar-Yosef 1998; 2001). With the onset of sedentism (or semi-sedentism) we observe the first evidence of a cultural entity in the prehistoric Levant, the Natufian, for which durable architectural remains have been found. These durable architectural remains indicate intensive building and the start of a trend leading to the greatly intensified focus on the built environment during the Neolithic.

The domestic structures in the Natufian and the PPNA are similar in size and shape and both periods are considerably richer in both non-domestic and domestic structures.
than those seen in the preceding Epipaleolithic (Bar-Yosef 1998; 2001). Natufian and PPNA domestic structures tend to be round or oval often referred to as curvilinear, semi-subterranean dwellings (Bar-Yosef 1998; Belfer-Cohen 1991). The bases of the Natufian dwellings or “pit-houses”, as they have been referred to, generally have a foundation of undressed stone, usually uncut limestone slabs, with a not so solid upper structure of some sort of perishable material such as brush or wood (Bar-Yosef 1998; Belfer-Cohen 1991). PPNA structures, on the other hand, tend to be similar except that they often employ more mud-brick and plaster than Natufian domestic structures do. Domestic structures from both the Natufian and the PPNA range from approximately 3 to 6 meters in diameter and are characterized by a square or circular hearth.

Watkins (1990) sees a major difference in the symbolic aspects in the way people viewed and used the domestic structure from the Natufian to the PPNA despite the apparent similarities in size, shape, and internal subdivision of the structures from the two periods. Watkins (1990: 343-344) cites the finding of six crania of individuals of various ages in a PPNA level of one of the houses at Qermez Dere to support the idea that “the contrast in the use of buildings between the Epipaleolithic and the Neolithic becomes stark.” The PPNA site of Netiv Hagdud in the Jordan Valley also displays certain symbolic elements within domestic structures and Watkins (1990: 337, 342-343) uses this to further support his assertion that in the early Neolithic there was a change in the way people viewed the purpose of domestic structures.

According to Watkins, in the Epipaleolithic domestic structures were viewed as purely utilitarian and primarily as a place of shelter while in the PPNA domestic structures were starting to be viewed as “...the house as a home, the center of the family
and the focus for the representation of appropriate symbolic values.” This has major implications for the use of domestic structures as in the PPNB domestic structures become strongly associated with symbolic elements. As discussed earlier these symbolic elements include figurines, statues, burials, skulls and frescoes. In these regards, the earliest appearance of symbolic values in domestic structures have been detected in the PPNA and are highly elaborated upon and exemplified in the PPNB, as will be further shown below.

Flannery (1972; 2002) uses ethnographic analogies of round or circular dwelling structures in “hamlets” or small villages from African contexts to make inferences about Epipaleolithic and Pre-Pottery Neolithic social structure. In his analysis Flannery recognizes two distinctly different types of societies of the Natufian and Pre-pottery Neolithic Levant. He uses modern day round or circular dwelling structures of approximately the same size as those from Natufian/PPNA contexts to interpret Natufian/PPNA familial and household social structure. From his ethnographic analogy, Flannery (1972) claims that the huts from both the Natufian and PPNA were likely used to “house only one, or at most two, persons.” Accordingly each man likely would have had his own hut and women may have been expected to have their own hut after the birth of their first child. The largest huts from the African example had a diameter of approximately 5 meters, yet they were still occupied by only one man albeit sometimes with a wife and possibly an animal or even one child. This slight variation in population per hut may be the reason for variation in sizes of huts with the slightly larger huts meant to accommodate a small nuclear family such as mentioned above and the slightly smaller huts meant to accommodate only an individual (Flannery 1972).
Flannery (1972; 1993: 110) claims that in such societies there may be some sort of compound head or elder of the community and such communities are likely a "commune of kinsmen." As far as community organization, Flannery (1972) claims that these Natufian/PPNA compounds are possibly arranged in a circular manner while Olszewski (1991) claims that they are also often arranged in a linear manner; both claim these hamlets include a large open communal area associated with the huts, possibly in the middle of them, where numerous domestic and possibly ritual activities would have taken place. Finally, Flannery (1972; 2002) claims that the Natufian and PPNA compounds could be composed of related polygynous males with only a few females.

Flannery (1972; 2002) describes two distinct types of societies observable from the Natufian to the PPNB. The first of these societies entails a social structure analogous to that which likely existed in the Natufian/PPNA case. In these societies storage is generally shared (Flannery 2002: 421). The second of these societies will be further discussed later. The communal storage common among the first type of these societies, as observed among the PPNA and Natufian, is important as it indicates sharing of food within the community. This sharing of food has implications for the incentives for production intensification and the accumulation of wealth. As Flannery (2002: 421) states: "widespread pooling and sharing of food ensures that risk and reward are accepted by the group as a whole." In such societies "There is little incentive to intensify production ... since whatever is produced is shared." Also, in such societies it would be easy to cheat by not putting in an honest effort into production while still having complete access to the same amount of food resources as every other individual within
the society since the storage of resources is communal and shared by the entire community.

The layout plan of PPNB domestic structures tend to be different than those from the Natufian/PPNA. Sites in the more arid desert zones sometimes continue to employ the round or curvilinear shape while in the core Mediterranean zone the curvilinear shape is usually eventually replaced by square or rectangular dwellings in the PPNB. There are a few different general types of rectangular architectural plans in the PPNB and some of these (especially in the Late PPNB) likely employed numerous story structures with a great deal of internal subdivisions. The most common PPNB domestic structure of the southern Levant is known as the "pier house" that has a layout generally consisting of a large rectangle with one entrance on one side with wooden posts or brick piers supporting the roof. These structures contain a central hearth generally located in the largest room of the structure usually at the end of the house opposite of the entranceway. Sometimes these houses have a raised floor and are described as subtractive in the sense that "differential space was generally created by internal subdivision...rather than by attaching elements to the outside." (Byrd and Banning 1988: 66). Each house was a "self-contained unit" with even closely spaced houses usually employing a narrow alley of some type between them. Although there is a great deal of similarity in these "pier houses" across the Southern Levant there is a great deal of "individual variation" within the broad outlines of this standard house form from site to site (Banning and Byrd 1987: 310).

According to Cauvin (2000), the earliest manifestation of the rectangular architecture typical of the PPNB is found in the Northern Levant and Southeastern Anatolia. Cauvin
(2000: 41) claims that the end of the Mureybetian (PPNA phase IIIB) at Mureybet and at Sheikh Hassan on the Northern Euphrates holds the important symbolic change of the appearance of “the first rectangular constructions known in the Near East, or in the world...”. In Mureybet III the round or elliptical buildings typical of the PPNA begin to be divided internally into “smaller components for living, cooking and storage.” (Akkermans and Schwartz 2003: 50). At the end of phase III at Mureybet the round structures that were already being internally subdivided into many rooms were slowly replaced by structures with a rectangular shape still composed of internally subdivided rooms and by other similar structures as detected from contemporary Tell Sheikh Hassan (Akkermans and Schwartz 2003: 52; Cauvin 2000: 41). Certain structures at PPNA Jerf-al Ahmar just north of Mureybet on the Euphrates were also rectangular with numerous subdivisions and these will be further discussed in the communal/ritual buildings section of this chapter. A “Grill-plan” phase of the Early PPNB phase of Cayonu is also a rectangular foundation “composed of closely spaced rectangular walls” with the spaces between these walls filled. This likely served as some sort of “raised platform” for the foundation of the “house proper” (Cauvin 2000: 82; Ozdogan and Ozdogan 1989; Ozdogan 1999).

In the next Early PPNB phase at Cayonu termed by Ozdogon (1999) as the “cobble plan phase” are found houses with tripartite divisions with elongated rooms that Cauvin (2000: 82) claims are “analogous to the ‘pier house’ of the southern Levant.” There are similarities in this tripartite house form to the structures at Mureybet in level IV also associated with the Early PPNB. In the Middle PPNB of the Northern Levant/Southeastern Anatolia we see the emergence of the cell phase plan at a number of
sites and this plan employs building with small square or rectangular cells. Cauvin (2000: 82) claims that these cells probably were a basement used for storage and/or workspace likely serving as a foundation again for an upper story which likely had disappeared.

These earliest rectangular structures in the Northern Levant are important as Cauvin (2000: 78-93) states that the diffusion into the central and southern Levant was “not a process of neolithisation because there was already Neolithic in economic terms.” In these regards Cauvin (2000: 78-93) sees the PPNB culture and a number of traits attributed to it including rectangular architecture as originating/developing in the Northern Levant and then from there spreading into Anatolia first and then into the central and southern Levant. If this were true it would have important implications for the Southern Levantine PPNB yet many researchers would disagree with this sort of diffusionistic perspective.

In the Southern Levant, PPNB Beidha (translation from Arabic: wilderness) shows an interesting progression in the development of domestic architecture. At Beidha there is an “indigenous architectural progression” that took place leading from clusters of oval or circular posthouses in the earliest known phase A, through individual oval and subrectangular buildings in phase B, and finally to fully rectangular buildings employing two stories in phase C (Byrd 1994; 2000: 75). The earliest PPNB phase at Beidha seems to be the only southern Levantine PPNB site that differs significantly in the architecture of the rest of the southern Levant as there are semisubterranean houses with posts “arranged in clusters like cells in a honeycomb” (Kirkbride 1967: 6) and these structures are apparently more similar to the structures seen at PPNA sites than those of the PPNB.
Furthermore, it has been proposed as possibly displayed through the lithic remains from this round structure phase that it may be of an Early PPNB transitional phase although the status of the Early PPNB in the Southern Levant is a controversial issue (Rollefson 1997: 301; Wright 2000: 109; see Kuijt 1994). For the most part the PPNB domestic structures are “relatively small and simple” although there is a trend throughout the PPNB leading to more complex and often multiple story structures with numerous internal subdivisions by the Late PPNB and in some cases even as early as the Middle PPNB (Rollefson 1997).

Flannery (1972; 2002: 421) claims from an analysis of these PPNB domestic structures that the PPNB is typical of a second type of social structure that prevailed during the Pre-Pottery Neolithic. This type of social structure is one that “accepts risk and reward at the level of the individual nuclear family.” This is in stark contrast to the community wide sharing structure of the earlier periods as discussed above. In such societies as in the PPNB, each nuclear family has both its own house and its own private storage, in contrast to the public storage of the first type of society of the Natufian/PPNA. As Weissner states (1982: 173), this second type of society has a much more restricted and “closed” village plan due to the privatization of storage. In this second type of society there is much more incentive to intensify production as any surplus/benefits go directly to the nuclear family and are not shared by the entire community. In these societies each family decides how much or how little to produce, reaping the direct benefits or losses of the increase or decrease in production. Furthermore, Flannery (2002: 421) claims that extended families may have formed one household in PPNB
contexts using as support the idea that PPNB domestic structures tend to be larger and employ more internal subdivision.

Flannery (1972; 2002) claims that PPNB societies grew extremely fast, growing so large that a great deal of families could no longer consider themselves closely enough related to neighboring families within the same community “to be willing to share the risks and rewards of production.” Privatization of storage along with the closing off of certain households and their associated privatized areas allowed for a number of things that were likely not common among the more egalitarian Natufian/PPNA social structure. This privatization likely allowed families to avoid sharing with “less productive neighbors” and allowed families to avoid any jealousy from the visibility of an individual household’s increase in wealth in the form of surplus, among other things. Likewise this collection and hiding of wealth through the privatization of storage and property could be a way for one household to gain more wealth than their neighbors while at the same time avoiding the conflict which could arise from making neighbors jealous (Flannery 2002: 421).

Byrd (2000), on the contrary, argues that although there are changes in the size of domestic/residential structures from the Natufian/PPNA into the PPNB, they remained the residences of nuclear families throughout. Byrd (2000) recognizes, through an in depth and cross-temporal analysis of size, shape, and internal subdivision of domestic structures over this time span from the Southern Levant, that the most obvious changes in size and organization occurred from the PPNA to the PPNB with no major changes occurring before the PPNB. More importantly, Byrd claims that if PPNB domestic structures were inhabited by multiple and extended families then they would have likely
been considerably larger. Byrd furthermore recognizes that the multi-room structures during the PPNB that Flannery (1972; 2002) cites as evidence of extended family occupation are generally composed of a single large room with a hearth along with a corridor and numerous small rooms in addendum. Byrd (2000) and Byrd and Banning (1988: 66) claim that these numerous small rooms were not added for additional inhabitants of the structure to live in but instead were likely either used for storage or work space. The observations that there are not usually multiple hearths in these structures and that there are never hearths located within the small rooms is used by Byrd (2000) to further support the contention that these structures were only inhabited by nuclear families with these extra rooms being added and used for a purpose other than that for individual residents.

Wright (2000) claims that there was little interest for elaborate food preparation in the PPNA although stone lined bins likely used as storage were uncommon in the Natufian and became much more common in the PPNA. Such storage features in PPNA contexts have been both within and outside of houses (Wright 2000). Wright (2000: 111-112) claims that during the Early and Middle PPNB food preparation was conducted in public and was “an arena for social interaction between households”, while food or meal consumption, on the other hand, was “about privacy, the residential group, and enculturation within the lineage.” She (2000:112) views this dichotomy between food preparation and consumption as a reflection of tension between “new forms of community cooperation and traditional kinship organization.” Along these same lines, other evidence seemingly highlights the transition between an egalitarian social structure to the ranked social structure of later periods. In contrast, the LPPNB entails mainly food
preparation in privacy instead of in the public and Wright (2000:114) sees this as an
"emphasis on privacy, including private property."

Rollefson (1997: 302) claims that the MPPNB in particular appears to be a time
period during which "nuclear families constituted both the normal independent residential
and economic/consumption unit" while some occasional misfortune such as flood, fire
and death may have required assistance of some type from extended family and friends.
The change in size and internal subdivision of domestic structures from the PPNA to
PPNB is likely due to a number of factors including an increase in the degree of
sedentism or permanence of settlement, increasing autonomy of households, more
reliance on food production/domesticates, and greater overall settlement population. As
Cohen (1985: 106) points out, the nature of tensions between humans stems from
"congestion, information load, loss of privacy, and loss of control." With the onset of
sedentism and the aggregation of larger populations at certain locales for long periods of
time these tensions may have first arisen to be further magnified with the demographic
and population increases of the Pre-Pottery Neolithic and may be the reason for the social
and resulting architectural changes seen in the PPNB (Cohen 1985; Kuijt 2000a). Social
structure at the familial/household level will be further investigated later in this thesis
specifically in regards to the domestic structures at Ghwair I. Social mechanisms would
have provided more control of the society and this is likely also one of the socio-political
functions of communal/public structures that likely had a communal/public ritual focus,
as will be discussed next.
Special Structures

The earliest manifestation of special structures is apparent in the Natufian and some have gone so far as to propose these as the earliest communal structures. So far better examples of possible public or communal structures have been recovered from the Early than the Late Natufian; the architecture at the Early Natufian site of ‘Ain Mallaha (translation from Arabic: salty spring), on the Sea of Galilee, displays some of the earliest evidence of possible non-domestic structures. At the site there is a small structure that contains a rounded bench coated with lime-plaster and is apparently different from the domestic structures there as Goring-Morris (2000:119) states: “it almost certainly does not represent a simple domestic residence.” The structure designated Eynan locus 131 could be some type of mortuary or funerary structure as it is built over numerous burials likely indicating symbolic and ritual connections (Bar-Yosef 1998; chapter 5; Goring-Morris and Belfer-Cohen 2002). Bar-Yosef (1998:163) speculates that this structure may have been “used for ritual purposes by the leader or shaman of the group.” Possibly the position of the shaman could have been maintained from the “world of the dead” as he/she may have made reference to the ancestors buried beneath the structure, which may have served to further legitimize the shaman’s spiritual powers and authority (Boyd 1995:22). This could possibly indicate the beginning of a trend away from an egalitarian social organization and toward the considerable social differentiation apparent in the PPNB. As will be elaborated upon later, this may also mark the beginnings of a transfer of authority as will become more obviously pronounced during the MPPNB (Kuijt 2002).

Another possible non-domestic structure at ‘Ain Mallaha appears to be a special or communal semi-circular structure that has a 9-10 meter diameter with a number of
preserved postholes and three hearths (Bar-Yosef 1998; 2001; 2002; Olszewski 1991). This special, possibly communal, structure at ‘Ain Mallaha along with the other non-domestic structures could be interpreted as indicating a greater degree of centralization of authority. Flannery (1972) has interpreted this structure through ethnographic analogy of the Tiv of Africa as possibly being used as a “visitor’s receiving hut” serving a special purpose when accepting guests for trade or other purposes. Alternatively, Bar-Yosef (2002: 114) has proposed this structure as a possible group meeting place for only males, that may even have been used for some type of feasting; this is supported from the evidence that one of the floors of the structure displayed “a vast amount of faunal remains...” (Boyd 1995: 20).

Feasting is another emergent social mechanism of potentially great importance (Hayden 1985). Wright (2000: 89) claims that meals are “everyday rituals of profound importance in social life” and that certain food customs set guidelines for social relationships, define certain social groups, and “marks changes of status and role” in a number of other symbolic social elements. Furthermore, Wright (2000: 89) claims that such food customs and rituals can also be a stage to “legitimate, undermine, or manipulate social or political hierarchies.” In this very way evidence of food customs such as feasting can have important implications for social structure.

The architecture at the “Proto-Neolithic” site of Hallan Cemi which was inhabited from the end of the 11th millennium BP in Eastern Anatolia displays strong evidence of feasting and other emergent social mechanisms during the late Epipaleolithic and early Neolithic (Rosenberg and Redding 2000). Rosenberg and Redding (2000) explain that the site was inhabited by hunter-gatherers who apparently occupied it on a year-round
basis. In the three uppermost phases, all of the structures surrounded a central area of approximately 15 meters in diameter characterized by large articulated chunks of animal carcasses and fire cracked rock that, along with the specific linear arrangement of three sheep crania, may indicate some type of public feasting activities took place there. Furthermore, it has been suggested that the public feasting that may have taken place at "Proto-Neolithic" Hallan Cemi was likely not competitive but instead was reciprocal. In this way this evidence of feasting was seemingly meant to promote cooperation and community cohesion and overcome any brewing hostility between social factions, groups and even individuals (Rosenberg and Redding 2000).

Hallam Cemi also displays evidence of another social mechanism as indicated through possible centralization of authority. The entrances to each of the structures in the different phases at Hallan Cemi generally all face away from a central or communal area. In Level 1 at the site there are two public or communal structures that Rosenberg and Redding (2000) suggest indicates two different suprahousehold groups serving a sociopolitical function and operating at the same time. These groups likely indicate some type of centralization of authority, albeit possible competition or distribution of absolute authority. Within one of these possible suprahousehold public structures an aurochs skull was found which was likely once hung up serving a symbolic purpose of some type. This may be evidence that this suprahousehold group may have possessed control over the sacred and supernatural domain within the community that likely served to legitimate authority within the community. Furthermore, rare obsidian cores found within one of these public structures and copper ore both within and surrounding both of these structures may indicate control over long distance exchange of valuable and rare
materials as both obsidian and copper ore were brought to Hallan Cemi from a considerable distance (Rosenberg and Redding 2000). This is some of the earliest evidence of the accumulation of wealth or the institutionalization of this wealth being controlled by suprahoushold groups.

Communal structures become much more apparent, common, and pronounced during the Neolithic. During the PPNA in the Southern Levant such structures are known from only the site of Jericho although the importance of the communal building displayed at this site cannot be downplayed in any way. A perimeter wall 3.6 m thick at the base and a tower placed within this wall standing at least 8.5 meters high and 9 meters thick at the base and 7 meters thick at the top when built were found during excavation of the site. The tower was built of undressed stones with a 22 step steep and narrow staircase leading to the top between 10,300 and 9,800 bp (possibly around 10,000 bp) and the tower contained no internal rooms. The tower was extremely heavy weighing somewhere around 1000 tons and there is evidence that it was repaired at least once if not many times over the period of its use and it may have accommodated a small shrine built of mud brick at the top (Bar-Yosef 1986; Kuijt and Goring-Morris 2002; Bar-Yosef and Belfer-Cohen 1989). Bar-Yosef (1986) and Kuijt (1996) have both argued that the tower "served as a ritual focal point for the community" and its construction likely would have required a considerable amount of effort including pre-planning, labor and coordination (Bar-Yosef 1986; Kuijt and Goring-Morris 2002: 376). Furthermore, storage facilities and an adjacent open space were located near the tower and these may be some sort of "special public place" and evidence of institutionalization of storage as these are
significantly different than the domestic structures/areas at the site (Bar-Yosef and Belfer-Cohen 1989: 63).

The tower, perimeter walls, and external ditch at Jericho were originally interpreted by Kenyon (1957) as a massive fortification construction as defense against foreign invaders (Bar-Yosef 1986; 2001; Kuijt and Goring-Morris 2002). Alternatively, the perimeter walls and the massive ditch have been interpreted by Bar-Yosef (1986) as being built in stages as a "defense system against floods and mudflows", as the wadis in the area likely contained a great deal more water than currently. Annual flooding and mudflows would have provided prime conditions for cultivation as many early Neolithic sites were situated in low lying areas, near watercourses, on alluvial fans or near freshwater lakes and rivers. This likely provided an advantageous environment for cultivation which may have been one incentive for locating the village in the path of this flooding and mudflows. With Jericho being in a mudflow/flood zone defense of living areas against this flooding would have been necessary in order to prevent continual flooding of domestic habitation areas (Bar-Yosef 1986). Furthermore, if the tower were part of a defensive fortification system against hostile foreign invaders or neighbors it is more probable that it would have been built outside of the perimeter walls in order to allow defenders to shoot arrows sideways at attackers but instead it was built within the perimeter walls, which would not have been so useful against attackers (Bar-Yosef 1986: 161). Also, stairs were cut into the inner side of the ditch which would have allowed for easy crossing and would not be expected if the function of this ditch was to keep malicious and ill intentioned invaders from penetrating the village (Ronen and Adler 2001).
The very fact that so much effort was invested in the construction of the tower at Jericho shows that it was likely meant to serve a number of purposes in a variety of different "socio-political" spheres (Naveh 2003: 86). The building of monumental communal structures such as the tower of Jericho, with its permanent presence exceeding the life and physical dimensions of any human, likely turned the area into "a place" by integrating a specific landscape with the social and symbolic realm. Furthermore, the monumental building likely provided some type of legitimacy of this pristine territory at Jericho as such construction "...transmits a message concerning long-term intentions to hold on to the desired territory." (Naveh 2003: 89)

This scenario would further support the association between sedentism and desire to attain and hold onto control of a locale and construction of communal structures. The tower likely also served to regulate and uphold "socio-economic life and power structure" including institutionalization of benefits of increases in production and delayed return systems such as storage. The act of such a massive building event could have allowed certain individuals or factions to achieve certain socio-political goals such as implementing and gaining control of these institutionalized mechanisms. If the tower were associated with ritual activity which was run mainly by shamans or elites of a cultic/religious authority then these shamans also could have used such ritual as a stage to control other realms of society such as production, reciprocation and surplus (Naveh 2003: 93).

Ronen and Adler (2001: 100) have proposed that the entire monumental construction system at Jericho including the tower, ditch and perimeter wall were built as a symbolic defense system against "mythological beings and not humans". Ronen and Adler (2001)
cite PPNA Netiv Hagdud, which is nearby Jericho, as evidence against Bar-Yosef's (1986) idea that the walls and ditch of Jericho were built as defense against mudflow and floods. Ronen and Adler (2001) claim that Netiv Hagdud is "clearly in need of protection from floods" as it was covered by gravel and colluvium and yet the site is completely lacking of any perimeter wall or flood defense system. This is seen by them as further supporting evidence of the symbolic rather than practical purpose of the constructions at Jericho.

Examples of communal structures from the PPNA of the Northern Levant and Southeastern Anatolia are of interest. The site of Cayonu was occupied during the PPNA and PPNB with certain public/communal and special structures being used in both periods. These include a massive "flagstone" building that was used in the PPN with 5 monumental standing stones almost definitely serving a ritual purpose. Another building, the "skull building" was in use from the PPNA and well into the PPNB with at least 5 major rebuilding phases. The building has a floor made of large stone slabs and standing stones set into the ground and within the building 70 human skulls were found along with complete or partial skeletons of at least 400 individuals. Furthermore, a "bench" building from the same site has been stratigraphically assigned to a transitional phase in the EPPNB and displays numerous massive stone benches running along the walls of the structure (Cauvin 2002; Ozdogan and Ozdogan 1989; Ozdogan 1999).

Other Early Neolithic sites in Syria also served as "charnel houses" like the "skull building" at Cayonu such as a structure at Abu Hureyra on the Euphrates. At Abu Hureyra a small narrow room in a mudbrick building "served as a repository for the remains of at least twenty four individuals represented by flexed corpses, often headless,
and by skulls deposited singly or in groups on the floor.”. Another room in the same structure included a pit containing the remains of approximately twenty-five to thirty children, adolescents and young adults some complete and some missing their skulls and this gave the house special ritual value (Akkermans and Schwartz 2003: 92-93).

The PPNA site of Jerf Al-Ahmar located in northern Syria on the Upper Euphrates exhibits communal and special structures of particular interest including a small round house within which were found three nearly complete aurochs skulls. The skulls likely were hung on the walls as indicated from their position which have important symbolic implications. Each of the different levels at the site includes domestic units that are associated in some way with a communal or special structure. One communal structure is subdivided into numerous “radiating cells and benches” with numerous postholes that likely would have been used for wooden pillars to hold up a roof of earthen materials (Stordeur 2000). Furthermore, two human skulls were found at the bottom of one of these postholes. Another communal building of a different phase included subdivision into six cells around a central area with two “elevated benches” and within this structure human remains lacking both the skull and vertebrae were found. Stordeur (2000) concludes that this structure was multifunctional with the small cells being used for collective storage and with perhaps meetings and rituals being performed in the central area as indicated by the ritual implications of the headless skeleton lacking its vertebrae found there.

Finally, in the final level at Jerf Al-Ahmar, especially significant as it has been attributed to a “PPNA-PPNB transition phase”, there is an important communal building 8m in diameter which is embedded at least 2 meters into the ground. A stone retaining
wall with 30 posts inserted within was constructed around the perimeter of this PPNA-PPNB transitional structure in order to prevent the surrounding ground from collapsing into the structure and to possibly hold up earthen roofing. The building has no subdivisions and contains a bench connecting with the wall and continuing around the room. Furthermore, the structure contains symbolic art motifs such as friezes depicting triangles, chevrons, and a “long vertical undulating line evokes a serpent.” (Stordeur 2000). These transitional structures seem to link the Proto-Neolithic/PPNA with the sanctuaries and temples of the PPNB. These structures have points in common with the proto-neolithic structures discussed earlier while foreshadowing the strong symbolic aspects of what some have controversially referred to as shrines and temples of the PPNB.

During the PPNB “more formal and institutionalized mechanisms” for integrating the entire community develop; this is reflected in the built environment. These include public/communal buildings, courtyards, and structures sometimes controversially referred to as “temples”. MPPNB Beidha in the Southern Levant is a prime example of such mechanisms. Byrd (1994; 2000) recognizes three different phases of construction/change during the Middle PPNB at Beidha. In the earliest phase the village was composed of small one story huts with little or no identifiable non-domestic structures. By the latest phase of the MPPNB Beidha was a village composed of tightly packed two story domestic structures where access had become more restricted (Byrd 1994; Hole 2000). Furthermore in the later phases at Beidha there are seven well preserved buildings that were greatly larger than the rest of the structures at the site and also are lacking “evidence of domestic activities.” (Byrd 1994: 652).
These large buildings which were likely used as communal structures contained a centrally located "large raised rim hearth" and also exhibited walls and floors that had been replastered numerous times. Most of these non-domestic public buildings were located near the center of the village and neither occupational debris such as found in domestic structures or trash were found in these structures. Byrd (1994: 657) calls these buildings "corporate or integrative buildings" and concludes that they were used for "conducting suprahousehold meeting and decision-making activities" possibly related to ceremonial/ritual activities. A few non-domestic buildings were also located 40 m off the site within which were "enormous" stone slabs. According to Byrd (1994: 657), also associated with these buildings was a "massive stone slab basin" which was 3.0 by 3.2 meters in size and these buildings were likely associated with "rich ideological and ritual tradition."

Byrd (1994:657) claims that all of these communal buildings were built by "community labor" and that such large scale construction events helped to integrate the community better. These buildings served the function of holding social units together "as a dynamic system" and the increasingly sedentary and food production oriented village life of the PPNB required the emergence of these mechanisms to serve such a function. Furthermore, private space becomes more defined during the MPPNB as indicated by the use of vertical stones to mark borders or private areas in less delimited areas of villages such as at Shaqarat Al-Mazyad (Hermansen and Jensen 2002).

Other prime examples of ritual structures in the PPNB come from the Late PPNB phases of 'Ain Ghazal. At the site there are three or possibly four apsidal buildings that "contrast sharply with the contemporary domestic architecture" at 'Ain Ghazal in that

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they are smaller in size and geometrically different (Rollefson 1997; 2000: 175). Rollefson (2000: 175) claims that these structures have a strong similarity to what Kenyon termed a shrine in the excavations of Jericho. A circular building termed as a “shrine or cult building” was also found at LPPNB ‘Ain Ghazal along with a building with unique furniture leading to it being designated as a ritual structure. The internal furniture in this building included what Rollefson (2000: 176) describes as “three orthostats or ‘standing stones’ about 70 cm high arranged symmetrically between the northern and southern walls, forming a straight NS line around two meters from the eastern wall.”

Also becoming more common in the PPNB are ritual centers or sites that seem to have a nearly purely ceremonial/ritual function. These include sites mainly used as graveyards or burial sites and sanctuary sites. A prime example of such a sanctuary site with a purely ritual function is the PPNB layers of Gobeckli Tepe in Northern Mesopotamia or modern day southeastern Turkey which has been referred to as a “mountain sanctuary.” (Schmidt 2000: 46). At the site there are buildings of megalithic size and large T-shaped pillars the largest of which weighs over 50 tons. These pillars depict snakes, foxes, rams and all sorts of other animals and this site with such strong ritual display likely served as an annual meeting place of different groups possibly for trade and/or other relations (Schmidt 2000). Similar ritual structures have been found at the nearby site of Navali Cori also in the Northern Levant (Cauvin 2000).

One reason structures dedicated to public/communal ritual are important are their implications for community leadership against an egalitarian background. In order for certain individuals to gain power/authority within Early Neolithic communities this
would require that certain individuals give up certain decision making abilities to others, likely a "collective body" of some type. One collective body that likely served such a role would be of religious elites or specialists, that is groups in "charge of the development, maintenance, and interpretation of the spiritual and ritual world." Thus, control of rituals would also give individuals/groups grounds to gain control in other realms (Kuijt 2002: 84-85).

The next chapter will discuss the architectural and key artifactual data from Ghwair I and its implications. In it I will examine evidence for the numerous elaborate social mechanisms as discussed in this chapter. Evidence of an intensification of such social mechanisms during occupation at Ghwair I would support the hypothesis that the social structure became more complex throughout its occupation.
CHAPTER 5

THE ARCHITECTURE AND ARTIFACT DISTRIBUTION AT GHWAIR I

Phases of Architectural Development

The excavations at Ghwair I concentrated on six separate loci/areas with varying amounts of effort spent on each (Simmons and Najjar 2003: 409). Simmons and Najjar (2003) originally identified three major architectural phases at the site indicating three large scale construction or remodeling events that took place during the ~500 years of occupation. A number of micro-phases or sub-phases are apparent throughout the site likely indicating constant small-scale remodeling and conservation of the site during PPNB habitation.

There were six separate excavation areas at Ghwair and none have actually been connected through excavation. This means that there is a considerable amount of unexcavated / unexposed space outside the boundaries of each major area, likely hiding important architectural data. Due to this and the sheer complexity of the stratigraphy of the site, the major phases identified by Simmons and Najjar (2003) may not necessarily apply to each excavation area; instead, certain areas seem to exhibit slightly different trends in architectural development. Furthermore, it cannot be pinpointed at this time approximately how much time lapsed between the different large scale events or phases of construction or remodeling at the site even though a number of radiocarbon dates
provide hints. Overall, due to these caveats in the available data one must be advised that some of the observations and conclusions here are speculative and tentative that only future excavations can confirm. With this said the major phases of development as originally identified by Simmons and Najjar (2003) are as follows.

The earliest phase or Phase I at Ghwair has been termed as the “Large room phase”; in this phase very large rooms approximately 10 by 10 meters in size were built of primarily limestone cobbles. The next major phase observable at the site or Phase II has been termed as the “square room phase” and in this phase smaller units approximately 4 by 4 meters in size were built. During Phase II, the Phase I large room remains were further subdivided into smaller units measuring approximately 4 by 4 meter rooms. The final major phase, Phase III, at the site has been termed the “cell plan phase”; this included the further subdivision of many of the 4 by 4 meter phase II rooms into numerous smaller square or rectangular shaped units/cells measuring approximately 1 by 1 meter in size. It is important to note that from Phase I to Phase II and then to Phase III a number of architectural areas were reused and remodeled into the site plan. This means that a number of structural walls, rooms, and whole areas were likely used during two or all three of the phases.

Terracing

Before going into detail on each of the different excavation areas/loci I will first go over the built environment around Ghwair I that went into the preparation and protection of the village. One interesting non-habitation built feature that the village exhibits is a considerable amount of intentional terracing. This might be expected since the entire
village of Ghwair I is located on an incline climbing south toward high cliffs. This terracing includes numerous courses of walls that are recognizable from surface observations. While the lowest terrace was used by later occupants during Roman times, as indicated by artifact remains along with a radiocarbon date of ~1,590 conventional years BP (Simmons and Najjar 2003: 425), the upper terraces were artificially created and extensively used by the PPNB inhabitants. There is a great deal of terracing throughout the site, some of which includes very large stones, which would have taken a considerable amount of effort attesting to the considerable thought going into the preparation, protection and maintenance of the village. This terracing would have protected the PPNB village from rockfall and collapsing colluvium caused by intensive rainfall and mudslides that likely took place during habitation.

The outer terraces at the base of the site closer to the wadi are composed of larger stones, some possibly moved into position intentionally while others may have been simply utilized in their natural positions. In one area large boulders seem to form an entrance and pathway of sorts leading up to the site and this may have served as the main entrance into the village. If these boulders were intentionally moved into these positions to artificially create this entrance and pathway to the village this would indicate that the inhabitants at Ghwair I put a great deal of effort into the modifications of their immediate surroundings. It also seems very possible that some (an undetermined number) of these boulders or large stones may have already been in their original position, probably fallen from cliffs above, while the inhabitants only needed to move a few more in order to create this grand neolithic pathway entrance.
Physically and mentally this pathway entrance leading to the site likely would have had an intimidating impression on foreign (non-Ghwairi) visitors to the site and may have served a symbolic function. It also points at a high level of village organization at the public/community scale since these features likely were public projects undertaken for their collective aesthetic/visual and welcoming (or intimidating) effect for the benefit of all village inhabitants. As one moves up the hillside closer to the bulk of the architectural remains the terrace walls are placed closer to one another. Towards the more southern portion of the site, further up the hillside behind the major excavation areas, the terraced walls are even closer to one another and more consistently placed likely indicating that the main threat from flooding and mudflows came from the higher elevations at the top of the mound/hill as would be expected.

Architectural Areas

The six separate excavated areas of the site are not equal in size or importance for the purpose of this investigation. Architectural plans of the two major loci/areas, Area I and Area IV, as drawn by Quteiba have been used to show the developmental sequence of the construction during the different time phases in these areas. These two areas, I and IV, by far have the greatest amount of intact architectural remains. They also more clearly than the other areas show the developmental sequence of the architecture from phase to phase. Due to the clarity of the data in these two areas they were investigated in more detail and the results of the investigations are as follows.
Area I

Area I is located at the furthest western edge of the site. Intensive rainfall and erosion created a post depositional cut running through the area destroying an undetermined (but likely considerable) portion of it. This post depositional cut is also expanding and slowly yet constantly encroaching on Area I, and causing considerable portions of the intact architecture to erode over the wadi edge. This is also apparent from the presence of a large amount of construction materials in the wadi below that were obviously at one time part of the architecture in Area I. Despite the massive erosion, approximately 200 square meters were exposed in Area I, not counting certain rescue excavations conducted by Dr. Najjar after the major excavation seasons. Depth in certain rooms in this area was as much as 4 or more meters. The earliest stage of construction in this area is hardly recognizable as it was probably partially reconstructed and possibly even deconstructed / demolished during later remodeling and rebuilding. This phase is possibly only apparent in the deepest excavated section of this area. During this phase very large stones used at the foundation of one wall can be identified. These are likely the only remnants of the earliest identifiable phase in Area I and this phase may or may not correspond to the “Large room phase” as identified by Simmons and Najjar (2003). Whether it is a separate phase and whether it corresponds to the Large room phase or not, it seems to have been used as a base in the construction of the upper portion of this wall, likely during Phase II remodeling. It is likely that the majority of this earliest phase was so modified and remodeled into later phases that evidence for its very existence has become opaque rendering it unrecognizable.
Figure 3  Map of Architecture from Area I, Phases I and II
The square room phase or Phase II mentioned earlier is definitely recognizable in this area (see the section designated in yellow in Figure 3 on page 89 for walls originally built during Phase I). In Phase II, rooms were approximately around 4 by 4 meters, as described by Simmons and Najjar (2003). There are a few remaining rooms of this size that were not subdivided in later phases; the majority of these show evidence of special functions and will be discussed further on. A special room coined as “Room 1” was likely built during this phase serving as a possible “core” for the expansion of more structures/rooms (Simmons and Najjar 2003: 413). Finally, in the latest recognizable phase, Phase III, in Area I there is a considerable amount of subdivision of some of the rooms and small additions onto other rooms leading to the emergence of a number of small ~1 by 1 meter rooms (see Figure 7 on page 97). There are a number of possible functions for these small these ~1 by 1 meter areas and a number of these possibilities will be explored throughout this chapter. Furthermore, the range of radiocarbon dates from Area I is from 8,800 to 8,390 conventional years BP (Simmons and Najjar 2003: 424). The majority of these dates are stratigraphically from Phase II although some may be from Phase III contexts as well.

All rooms in use during Phase II and Phase III from Area I were measured and the area of each room was calculated. The following tables show the descriptive statistics for the size of the rooms in Area I for Phases II and III separately. These statistics include the standard deviation, range, minimum and maximum, and the mean. They also include the coefficient of variation as both a decimal and as a percent and this statistic displays the amount of variation in the area of the rooms from the different phases.
Table 2  Descriptive statistics for the size of rooms from Area I during Phases II and III. N represents the number of Rooms.

<table>
<thead>
<tr>
<th>PHASE</th>
<th>Valid N (listwise)</th>
<th>N</th>
<th>Range</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>II RMAREA</td>
<td>6</td>
<td>7.0000</td>
<td>5.7500</td>
<td>12.7500</td>
<td>9.740000</td>
<td>2.84121</td>
<td></td>
</tr>
<tr>
<td>III RMAREA</td>
<td>17</td>
<td>12.1325</td>
<td>.6175</td>
<td>12.7500</td>
<td>3.082206</td>
<td>3.85361</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase</th>
<th>Coefficient of Variation as decimal</th>
<th>Coefficient of Variation as Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>0.291705</td>
<td>29.2</td>
</tr>
<tr>
<td>III</td>
<td>1.25027</td>
<td>125</td>
</tr>
</tbody>
</table>

Table 3  Compartments per 100 square meters from Area I During Phases II and III

<table>
<thead>
<tr>
<th>PHASE</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Compartments Per 100 Square Meters</td>
</tr>
<tr>
<td>III</td>
<td>Compartments Per 100 Square Meters</td>
</tr>
</tbody>
</table>

The data in Table 3 was calculated by adding up the number of compartments present during each phase, dividing that number by the size of Area I in square meters and multiplying it by 100. This gives us compartments per 100 square meters.

Phase II Remains From Area I

Room Numbers in this section correspond to the Map in Figure 4 on page 96. Figure 3 on page 89 shows all of the structures from Area I that were presumably in use during phase III. It is important to keep in mind that the different colors only indicate when the
structures/walls/rooms were originally built. Everything shown in color in Figure 4 was likely in use during Phase II.

Figure 4  Statistical boxplots for the size of rooms from Area I that were in use during Phase II in the box on the left and Phase III in the box on the right.

The horizontal line inside each box represents the median. 50% of the data falls within the box. The horizontal lines outside of the boxes indicate the range of values that fall within 1.5 H-spreads. All Outliers are labeled. Outliers greater than the 1.5 H-spread are marked with a circle while outliers greater than 3.0 H-spreads are marked with an asterisk.

As is apparent in Table 4 and Figure 5 on page 93, the size of the rooms that were in use during Phase II seem to have had two main groups. The first of these includes the two smaller Rooms #69 and #70 that fall between ~ 6 and 7 square meters. The second of these groups includes the four bigger rooms with Rooms #67 and #71 falling between ~ 10 and 11 square meters and Rooms #68 and #72 falling between ~ 12 and 13 square meters. From this it seems apparent that the two smaller rooms (#69 and #70) may have

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Table 4 Size of the different rooms that were in use in Area I during Phase II of occupation

<table>
<thead>
<tr>
<th>Room number</th>
<th>Room Size in Meters Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>10.5000</td>
</tr>
<tr>
<td>68</td>
<td>12.2500</td>
</tr>
<tr>
<td>69</td>
<td>5.7500</td>
</tr>
<tr>
<td>70</td>
<td>6.8800</td>
</tr>
<tr>
<td>71</td>
<td>10.3100</td>
</tr>
<tr>
<td>72</td>
<td>12.7500</td>
</tr>
</tbody>
</table>

Figure 5 Stem and leaf plot that shows the distribution of the size of the rooms from Area I that were in use during Phase II

RMAREA Stem-and-Leaf Plot

Frequency Stem & Leaf
2.00 0 . 56
4.00 1 . 0022

Stem width: 10.0000
Each leaf: 1 case(s)

served a disparate or fundamentally different function than the four bigger rooms (#67, #68, #71, and #72).

As we can see, the four bigger rooms closely represent the ~4 by 4 meter Square Rooms so typical of Phase II rooms. From its position Room #71 may have functioned as a corridor or alleyway instead of as an actual room or habitation compartment. If this was the case then it may have meant to separate or mark boundaries of the large Room #72 from a number of the other Rooms including #67, #68 and possibly #69, the three of which may have been related to one another. It is possible that the smaller rooms may have functioned as storage areas while the larger rooms were simply meant to house
people. It is also possible that both groups of sizes of rooms were meant to house people but a different number of people. For example, the bigger rooms may have housed nuclear families such as a couple and maybe a young child while the smaller rooms could have housed an older single child or family friend, who was old enough to care for him or herself. Furthermore, room #68 also may have served some special cultic or ritualistic function as will be discussed in the special structures section.

Phase III Remains From Area I

Room Numbers in this section correspond to Figure 7 on page 97. (Figure 7 shows all the structures/rooms from Area I that were presumably in use during Phase III. It is important to keep in mind that the different colors only indicate when the structures/walls/rooms were originally built, not when they were in use. Everything shown in the map was likely in use during Phase III).

From the box on the right in Figure 4 on page 92 it is apparent that 50% of the rooms in Area I (those within the box in the boxplot) fall between approximately 0.5 and 3 square meters with only two major outliers. This is also apparent from the bar chart in Figure 4 on this page. It seems unlikely that people would have slept or resided in structures smaller than 3 square meters. Furthermore it is possible, yet unlikely, that these small units may have been a basement of sorts or support for an upper story structure made of perishable remains. In this area there is little if any exposed evidence for stairways that would be expected to be connected to multiple story structures. Yet,
Table 5  Size of the different rooms that were in use in Area I during Phase III of occupation

<table>
<thead>
<tr>
<th>Room number</th>
<th>Room Size in Meters Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.5650</td>
</tr>
<tr>
<td>2</td>
<td>.8000</td>
</tr>
<tr>
<td>3</td>
<td>.9450</td>
</tr>
<tr>
<td>4</td>
<td>.9000</td>
</tr>
<tr>
<td>5</td>
<td>12.2500</td>
</tr>
<tr>
<td>6</td>
<td>2.8125</td>
</tr>
<tr>
<td>7</td>
<td>5.7500</td>
</tr>
<tr>
<td>8</td>
<td>2.7125</td>
</tr>
<tr>
<td>9</td>
<td>.7125</td>
</tr>
<tr>
<td>10</td>
<td>.6175</td>
</tr>
<tr>
<td>11</td>
<td>.9450</td>
</tr>
<tr>
<td>12</td>
<td>1.5000</td>
</tr>
<tr>
<td>13</td>
<td>4.8375</td>
</tr>
<tr>
<td>14</td>
<td>.7500</td>
</tr>
<tr>
<td>15</td>
<td>.6500</td>
</tr>
<tr>
<td>16</td>
<td>.9000</td>
</tr>
<tr>
<td>17</td>
<td>12.7500</td>
</tr>
</tbody>
</table>

Figure 6  Stem and leaf plot that shows the distribution of the size of the rooms from Area I that were in use during Phase III

RMAREA Stem-and-Leaf Plot

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Stem &amp; Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00</td>
<td>0 . 667789999</td>
</tr>
<tr>
<td>1.00</td>
<td>1 . 5</td>
</tr>
<tr>
<td>3.00</td>
<td>2 . 578</td>
</tr>
<tr>
<td>.00</td>
<td>3 .</td>
</tr>
<tr>
<td>1.00</td>
<td>4 . 8</td>
</tr>
<tr>
<td>1.00</td>
<td>5 . 7</td>
</tr>
<tr>
<td>2.00 Extremes</td>
<td>(&gt;=12.3)</td>
</tr>
</tbody>
</table>

Stem width: 1.0000
Each leaf: 1 case(s)
this does not specifically prove that a second story was absent as it is possible that the inhabitants may have used ladders made of twine or other perishable materials, instead of stairways, as the primary means of second story access. Yet, if a second story in this area did exist above a block of rooms/cells #14-16 or the block of rooms/cells #2-4 it likely would not have been large enough for considerable activities to have taken place on. Along these lines an upper story on top of cells #8-12 seems more possible since it may have provided for a reasonably sized upper floor; nonetheless the presence or absence of a second story is unconfirmed.

The majority of the small cell like rooms (not including #1 and #8) likely functioned as "closets" or storage rooms for the packing away of materials. These compartments presumably were not large enough for people to sleep, reside or even work in. Furthermore, a cache found in room #3 supports their usage as storage bins. This cache included 22 finely made projectile points and these will be discussed in greater depth in the special structures section.

Furthermore, rooms #1, #8 and #6 are ~3 square meters in size and their slightly larger size than the rest of the small compartments may indicate a different purpose of sort. Along these lines these rooms (#1, #6, and #8) may have not functioned simply as storage bins but instead could have been used as work areas as well. This is supported by the finding of a concentration of goundstone in room #1 including handstones and a pebble mortar (Feature #31) (Woodman 2005: 100). Room #6 has an interesting D-Shape and it may have had cultic/ritualistic purposes that will be discussed in the special structures section.
Figure 7  Map of Architecture from Area I, Phase III
Rooms #5 and #17 are major outliers with Room #5 equaling almost 12 square meters and Room #17 equaling almost 13 square meters. It is possible that these structures served a different, possibly special, either habitation and/or non-habitation oriented function. With the increase in privatization and intra-site territoriality during phase III, as indicated by the emergence of many smaller rooms or compartments, it is interesting that only these two large rooms for some reason avoided being subdivided. If this entire area was only one single story in Phase III it seems possible that these two larger structures/rooms may have served a similar function as it was proposed they did in Phase II. In this case these large structures/rooms (#5 and #13) may have again functioned to house nuclear families while the smaller cell like rooms may have functioned only to store goods or, in the case of the larger of the cells (such as #1 and #8) to function as workspace. Furthermore, one of these structures (#5) may also have been large for other, possibly ritualistic or cultic, reasons that will be investigated next.

Special Structures
Room #5 / #68

Room #68 in Figure 3 on page 89 or also Room #5 on the Figure 7 Map on page 97 is a square structure with what Simmons and Najjar (2003:412) refer to as a “jog” in its western wall. This room was originally referred to by Simmons and Najjar (2003) as Room 1, not to be confused with the labeling on the maps in this thesis. It seems to have been originally built during Phase II in this Area and was also in use during Phase III and is very large in both phases at 12.25 meters squared. This structure contains several complex internal features including a number of different types of
Figure 9  Picture of Special Structure #5 / #68 from Area I
niches, a stone bench, a great deal of evidence of a number of replastering and remodeling events, subfloor pits and in-situ caches (see Figure 5 on page 99 for picture).

The southern wall this room alone contains three empty upper niches along with one lower niche. Niches #1, #2, and #3 on are the upper niches on the southern wall, Niche #4 is the lower niche in the bottom corner where the southern and western walls meet and Niche #5 is on the far right side of the western wall. Niche #2 may be better described as a window than a niche since its construction was slightly different than that of the rest of the niches. Also present between niche #4, the lower niche, and the stone bench was what can be best described as a passageway that most likely originally led to an outer room or area. These features may have had a number of different functions. Some of these features, including the windows and some of the niches, may have been meant to function as air cooling features. In the case of some of the niches an area in the walls was hollowed creating an internal pipe leading to the niche and serving as vents running through the walls. Some of the other niches best described as windows or openings would have allowed for westerly blowing winds to flow through the room accessing it to any breeze. Both of these types of niches would have acted as a natural air conditioning system by increasing air flow into the room and serving to keep it cool during the harsh summer months.

The floor of this room was plastered at least four times indicating that a great deal of remodeling took place on it. Also apparent on the plaster were flecks of red paint in some areas likely indicating that a large portion of the floor and possibly even the walls were originally painted red, possibly even with geometric or special designs. There was also some evidence of burning on the floor along with a great deal of fire cracked rock,
especially in the southeast quadrant of the room. Also visible in the floor is a possible
drainage ditch that likely served to readily clear water or liquid out of the room, possibly
during periods of intensive rainfall. Along with the drainage ditch there were also a few
depressions in the floor that may have served as pits for storage of some type; the exact
phase that these installations were in place is not clear.

Some special niches in this room were all at the top of the walls and created a perch
or indented area where certain objects could have been placed. These niches could have
served to display special, possibly cultic, objects. Interestingly, excavation also
uncovered a shallow rock-lined pit near one of the lower niches that contained what has
been described as a token or clay stamp seal “with a primitive linear pattern.” Present in
this stone lined pit was a black polished stone that may have functioned as an ‘amulet’ or
magical/ritualistic object (Simmons and Najjar 2003: 421). Although the rocks inside of
the pit were not charred there were a number of charcoal flecks nearby the pit that could
indicate that burning occurred within it. These objects along with figurines found in and
near this room (in the D-shaped room) and an incised figure or cup found just outside this
room all likely had no conventional practical use but instead were cultic objects that may
have been used during ritualistic practices by shamans or a religious authority. Also,
placing these objects in the special niches could have served to send off cues to other
inhabitants at the site that this room and those associated with it had a connection to the
supernatural. This may have even served to legitimate the authority of the individuals
associated with this room.

Interestingly, two ‘gaming boards’ were also found associated with this room, with
one lying directly in the fill and another in the corridor just east of the room. As
discussed in the cultural background section the exact function of these 'game boards' is debated and they may or may not have had a conventional purpose. If the gameboards were actually used as leisure devices of entertainment as the title 'gameboard' implies then it will be assumed that whoever was using these devices and playing these games the most may have had a great deal of free, leisure time. Such individuals may have had a more than average amount of time outside of work and may have been excluded from certain labors oriented toward subsistence related activities (such as hunting, gathering, and/or working the agricultural land). Although highly imaginative, it is also possible that winning the game or being a well-renowned champion player (if this was a game at all) would have served to increase an individuals' prestige and power serving to aggrandize them. Furthermore, these items may also have been used for cultic/ritual purposes such as functioning as “divination or fatidic devices” (Belfer-Cohen and Gorring-Morris 2002: 72) and if this were true it would also associate them with religious ritual, shamans and/or cultic practices. Yet, the ‘gameboards’ may also have been used for some sort of food preparation oriented task such as the grinding of mustard seeds or other uncommon and possibly luxurious subsistence items. If this was the case they would also likely be associated with prestigious individuals since such items would likely not have been primary subsistence food but instead were likely features of luxury only associated with the more wealthy or powerful in the community. The simple fact that they are rare at Ghwair I as indicated by the presence of only three of these ‘gameboards’ in the collected groundstone sample that only make up 0.12% of this sample (Woodburn 2005:75), indicates the possible luxurious nature of these artifacts. This means that these
devices could likely be associated with powerful and wealthy elites even if they were not used for religious purposes.

Another important feature found in this room is a blocked doorway in the western wall. Before being blocked this doorway may have led to a westward leading passageway that in turn likely led to an area of the site that has now collapsed and been eroded by the penetrating wadi. The blockage likely was placed during Phase III remodeling and the blockage indicates a limitation in access to this room. Overall, this blockage may have something to do with the growing prestige or importance of this room and its inhabitant(s) or the people associated with it. By limiting access to the room the associated individuals may have been disassociating themselves from the general public at Ghwair and this could have served to further legitimate or expand any authority they may have already possessed and further serve to distinguish them from the rest of Ghwair’s inhabitants.

Also of interest is a lithic cache found in the lower niche in the northwest corner of this Room. This cache was hidden in the southeast corner of the niche and included medium to large blanks, two naviform cores, two unifacial ovate handstones, and a spheroid pounder (Feature #29) (Woodman 2005: 100). Also present in this room directly in front of the bench extending from the western wall were a number of artifacts directly on the floor. These artifacts were clearly in-situ and included four projectile points, three long blades, a groundstone bowl and a number of handstones. The presence of all of these lithic and groundstone artifacts that most likely had a conventional (non-ceremonial/non-ritual) purpose suggests that the room did not serve a monofunctional purpose being used only for cultic or ritualistic rituals but instead that it served a range of
different functions. This all suggests that, in addition to the possible cultic/ritualistic functions, the room was likely also used for conventional purposes including production and consumption and leading us not to label this room as a 'temple'.

Interestingly, by Phase III it is apparent that this room becomes closely associated with a number of the small ~1 by 1 meter compartments that are present in Area I including cells/rooms #2-4 and #8-12 on the Map in Figure 7 on page 97. Furthermore, it is often assumed that structures or houses with more storage areas acquire more surplus to be stored. Since the occupants need more area for storage, then these houses have more surplus and thus are richer than structures or houses with less storage areas. If this assertion is true then it would likely mean that the number of storage areas associated with rooms may be a reasonable indicator of how rich and powerful the inhabitants of that room (#51) were (see Byrd 2000). Since by Phase III so many small compartments (storage rooms) become associated with this room, this may indicate an increase in wealth and/or power of the inhabitants of the room from Phase II to Phase III.

Overall, the archaeological evidence available concerning this room, especially that from Phase III, is indicative of the great wealth, power and/or control over resources that the inhabitant(s) or those associated with this structure had. Furthermore, it is also possible that the inhabitant(s) or those associated with this room also increased in power from Phase II to Phase III since the increase in storage features associated with this room from Phase II to Phase III possibly indicates an increase in wealth. Also of note is that one of the storage bins/small cell rooms that was associated with Room 1 contained the eccentric cached points discussed earlier. If these points did serve a ritualistic/ceremonial function as opposed to a typical conventional purpose then this would corroborate the
special ritualistic/ceremonial function of Room #5/ #68. Powell (2001: 75-76) says the following about them: “All of the cached points exhibit considerable skill in their manufacture. The cached points were prepared and struck from the core in a fashion that requires little or no retouch to achieve the point, an extremely practical and efficient method of production.... The cached points are too fragile to be functionally used as projectile points per se.... We clearly need to further our investigation into the realm of ceremonial or social function for the cached points.” Thus, it seems as though these points did not serve a conventional purpose but instead were related to a ceremonial or ritualistic function likely related to Room 1.

Finally, of special note is the recovery of human remains in the fill above this room. This does not represent a typical PPNB burial but instead only included parts of the cranium and long bone remains. Analysis of the skeletal material determined that the individual was an elderly woman and interestingly there was a projectile point embedded in her jaw. This could possibly indicate some sort of conflict and even more interesting is that the skeleton, or parts thereof, were disposed of in Room #5 / #68. It is possible that the skeleton was disposed in this room after the room or the entire site was abandoned. It is also possible that it is only by chance or “fortuitous” that the projectile point was embedded in her jaw (Simmons and Najjar 2003: 422). Nonetheless, there is still a shred of possibility that this projectile point was not only by chance embedded in the jaw of the lady but instead that it was shot or thrown at her and the cause of her death. Along these lines this may indicate that during her life this female was associated with this room and this association was the reason for her death. Although this could simply be a work of imagination, arising conflict with other individuals or social factions all
together may have led to aggressive violence against those, such as this woman, associated with this Room. This may have subsequently led some aggressors to murder this female and dispose her body in the room. This would indicate an intense inter-group rivalry within the community at Ghwair I and could have major implications toward the collapse of social authority and/or the presiding social order altogether and this will be discussed in depth in chapter 6.

The unusual nature of this room including the size, shape, sheer complexity of internal features, artifacts found within and in association with the room and its association with many storage compartments likely all indicate a special function of some type. All of the different types of niches in this room would have taken a considerable amount of effort to create and serve to distinguish this room others. This likely indicates a great deal of energy was invested in this room and may indicate luxury. This further serves to corroborate the special function of this structure and it is possible that one or more individuals of special or high importance to the community that may have also been especially wealthy and powerful (possibly one or more religious elite) used this area for ritual, cultic and/or prestigious purposes (see chapter 6 for more on this). Importantly, it is not clear whether all, only a few or none of these features were present in Room I initially during Phase II construction or whether they were added sometime, possibly during Phase III construction, as a part of a remodeling event. If they were present in Phase II then this would indicate it to be a special structure from its initial construction yet if they were not present until Phase III construction then this would indicate an emerging special function of this room during Phase III.
Room #6 / D-Shaped Structure

Just South of Room #5 from Phase III with only a thin area separating the two structures stands a special structure referred to as a D-Shaped Structure (room #6 in Figure 7 on page 97). In the wall of this structure there was a large black burned stone in front of which stood a compact burnt area on the floor that has been described as a “casual hearth”. Furthermore, in front of this hearth there was a small clay animal figurine that may have served a cultic/ritualistic purpose of some sort, albeit it may also have simply been a toy (Simmons and Najjar 2003: 413-414). Seeing that this D-shaped structure was not built until Phase III it likely corroborates the increasing cultic and ritual importance of Room #5 and rooms/areas associated with it. Likewise, Simmons and Najjar (2003: 413-414) have termed this structure a possible shrine and it is unclear whether or not this D-Shaped room in addition served any other function such as housing an individual or functioning as work area.

Area IV

Area IV was originally excavated during the 1993 excavation season revealing a highly dense but oddly shallow (from initial estimates) cluster of well preserved architectural remains (Simmons and Najjar 2003: 411). Later seasons of excavation revealed the depth in this area to be greater than originally estimated and furthermore exposed some of the most complex and intricate remains thus far investigated at Ghwair I. In Area IV approximately 425 square meters were exposed; this area closer than any other area at the site mirrors the original major phases of construction / remodeling (large-scale events) as identified by Simmons and Najjar (2003) and discussed in the...
phases section. The architectural plans and development from phase to phase is most easily discernable in this area making it highly important for the purpose of diachronic trends of change or internal evolution at the site. The structures in use during the different phases of occupation in Area IV are shown in the Figures 10, 11, and 13.

The earliest “large room phase” as described by Simmons and Najjar (2003) is most easily recognizable in this area. The walls from this earliest Phase I are composed of primarily “rough and semi-shaped cobbles” taken from the lower wadi. Furthermore, the walls from this phase are in many cases thicker and more sturdy or durable than walls from the later phases. The thickness and strength of these walls along with the large size of the structures that they enclosed lead one to ponder the use or function of these structures and this will be further discussed in the social differentiation section.

The next phase, the “square room phase”, is also easily identifiable in Area IV. In this area the large rooms were definitively broken up into 4 by 4 meter rooms in Phase II. The walls from this phase include the use of angular limestone slabs into the building materials repertoire. During Phase II a few possible special purpose rooms and structures emerge in this locus/area and these will be discussed further on. Finally, in Phase III in this area most of the Phase II rooms were subdivided into the small cell-like compartments. The collected radiocarbon sample from this area gave a range of dates between 8,620 – 8,510 conventional years BP (Simmons and Najjar 2003: 424-425).

The following tables and charts show the descriptive statistics for the size of the rooms in Area IV that have been determined to have been in use during Phases I, II and III separately:
### Table 6  Descriptive Statistics for the Size of Rooms in Area IV

<table>
<thead>
<tr>
<th>PHASE</th>
<th>N</th>
<th>Range</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>RMAREA</td>
<td>2</td>
<td>7.4000</td>
<td>38.0000</td>
<td>45.4000</td>
<td>41.70000</td>
</tr>
<tr>
<td></td>
<td>Valid N (listwise)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>RMAREA</td>
<td>7</td>
<td>21.4400</td>
<td>3.7500</td>
<td>25.1900</td>
<td>14.06428</td>
</tr>
<tr>
<td></td>
<td>Valid N (listwise)</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>RMAREA</td>
<td>40</td>
<td>11.8650</td>
<td>.3250</td>
<td>12.1900</td>
<td>1.547750</td>
</tr>
<tr>
<td></td>
<td>Valid N (listwise)</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase</th>
<th>Coefficient of Variation as Decimal</th>
<th>Coefficient of Variation as Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0.125481</td>
<td>12.5</td>
</tr>
<tr>
<td>II</td>
<td>0.542991</td>
<td>54.3</td>
</tr>
<tr>
<td>III</td>
<td>1.258219</td>
<td>125.8</td>
</tr>
</tbody>
</table>

### Table 7  Compartments per 100 square meters in Area IV

<table>
<thead>
<tr>
<th>PHASE</th>
<th>Compartments Per 100 Square Meters</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Compartments Per 100 Square Meters</td>
<td>.6154</td>
</tr>
<tr>
<td>II</td>
<td>Compartments Per 100 Square Meters</td>
<td>2.1538</td>
</tr>
<tr>
<td>III</td>
<td>Compartments Per 100 Square Meters</td>
<td>12.3077</td>
</tr>
</tbody>
</table>

The data in Table 7 was calculated by adding up the number of compartments present during each phase, dividing that number by the size of Area IV in square meters and multiplying it by 100. This gives us compartments per 100 square meters.

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The horizontal line inside each box represents the median. 50% of the data falls within the box. The horizontal lines outside of the boxes indicate the range of values that fall within 1.5 H-spreads. All Outliers are labeled. Outliers greater than the 1.5 H-spread are marked with a circle while outliers greater than 3.0 H-spreads are marked with an asterisk.

Phase I Remains In Locus/Area IV

Room Numbers in this section correspond to Figure 10 on page 111 (showing the structures from Area IV that were presumably both built and in use during Phase I).

As we can see from Table 8 on page 112, both rooms from Phase I in this Area are relatively large with room #65 equaling ~45 square meters and room #66 equaling ~38 square meters. If our reconstruction of these rooms is relatively accurate then it is apparent that they are both roughly the same rectangular shape, similar in their large size,
Color displays identifiable construction episodes

Phase I = Yellow

Figure 10  Map of Architecture from Area IV, Phase I
Table 8  Size of the different rooms that were in use in Area IV during Phase I of occupation

<table>
<thead>
<tr>
<th>Room number</th>
<th>Room Size in Square Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>45.4000</td>
</tr>
<tr>
<td>66</td>
<td>38.0000</td>
</tr>
</tbody>
</table>

and both exhibit a roughly open plan. Furthermore, the coefficient of variation from Phase I, in Table 4 on the previous page, is relatively low at ~12.5% telling us that there was not a great deal of variation in room size during this phase. It is possible that at this stage the residing community at Ghwair I was a relatively small group possibly of related individuals with little or no social differentiation, other than that based on age and sex, and little or no serious conflicts and this will be discussed in more detail in Chapter 6. Yet, as mentioned earlier, we must be careful with this evidence as our reconstruction of Phase I is the most susceptible to faults due to the small sample size.

Phase II Remains In Area IV

Room numbers in this section correspond to the Figure 11 on page 114 showing all the structures from Area IV that were in use during phase II. (It is important to keep in mind that the different colors only indicate when the structures/rooms were originally built. Everything shown in color in Figure 11 was likely in use during Phase II).

From the boxplot corresponding to Phase II in Figure 9 on page 110 it is discernable that approximately 50% of the rooms from the Phase II remains of Area IV fall between approximately 10 and 20 square meters with no apparent outliers. It is also apparent from the coefficient of variation for this phase at ~54.3% that the variation in room size during Phase II is greater than it was during Phase I. Furthermore, as is apparent from the Table
9 on this page, 5 out of the 7 rooms are over 10 square meters and these rooms were likely typical habitation areas for varying numbers of people. It is possible that the variation in the size of these structures is due to variation in the size of the nuclear families residing in them although this is only an assumption. For example, the largest rooms #58 and #59 may have served to house a couple with a few children (possibly as many as 4 or more) while the smallest ones may have housed a couple with only one or no children. It is also possible that at this stage the households, or at least some households, may have even been occupied by extended families or nuclear families along with a few relatives not a part of the immediate nuclear family.

<table>
<thead>
<tr>
<th>Room Number</th>
<th>Room Size in Square Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>20.1300</td>
</tr>
<tr>
<td>59</td>
<td>25.1900</td>
</tr>
<tr>
<td>60</td>
<td>13.0600</td>
</tr>
<tr>
<td>61</td>
<td>18.0000</td>
</tr>
<tr>
<td>62</td>
<td>3.7500</td>
</tr>
<tr>
<td>63</td>
<td>12.1900</td>
</tr>
<tr>
<td>64</td>
<td>6.1300</td>
</tr>
</tbody>
</table>

Interestingly there are two rooms, #62 and #64, that are slightly small in comparison to the other rooms during this Phase. From its long and narrow shape and close proximity to an outer public area or plaza (as will be discussed more in the special structures section) directly to the west, Room #62 may have simply been an access area
Figure 11  Map of Architecture From Area IV, Phase II
Figure 12  Stem and leaf plot that shows the distribution of the size of the rooms from Area IV that were in use during Phase II

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Stem &amp; Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>0 . 36</td>
</tr>
<tr>
<td>3.00</td>
<td>1 . 238</td>
</tr>
<tr>
<td>2.00</td>
<td>2 . 05</td>
</tr>
</tbody>
</table>

Stem width: 10.0000
Each leaf: 1 case(s)

that served as a buffer between room #63 and the public area or 'plaza'. The identification of a possible doorway in the western wall of this room #62 and another in the west wall of room #63 with access leading directly to the possible public area also supports the idea that room #62 was an access corridor and buffer from the public area.

In Phase II in Area IV the large rooms from Phase I (#65 and #66 in Figure 10 of the Phase I data) were apparently subdivided turning each of these large rooms into 2 separate rooms of roughly even size (rooms #58, #59, #60 and #61 in Figure 11). There may have been a number of reasons for this subdivision including increasing group segmentation such as the formation of new social groups within the community, increasing privatization, demographic changes and/or increasing inter-group conflicts all of which may be attributed to an increase in community population size. These issues will be investigated in more detail in chapter 6.

Phase III Remains In Area IV

The room numbers in this section refer to the Map in Figure 13 on page 117 (This Map shows all the structures from Area IV that were in use during phase III. It is

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important to keep in mind that the different colors only indicate when the structures/walls/rooms were originally built. Everything shown in color in Figure 13 was likely in use during Phase III unless otherwise noted).

As is discernable from the box in the boxplot in Figure 9 on page 10, approximately 50% of the rooms from Area IV that were presumably in use during Phase III cluster between ~0.2 and 1 square meter. As is noticeable in Figure 13 on page 117, a large majority of the medium-sized roughly 4 by 4 meter Phase II rooms were segmented into numerous of these small cells during Phase III. Interestingly, many of these small cell-like compartments in this area incorporated openings or slots between one another resembling small windows. As these windows were apparently too small to function as doorways for access and these compartments/rooms would have been too small for habitation purposes these cells were likely multifunctional serving a number of purposes. First and foremost the primary purpose of the further partitioning of the 4 by 4 meter rooms into numerous 1 by 1 meter cells in Area IV may have been to support an upper story of some sort. In this way the lower cell areas may have served as a basement or sub-floor support for the upper living area. By further subdividing the areas and adding more walls it would have been easier architecturally to support an upper living area. This upper story was likely composed of perishable materials and it may have been created by laying planks of wood across the tops of the walls. Likewise, with a higher number of walls supporting the planks the upper living area would have been sturdier and safer and the planks of wood would have been less likely to snap from the weight of inhabitants working, walking or sleeping on them. Secondly, the ~1 by 1 meter rooms in the
Figure 13 Map of Architecture from Area IV, Phase III
Table 10  Size of the different rooms that were in use in Area IV during Phase III of occupation

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>18</td>
<td>.8000</td>
</tr>
<tr>
<td>19</td>
<td>.7000</td>
</tr>
<tr>
<td>20</td>
<td>1.0500</td>
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<td>21</td>
<td>3.2000</td>
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<td>22</td>
<td>.6800</td>
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<td>.6375</td>
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<td>.8100</td>
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<td>52</td>
<td>.5200</td>
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<td>2.8900</td>
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<td>3.6000</td>
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<td>55</td>
<td>.5625</td>
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<tr>
<td>56</td>
<td>.7150</td>
</tr>
<tr>
<td>57</td>
<td>1.1700</td>
</tr>
</tbody>
</table>
Figure 14  Stem and leaf plot that shows the distribution of the size of the rooms from Area IV that were in use during Phase III

```
RMAREA Stem-and-Leaf Plot

Frequency Stem & Leaf
1.00 0 . 3
4.00 0 . 4555
7.00 0 . 667777
8.00 0 . 88899999
10.00 1 . 0000001111
   .00 1 .
1.00 1 . 4
   .00 1 .
2.00 1 . 88
7.00 Extremes (>2.2)

Stem width: 1.0000
Each leaf: 1 case(s)
```

basement-like lower story of this locus/area may also have served as a ventilation system. The basement shafts or windows would most likely have allowed the flow of air into the basements that furthermore would have flowed up into the second story structures functioning as a natural air-conditioning system. This would have served a dual purpose. The obvious purpose of this would be to keep the upper living areas cool for residents. Furthermore, such an air flow system may also have served to dry freshly harvested grains from surrounding fields. The drying of grains is a necessity before any type of processing for consumption. Along these lines, laying bundles of such grains in areas accessible to air flow would have served the function of draining excess wetness in the grains into the basement areas. This would serve to dry the grains and prepare them for consumption purposes and conducting such operations over the basement-like cell areas may have expedited the process.
Another possible function that the ~1 by 1 meter cells in the final phase of construction/remodeling may have served is for storage of certain personal/private items. These would include surplus food resources such as grains, tools or tool kits, and/or important family markers. The major problem with this possibility is the sheer lack of large quantities of materials found on the floor of these cell areas during excavation. Nonetheless, in isolated cases there were few caches of tools and other important indicators of function such as human remains found in these cells. This brings us to another possible usage of these basement-like cell areas: Repositories for the Dead. This is supported by the finding of at least 3 different “burials” in these subfloor basement areas including one very special human burial. Two of these burials were “within cobble-lined graves within the rubble” of two different small subfloor rooms (Simmons and Najjar 2003:422). The third burial, a very special one, was in a larger than normal subfloor room (#44) with a number of ‘grave goods’ and this will be discussed in detail further on. Finally some of the larger of these subfloor basement areas may have also functioned as work areas. There are a number of outlier rooms during Phase III in Area IV. This indicates a possible special function of these rooms or at the very least a different function from those smaller compartments. The most extreme outlier is room #50 and there are a number of reasons why this room may have been so large. It does seem interesting that almost all of the rooms from Phase II to Phase III in Area IV were split up into small 1 by 1 meter compartments except for Room #50. This Room may have had a special function of some sort or an unusual habitation function. Rooms #48 and #49 to the west of Room #50 incorporated a stairway leading north, presumably up onto the second story area of the bulk of this excavation Area.
Furthermore, Rooms #51, 52 and #53 to the east of Room #50 also incorporated a stairway that presumably also led to the second story of the bulk of the remains to the north of this stairway. Since Room #50 stands right in the middle of these two stairways it seems likely that this Room did not have a second story. It may have been an empty area that was simply cordoned off by the stairways. Furthermore, the evidence from the artifacts in this structure (#50) indicates that this structure may have been abandoned during Phase III and used as a trash pit explaining why it was not subdivided into smaller compartments.

The rest of the outliers are not as extreme. Rooms #49 and #53 are less than 3 H-Spreads within the median and these may have simply functioned as access areas to the stairways they are associated with. Yet, interestingly on the floor of room #53 there was a number of artifacts that may imply a special function for this room and this will be discussed more in the special structures section. The rest of the outliers (#21, #37, #44 and #54) are all more than 1.5 H-Spreads within the median and from their positions they all may have functioned as sub-structure work areas. Each of these rooms is presumably large enough for people to have conducted some sort of task within. There is likely a good reason why these rooms are bigger than the typical ~1 by 1 meter compartments. By making these compartments larger the inhabitants would have been able to conduct tasks such as lithic manufacturing, grinding plants, butchering animals and preparing meals. This may be confirmed in Room #54 by the finding of a number of interesting artifacts including a groundstone bowl found on the floor and a cow scapula in the fill that may indicate that this room may also have functioned as a work area for a number of...
potentially different tasks. Furthermore, these objects also may imply the association
with Room #53 which may have had a special function (see special structures section).

This may also be confirmed in Room #44 by the finding of lithics including blades
and projectile points along with a great deal of groundstone and a number of malachite
objects including pendant blanks all on the plaster floor. The groundstone objects on the
floor of Room #44 included a bifacial discoidal/oval handstone with bits of malachite
embedded in it, an axe/celt preform along with two palettes with ochre in them (Feature
#21). The finding of all of these objects on the plastered floor of this subfloor room led
excavators to label room #44 as a “multifunctional workshop”. Yet, this workshop was
closely related to an infant burial found beneath the floor in this room. This may serve to
obfuscate whether it was really a workshop or not. It seems just as likely that these
objects could all have simply been grave goods associated with the infant burial.

It is also interesting that rooms #27, #28, #29 and #30 are not fully enclosed but
instead there is an opening connecting the row of rooms #27 and #28 with the row of
rooms #29 and #30. It is possible that each room was essentially one contiguous subfloor
room and the fact that both of these rows are not entirely separated from one another but
are connected to a central opening may indicate that the entire roomblock (#27, #28, #29,
#30) functioned as one semi-contiguous area used for storage and possibly also as
workspace.

These first floor basement-like areas, especially the larger of these subfloor rooms,
also may have been used to conduct in-house ritualistic practices. This is especially
apparent in Room #44 where, next to the ‘multifunctional’ workshop, there was a
subfloor infant burial found with grave goods on the overlying floor. Furthermore, the
substructure nature of these rooms (presuming that they were on a first floor while the majority of activities took place on the second floor) would have allowed the inhabitants to conduct all of these operations in privacy. In this way the basement-like nature of these rooms allowed individuals to store their surplus food and other objects and conduct work and ritual operations all in privacy. This would have avoided the threat of neighbors intruding on private matters and possibly serve to help avoid arising conflicts stemming from jealousy or piousness.

Special Structures

Stairs/Public Area ("Theatre")

In Area IV to the east of the bulk of the architectural remains for the area is an open public area or plaza and a public stairway or what Simmons and Najjar (1995) termed a "theater-like" construction. This area consists of a series of large steps in front of a flat area of hardpacked earth. During Phase I this area likely was a simple open area. The site layout / architectural plan of Phase I may or may not have cordoned this area off although it most likely was not in use during Phase I. By Phase II a large stairway was definitely in place and by then the simple open area had become an elaborate courtyard or plaza with clear cut stairs facing it. The stairs were built with semi-shaped cobbles overlain with flat stones. These flat stones may have served to make the stairs sturdier and more physically appeasing to local inhabitants and/or visitors from the surrounding area while also serving to level the surface of each stair. Furthermore, by this phase the floor of the courtyard definitely consisted of hard packed earth. By the latest phase the stairs may or may not have been expanded and remodeled although indubitable evidence
for this is not available serving to obfuscate whether or not the area was expanded during Phase III.

Throughout Phases II and III this public ‘theatre’ or plaza very likely served a communal function. Likewise, this area could have been the main focal point of the village and may have served to connect separate sections or “neighborhoods” of the village occupied by different social factions within the community. If this was the case then this public stairway and gathering area could have served as a sort of unifying bridge or meeting area between such different social factions. This public plaza or gathering area, whatever the exact intended function, likely required cooperation between numerous groups within the community.

Whether or not this area of the village becomes more elaborate throughout PPNB occupation, the simple appearance of this area during phase II indicates an increasing amount of energy being invested in public or community level constructions. The organization, planning, and construction of this public area could have served to integrate different groups or factions, promote community cohesion and cooperation and help to ease intra-community tensions such as in this scenario proposed by Byrd (1994) for some communal structures at nearby MPPNB Beidha. Likewise, the increasing investment in the area likely indicates an increasing need to promote community cohesion and cooperation due to an increase in Intra-community tensions throughout occupation.

While speculative, the appearance of this public area or plaza termed the “theatre” in Phases II and III may also be related to an increase or intensification of public ritual activity. This increase or intensification of ritual could be related to the self-vested interests of certain groups or individuals within the society attempting to influence the
presiding social structure and gain socio-political power. As explained earlier, in a theoretical context, public constructions and/or areas are a stage where certain struggles for social power occurred through public expression in public ritualistic activity (Moore 1996: 4). Thus, while the actual construction of this area could have served to promote community cohesion by bringing together different social factions for the unifying objective of building this area, once it was constructed its presence may have served to do just the opposite. Once in place, this public area or plaza may have actually sparked conflict as different individuals or groups may have used this area for ritual and this could have led to rising conflicts over who gets to use this public plaza and when. Such struggles over socio-political power could have taken place between individuals, groups and/or social factions. In these regards this area, once in place and in use for public ritual, certainly may have functioned as a theatre of sorts as it very possibly may have functioned as a stage where struggles for socio-political power occurred. Furthermore, such conflicts may have served as a means for the reiteration/reinstatement and/or the transfer of authority either in a smooth, gradual and peaceful fashion or in a precipitated and violent way [for partly analogous structures see Moore’s (1996) discussion of Incan structures in South America].

Room #44

Room #44 from Phase III data in Figure 13 on page 117 [referred to by Simmons and Najjar (2003) as Room A] includes a number of interesting features including a cobble lined pit in the western corner at the bottom of which was a large flat slab lining. Furthermore, the majority of this room included a patchy plastered floor, underneath
which was another plastered floor with red paint on it. Below both plastered floors there is a subfloor pit that was only partially noticeable at the NE corner of the room where there was a lack of plaster. Excavation of this subfloor pit uncovered an infant burial. The evidence suggests that the original plaster floor was dug up at some time in order to create the burial pit and then the floor was replastered. Furthermore, it is not clear whether the burial pit was initially in place during Phase II or Phase III.

The burial was not particularly well preserved and this is likely due to the dampness of the matrix and the individual’s young age. The remains of the infant consisted of the skull, dentition, long bones and phalanges from the left hand. The burial was flexed with the legs facing north and the head facing south with the left leg facing inferior to the right. Based on dental development Dr. Thompson of the University of Nevada Las Vegas determined that the individual was approximately 9 months of age at death. One curious detail about the infant concerns the position of the neck indicating that it was broken. Yet, the exact cause of death has not been determined meaning that the broken neck may have been the cause of death or it also may have occurred post-mortem (Simmons and Najjar 2003: 422). Importantly, around the infants neck there was a mother of pearl necklace or earring. Furthermore, directly above the infant burial on the overlying plaster floor there was a cache of at least four goat skulls and one cow skull including a very well preserved horn core. These skulls and horn core were likely a dedicatory cache to the infant burial and this may indicate the presence or emergence of some sort of inscribed status. This has major implications in respect to the issue of social stratification since infant burials in general are very rare for the Early Neolithic and this will be discussed in more detail in Chapter 6. This burial may have also served to claim
this structure or roomblock as the property of a certain family, clan or otherwise somehow related social group.

**Room #53**

On the floor of Room #53 on the phase III data in Figure 13 [referred to as Room C by Simmons and Najjar (2003)] were a number of intriguing artifacts including a cow scapula along with other cow bone, a pendant, bone awl along with a needle, malachite, hematite, and lithics all indicating that this area likely functioned as more than just an access corridor to the stairway. Also present in the fill within this room was great deal of groundstone including two globular groundstone bowls, a block grinding slab, a spheroid pounder and two unifacial discoid handstones (Feature #35). Furthermore, two plastered benches found next to the stairway forming the boundaries of rooms #51 and #52, likely indicate that some special function took place in this entire roomblock. It is possible that this was an extra-habitation meeting area between certain individuals as may be indicated by the benches. It is also possible that certain rituals (feasting?) may also have taken place in this room. The benches may have actually served as either tables for meals to be served on, or as seating areas during certain feasting. If feasting did take place in this room it may have been of a communal type and functioned to unite different lineages, clans, or social groups. Such rituals likely promoted cooperation and alliances between groups and may have functioned to strengthen certain social relationships. This may be concluded from the cow scapula and the great deal of groundstone, although one must be advised that this is still only a very tenuous assumption.
Comparison of Areas I and IV

This section serves to compare the two major areas/loci of excavation. Each of the sections will look at each area, I and IV, as a whole. Instead of looking at specific structures in each area it serves to lump all the rooms/structures within areas together.

The Architecture

Since Area I and Area IV are the Areas currently exposed at PPNB Ghwair I that best and most clearly show development from phase to phase we will statistically compare the architecture from each phase from each of these two areas. This will not include Phase I since the sample from this phase is so small and only available from Area IV.

I used a simple unpaired 2 sample t-test to compare the size of the rooms from the two excavation areas, I and IV, at Ghwair I with the most intact architectural data. I used this test to determine the probability that the two samples (or excavation areas) came from the same population or if they differ significantly. I first conducted this test to compare the samples from Area I against those from Area IV for Phase II. I then repeated this test to compare samples from Area I against those from Area IV this time for Phase III. The results are shown in figure 15 (Phase II) and Figure 16 (Phase III) and Tables 11 and 12, all shown below. I conducted this test to compare the two the different areas, by phase, to see how similar or different they were. If they were extremely different (or if the results turn out to be significant) this might lead one to conclude that the two different areas were used for a different range of purposes. Likewise, if the results were not significant then this might lead one to conclude that the areas were in fact used for a similar general range of purposes.
The boxes represent 50% of the data. The horizontal line inside each box represents the median. 50% of the data falls within the box. The horizontal lines outside of the boxes indicate the range of values that fall within 1.5 H-spreads. All Outliers are labeled. Outliers greater than the 1.5 H-spread are marked with a circle while outliers greater than 3.0 H-spreads are marked with an asterisk.
As is discernable from Figure 15 for the Phase II remains the median for room size from the two different areas are nearly the same although the data for Area IV are more widely distributed than that from Area I. Furthermore, neither area has major outliers for Phase II. For Phase III, once again the medians are similar although as is discernable from the Boxplot in Figure 16 there are a number of Outliers in this phase from both Areas once again showing that the Phase III data is more widely distributed than that from Phase II.

Table 11 T-Test Comparing Phase II From Locus/Area I and IV

<table>
<thead>
<tr>
<th>Rm Area</th>
<th>Levene's Test for Equality of Variance</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>8.64</td>
<td>.005</td>
<td>2.002</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.559</td>
<td>19.5</td>
<td>.135</td>
</tr>
</tbody>
</table>

The results of the t-test for Phase II show us the following: The Levene’s test indicates that the variances from the two areas/loci do differ significantly as the
significance is .005 (less than .05). Thus, the assumption of equal variances is not met and we use the equal variances not assumed column. Our predetermined value is .05 and the significance in 2-tails is 0.135 and greater than .05 so we conclude that the differences are NOT significant. Thus, there is NOT a statistically significant difference in the size of compartments/rooms from excavation areas I and IV during Phase II.

**Table 12  T-Test Comparing Phase III From Locus/Area I and IV**

<table>
<thead>
<tr>
<th>Rm Area</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>4.816</td>
<td>.051</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.390</td>
<td>.749</td>
</tr>
</tbody>
</table>

The results of the t-test for Phase III show us the following: The Levene’s test indicates that the variance from the two areas/loci do not differ significantly in Phase III as the significance value is .051 (greater than .05). Thus, we use the equal variances assumed column. Once again our predetermined value is .05 and the significance in 2-
tails is 0.219 and also greater than .05 so we conclude that the differences are also NOT significant.

This indicates that the different areas are similar within Phases and that they could have come from the same population. This means that the two areas may not be so disparate or fundamentally different and overall, not specifically referring to individual structures but to the areas in general, may have had a similar range of functions or usage within specific phases. This also shows us that there is also a good reason for us to conclude that the Phase II remains in Area/Locus I do correspond to the Phase II remains in Area/Locus IV, and the same applies for the Phase III remains.

Due to limitations in data the other areas were not investigated in as much depth as Areas I and IV. Nonetheless the results are as follows:

Area II

This area is located at the southwestern region of the site further up the hillside or mountain. This area overlooks the site and is located at a high point in respect to the rest of the exposed architecture at the site. Interestingly this area exhibits a number of highly complex walls and the depth in this area is the greatest throughout the site reaching around 5 meters or more. The stratigraphy in this area has not been clarified very well due to the limited area excavated here of only approximately 36 square meters. Nonetheless a large room based on a sterile yellow clay matrix was found at the bottom of this area. The walls of this large room was also composed of large wadi cobbles and may or may not represent the large room phase or another later phase. Numerous massive and parallel walls also found in this area may be from Phase III as they exhibit
high compartmentalization possibly closely resembling the ~1 by 1 meter cells.

Interestingly in this area at least 33 separate building episodes were recorded indicating a great deal of repetitive remodeling/restructuring (Simmons and Najjar 2003). A partial burial was also present in this area although it was not a typical PPNB burial. Only parts of the skeleton were recovered including parts of the cranium and the context of these remains was poor. In one structure in this area there was a hearth (Feature #23) associated with a number of groundstone artifacts including an incised globular bowl, a mace head, three miniature vessels, a spheroid pounder, a unifacial ovate handstone, two unifacial ovate polishing pebbles, a unipolar conical pestle, and a large vessel rim fragment. This hearth feature along with the numerous groundstone artifacts may indicate that this area functioned for the cooking and preparation of food.

During the later portions of occupation of the PPNB site this entire locus/area may have been converted into a trash deposit as was indicated during excavation by the finding of a highly ashy matrix. Furthermore, the depth in this area and its near proximity to a number of the terracing and other possible water control features may indicate why this area eventually was occupationally abandoned and only used as a trash deposit. It is possible that encroaching mudslides and water flowing down the mountain overwhelmed this area in a deluge serving to render it unusable for normal occupation. This is possibly one explanation for the eventual abandonment of the site altogether. The range of dates from radiocarbon samples collected in Area II is from 8,710 to 8,570 conventional years BP (Simmons and Najjar 2003: 424-425).
Area III

Excavation in this area revealed a large ashy deposit with numerous (at least 3) replastered floors that were in a very degraded state. Numerous highly fragmented walls were also recovered from this area and their poor preservation made it difficult to determine the exact morphology and/or size of the structures that these walls originally made up. Interestingly for stylistic purposes a structure directly north of this area appears to have been “ovoid in morphology” although its state of preservation is poor. This could mean that it may have been a special structure of some sort or a structure from a period earlier than the majority of the rest of the PPNB village. Yet, the only radiocarbon date collected from this area yielded a date of 8,755 BP (Simmons and Najjar 2003: 424-425) and this date does not confirm it to be an earlier structure and the lack of clear data on this structure and area keep one from making hasty conclusions (Simmons and Najjar 2003: 411). Due to the shallow and poor preservation of the architecture in this area only 80 square meters were excavated here leaving us highly limited data.

Area V

This area was only briefly investigated with excavation of 3 units approximately 5 by 5 meters in size. The entire Area consisted of 75 square meters yet each of the 3 units was only dug to the first level of fill revealing a rough outline of a few walls. Due to the importance of the other areas/loci and limitations on time this area was not investigated in depth.
Area VI

This area is located between Areas III and IV, approximately southeast of Area IV and Northwest of Area III. Using Ground Penetrating Radar (GPR) the excavation team identified a number of buried wall features in this Locus/Area. Excavation revealed a “thick and deeply buried wall” although the majority of the architectural remains in this area were poorly preserved (Simmons and Najjar 2003: 411). Interestingly a figurine fragment was found in this locus/area beneath a very decomposed floor and this may indicate some sort of ritual activity. Yet, this is a very tenuous assumption since the context of the figurine is not well understood and also since the area may have functioned as a trash pit in later Phases. The radiocarbon date recovered from this Locus/Area gave a date of 8,570 BP (Simmons and Najjar 2003: 424-425).

In his work, Gervasoni (2000) compared the lithic assemblage between Areas I, IV and VI, limiting his analysis to these areas since they had the highest proportions of chipped stone at the site. The analyses used the top seven tool classes including projectile points, microliths, piercing tools, notches, tanged pieces, scrapers, and sickle/glossed pieces to investigate whether one of these areas may have served a special function of some type. The results determined that in regards specifically to piercing, notches, tanged, scrapers, and sickle gloss tools “the ratios are almost identical.” (Gervasoni 2000: 107) Also, as far as cores are concerned “there does not appear to be any drastic differentiation in the proportion of cores within each of the areas.” (Gervasoni 2000: 110). Thus, so far there are not major differences in the lithics within each separate area/locus.
Interestingly, as far as projectile points and microliths are concerned Gervasoni determined that the distribution was slightly different. As Gervasoni (2000: 107) states: "The projectile point and microlith ratios for Areas 1 and 4 are similar, but are completely contrary to Area 6." While Area 6 had a relatively low proportion of projectile points, in comparison to Areas 1 and 4 it had a relatively high proportion of microliths and Gervasoni (2000) initially seemed to think that this may have suggested a specialized function for Area 6 such as for the production of microliths. Yet, further along in the analysis Gervasoni (2000) determined that the distribution of microliths is not concentrated in specific structures, rooms or segments of Area 6 and this could suggest a number of things. First of all it could suggest that Area 6 was more devoted to microlith production than the other two areas. It could also suggest that Area 6 was also used during the earlier PPNA period when microliths made up a higher percentage of the tool kit although there are no radiocarbon dates to support this. Finally, the higher proportion of microliths in this area could also be due to certain sampling problems. In his analysis, Gervasoni (2000) finally concludes that Area 6 was likely not a specialized production workshop and it also likely was not occupied during the PPNA. Thus, the higher proportion of microliths in this area/locus (Area VI) may be related to methods of sampling or to its use in later phases as a trash pit.

**Diachronic Trends**

This section looks at trends of change from phase to phase. Our t-tests comparing the phases from the different areas earlier determined that there is not a statistical difference between the different areas during Phase II or during Phase III. Thus, for holistic reasons
Area/Locus I and IV are combined in this part of the analysis meaning that when discussing a phase in this section we are referring to the available evidence from both Area/Locus I and IV together. As explicitly stated earlier in the theoretical chapter, if socio-political complexity increases from phase to phase we would expect to also see an increase in social differentiation or heterogeneity, an increase in specialization, an increase in public constructions or areas, an increase in compartmentalization or internal segmentation of structures, and an increase in monofunctional uses of certain loci.

The evidence from Phase I is the most ephemeral and subject to flaws in interpretation meaning any conclusions about this phase are the weakest. The following Tables (Table 13 and 14) and Figure 17 on page 139 display trends of change from Phase I to Phase II to Phase III for both Areas I and IV combined.

<table>
<thead>
<tr>
<th>Table 13</th>
<th>Statistics from Both Areas I and IV combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE</td>
<td>N</td>
</tr>
<tr>
<td>I RM AREA</td>
<td>2</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>2</td>
</tr>
<tr>
<td>II RM AREA</td>
<td>13</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>13</td>
</tr>
<tr>
<td>III RM AREA</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase</th>
<th>Coefficient of Variation as decimel</th>
<th>Coefficient of Variation as Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0.125481</td>
<td>12.5</td>
</tr>
<tr>
<td>II</td>
<td>0.507809</td>
<td>50.8</td>
</tr>
<tr>
<td>III</td>
<td>1.355176</td>
<td>135.5</td>
</tr>
</tbody>
</table>
Table 14  Compartments per 100 square meters for Areas I and IV Combined

<table>
<thead>
<tr>
<th>PHASE</th>
<th>Compartments per 100 square meters</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>.6154</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>2.4762</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>10.857</td>
<td></td>
</tr>
</tbody>
</table>

The data in Table 14 was calculated by adding up the number of compartments present during each phase, dividing that number by the size of the Area I and Area IV combined in square meters (or for Phase I only Area I) and multiplying it by 100. This gives us compartments per 100 square meters.

Phase I is the most difficult of the three to make any definitive conclusion about since the sample size is so small. As stated earlier this small sample size may be due to the dismantling and/or reuse of walls from phase I during the later phases rendering their utilization in phase I as undetectable. Leaving room for possible error in interpretation it seems likely that the structures in Phase I were the most monotonous and least internally subdivided out of the three major phases. This is exhibited by the Phase I corresponding box in Figure 18 showing that the median room size for Phase I remains is much larger than the median from the other three phases. Furthermore, there are no outliers in the sample set with the two large rooms in Phase I conforming generally to a similar size and rectangular shape. What this tells us is that there is no definitive evidence for special structures during phase I and there is also little evidence for a large range of different sized domestic structures / houses during this phase. This would indicate a lack of architectural evidence of specialization or any type of either heterarchical or hierarchical.
Figure 17  Boxplot for Areas I and IV Combined

The boxes represent 50% of the data. The horizontal line inside each box represents the median. 50% of the data falls within the box. The horizontal lines outside of the boxes indicate the range of values that fall within 1.5 H-spreads. All Outliers are labeled. Outliers greater than the 1.5 H-spread are marked with a circle while outliers greater than 3.0 H-spreads are marked with an asterisk.

difference. Furthermore, the very large rooms found in this phase also indicate little or no evidence for spatial demarcation or territoriality at the intra-site level with no apparent evidence of monofunctional use of loci or special structures of any type. Furthermore, the only storage structures present during this phase are certain rock-lined pits that were likely communal storage features used by anyone. This means that surplus was likely pooled and this indicates a lack of privatization or accumulation of resources. Overall,
this is likely informative of a social structure lacking much social differentiation and heterogeneity other than that based on sex and age. From the available intact architectural data from Phase I remains we can judiciously say that there is not much evidence for any type of detectable socio-political complexity during Phase I.

As we can see from Table 13 on page 137 and Figure 17 on page 139 the median and mean for room size gets smaller from Phase I to Phase II and even smaller into phase III. This all implies an increase in intra-site territoriality, spatial demarcation and privatization. In Phase II there is only one outlier and in Phase III there are a plethora of outliers as far as room size is concerned. Interestingly, from Phase II to Phase III there is an increase in the coefficient of variation deviation meaning that variation is increasing. Furthermore, there is also an increase in public and special areas. Some of these public areas, such as the ‘plaza’, may have functioned to counteract certain inter-group rivalries and tensions that may have become more pronounced throughout occupation. Others, such as room 1, may have been associated with individuals with vested self-interests in influencing and controlling the prevailing social order and aggrandizing themselves and gaining socio-political power. Furthermore, the increase in the number of outliers from Phase I to Phase II to Phase III likely means that there was an increase in the range of different functioning structures throughout occupation (ignoring the SD and range in Phase I in this case due to its small sample size). This indicates an increase in social heterogeneity and differentiation. Furthermore, the evidence of the infant burial associated with numerous grave goods may indicate emerging inscribed status. Such would indicate some type emerging hierarchy within the community social structure at Ghwair I and this will be investigated in Chapter 6.

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The available data as displayed in Table 14 on page 138 also indicates a major increase in compartmentalization from Phase I to Phase II to Phase III. In Phase I there are only .6154 compartments per 100 square meters while this number nearly quadruples into Phase II at 2.4762 and in Phase III it increases by nearly 5 times increasing to 10.8 compartments per 100 square meters. This indicates an increase in social crowding along with more pronounced territorial awareness and increasing privatization which all may be related to certain demographic changes. By increasing compartmentalization at Ghwair I the inhabitants would have more clearly delineated territories likely in order to increase space for storage, production, and food preparation in more privatized settings.

All of this evidence indicates that as Ghwair I developed from Phase I to Phase II to Phase III it became more compartmentalized, structures became more variable with special purpose structures and public areas emerging, and private storage increased. The data are not clear concerning certain other issues connected to complexity such as specialization and monofunctional uses of areas. Nonetheless, overall, the evidence does suggest an increase in heterogeneity, privatization of resources and an overall increase in socio-political complexity throughout PPNB occupation at Ghwair I. The causes of this increase could be numerous including a possible increase in sedentism, dependence on agriculture, territoriality, social crowding and the agglomeration of people into smaller areas or simply major demographic changes. The next chapter will serve to place Ghwair I into a broader regional and theoretical framework of the neolithic of the Levant and socio-political development.
CHAPTER 6

WHERE GHWAIR FITS IN: PLACING GHWAIR IN CONTEXT

The last chapter showed how the complexity at Ghwar I increased throughout its MPPNB occupation. This chapter places Ghwar I into a context in terms of site size, population size, and social structure and will also investigate possible causes for the collapse and abandonment of the site.

Site Size and Compartmentalization

Beginning with site size, Simmons and Najjar (2003: 407) report that Ghwar I is a “modest sized PPNB village covering approximately 3 acres (or ca. 1.2 hectares) or less”. Yet, this approximation does not include the reasonably large portion of Area I that has eroded into the wadi. Thus, if we were to estimate the size of Ghwar I during Phase III of occupation, including the post-depositionally eroded areas, a more reasonable rough estimate would be somewhere around 3.6 acres or 1.45 hectares. One must keep in mind that this approximation most likely corresponds to the size of the village after Phase III construction and expansion had already taken place.

Figure 19 on page 144 displays the increase in site size throughout the Neolithic for a number of Levantine sites with an accelerated rate of increase from the MPPNB to the LPPNB. Figure 19 on page 144 and Table 15 on page 149 show how Ghwar’s site size
compares with the size of other Neolithic sites in the Levant. It has already been shown that by Phase III of occupation at Ghwair I the architecture indicates a high degree of compartmentalization at \( \sim 10.85 \) compartments per 100 square meters. To place this in context, the five largest Late Natufian sites are each approximately 0.2 hectares with an estimated average of 1.6 compartments per 100 square meters. Meanwhile, PPNA communities averaged somewhere around 1 hectare in size and yet displayed an estimated average of 2.4 compartments per 100 square meters. In the Middle PPNB sites would have averaged somewhere around 3 hectares in size and yet they would have displayed an estimated average 6.4 compartments per 100 square meters. By the Late PPNB sites would have averaged somewhere around 10 hectares in size and would have displayed an average 14.5 compartments per 100 square meters (Kuijt 2000). As exemplified in Figure 19, the size of Ghwair at \( \sim 1.45 \) hectares would have been considerably smaller than the average MPPNB community which would have been \( \sim 3 \) hectares. Instead, as far as size is concerned, Ghwair would have been closer to the average PPNA site size which would have been \( \sim 1 \) hectare.

Furthermore, as exemplified in Figure 20 on page 145, the amount of compartmentalization at Ghwair during its peak, at 10.85 compartments per 100 square meters, would have been much higher than the average amount of compartmentalization for other Middle PPNB sites at \( \sim 6.4 \) compartments per 100 square meters. Instead, the amount of compartmentalization at Ghwair would have more closely corresponded to the average amount of compartmentalization found at Late PPNB communities at \( \sim 14.5 \) compartments per 100 square meters.
Figure 18  The increase in site size from the Late Natufian to the Late PPNB

![Graph showing the increase in site size from the Late Natufian to the Late PPNB](image)

Figure 19  Bar chart comparing the size of different Neolithic sites

![Bar chart comparing the size of different Neolithic sites](image)
Figure 20  Bar Chart showing average compartments per 100 square meters from different times periods in comparison with the compartments per 100 square meters from MPPNB Ghwair and ‘Ain Ghazal

![Bar Chart](image)

Info for MPPNB ‘Ain Ghazal and averages for time periods from Kuijt (2000)

The evidence investigated thus far suggests one or both of the following: 1) there may be fundamental flaws in the way researchers estimate site size, and/or 2) Site size is not proportional in any way to site complexity.

Investigating the first of these notions that there may be fundamental flaws in the way researchers estimate site size, Hole (2000: 194-195) highlights a number of the factors that could give researchers the false impression that a site may appear to have been large. These include 1) “sequential use” of the site so that small settlements that accumulated horizontally may create the false impression that they are from the same time period, 2) structures may be spaced widely apart and represent a number of different sites (camps or hamlets) and yet there may be artifacts found over the entire area in between each distinct
site leading researchers to classify it as one contiguous site, 3) non-domestic structures
take up a great deal of space serving to obfuscate the actual size of the living area of the
site leading researchers to miscalculate how many people actually lived at the site, and
also “a large site may represent merely a seasonal agglomeration of many normally
smaller units.” Hole (2000: 194-195)

Furthermore, as discussed in the theoretical section, the degree of
compartmentalization and segmentation of architecture is considered an important
indicator of complexity. If estimates are even anywhere close to being accurate, as
displayed in Table 15 on page 149 MPPNB ‘Ain Ghazal at 4.5 hectares in size was
considerably larger than MPPNB Ghwair I at 1.45 hectares in size. Yet, Figure 20 shows
that Ghwair I was considerably more compartmentalized than MPPNB ‘Ain Ghazal.
Thus, it seems apparent that if Ghwair I was a small village for the Middle PPNB, as
estimates suggest, it exhibited a great deal of complexity. This leads to the conclusion
that site size is not commensurate to site complexity other than in a very general way.

Estimating Population Size

A number of anthropologists have conducted ethnoarchaeological research on the size
of contemporary rural farming villages in the Near East and other parts of the world.
Such research has major implications for ancient farming villages and a number of
researchers have used this research to devise models that aim to extrapolate the size of
the population that resided at archaeological sites when they were occupied.

One of the first of these researchers to devise such a model was Naroll (1956; 1962:
588) who proposed that there is a roughly constant relationship between floor area of a
site and the population size. By plotting data on floor area and population size from 18 different societies from a number of different continents Naroll (1962: 587) interpreted the data to clearly suggest that “…the population of a prehistoric settlement can be very roughly estimated as of the order of one-tenth the floor area in square meters.” Thus, seeing that if Ghwair I was ~1.45 hectares or 14,500 square meters in size as total area is concerned at its peak, the village would have been home to approximately 1,450 persons during Phase III occupation. Yet, it is important to keep in mind that the model devised by Naroll (1962) was meant to include only floor area instead of total area and yet the data available does not allow us to determine only floor area for Ghwair I. Narrol’s (1962) model may be more applicable in this case to the number of people living in specific structures of certain sizes than to the population size of the entire community.

LeBlanc (1971) proposed an addition to Naroll’s (1962) floor area – settlement population model. This addition suggests that floor area alone is not an accurate indicator since it includes not only living space but also area used for various storage areas and for social purposes including public open areas or plazas. Thus, LeBlanc (1971: 211) proposed that “if a general law of floor area is to be derived, it will be necessary to collect data not only on total floor area, but on the amount of roofed area and/or walled space put to various specified uses.” Along similar lines LeBlanc (1971: 211) claimed that when specifically only living area is considered, the average floor area per person closely corresponds to Narrol’s suggestion of one person per 10 square meters. In the case of Ghwair I it is presently not possible to accurately estimate the approximate area of the site that was used only for living area since large areas of the architecture at
the site still lies unexposed. Thus LeBlanc's suggestion to Narrol's (1962) model cannot be properly applied to Ghwair I at this time due to limitations in data.

Two researchers, Watson (1979) and Kramer (1982) have done ethnoarchaeological research in rural areas of Iran that is of interest to the topic at hand. From a sample size of 110 agriculture settlements composed primarily of mud-brick and sometimes stone, Kramer (1982: 162) came up with a number of statistics on settlement size, population size and population density. The results yielded a mean settlement area of 2.1 Hectares, mean settlement population of 313 persons, and a mean population density of 147 people per hectare. If we use the mean population density of 147 persons per hectare to extrapolate the population size at Ghwair I during Phase III of occupation we come up with approximately 213 persons (1.45 hectares times Kramer's (1982: 162) 147 persons per hectare).

What may also be useful to our research at Ghwair I is ethnoarchaeological research conducted by Van Beek (1982) in the Near East that may yield a more applicable and/or accurate model for estimating population size from certain aspects of site size. Van Beek (1982: 61) points out that there are still a few farming settlements in the Near East that have "been untouched, for the most part, by the rapid spread of 20th century technological developments and, in most respects, remain almost the same today as they have been for centuries." Van Beek's research concentrated on just one of these settlements known as Tell Marib that occupies the northeast corner of a vast tell corresponding to pre-Islamic or Sabaean Marib and "...consists predominately of sun-dried mud-brick structures..." (Van Beek 1982: 63). The population estimation concentrated on first estimating the number of buildings present in the village. By then approximating that 10% of the
### Table 15  
Statistics on a number of different Late Epipaleolithic and Early Neolithic Sites from the Levant.

<table>
<thead>
<tr>
<th>SITE</th>
<th>TIME PERIOD</th>
<th>ESTIMATED SITE SIZE IN HECTARES</th>
<th>ESTIMATED POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Ain Mallaha</td>
<td>Late Natufian</td>
<td>0.2</td>
<td>59</td>
</tr>
<tr>
<td>Jericho</td>
<td>PPNA</td>
<td>2.5</td>
<td>735</td>
</tr>
<tr>
<td>Netiv Hagdud</td>
<td>PPNA</td>
<td>1.5</td>
<td>441</td>
</tr>
<tr>
<td>Gilgal I</td>
<td>PPNA</td>
<td>1.0</td>
<td>294</td>
</tr>
<tr>
<td>Dhra'</td>
<td>PPNA</td>
<td>0.45</td>
<td>132</td>
</tr>
<tr>
<td>Nahal Oren</td>
<td>PPNA</td>
<td>0.2</td>
<td>59</td>
</tr>
<tr>
<td>'Ain Ghazal</td>
<td>MPPNB</td>
<td>4.5</td>
<td>1323</td>
</tr>
<tr>
<td>Ghwair I</td>
<td>MPPNB</td>
<td>1.45</td>
<td>530</td>
</tr>
<tr>
<td>Tell Aswad</td>
<td>MPPNB</td>
<td>4</td>
<td>1176</td>
</tr>
<tr>
<td>Jericho</td>
<td>MPPNB</td>
<td>2.5</td>
<td>735</td>
</tr>
<tr>
<td>Yiftahel</td>
<td>MPPNB</td>
<td>1.5</td>
<td>441</td>
</tr>
<tr>
<td>Kfar Hahoresh</td>
<td>MPPNB</td>
<td>0.5</td>
<td>147</td>
</tr>
<tr>
<td>Basta</td>
<td>LPPNB</td>
<td>14</td>
<td>4116</td>
</tr>
<tr>
<td>'Ain Ghazal</td>
<td>LPPNB</td>
<td>10</td>
<td>2940</td>
</tr>
<tr>
<td>Wadi Shu‘eib</td>
<td>LPPNB</td>
<td>10</td>
<td>2940</td>
</tr>
<tr>
<td>Beisamoun</td>
<td>LPPNB</td>
<td>10</td>
<td>2940</td>
</tr>
<tr>
<td>Es-Sifiya</td>
<td>LPPNB</td>
<td>10</td>
<td>2940</td>
</tr>
<tr>
<td>'Ain Jammam</td>
<td>LPPNB</td>
<td>7</td>
<td>2058</td>
</tr>
</tbody>
</table>

Site Size info from Kuijt (2000: 81), population size calculation based on van Beek (1982: 64-65) and mirror the calculations by Kuijt (2000) except for data from Ghwair I.
buildings were public structures (an estimate reached at through ethnographic research at Tell Marib). Van Beek (1982: 63-64) went on to estimate the number of households present in the village. The research approximated the village to incorporate 57 houses per acre each with 5 inhabitants per household yielding 116 persons per acre or 286 persons per hectare (Van Beek 1982: 65). When applied to the PPNB village of Ghwair I this model approximates that the population at Ghwair I during Phase III of occupation was approximately 418 persons (116 persons per acre times 3.6 acres). It will be assumed that this is the most accurate of the indicators, even though in reality it may or may not be. Furthermore, there are issues of whether or not site size is an accurate indicator of population size altogether. There are also issues of whether or not the entire site was occupied contemporaneously or not as mentioned earlier (Hole 2000). Keeping these in mind it is best to use any approximations of population size from site size as a general estimate that holds the potential to be highly inaccurate.

From these different estimates it seems reasonable to say that the population at Ghwair I during Phase III of occupation may have been somewhere around 418 plus or minus 100 persons or, in order to give the population a range, between approximately 318 and 518 persons.

Implications towards models of complexity

Up to this point we have observed a number of different traits at Ghwair I that, according to certain models, can be associated with certain stages or levels of socio-political complexity. We have also estimated the possible range of population size of Ghwair I at its peak from a number of ethnoarchaeological research conducted by
researchers working in the Near East. From this information we can now fit Ghwair I into the typological model of socio-political development as outlined by Johnson and Earle (2000) and investigate Ghwair I in terms of certain thresholds in population that may require certain types or levels of socio-political complexity.

The Socio-Political Organization of Ghwair During Phase I of Occupation

The socio-political organization at Ghwair I during Phase I of occupation may closely represented what Johnson and Earle (2000:33) describe as the family level group that may have been organized into either an extended family camp, a hamlet or something in between the two. The community may have been inhabited at certain times of the year by 25 to 35 or so individuals who would “cluster” into the settlement on an annual basis (Johnson and Earle 2000: 32). As Forge (1972: 371) points out, when settlements compose of a population of less than 150 individuals or 35 men “basic relationships of kinship and affinity together with reciprocal assistance are quite capable of ordering social relationships.” This means that the community at Ghwair during Phase I very easily could have been based on egalitarian principles. Furthermore, the community during this phase may have formed when resources were “highly localized” or “when a group larger than the individual family” was required for certain subsistence activities or for “risk management” (Johnson and Earle 2000: 32). At this stage the economic strategy was likely still based primarily on immediate return systems although domesticates may have just started to become a component of the prevailing economic system.

Furthermore, storage may have started becoming more common and important to the individuals aggregating at Ghwair during Phase I than it would have previously been to
them before occupying the site. This is indicated by the emergence of stone lined pits likely functioning as storage silos at the site corresponding to the Phase I remains. Yet, interestingly the evidence indicates that this storage would likely have been communal meaning that surplus may have been pooled. This is important since as Flannery (2002: 421) states “widespread pooling and sharing of food ensures that risk and reward are accepted by the group as a whole.” Due to this widespread pooling of resources and a lack of private storage there would have been little incentive for the individuals in the community to intensify production since everything that was produced during occupation at the site during this phase was likely shared/pooled. Likewise, there would also have been little competition between individuals or families within the community during Phase I. In this way private property was very limited and this all corresponds with what would be expected from an egalitarian society. As Berreman (1981: 8) points out in egalitarian / unranked societies “accumulation is not valued; generosity and reciprocity are criteria for esteem and high status.” Furthermore, as Woodburn (1982: 432) points out “…individuals or groups within their own egalitarian societies may try to acquire more wealth, to assert more power or to claim more status than other people, and (other individuals or groups) are vigilant in seeking to prevent this.” Thus, with the prevailing egalitarian social order at this stage the best way for one to conform to the ideals and norms of the community would be not to horde surplus but instead to give it away and distribute it to other members of the community. Furthermore, the community would prevent individuals from accumulating wealth during this stage serving to keep all individuals roughly equal.
Following Johnson and Earle (1987: 101-102), the very formation of the community (camp or hamlet) may have been initiated by an alliance formed by a number of families that simply wanted to benefit the entire community. Johnson and Earle (1987: 101-102) support this with the assertion that larger aggregations are only formed when living in larger communities yields greater benefits than any costs it may extract. Along these same lines this alliance may have served to align a few different families into cooperating with each other in subsistence related activities for their communal benefit. This would have been for the greater good of every family involved and this likewise corresponds to a very egalitarian social structure. At this stage the community likely would have broken up and reformed as households relocated to optimize resource procurement (Johnson and Earle 2000: 33) and families may have only chosen to aggregate into the community when it would have been in their best interest and the best interest of all families involved. If this were the case for the occupants at Ghwair during Phase I of occupation then it would explain why there was not yet a major concentration on the built environment. Also, since the inhabitants were only present at the site for an undetermined but likely limited amount of time this would explain why they also would not have needed to clearly demarcate boundaries and property. This serves to further explain the lack of spatial demarcation and the open plan of the site in general and the large structures in specific during Phase I.

As far as conflict is concerned, Johnson and Earle (2000: 33) point out that the family group “...is capable of great self-sufficiency but moves in and out of extended family camps or hamlets opportunistically as problems or opportunities arise.” This means that the community could have easily dissolved “...into small segments consisting of single
families (five to eight persons) that independently exploit low-density dispersed resources.” Likewise, from year to year these different families may have left the community due to any mounting conflicts before such conflicts grew too intense to bear. This would have avoided any serious conflicts and social strife and also would have served to avoid the need for serious mechanisms of conflict resolution such as those that may have developed at Ghwair during later phases of occupation.

Also, during Phase I there is little evidence of ceremonialism and ritual behavior at the site and this further corresponds to Johnson and Earle’s (2000) description of the family group. Seeing that, among other things, public ritual and ceremonialism was likely related to realms of conflict over social power it was not necessary to conduct such ritual since the community was still likely very egalitarian. Furthermore, public ritual and ceremonialism may have been a way to publicly define different social groups. Since the only social distinctions within the community during Phase I would likely have been based on nuclear family membership it would not have been necessary to conduct such rituals and ceremonies; it was likely obvious to everyone in the community who belonged to what nuclear family. Finally, as far as political organization is concerned, Johnson and Earle (2000: 33) claim that the family level group likely did not form any type of “clearly demarcated political group” and this also seems to accurately coincide with the available evidence from Phase I. Along these lines, even any type of “Suprafamily leadership” would have been “ephemeral and context specific” and would have only related to specific and imminent events that required certain organizational structure such as a hunting expedition of more than one family (Johnson and Earle 2000: 33).
Since there were not a great deal of persons at the site for any extended period of time there would have been no reason to form any type of social and political groups other than the ephemeral ones described above. Following Johnson and Earle's (2000: 33) description of the family level group a corresponding community at Ghwair during Phase I of occupation likely would have been "...characterized by a simple division of labor by sex." Likewise, this corresponds very nicely with Fried's (1960: 715) description of Egalitarian or unranked social organization as a form of social organization "...in which the division of labor is almost exclusively on the basis of age, sex and personal characteristics." (Fried 1960: 715)

Finally, during phase I the community's territory likely would have consisted of "undefended home ranges." (Johnson and Earle 2000: 33). Since the occupants of the site at this stage were likely still only loosely organized and the site was only occupied on certain occasions then there also may have been no reason to arduously defend the territory from others. Instead of defending the territory if threatened it may have been more viable and energy efficient just to abandon the site or leave and possibly return an undetermined amount of time later when the threat was no longer present. Furthermore, warfare also would have likely been uncommon during this stage since it likely would not have been in the best interest of anyone (Johnson and Earle 2000: 33). The community would not have had a great deal of surplus for any foreign groups to want to raid and the group also would not have been planted at the site year round for any foreigners to possibly have wanted to drive them away to take control of the land.
The Socio-Political Organization of Ghwair During Phase II of Occupation

During both Phases II and III of Occupation the Socio-Political organization of the community at Ghwair I likely corresponded with what Johnson and Earle (2000) term as the “Local Group”. By Phase II the community may have corresponded to the “acephalous local group” and following Johnson and Earle (2000: 33) the subsistence economy likely depended on domesticated species and/or highly productive natural resources. By Phase II the community would likely have been large enough to be considered a village and it likely composed of somewhere around “…one hundred to two hundred people…” (Johnson and Earle 2000: 33). As Kosse (1990: 279) points out, “when a settlement size grows beyond 150 individuals, organizational relationships tend to become more complex.” When the group is at this size there is always some sort of segmentation and “the group is divided into sub-groups of a higher order than households or families; these segments will be part of a symbolic order and be constituent and distinguished groups in ritual, those involving prestige and exchange as well as those involving the supernatural.” (Forge 1972: 371).

Thus, at this stage of development at Ghwair I there would have likely been larger social groups within the community that may have been kin based such as extended families, lineages and/or clans. Along similar lines Johnson and Earle (2000: 33) claim that the ‘acephalous local group’ may have been “…subdivided into clan or lineage segments of hamlet size (i.e., twenty-five to thirty-five persons).” Furthermore, following Johnson and Earle’s (2000: 33) description of the ‘local group’ a corresponding community at Ghwair I during Phase II of occupation would have formed a “ritually integrated political group” that may have had a headman (Johnson and Earle 2000: 33).
It is possible that, if there was a headman, then the headman was an individual who lived in a larger or wealthier structure such as Room 1 in Area I. Exactly what the function of this headman would have been or how he would have come to power is not entirely clear. Although, it is likely that if he (or possibly even she or a small group of individuals) existed they would have served to resolve disputes and make certain decisions for the community as a whole.

Furthermore, ceremonialism would have become much more important during this phase and as Johnson and Earle (2000: 34) state in reference to the acephalous local group: “Ceremonialism is important for publicly defining groups and their interrelationships.” This is where the public plaza or ‘theatre-like construction’ comes in. In addition to the other functions of this plaza it is possible that once constructed during Phase II it may have specifically provided a public setting for just this sort of ceremonialism. This ceremonialism may have served to differentiate the clan or lineage constituent segments that the community may have been divided into since such segments may have been slightly too large for everyone in the community to remember off the top of their heads exactly who belonged to what segment. It is also possible that risk and reward in regards to production was no longer accepted at the community level by Phase II but instead may have been accepted at the level of the constituent social groups (clan / lineage). Yet, it is also possible that the ceremonialism associated with the theatre-like construction was communal. If this was the case then such communal ceremonialism may have served to integrate the community placating any conflicts that may have developed between differing social groups. Each of these scenarios is equally plausible as they are both speculative and without solid corroborating evidence.
Furthermore, Forge (1972: 371) states in reference to settlements exceeding 150 persons that “settlements will be clearly demarcated both by such things as boundaries and by symbolic foci such as men’s and ceremonial houses, dancing grounds, etc.” This also conforms with the available evidence from Phase II since we see the emergence of more clearly delineated boundaries, public areas such as the plaza, and certain structures such as Room 1 in Area I that may have served special functions.

During Phase II the community was likely more sedentary and reliant on domesticate or highly circumscribed and productive natural resources than it was during Phase I. Yet, the community would still typically fragment into its “constituent kin groupings either seasonally or periodically as a result of internal disputes.” (Johnson and Earle 2000: 34). Thus, it is likely that when conflicts grew too great between different social groups the community may have dispersed only to aggregate again during the next season or at some later point in the year. Yet, during Phase II the community would likely have dispersed for shorter periods of time than it would have during Phase I.

Johnson and Earle (1987: 158) claim that in this stage there is competition for prestige and this may mirror the prevailing structure at Ghwair during Phase II. The architectural evidence from Phase II indicates that inequalities during this phase were beginning to emerge. The evidence from the infant burial gives us a picture of emerging inequalities during Phase II of occupation and this evidence does not correspond with Johnson and Earle’s (2000) local group typology. Evidence for status ascription may be found in the details of the infant burial, where the infant was buried with a ‘dedicatory cache’ that included a number of goat and cow skulls. Furthermore, the infant was also buried beneath a plastered floor that was dug up and re-plastered by those who buried the
infant. Possibly the most important thing about this burial is the rare mother of pearl necklace or earring that was around the infant’s neck. Seeing that this infant was only around 9 months old at death it is very hard to imagine that he/she could have achieved any kind of status during his/her first 9 months of life. Unless this infant had some sort of very remarkable infantile development it is hard to imagine that he/she could have done anything to gain status in the community. Thus, if the mother of pearl necklace or earring is really a signifier of some sort of status then it seems almost definite that it would have been inscribed, or in other words that the child would have had status from birth either due to the family he/she was born into or for some other unknown reason.

Inscribed status may be an indicator of ‘hereditary inequality’ and this does not correspond with how Johnson and Earle (2000: 33-35) define the local group. So, along these lines the infant burial at Ghwair I and the cache associated with it may indicate that there was a prevailing social order at Ghwair during Phase II occupation on that distinguished people from birth. Fried (1960: 717) claims that ranked social organization, is when inequality is institutionalized into a “hierarchy of statuses - superior and inferior positions of prestige and dominance - that extend beyond age, sex, personal characterization and intrafamilial roles.” (Fried 1960: 717). Along these lines it seems probable that the evidence from the infant burial suggests the emergence of some type of ranking within the society at this stage since the status of the infant seemingly would have extended beyond age, sex, personal characterization and intrafamilial roles. Now with this said it is important to stress that the ranking that may have been present at Ghwair during Phases II and III of occupation would likely not have been anything as elaborate as ranking common to chiefdom forms of social organization. Instead, it is best
to characterize the community that would have existed at Ghwair during phases II and III of occupation to have fallen somewhere on the continuum between egalitarian societies and those referred to as chiefdoms. Furthermore, this also suggests that hereditary inequality may have a more ancient origin than that accredited to it by some researchers.

All of this evidence suggests that during Phase II of occupation the prominent egalitarian social order was beginning to be break down. The community may have started to be slightly more lenient in regards to limiting individuals’ personal accumulations. Privatization likely started to increase as indicated by the increase in compartmentalization and this likely also indicates an increase in competition. This all indicates that the egalitarian social structure, where communal storage was the norm, individual property was limited or absent and there was no competition between individuals or families, was breaking down.

The issue of what mechanisms were being used to break down the egalitarian system and initiate certain inequalities points us in the direction of ritual. One perspective on ritual views it as “…the mechanism by which the development and consolidation of authority within agricultural communities first occurred.” (Kuijt 2002: 82) In these regards it is very possible that ritual served as the realm or mechanism through which the breakdown in the egalitarian social structure was initiated. Furthermore, “…for social differentiation to exist within any society there has to be some form of social or political rationale for its existence” (Kuijt 2002: 84) and in order for this differentiation to occur and inequalities to develop individuals need to be willing to give up certain rights and their positions of equality. Individuals will only willingly give up any rights or privileges to someone that they highly respect, trust, and/or believe will represent their needs. This
is where shamans or individuals with a connection to the supernatural come in and it is possible that wealthy individuals who may have been headmen had connections to the supernatural and used these connections as a means to transfer authority. In order for an individual in an egalitarian form of social organization to gain authority he/she must take away others power and equality. By phase II a process may have been set in motion whereby a religious group or cult associated with Room 1 in Area I was becoming an institution whose leaders were viewed with enough authority and legitimacy, at least by some members of the community, that they were able to openly take away the rights of certain individuals.

The Socio-Political Organization of Ghwair During Phase III of Occupation

The social structure of the community at this stage was likely similar to that described for Phase II in many regards except by this stage the egalitarian structure may have been broken down even more. During Phase III occupation, Ghwair had a major increase in compartmentalization, marking of intra-site territories, privatization of property including surplus as indicated by private storage, and also likely an increase in conflict. This suggests that the society was likely more sedentary and dependent on a food producing economic strategy employing delayed return systems.

Since private storage was more common in the society at this point risks and rewards of production were likely accepted at the level of the individual nuclear family instead of at the level of the entire community such as during Phase I of occupation or the level of the clan or other large social segment during Phase II. Thus, there likely would have been a great deal more incentive to intensify production during Phase III of occupation.
since any surplus or benefits of intensification would have gone directly to the nuclear family instead of being distributed to a large number of people. This would also explain why the architecture in this phase had a much more restricted village plan (Flannery 2002: 421; Weissner1982: 173). By this stage inequalities also likely started becoming more pronounced and those to whom the majority of the individuals were giving up their rights to had likely become even more powerful. This is all apparent through evidence of variable sizes and shapes of habitation structures and variable numbers of storage compartments associated with them such as in the case of Room 1 in Area I.

By Phase III of occupation at Ghwair the population may have been somewhere between ~318 and 518 persons as estimated earlier. This closely corresponds to another population threshold that may call for a new form of social integration. Kosse (1990: 284) claims in regards to communities exceeding approximately 500 plus or minus 100 individuals that “at this level, the regulation of individuals is probably restricted to adult males with real decision making power in the hands of even fewer individuals.” By phase III it is apparent that Room I and those associated with it became wealthier, and more powerful, and likely held more influence over the community than they may have had during Phase II. Those associated with Room 1 in Area I were likely very wealthy in comparison to the rest of the community seeing that this structure displayed a number of lavish features and that it was associated with a large number of storage compartments. Furthermore, these individuals were likely also viewed as very pious seeing that Room 1 was associated with cultic or religious artifacts including figurines and, possibly, gameboards. Also, by Phase III, Room 1 was very closely associated with the nearby D shaped structure that may have been a ‘shrine’. Finally, Room 1 was also closely

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associated with the cache of a number of finely crafted projectile points that likely served a ‘ceremonial’ function. All of this further corroborates the religious, ceremonial and ritual oriented functions associated with Room 1 and likely those individuals associated with it.

It seems likely that these individuals would have been a ‘religious elite’ or cult leaders whose connection with the supernatural served to influence others to give up their decision making abilities. This ‘religious elite’ might correspond to what Kosse (1990) describes as a number of “adult males with real decision making power” that are often present once population sizes reach the 500 plus or minus 100 persons threshold. One can only imagine what characteristics qualified an individual to become part of this cult, but once a member and an elite leader, the individuals’ perceived piousness likely granted them a great deal of influence over the general population of the community leading them to be a religious elite of sorts. Simply due to their association with the symbolic and religious realms, they were likely associated with the unknown in the universe that people tend to fear. In this very way they may have possibly even been worshipped to a certain extent because of their perceived knowledge of the unknown.

It is important to note that there would have been a limited number of members of this cult and it would have likely been very prestigious to be a part of. This means that only the certain chosen, special, and privileged people within the community were given the opportunity to be a part of the prestigious ‘religious elite’. It is even possible that the religious elite was chosen through hereditary characteristics or kin relationship to the current members or even some ancestor, either real or mythological, and this may be supported by the infant burial and its associated grave goods possibly signifying the
presence of hereditary inequality. Fried (1960: 717) suggests that “the rank society is characterized by having fewer positions of valued status than individuals capable of handling them.” Along these lines the evidence from this phase strongly suggests that some type of ranking was present meaning that a ranked society was likely beginning to emerge.

During Phase III the religious elite associated with Room 1 in Area I may have functioned as a collective body of Big Men as defined by Johnson and Earle (2000). The Big man is someone who represents the community as a group and is “…a strong, charismatic leader who is essential for maintaining internal group cohesion and for negotiating intergroup alliances.” The Big man “…is also important in risk management, trade, and internal dispute settlement and represents his group in the major ceremonies that coordinate and formalize intergroup relationships.” (Johnson and Earle 2000: 34). It is possible that the individuals in the cult served the role of the Big Man, or something closely resembling this role, as described by Johnson and Earle (2000). They may have managed trade with other communities or foreign individuals or families and they may have been the hosts for visitors to the site. Along the lines of Johnson and Earle’s description of the Big man (or Big men), the ‘religious elite’ may have also led certain large ceremonies that may have been conducted in order to promote community cohesion.

As Fried (1960: 719) states: “The move from egalitarian to rank society is essentially the shift from an economy dominated by reciprocity to one having redistribution as a major device.” Assuming this theme relates to Ghwair during Phase III of occupation, it is even possible that the ‘religious elites’ associated with Room 1 in Area I and its
appendages also served to redistribute the community surplus at their discretion. Yet, this may be a precipitous assumption and it may be more probable and safe to say that it is possible that the ‘religious elite’ or members of the cult were able to use their power, authority and influence within the community to skim off of other individuals’ or families’ surplus for their own personal consumption, accumulation and benefit.

Societal Collapse: The Abandonment of Ghwair I

The evidence suggests that Ghwair I was abandoned after being occupied for approximately 500 years during the Middle PPNB from ~8,880 to 8,390 conventional years BP (Simmons and Najjar 2000). This abandonment demands an explanation and societal collapse has been a topic of major interest for researchers investigating the Neolithic of the Levant. As Bar-Yosef (2001: 26) points out “Stratigraphical unconformities and temporary site abandonment were not uncommon during the PPNB period. Only very few settlements survived for many centuries.” Furthermore, Bar-Yosef (2001: 26) goes on to point out that there is a large number of simple reasons that may account for the abandonment of a house such as death of the head of the family or inter-familial conflicts yet, “…when the entire village is deserted the reasons could be more complex.” (Bar-Yosef 2001: 26) A number of authors have proposed that a climatic crisis somewhere between ~7,400 and 7,000 conventional years BP (or between 8,400 and 8,000 calibrated years BP) was the culprit. Bar-Mathews (1999: 91) describes this event as “a sudden cooling event and simultaneous decrease in rainfall intensity.” This event may have been the stimulus or one of the many stimuli for abandonment at many PPNB villages (Bar-Mathews 1999; Bar-Yosef 2001: 27) yet it would not have
occurred until nearly 1,000 years after the abandonment at Ghwair I leading us to consider other possibilities.

A related and complementary explanation for this widespread abandonment is that which holds that food production and sedentism caused certain ecological crisis such as human induced environmental deterioration that led to forced abandonment or changes in occupation (Hershkovitz 1989; Kohler-Rollefson 1988; Kohler-Rollefson and Rollefson 1990; Simmons 2000). For example, a possible scenario at ‘Ain Ghazal, where there is a major change in the habitation sequence toward the end of PPNB occupation (between the Late PPNB and PPNC), holds that over-exploitation of pastures and cutting down of trees for plaster production among other things led to an impoverished immediate environment (Rollefson 1990; Rollefson & Kohler-Rollefson 1989; Rollefson et. al 1992). As Simmons (2000: 218) so finely explains, “...by the PPN there are considerable data to suggest that human actions drastically, if not irreversibly, impacted the local/regional environment. It was during this time that we see the first settled villages and exploitation strategies based on agriculture, herding, and wild resources. With the domestication of plants and animals, human settlement on the landscape changed dramatically. Debate continues to exist, however, as to whether these activities were the principle drivers behind environmental decay or whether this deterioration was caused by climatic variables in the form of increasing aridity.” Simmons (2000: 218-219) explains that a decrease in agricultural productivity may have begun with intense erosion. This erosion may also have been instigated with torrential summer rains rendering highly susceptible land that had been cleared for agricultural purposes no longer useful. These increased rates of erosion coupled with intense farming and herding may have led to
environmental degradation forcing the abandonment of villages and explaining the widespread abandonment of sites during the PPNB.

Along similar lines it is possible that the sedentary nature of the village at Ghwair coupled with its food producing subsistence activities in the immediate region may have led to environmental degradation. The Wadi Feinan region would have been a marginal environment in the first place that was highly susceptible to human induced environmental degradation. New subsistence strategies based on plant and animal domestication along with a more sedentary lifestyle would have had drastic effects on the immediate environment. These factors may have promoted erosion and depletion of the natural resources in the Wadi Feinan drastically reducing the productivity of the land. This eventually may have rendered the site uninhabitable causing the community to disperse into its constituent social groups or individual families and abandon the site altogether.

Simmons (2000: 219-220) further explains that during the PPNB there is also evidence that summer monsoons may have penetrated further north causing intense and possibly very dangerous summer precipitation and thunderstorms. Thus, while there may have been a climatic deterioration with increasing annual aridity there also may have been increased precipitation in the summers. As Simmons (2000: 219) states in reference to the possible widespread erosion that may have taken place during the PPNB, “Possible evidence of the erosion occurs at many of the Jordanian sites as layers of comparatively well sorted cobbles. These may be attributed to debris flow caused by torrential summer thunderstorms, the physical manifestation of increased monsoonal pattern. Erosion could have been increased if surrounding vegetation had been reduced by human activity and
increasing aridity.” This may accurately depict what actually happened at Ghwair I toward the end of occupation as there is evidence of mudslides that may be attributed to intense summer rains and thunderstorms in the region. Furthermore, along these same lines, any immediate human induced environmental deterioration near Ghwair would have increased erosion and further served to render the land in the immediate region unsuitable to the established sedentary food producing community residing at the site. This may have led constituent social groups or individual families who found it more beneficial to abandon the community to go off on their own in search of pristine territories uncorrupted by human modification.

Furthermore, before final abandonment of the site this possible environmental crisis coupled with lower productivity may have caused serious social conflicts that may have also contributed to the abandonment of Ghwair I. There is evidence of violence, possibly homicide at the site and this may be due to major and problematic conflicts between social groups. It seems probable that with a decrease in the productivity of the land there would also have been a decrease in surplus. With a decrease in surplus there would have been an increase in competition and likewise potential for an increase in conflict.

As complete speculation it is possible that, due to the extraneous circumstances of lower productivity and food shortage, individuals became hostile to one another and especially toward the powerful and prestigious ‘religious elite’ toward the end of occupation. The degrading environment and way of life may have led individuals to begin questioning the supernatural connections and power of the religious elite placing their authority in jeopardy. The unhappy members of the community may have publicly confronted the members of this pious cult and questioned and challenged their
legitimacy. The community may have relied on this religious authority to keep that which the community felt was out of their control and associated with the supernatural, such as the climate and productivity of the land, in order. This may have led to conflict and violence and may have set off a ticking time bomb encouraging all individuals unhappy with either the emerging inequalities, degrading environment, or food shortage to participate in a revolt of such against the elites and the system of order that they had established.

This all may be supported by the evidence of intra-community violence at the site. This especially includes the burial of the women in Room 1 in Area I who was found with a projectile point embedded in her jaw. This woman could have been a member of the cult or religious elite, or simply may have been associated with them (such as one of the members' wives). Once the volatile situation was set in motion and the conflicts and violence grew almost unbearable the entire social order may have fallen apart leading to an anarchic situation that pushed surviving members of the community to act in their best interest and flee the village. Yet, this reconstruction of events is all based on only one burial with a projectile lodged in its jaw that may have resulted fortuitously meaning that a great deal of this reconstruction may simply be a work of imagination. Nonetheless, combined with the paleoecological and climatic variables mentioned earlier this all together may in some distant way resemble the actual events which took place to lead to the abandonment.

Whatever the reason for abandonment of the village, whether it was one or more or none of the possibilities mentioned above, it is apparent that members of the community likely no longer found it beneficial to aggregate at the site on a sedentary basis. If it was
the case that the aggregation of individuals was no longer advantageous to individual families, and this caused the abandonment, then this would have marked a continuation of the trend of switching back and forth from sedentary to mobile subsistence strategies that had been going on since the Early Natufian. This further confirms how unstable many PPNB communities such as Ghwair I would have been and how volatile settled society was during the Early Neolithic.

Final Conclusions

The findings of this thesis have confirmed that there were fundamental changes in the architecture at Ghwair I during the 500 years of PPNB occupation. These findings have shown us that the architecture at Ghwair become more partitioned and compartmentalized and more variable during occupation as new types of structures that likely had new and different functions emerged. Such fundamental changes in the architecture likely mirrored fundamental changes in the social structure. As the community at Ghwair I likely grew more sedentary and dependent on food production it apparently grew in size and density. This led to the emergence of more suitable forms of social order that progressed from employing primarily egalitarian principles to employing an increasing amount of inequality stressing certain positions of status. Certain individuals would have grown influential attaining a certain degree of socio-political power while others would have lost certain privileges that were previously accorded to every community member equally. Privatization and personal accumulation of property including surplus increased as the community began shedding its egalitarian principles and the culture began to lessen its vigilance in limiting such accumulations. This likely
led to competition that also likely led to conflicts and these conflicts would have required the emergence of certain mechanism meant to promote community cohesion and ease conflicts serving to prevent the breakup of the community. This all indicates that the social complexity at Ghwair I increased drastically during Middle PPNB occupation. Yet, due to a plethora of eclectic stimuli the entire social system eventually collapsed causing the complete abandonment of this once flourishing Neolithic village.

The progression of events that dictated the rise and decline of the village at Ghwair I are not uncommon to PPNB communities. The story of the fluorescence and collapse of Ghwair characterizes the typical genre of trial and error attempts at incorporating new and innovative ways of living in the early Neolithic. These new and innovative ways of living included the transition from high mobility to a more sedentary livelihood and the economic transition from a concentration on hunting and gathering subsistence strategies to ones focusing on food production. These transitions also resulted in higher population densities and demographic changes all of which required adaptations in social organization. Thus, the story of the rise and decline of the village at Ghwair I is essentially the story of trial and error attempts at the emergence of settled society.

Finally, these earliest attempts at the emergence of settled society set off a ticking time bomb resulting in an exponential increase in socio-political complexity leading from these early Neolithic communities to modern industrial society today. The changes in society related to the 'Neolithic Revolution' resulted in the employment of increasing amounts of inequality and eventually resulted in the highly stratified societies observable in the world today. Without the early attempts at settled society that Ghwair I so well characterizes none of this stratification would have ever been possible.
With all of that said this thesis ends on one final note stressing a fundamental issue concerning the development of inequality and stratification to the degree at which it exists in the world today. As so beautifully pinpointed by Berreman (1979: 4-5), the large amount of inequality and high degree of stratification observable in the modern world that owes its origins and development to early Neolithic villages such as Ghwair is a heavy weight on humanity in the following ways:

"It is humanly harmful in that it is painful, damaging and unjust, and it is consistently experienced as such by those who are deprived and oppressed. It is pervasive, being found in various forms in all the socially complex and technologically advanced societies in the world. It is responsible for hunger even when there is plenty, for high mortality, high fertility, and low life expectancy, for low levels of education, literacy, political participation, and other measures of quality of life. Stratification is also dangerous in that the poverty, oppression, hunger, fear, and frustration inherent in it result in resentment among the deprived and anxiety among the privileged, with the result that overt, perhaps catastrophic, conflict is inevitable. Much of the source of crime in the streets, terrorism, ethnic conflict, civil war, and international war is inequality so organized and the alarm, repression, and competition it engenders. Inequality between peoples and nations is a major threat to societal and even human survival. Whether or not stratification was inevitable or necessary in the emergence of modern society, as is often maintained, its elimination or drastic reduction appears to be necessary for the continuation of society. Moreover, it is a cultural artifact – hence learned and socially transmitted – and that which is cultural is subject to change. Understanding the phenomenon may be a step, however small, to that difficult, important, and improbable end"

This thesis serves to better understand the origin, nature and intricacies of the phenomenon of inequality and stratification. Following Berreman in such regards I am honored and proud to be able to say that this thesis may be a step, however small and seemingly insignificant, toward the drastic reduction or elimination of the plethora of detrimental inequalities that plague humanity.
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