Urbanism in the Northern Levant during the 4th Millennium BCE

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URBANISM IN THE NORTHERN LEVANT DURING THE 4TH MILLENNIUM BCE
URBANISM IN THE NORTHERN LEVANT DURING THE 4TH MILLENNIUM BCE

A thesis submitted in partial fulfillment of the requirements for the degree of
Master of Arts in Anthropology

By

Rasha el-Endari
Damascus University
Bachelor of Science in Archaeological Studies, 2005

December 2012
University of Arkansas
Abstract

The development of urbanism in the Near East during the 4th millennium BCE has been an important debate for decades and with recent scientific findings, a revival of this intellectual discussion has come about. Many archaeologists suggested that urban societies first emerged in southern Mesopotamia, and then expanded to the north and northwest. With recent excavations in northern Mesopotamia, significant evidence has come to light with the finding of monumental architecture and city walls dated to the beginning of the 4th millennium BCE, well before southern Mesopotamian urban expansion. These discoveries reflect important administrative systems and stratified sociopolitical structures within these sites and have made archaeologists reevaluate the traditional theories regarding the origin of complex societies. However, the northern Levant has been neglected discussions of urban origins in the Near East. In this regard, this thesis offers a contribution to the understanding of changes that took place during this time in northern Levant and aims to deepen the knowledge of the presence of the Late Chalcolithic pottery types. Thus, answering open questions about commerce, trade, city development, and pottery production by local populations. The investigation synthesizes published evidences from both excavations and regional surveys, evaluates the appearance of Late Chalcolithic sites on satellite imagery, and reports on new evidence of Late Chalcolithic settlement at the site of Tell Qarqur in the Orontes River Valley of western Syria. This framework may help us to understand if urbanism in the Levant mirrors southern and northern Mesopotamian counterparts and ultimately, contribute to the understanding of this formative period across the entire Near East.
This thesis is approved for recommendation to the Graduate Council.

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Dr. Jesse Casana

Thesis Committee:

Dr. W. Fredrick Limp

Dr. Thomas J. Green
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Chapter 1: Introduction

1.1 An Overview

Urbanism has been a central research theme in studies on the Ancient Near East directly stemming from the fact that cities first developed in this region (Adams, 1981; Algaze, 2001; Rothman, 2004). Urbanism, in its modern formulation, encompasses the formation of complex societies with a system of bureaucratic institutions and a hierarchical socio-political structure (Stein, 1998). Complexity, within this view of the development of urbanism, is the consequence of social transformations that have occurred because of population growth, environmental and climatic changes, centralization, specialization, trade networks, and colonies (Rothman, 2004). This transformation occurred within different types of economic, governmental, and religious groups living together and mutually dependent on each other. Because of these transformations, a ranked culture emerged through the actions of some individuals, elites, who took risks by manipulating circumstances and taking advantages of specific situations during this process (Flannery, 1972). As the 4th millennium BCE progressed in the Near East, the most significant developments occurred in the process of urbanization. The seeds of urbanism started to emerge in the 5th millennium BCE in the Ubaid Period (Carter & Philip, 2010) and completed its formation as real developed cities with sociopolitical systems in the 4th millennium BCE (Akkermans & Schwartz, 2004).

For archaeologists, changes in material culture are interpreted as important indicators of cultural changes or social transformation. For instance, during the 5th and the 4th millennia BCE, one of the main changes in the material culture was the transformation in the manufacture of pottery from being complicated and precise traditions of earlier periods towards simple and coarse ware common in the fourth millennium. This simplification in manufacture is one of the indicators of
population increase and institutionalized mass production that led to the production of more pottery in a simplified manner (Akkermans, 1988). The 4th millennium BCE in the northern Levant and northern Mesopotamia is generally termed the Late Chalcolithic period. The pottery associated with this period is also called Late Chalcolithic pottery and it corresponds with Uruk pottery in southern Mesopotamia and the Amuq F and G ceramic assemblage in the Amuq Valley (Table 1).

Table 1 Chronological Framework of the 4th millennium BCE in Mesopotamia, southern Anatolia and northern Levant (Jayyab, 2013; Sundsdal, 2011; Akkermans, 1988; Rothman, 2004; Oates, 1993; Philip, 2002; Stein, 2004).

<table>
<thead>
<tr>
<th>Year</th>
<th>S. Mesopotamia</th>
<th>N. Mesopotamia</th>
<th>S. Anatolia</th>
<th>N. Levant</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000–3600 BCE</td>
<td>Early Uruk</td>
<td>LC 2/3</td>
<td>LC 2/3</td>
<td>Amuq F</td>
</tr>
<tr>
<td>3600–3350 BCE</td>
<td>Middle Uruk</td>
<td>LC 3/4 / Uruk</td>
<td>LC 3/4</td>
<td>Amuq F</td>
</tr>
<tr>
<td>3350–3000 BCE</td>
<td>Late Uruk</td>
<td>Uruk/LC 4/5</td>
<td>Uruk/LC 4/5</td>
<td>Amuq F/G</td>
</tr>
<tr>
<td>3000–2900 BCE</td>
<td>Jemdet Nasr</td>
<td>EBA / Early Ninevite V</td>
<td>EBA</td>
<td>Amuq G</td>
</tr>
</tbody>
</table>

While much debate still revolves around the absolute dating of the southern Mesopotamian Uruk sequence owing to its derivation from a single deep sounding at the site of Uruk (Nissen, 2002), more recent excavations in both northern Mesopotamia and southern Anatolia now provide reasonably secure and refined material culture sequences. In contrast, the northern Levant has seen very little work in recent decades such that the material culture sequence in that region still relies on the Amuq sequence (Braidwood and Braidwood 1960). While groundbreaking in its day, this thesis pulls together more recent evidence from excavations and surveys in the northern Levant to shed light on the indigenous urbanized societies in the northern Levant in the 4th century BCE.
millennium BCE, comparing it with other regions including southern and northern Mesopotamia in order to understand the local and the independent complexity of the societies in the northern Levant in the 4th millennium BCE (Figure 1).

**Figure 1** Map of the theory development of the emergence of complex society in the Near East

### 1.2 Environment and Climate in the Near East and the Development of Human Culture

Some scholars look at the environment as a determinant of human development, while others see these developments as unpredictable circumstances that are more so affected by human culture and social construction (Harris, 1979). However, it’s important to look at this relationship as a systematic and dynamic relationship that has developed synergistically since the beginning of
humankind. New technologies and a combined approach from different scientific disciplines have opened new avenues for archaeologists to understand some of the looming questions that have affected the rise and fall of human civilizations. During the Holocene epoch, major cultural developments took place in the Near East during period with significant climatic changes, particularly the Younger Dryas and the 8.2 kiloyear event (Van der Plicht & Akkermans, 2011). Some scholars argue that the origin of agriculture and urban societies in different regions in the Near East may have been spurred by environmental changes such as aridification and other climatic fluctuations (Algaze 2001; Adams, 1981). On the other hand, other scholars emphasize the role individuals played in social institutions and the influence of institutions on political behaviors (Yoffee, 1995). Moreover, some emphasize the necessity to use cross-cultural studies to measure social differentiation and integration among social groups (Yoffee, 1979). Therefore, in order to understand this relationship, we need to relate the major cultural developments, human impacts on the landscape, and climate changes in an effort to identify instances when societies were affected by climatic or other environmental changes and reconstruct social/cultural responses to those circumstances.

1.2.1 The Advent of Sedentism

Sedentism in the Near East started to develop in 12500 BCE (Akkermans & Schwartz, 2004: PP 14). The name of the prehistoric group that adapted to the new climate change and made a huge shift in the lifestyle of the foragers, is the Natufian (Belfer-Cohen and Bar-Yosef, 2000; Akkermans & Schwartz, 2004). It is considered the first sedentary culture that appeared before the development of agriculture in the Levant region. Circular houses, lithic and bone artifacts, storage places and their mortuary practices characterize the Natufian culture. The Natufian
period is divided to first, Early Natufian, which existed during the Bolling-Allerod interstadial, a warm period occurring between 14,700 and 12,700 BCE (Ruddiman, 2005). The weather of the Younger Dryas era was characterized by warm temperatures, high precipitation and an increase in wild vegetation that supposedly led Natufian peoples to settle. Second, Late Natufian, when catastrophic changes occurred in the climate and brought cold temperatures back to glacial level (Burroughs, 2005). This change sent the Natufian back to a nomadic lifestyle, searching for shelter and food (Ruddiman, 2005). Nevertheless, Sedentism led Natufian exploitation of their land resources, which led to the development of agriculture in the Neolithic period when climatic change brought back warmer weather. During the 11th and 7th millennia BCE, large pre-agricultural and farming villages were formed like Abu Hureyra (11.5 ha), Ain Ghazal (13 ha), Asikli Hoyuk (4 ha) and Catal hoyuk (13 ha), suggested by many archaeologists to be linked to a public space with certain regulation and sociopolitical structure (Hole, 2000). Evidences of feasting and public buildings were also documented at some sites in Eastern Anatolia and Jericho (Hodder & Cessford, 2004). This significant development in human history was associated with a climatic event called the Younger Dryas.

1.2.2 The Origins of Plant Cultivation and the Development of Agriculture

At the beginning of the Holocene in the Middle East, the weather started to change gradually to warmer temperatures. This caused the melting of ice sheets and in consequence caused the increase in the water level of the Mediterranean by almost 30 meters, resulting in a marine transgression inundating as much as 40 km of coastal plains. For example of sites on the Levantine coast, Attil Yam, dated to late 7th-early 6th millennium BCE), offers an interesting case of the Holocene pretransgression landscapes at depths among 12m below sea level (Wilkinson,
Another example of the river valleys, the waxing and waning of the water level formed the alluvium along the Orontes River in northern Levant and the Euphrates and Tigris rivers in southern Mesopotamia (Burroughs, 2005). The analysis by botanists of plants in the Pleistocene and Holocene has revealed evidences of cultivation practices starting in the early Holocene. Willcox, Buxo and Herveux (2009) note a decrease in gathered plants, changes in the sizes of the grains, a new pattern of human habitation far from the wild stands, and the appearance of cultivated weeds and cultivars sites in Syria including, Abu Hureyra, Halula, Jerf el Ahmar and Tel ‘Abr. All these sites show the appearance of cultivated plants that coincides with the changing of the climate. The significance of these sites is that they witnessed 4000 years of major climate changes from the end of Pleistocene to the beginning of the Holocene. Willcox, Buxo and Herveux (2009) study shows the strong link between the emergence of agriculture in these sites and the role of climate in relation to selected food plants during this vital period for human development (Willcox & Buxo & Herveux, 2009).

Another noticeable phenomena in the early Holocene, is the 8.2 kiloyear event, which occurred around 6,200 BCE and lasted for 400 to 600 years. The event is characterized by a rapid decrease in global temperature. At that time, people were already settled and practicing agriculture. The 8.2 kilo year event is considered a very important event for prehistoric archaeologists due to its significant role in changing human culture and its impact on the Neolithic expansion episode towards Europe. Based on a study at the site of Tell Sabi Abyad in northeastern Syria, Akkermans (2011) sees a change in people’s behavior, which coincided with The 8.2 kilo year event. His study was based on excavation, artifact analysis, and C14 dating results. The new human activities and behavior during this period were represented by a series of significant changes. First, people who lived at Tell Sabi Abyad suddenly moved from the eastern section to
the western section of the site, and this shift was correlated with changes in architectural shapes and sizes. Secondly, changes in people’s way of living expanded to sedentary farmers and transportable pastoralists. Third, the analysis of animal bones showed changes in fauna use; they started employing some wool for textile production primarily (Akkermans, 2011). The role of climate change and its impact on aridification was evidently associated with the origin and the spread of agriculture. In contrast to the origins of sedentism and domesticated agriculture, major climate events cannot be easily linked to the emergence of complex societies in the Near East. Nonetheless, scholars have long seen that the environment has playing a central role in urban origins in southern Mesopotamia (Adams, 1981, Lupton, 1996; Pollock, 1999). For instance, some argued that as a result of irrigation technology in southern Mesopotamia, the richness and variability of the environment led to great improvements in the production of agriculture and accumulation of resources. These resources reached out to other towns and cities creating the steady accumulation of wealth and perhaps even the first form of regional trade economies (Algaze, 2001& 2005).

### 1.2.3 The Origins of Urbanism

The success of irrigation techniques led to the achievements in better agricultural practice and an increase in human population. These were the reasons why the environment of southern Mesopotamia favored the emergence of early complex societies (Adams, 1981; Algaze; 2001-2005). Agricultural benefits led to a surplus of production, which made elites started to exchange the surplus production they earned with other resources in different regions as some of the raw materials were missing in the southern alluvium. This process enlarged their capacity of having more power and control over resources and other towns. The population expansion and
development of trade patterns required a complex system to manage the new situation with advanced strategies and procedures (Pollock, 1999). This is considered theoretically a main direct reason for the emerging of sociopolitical complex systems in southern Mesopotamia (Algaze, 2001 & 2005).

Another factor for the emerging of urbanism is that the floods and droughts that were occurring in the countryside drove people into cities where there existed food supplies and city walls to protect them (Adams, 1981). This added a growth of population in the city and led to a further stratification in the social structure. The permanent problem of unpredictable weather made people prepared more for their future, hence, they started arranging and saving food for storage. Central cities with good defensive systems became destinations for villagers to escape the danger of flooding or starvation in the drought seasons (Rothman, 2004). Elites took advantage of the people who took refuge in their city, which led to a new process of stratified system and changes in the formation of the state.

Another key transformation in the human–environment adaptation and in the emergence of sociopolitical societies is the use of wool instead of flax-based linens. A major study has been conducted for southern Mesopotamian towns that had moved towards urbanization in cities (McCorriston, 1997), shows the massive impact of the transformation from using wool to linens on agricultural production, labor, urban settlements and the development of the economy and the social hierarchal structures. This affected the production of the textiles and the development of labor workshops as well as the agricultural economy. Wool in the 4th and 3rd millennia BCE was considered the fuel of the political economy in southern Mesopotamia. The shift to an industrial economy allowed people, in particular women, to have access to the new product resources and work in the textiles workshops (McCorriston, 1997).
Clothing was one of the main products that Mesopotamians depended on for exportation. Wool was coming from the surrounding countryside where pastoral land was located, while inside the city, large workshops and a huge number of expert laborers (around 9,000 people) were engaged in the production of textiles under state supervision (Adams, 1978). Wool became the most important industry in the 2nd half of the 4th millennium, and it was exported to the city peripheries and far distant markets (Algaze, 2001). Thus, in southern Mesopotamia irrigation brought food to feed the sheep which allowed herders to be able to control of the selection of wool-bearing sheep; this postdates the initial domestication of sheep and led to an increase in woolen textile production. However, the process of selecting wool-bearing sheep breeds takes generations until it has been accomplished. The evidence of large wool production came from artifacts like spindle whorls and whorl weights, seal impressions showing wool manufacturing, and texts. In addition, the study of animal bones by zooarchaeologists revealed that sheep lived until they reached full maturity. This suggests that sheep were exploited for wool production, but not for meat (McCorriston, 1997).

The use of flax in textiles first appeared in the Neolithic period, 10,000 years ago. Archaeologists found the seeds of flax plants in Pre-Pottery Neolithic sites in western Syria. Ancient people beginning with the Neolithic period discovered the significance of the flax plant for producing both oil and linen, which induced them to start cultivating it. Until the middle of the 4th millennium B.C., the exploitation of sheep was limited to meat production. Then it became very widespread and a focus of the southern Mesopotamian textile economy. Some of the advantages of the transformation from linen to wool are that the dependence on sheep for textiles would effectively have offered alternative crops to be cultivated in the prime agricultural land, including most probably, cereal/crops that could have added to subsistence surpluses. Another
benefit is that the requirements for producing wool are less complicated and cheaper than producing linen. Cultivating and processing flax require both land for cultivation and more production labor. Wool processing has more advantages over flax, because sheep can be fed in the nonagricultural steppes or from twice cropping the same land (McCorriston, 1997). Another advantage of using wool is that people can dye it to different colors, which might have made it more attractive to customers (Algaze, 2001).

However, some survey data in northern Mesopotamia revealed interesting results helping to understand settlement patterns and explain cultural development of early states. For instance, at the end of the 5th and the beginning of the 4th millennium BCE there was more concentration of population in north Mesopotamia than in the south and that was before irrigation technology was widely used in the south in the 4th millennium. This clarifies several possible causes influencing the rise and the fall of various local states and how climatic factors affected these changes (Wilkinson, 2000).

1.3 The Study Area/Northern Levant

The environment of the northern Levant is very different from the environment in southern and northern Mesopotamia. This area is characterized by a Mediterranean climate with hot summers and cold winters. Its location between the coastal region and the mountains to the west and the Syrian Desert to the east made the precipitation fluctuate between high rainfall averages reaching between 1800mm/yr. to the west and 200mm/yr. to the east. However, agriculture was still reliable based on irrigation mainly with irrigation technology used since ancient times in this region and varied between digging canals and water lifting (Casana, 2010). For example, the CORONA images showed a huge canal system dug through the valley around Tell Qarqur in the
Roman period (Casana, 2003). Other water sources come from flooding of the river, which depends on rainfall, snowmelt in the mountains, and many springs all over the valley (Casana, 2012). The return of the modern lake occurred around the end of the 1st millennium BCE, a similar phenomenon has been observed to the northeast of Tell Qarqur in the Rouj Basin and the Amuq Valley. The northern Levant is a very rich region with archaeological sites that have continually evolved from hunting and gathering at the dawn of agriculture 10,000 years ago to modern times. From single-family units, settlements began to grow and become more complex. In this thesis, I am going to look at the 4th millennium sites in particular at the Ghab Valley and the Amuq Valley, which are located in northern Levant (Figure 2).

The natural features of the Ghab Valley and the Amuq Valley witnessed significant changes in the 1950s when many of the lakes and marshland previously covering a noticeable area of the region had dried and turned to modern agricultural lands (Wilkinson, 2000).
Figure 2 Map of the Study Area- The Northern Levant.
1.3.1 The Ghab Valley

This valley is located in northwestern Syria between the two mountain ranges along the Mediterranean Sea. The valley was originally formed by a process of the course of the Orontes River passing through a sequence of closed basins. The Orontes River flows from the Lebanon Mountains north through Syria towards Turkey. The Ghab Valley and the Amuq Valley to the north were largely inundated by seasonal marshlands that formed from the accumulated rains until they recently dried up in the middle of the 20th century due to modern irrigation works (Fitchet and Deford, 1973; Wilkinson, 2000). The drainage of the marshes produced a new landscape and opened the area for cultivation causing extensive damage to the archaeological sites that have been exposed (Wieser, 2012). Several archaeological surveys, conducted in the Ghab Valley, have revealed a large number of archaeological sites from deferent periods (Dornemann, 2003; Graff, 2008; Courtois, 1973), along with excavation at Tell Qarqur, Tell Asharne, and the Roman city of Apemea.

1.3.2 The Amuq Valley

The Amuq Valley is located 50km to the north of the Ghab Valley on the Turkish-Syrian border. Geomorphological investigations there have shown that the Antioch Lake, like other lakes in the region, dried up in the middle of the 20th century. Other geomorphological studies of the Amuq basin showed that the lake existed in the basin during the Holocene until it dried up or decreased in size around the beginning of Chalcolithic times, reforming in the late 1st millennium BCE and reaching its greatest extent in modern times (Wilkinson, 2000). Some archaeologists have suggested that the dwindling in the size of the lake of Antioch in the middle of the 4th millennium BCE was due to climate changes. Other evidence relate it with human activities like agriculture or irrigation that reduced the amount of water that previously had drained into the
lake bed, resulting eventually with the drying up of the lake (Wilkinson, 2000). The Amuq Valley has attracted the attention of many archaeologists due to the large quantity of important archaeological sites from different time periods located there (Casana and Wilkinson 2005; Casana 2007; Braidwood 1937). Several surveys have revealed many new sites that were not known or were buried beneath the lake. The region is also well known by archaeologists because of the Amuq Ceramic Sequence; it has established the ceramic phases of the different occupations in this region, from the Pottery Neolithic through the Islamic period (Braidwood & Braidwood, 1960).

1.3.3 Tell Qarqur

Tell Qarqur, is a major archaeological site located in the Orontes River Valley of northwest Syria, between three mountains; Jabel Zawihye and Wastani to the east and Jebel Ansariya to the west; they have served as the hinterland for inhabitants to obtain their raw materials like wood, stone and other natural resources. The finds derived from recent excavations at the site serve as one of the key materials incorporated in this thesis. Tell Qarqur is a unique site because it is an important example representing a long history of occupation that spans more than 10,000 years from the Pre-Pottery Neolithic (8500 BCE) through the Mamluk Period (AD 1450) (Dornemann 2003, Table 2). It offers new data about poorly known periods, and fills gaps in the cultural sequence in the region especially Iron Age I and EBA IV. Excavation at Tell Qarqur first started in 1983 under the direction of Dr. John Lundquist and lasted for one year. After that in 1993, Dr. Rudolph H. Dornemann renewed the excavation that has lasted until now, and through which he clarified the chronological features and the ceramic sequence of the site (Dornemann, 2008). In 2005, Dr. Jesse Casana participated in the excavation with new technological tools like
geophysics survey that helped to widen the excavation work and the soundings (Casana 2010). In 2010, a small survey revealed a 4th millennium mound 400 meters to the east of the main mounds at Tell Qarqur, and about 2-3 meters above the modern floodplain. The pottery is consistently 4th millennium BCE, similar to the Amuq F types (Braidwood and Braidwood 1960; Fugmann, 1958), dominated by coarse, chaff faced and chaff tempered pots, bowls and jars, which characterize the ceramics of this time period, as well as many lithic inclusions. The discovery of the Late Chalcolithic at Tell Qarqur inspired the development of this project because Late Chalcolithic sites in the northern Levant are extremely rare and our awareness of 4th millennium BCE materials in the region is very limited.

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Time Period</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratum 1, 2</td>
<td>Mamluk/ Ayyubid</td>
<td>1100-1550 AD</td>
</tr>
<tr>
<td>Stratum 3</td>
<td>Early Islamic</td>
<td>700-900 AD</td>
</tr>
<tr>
<td>Stratum 4</td>
<td>Late Roman/ Byzantine</td>
<td>300-700 AD</td>
</tr>
<tr>
<td>Stratum 5</td>
<td>Roman</td>
<td>100-300 AD</td>
</tr>
<tr>
<td>Stratum 6, 7</td>
<td>Hellenistic /Persian</td>
<td>500-100 BC</td>
</tr>
<tr>
<td>Stratum 8</td>
<td>Iron Age II</td>
<td>1000-500 BC</td>
</tr>
<tr>
<td>Stratum 9</td>
<td>Iron Age I</td>
<td>1200-1000 BC</td>
</tr>
<tr>
<td>Stratum 10, 11</td>
<td>Middle / Late Bronze Age I-II</td>
<td>1900-1200 BC</td>
</tr>
<tr>
<td>Stratum 12</td>
<td>Latest Early Bronze IV</td>
<td>2200-2000 BC</td>
</tr>
<tr>
<td>Stratum 13, 14</td>
<td>Early Bronze IVA /IVB</td>
<td>2300-1900 BC</td>
</tr>
<tr>
<td>Stratum 15, 16, 17</td>
<td>Early Bronze I-III</td>
<td>3000-2300 BC</td>
</tr>
<tr>
<td>Stratum 18</td>
<td>Late Chalcolithic/ Amuq F-G/Uruk</td>
<td>4000-3000 BC</td>
</tr>
<tr>
<td>Stratum 19</td>
<td>Early Chalcolithic/ Halaf/ Ubaid</td>
<td>5500-4000 BC</td>
</tr>
<tr>
<td>Stratum 20</td>
<td>PPN/PN</td>
<td>8500-5500 BC</td>
</tr>
</tbody>
</table>

Table 2 Various Phases of Occupation at Tell Qarqur (Dornemann, 2003)
1.4 Goals and Methods

This thesis aims to help archaeologists answer some difficult questions surrounding the development of the 4th millennium BCE cities in the northern Levant by synthesizing evidences for architecture and material culture associated with this period derived from surveys, excavations, and recent finds at Tell Qarqur. A major objective of this research involves answering questions as to whether the culture in northwestern Syria developed independently or whether it was a reflection of outside influences from southern or northern Mesopotamia. In other words, I am researching the material culture in the northern Levant to determine the date and degree of Mesopotamian influence in the west more broadly. An additional aim of this project is to study the ceramics from Tell Qarqur and compare them with the ceramics from other regions like northern Mesopotamia and to determine where they fit in the Late Chalcolithic and the Amuq sequences with the hope of clarifying better the chronology of the different phases of occupation in the region. This study will provide a much needed review and examination of the sites in the northern Levant in the 4th millennium BCE period, neglected by archaeologists, by presenting the distribution of the sites and the morphology that characterizes them.

In addition to traditional analyses of material culture, this thesis, will employ CORONA satellite imagery incorporated with survey and excavation data to investigate the relationships between the 4th millennium BCE sites in the region and comparing them with northern Mesopotamian sties to understand the degree of development towards urbanism in this region.
1.3 Chapter Outline

This thesis contains five chapters. Chapter 1 is the introduction with an overall review of the relevant literature in this area and a background of the environment and climate.

The following chapter, chapter 2, discusses evidences of the emergence of complex society in the Near East as shown through excavation and the survey work. It starts with southern Mesopotamia and in particular the Uruk culture as the first known complex society in the Near East. It talks also about the Uruk expansion to north Mesopotamia, northeastern Syria and southeastern Anatolia and the lack of Uruk materials in the Levant. Then it reviews the question of urbanism in northern Mesopotamia and its local evolution without any southern Mesopotamian effect, citing examples and evidence of urbanism from sites like Tell Hamoukar, Tell Brak and Tell Mozan. The Late Chalcolithic in the middle Euphrates River the southern Levant is briefly examined in this chapter.

Chapter 3 talks about the Late Chalcolithic period in the Northern Levant showing the results of the main surveys that were conducted in the region. The primarily approach of this chapter is to shed some light on urbanism in the northern Levant by presenting all the survey and the excavation data collected so far in the area in order to understand the local development of urbanism, looking also at sites with Amuq F ceramics and how these were described in different survey data.

Chapter 4 details the new discovery of the Late Chalcolithic at Tell Qarqur, covering its extent and size, and giving an overview of the excavation and the survey. It also presents the analysis of LC sites in the northern Levant via CORONA imagery and spatial datasets published from corresponding survey data. The methodology used presents sites previously identified as having Late Chalcolithic occupation and compare them through morphological and spatial distribution
characteristics to identify differences and similarities that may aide in future site-classification and studies. The methodology for this paper specifically includes the mapping of potential 4th millennium BCE sites and for determining possible spatial distribution patterns among them. Chapter 5 presents the 4th millennium BCE ceramic sequence in northern Levant. The chapter also gives an analysis and comparison of the LC ceramic surface collection at Tell Qarqur with other sites and regions, and presents evidence of the lack of Uruk ceramic in the data. Chapter 6 the conclusion of the thesis presents a discussion of the anomalous relationship between the Levantine and Uruk cultures. It also discusses the extent of the local urbanism in the northern Levant, showing the results of this study and the need for further work and excavation in the region to clarify better the Amuq F phase and ceramic sequence. Also the chapter contains a critique of the work already done and the need for more work in the region, especially at Tell Qarqur because the excavation was cancelled due to the crackdown that started in Syria two years ago.

Chapter 2: Emerging Complexity in the Near East and the Uruk Expansion

By 4000 BCE, cities of considerable size were present in southern Mesopotamia for instance Uruk, and in northeastern Syria especially Tell Mozan, Tell Hamoukar and at Tell Brak. However, there are several competing ideas on whether the culture developed locally with regionally distinctive characteristics or if the idea of urbanism spread from a common source (Akkermans and Schwartz, 2004). Until recently, the evidence suggested that southern Mesopotamia, as Adams called it “Heartland of Cities,” with its unique geographic and topographic landscape and early use of irrigation (Adams 1981), was the most advanced and spread its culture through trade into northeastern Syria and beyond (Algaze, 2001). In the 5th
millennium BCE in the Ubaid period, small farming towns which started to grow in southern Mesopotamia developed into urban complex cities in the 4th millennium BCE (Carter & Philip, 2010) with political and religious power. Monumental architecture was uncovered in Uruk and the size of the city exceeded 400 hectares of walled area with around 50,000 to 80,000 residents. Certainly, Uruk achieved a much larger size than any contemporary settlement and was home to monumental buildings of a scale not replicated elsewhere. However, recent excavations at the northern Mesopotamian cities of Tell Mozan, Tell Hamoukar and Tell Brak now show massive 4th millennium BCE occupation with large public architecture (Kelly-Buccellati, 2009; Reichel, 2007; Oates et al. 2007; Ur 2012). This evidence suggests that these settlements were highly developed and culturally unique long before infiltration from the south (Ur, 2010; Oates, 2007). These results challenge the traditional view concerning the origins of complex societies. The excavation and the discovery of such massive architecture were the main new indicators to reanalyze the developments and the transformation in social life. The relationship between the built environment and the evolution of complex society has been seen at such sites and especially with the perspective that buildings and concomitantly landscape modification play the role of representatives for cultural changes and developments.

During the second half of the 4th millennium BCE, a phenomenon known as the Uruk Expansion can be traced throughout greater Mesopotamia as Uruk material culture was spread in wide-ranging regions that reached northern Mesopotamia, Anatolia, northern Syria (Stein, 1999 & 2004; Sundsdal, 2011; Algaze, 1989 & 2005; Areshian, 1990). However, the northern Levant witnessed a lack of southern Mesopotamian influence during this period that maybe because northern Mesopotamia offered all the resources southern Mesopotamia needed (Philip, 2002).
Figure 3 Map showing the Uruk colonies and expansion north and northeast towards the Euphrates western bank and the main 4th millennium sites in N. Mesopotamia and the Upper Euphrates River region (Stein, 1999).

The most salient phenomena regarding the Uruk expansion is the massive influence of the Uruk material culture all over northern Mesopotamia, northeastern Syria and southeastern Anatolia and practically the lack of this influence on the northern and southern Levant (Stein, 1999) (Figure 3). This paucity, as suggested by some archaeologists, stemmed from the inaccessibility of the riverine approaches as it is to the north. In addition to that, northern Mesopotamia has
most of the resources that were required in southern Mesopotamian societies. It is especially the
need for metals that has been argued to be the primary impetus for this expansion (Algaze,
1993).

As one of the goals of this thesis is to compare recent research on the 4th millennium BCE in the
areas of southern and northern Mesopotamia and the Middle Euphrates so as to highlight local
urbanized societies in the northern Levant, I will next review recent surveys and excavations in
northern Mesopotamia, the Middle Euphrates and touch on the very different situation in the
southern Levant.

2.1 Late Chalcolithic in Northern Mesopotamia

Figure 4 Map showing North Mesopotamia and the sites with local urbanism mentioned in this
thesis.
Northern Mesopotamia is a very rich region with an enormous number of archaeological sites and the natural environment in northern Mesopotamia very different from the southern Mesopotamian one. The division of agriculture between rainfall in north Mesopotamia and irrigation in the south and the use of different techniques, created an important distinction between both cultures. This has been seen in the differentiation in the social structures like the distribution of the sites, the use of the lands, the changing of settlement patterns, and the emergence of complex societies in both areas (Wilkinson, 2000). In north and south Mesopotamia, we have two examples of urban societies that have developed independently but with similar regularities and structures within both of them (Stein & Rothman, 1994). Several surveys have been conducted in the region, including Ur’s (2010) survey around Tell Hamoukar (Figure 4) to distinguish the 4th millennium BCE assemblage and to map precisely the relative spatial distribution of local and southern origin of the artifacts. That survey project utilized CORONA imagery, and was found to be useful for detecting even the small sites in the local area around the tell. Another survey by Eidem and Warburtan (1996) around Tell Brak revealed the existence of Uruk settlements and Late Chalcolithic evidence around Tell Brak.

### 2.1.1 Tell Hamoukar

Tell Hamoukar, a large site located in northeastern Syria, reached its glory days in the Early Bronze Age, when cities grew in size by forming a high town in the middle of the site, where the temple, the palace, and the other administrative buildings were located, surrounded with the lower town where normal people lived. Usually, the inner and the outer towns were walled (Ur, 2010). However, the cultural importance of Hamoukar could be positively reevaluated after recent discoveries revealing a massive city wall and tripartite buildings (TpB) that were public
and used for food production (Reichel, 2009). This discovery drew attention to this Late Chalcolithic period in this area because it contradicted the old theory that says first urban cities emerged in southern Mesopotamia in the 4th millennium BCE (Ruthman, 2005; Oates, 2007). When the tripartite building was first discovered in 2005, archaeologists thought that it was an Uruk building constructed during the Uruk expansion towards northern Mesopotamia; a time when the tripartite floor plan was widely used in southern Mesopotamia. However, C14 analysis (associated with the buildings) and the LC 3 ceramic analysis later proved that the buildings were constructed locally without any intervention from the south. The C14 analysis dated the building to the beginning of the 4th millennium BCE, long before the Uruk expansion to the north. The building was completely burned but recovered in it were more than a thousand sling bullets (egg-shaped clay artifacts, 3.6 × 2.4 cm, with a pointed end), and the evidence from the destruction indicated the presence of pits, burials, artifacts. Through these discoveries, the excavators suggest that this destruction was caused by warfare in 3500 BCE. Pottery analysis revealed that the conflict was associated with the presence of Uruk pottery, which made the archaeologists conclude that the attacks were provoked by southern Mesopotamians (Reichel, 2009). Geopolitical reasons also suggest warfare, considering in the first place that Hamoukar is located in a very rich region with raw materials and on the other hand on the trade route that comes from the south near the Tigris River. The destruction and the burning of the building at Tell Hamoukar allowed the excavators to obtain much more significant information from this mud brick building that the intense fire solidified and left many of its features intact (Reichel, 2006).

Inside the TpB-A, a very precise excavation strategy was pursued so that objects were recorded using a methodology that allowed a distinction to be made between artifacts from the original
building and the later ones. Most of the features and the artifacts found were associated with food production activities, like large storage jars, grinders, whetstones. In addition to these finds, a large number of clay sealings, used to seal both vessels and doors verifying the public use of the building. This showed that not everyone had access to the sealed rooms and objects indicating the existence of a system of administrative hierarchy system controlling such massive products (Pollock, 1999) (Figure 5).

Figure 5 Seal Impression found in TpB-A at Tell Hamoukar, showing a loin standing and holding the beard of a goat, performing human activities (Reichel, 2006).

In 2005, the excavation revealed another tripartite building (TpB-B) to the west of TpB-A(Figure 6). Both buildings have the same orientation with entrances to the south that reach to the largest central space $a$ of the buildings. The central rooms are surrounded with rooms on each side except the southern one, and some of the tripartite buildings have no symmetry between the two-
sided sections. In room a, some pieces of roof plaster were found, indicating that the central space a in the middle was roofed. Previously it had been assumed that these central rooms served as an open courtyard, because this appears to be the pattern used in southern Mesopotamia. However, open courtyards are not a common architectural feature in the north because of the high precipitation there. Between the two tripartite buildings, there was a secondary, additional section associated with the main building that was also used for storing and producing food. In room o, several door sealings were found which indicates that it was using for storing small objects, given its small size (Reichel, 2009).

Figure 6 Plan of the 4th millennium buildings in Area B (Reichel, 2009).
2.1.2 Tell Mozan

The main excavations of the temple terrace and the plaza area of Tell Mozan/Urkesh began in 2005; these have led to the uncovering of the 3rd millennium BCE wall, the glacis associated with it, and the monumental staircase. J1 is an excavation area at the northwestern end of the plaza; it was first opened in order to reach the base of the revetment wall and to uncover part of the plaza. While both these goals were met, unexpected discoveries were made. Not anticipated was the exposure of a Late Chalcolithic stratum below the foundations of the 3rd millennium wall and glacis (Buccellati & Kelly-Buccellati 2009). Fragments of seal impression were found in area J3 and presenting intertwined ribbons, reclining animal and other complex scenes (Figure 7).

Figure 7 Seal impressions found in LC level at Tell Mozan (Kelly-Buccellati, 2009).

In area J3, which is located up to the north of J1, Late Chalcolithic stratum was also discovered directly under the surface of the glacis. Finding the Late Chalcolithic stratum in stratified contexts and in a high elevation on the mound suggested the presence of a massive Late Chalcolithic settlement underneath the 3rd millennium BCE level. This was strengthened during the 2009 season when a 4th millennium structure was discovered slightly to the south of the base of the ED III revetment wall (Figure 8). This structure runs almost parallel to the later revetment
wall and this suggested that it might have had the same purpose as the later ED III structures (Kelly-Buccellati, 2009).

Figure 8 Tell Mozan – The corner of the potential tripartite building (Urkesh Global Record).

In 2010, the excavation in J3 area revealed a massive mudbrick structure dating to the Late Chalcolithic (Figure 8-9). The uncovered portion of the architecture shows the corner of a large mudbrick building with an outside niche on its wall (Figure 9). The thickness and the shape of the walls suggest that the building could be a tripartite building that might have had the same purpose as the tripartite buildings at Tell Hamoukar.
2.2 Late Chalcolithic in the Middle Euphrates River - Tell es-Sweyhat Survey

The Middle Euphrates River Valley is considered a very important region because it is located in the middle between northern/southern Mesopotamia and northern Levant. The Tell es-Sweyhat Survey period III, conducted in this region, shows the presence of Late Chalcolithic and Uruk sites. For instance, a large assemblage of LC ceramic was found at Tell SS 25 (as it is referred to in the survey). This site is located on the west bank of the Euphrates River, and not far from another Chalcolithic site, SS 30, which led to the proposal for the existence of a Chalcolithic
settlement in the region (Wilkinson, 2004). The region in general is flat which may exclude the presence of massive architecture. The ceramic that was found in the survey dates to early Amuq F, and there were no traces of Uruk materials. Therefore, SS 25 existed before the Uruk expansion that had such a large influence on some sites in the region like HabubaKabira, Jebel Aruda and Tell Sheikh Hassan (Figure 10). A few Uruk ceramics, like beveled-rim bowls, were found at some sites like Tell Hadidi and Shams ed-Din Tannira but this does not make it an Uruk colonial or settlement (Lawrence, 2012). Other archaeologists argue that the absence of Uruk materials at Tell es-Sweyhat suggest that the plain might not have been occupied throughout the Late Chalcolithic period. However, some LC ceramics were found at Tell Hajji Ibrahim (SS 3), SS 13, and KhirbatAboud Al-Hazu 2 (SS 19) which led to the assumption by many archaeologists that this formation of Late Chalcolithic settlements may have occurred later, around the end of the 4th millennium BCE (Wilkinson, 2004).
Figure 10 Map showing the distribution of the sites throughout different periods on the banks of the Middle Euphrates (Lawrence, 2012).

2.3 Late Chalcolithic in Southern Levant

Some of the areas that have been surveyed in the southern Levant are Jaulan heights and Negev that are characterized as basaltic highlands. The survey area covered 400 km² and showed that the area has been occupied since Neolithic times, then during the Chalcolithic and the Bronze Ages. However, the sites in southern Levant took different shapes than Tells in the northern Levant and Mesopotamia. The documented ceramics from the southern Levant showed few similarities in materials with the northern Levant (Philip, 2002). For instance, basalt bowls,
which characterize the southern Levant 4th millennium BCE vessel forms, were not detected in the Orontes Valley or other north Levantine regions. The terminology in the southern Levant even has more problems than the northern Levantine chronology and one of the main problems is that the whole Chalcolithic period spans only 1000 years, which makes it difficult to compare the phases in the southern Levant with the phases in the north (Philip, 2002).

Chapter 3: The Late Chalcolithic in the Northern Levant

The distinctiveness of the northern Levant is the continuance in the occupation of the area and the discovery of a massive number of survived sites despite the bad environmental and climatic fluctuation in the area. The region encompasses several valleys form basins of water that comes from the main rivers in the region: the Orontes, Afrin, and Kara Su (Casana & Wilkinson, 2005). A few soundings and some surveys have revealed the existence of 4th millennium occupations in many sites in northern Levant, but the sites are mostly buried beneath later phases or sedimentation. This chapter will focus on the existing evidence from excavated and surveyed 4th millennium BCE sites.

3.1 Existing Evidence from Excavations and Surveys

What we know about the Chalcolithic period in the northern Levant came from several surveys and a few soundings that took place in this region. Of particular significance is the major work was carried out in the Amuq area. For instance, in 1936, the area was surveyed by Braidwood, who conducted the only sounding that characterizes the chronological 4th millennium ceramic sequence in the region; Amuq F (Chaff-faced simple ware) (Braidwood & Braidwood, 1960; Yener et al. 2000). In 2002, the Amuq Valley Regional Project 1995-2002—carried out by the
Oriental Institute— was a continuance of the work Braidwood had started, collecting more information about the sites and the landscape, to extend the survey coverage area and to update the ceramic sequences (Casana & Wilkinson, 2005). The unique aspect of the Amuq Valley Regional Project was the implementation of new technology like Global Positioning Satellites (GPS), Geographical Information Systems (GIS), CORONA and remote sensing data for detecting and recording the numerous sites in region. In the same area, C. Leonard Woolley between 1936 and 1949 conducted some excavations at Tell Atchana, Tabarat Al-Akrad, and Tell es-Sheikh, and few soundings as well that revealed Late Chalcolithic materials, but they are not very well published.

Other more limited surveys included in 1996-7, the Hopkins-Amsterdam project in the Jabbul plain revealed a number of large 4th millennium sites like Tell Judeidah, Tell Shirba and Mahdum, and other small sites that have no evidence of southern Mesopotamian expansion (Schwartz et al. 2000). The 4th millennium ceramics of this region are characterized by “jars with flaring necks and simple rim bowls in crude chaff-tempered ware” similar to the Amuq F ceramics. In 2000-2001, Northern Ghab Regional Survey (NGRS) covered around 600 square kilometers in the northern Ghab region and surveyed around 100 sites dated to different periods, 16 of them were Late Chalcolithic sites (Graff, 2008).

Additionally, the intensive survey in the Afrin River Valley revealed site with Late Chalcolithic occupation (Amuq F), but the survey failed to detect sites earlier than the Amuq F period. It also revealed that the prehistoric sites on the Afrin River Valley formed a pattern along the Afrin River (Casana & Wilkinson, 2005). The survey along the Orontes valley discovered an occupation of Chalcolithic sites that may have formed a route system as old as the Ubaid period. Factors influencing the distribution of prehistoric sites there may have been their position along
the route system, water sources, and suitable locations that were not dangerous to live in. At the same time, their closeness to arable lands for cultivation purposes was an important factor (Casana & Wilkinson, 2005).

After this review of some of the surveys in the northern Levant, I will concentrate on describing in greater detail the most important of these surveys and associated soundings passing then to discuss the recent excavations in the area that have revealed sites with Evidence of Late Chalcolithic.

3.1.1 The Oriental Institute Project (1933 -1938):

The Oriental Institute Project by Robert J. Braidwood (1960) was conducted from 1932 to 1938, and the main purpose of this survey was to focus on the early 1st millennium sites to know more about the Hittite kingdom. This survey conducted the only sounding that established the Amuq sequence that is divided to 10 phases, the earliest one Amuq A and the latest one Amuq J. This thesis concerns Amuq F and early Amuq G that represent the 4th millennium phase. The survey documented 178 tells during, and some soundings were conducted at some of these sites like Chatal Höyük, Tell al-Judaidah, Tell Ta'yinat, Tulail al-Sharqi, Tell Ta'yinat al-Saghir, Tell Kurcoglu, Tell Dhahab, and Tell Kurdu as well as a cave in the Reyhanlı1 vicinity at Vadi-el Hamam. Among those 178 sites, 50 sites dated to Late Chalcolithic (Braidwood & Braidwood, 1960). Therefore, our knowledge of the Late Chalcolithic in this region comes from the surveys discussed above but more detailed chronological and contextual information comes from a number of excavations and soundings at some sites that I will discuss below.
3.1.2 Tell Judaidah

Tell Judaidah (Figure 2) is one of the best-known sites in the Amuq Valley because of the excavation conducted there during the 1930s, which became the basis of the Amuq ceramic sequence. The greatest measurements of the site showed 161m high, 370m (E-W) length, 250m (N-S) width. It is located to the southeast of Rihaniyyah (1.5 km away), on the north bank of Nahr al-Judaidah. One of the main operations at Tell Judaidah was the opening of a test trench JK 3 on the northwestern side of the tell, where the terrace previously found on the slop of the mound. The area of the test trench was 10x15m, and 15m deep; the elevation reached 125m underneath the original slop of the tell. The JK 3 operation encompass 28 floors (Figure 11) and the date of the floors ranged from Amuq Phase A to Amuq Phase I. Floors 21, 22 and 23 dated to Amuq Phase F, although floors 22 and 23 were mixed with earlier phase Amuq E. This makes it difficult to precisely date the transition between Amuq E and F, and this problematic is similar to confusion in the transition between Amuq F and Amuq G that were mixed in floor 20 (Braidwood & Braidwood, 1960). Floors 21 and 20 revealed the existence of Late Chalcolithic architecture. The architecture consists of a thick mudbrick wall, big stones and a possible large storage room that were associated with the Amuq F Phase. This suggests that the mudbrick wall and the large stones associated with the terrace could be part of a fortification system of the site in the 4th millennium BCE (Braidwood, 1937).
3.1.3 Chatal Höyük

The greatest measurements of the site are, 129m high, 430m NE-SW length, 265m NW-SE width. It is located to the northwest of the Rihniyyah town, 4km away from the Afrin River. The investigation started at Chatal Hoyuk with two horizontal soundings illustrated with two tunnels (each 1.25m wide by 4m high in W 16 and 5.5m in V16) on the sharp slope of the tell around. Tunnel V 16 revealed nine floors; floors 1-2 were mixed ceramics, floors 3-4 dated to phase I,
floor 5 dated to phase H, floor 6 had Amuq F pottery mixed with some Amuq H, and floors 7, 8 and 9 in the bottom of the sounding had extremely Amuq F. The elevation of the lowest floors was around 74.76m. The existence of Late Chalcolithic materials on a high elevation suggests presence of the large Late Chalcolithic settlement at Tell Chatal Höyük (Braidwood & Braidwood, 1960).

3.1.4 Tell Atchana

The two sections that have been cleaned on the east of Tell Atchana have shown the presence of Late Chalcolithic pottery in the bottom three layers (A7, A8, and A9). These rest on the top of an old deposition of the floodplain (three meters deep) that was formed in the early Holocene during the seasons with the low stream of Orontes Valley (Figure 12). Lithic artifacts, bones, and large potsherds indicate that the site was occupied during the mid-late Chalcolithic phase, which is referred to as Amuq E and early Amuq F. The section shows that the site witnessed another occupation in the 2nd millennium BCE. However, the stratigraphy indicated that the environment has witnessed enormous changes that correspond with other results from the area. The results revealed that the formation of the lake occurred in the 2nd millennium BCE due to the climatic changes that raised the level of the Orontes River, which may have caused some changes in its course (Wilkinson, 2000). Therefore, in the Chalcolithic phase, the Antioch Lake had not been formed yet or perhaps existed but in a small size or low elevation that had not extended to the surrounded sites (Wieser, 2012). Moreover, the excavation in 2003 revealed that Tell Atchana was a central site in charge of other trade routes perhaps dealing with mining resources at the end of the 4th millennium and the 3rd millennium BCE.
3.1.5 The Amuq Valley Regional Project:

The Amuq Valley Regional Project was conducted as a continuation of Braidwood’s survey in the 1931, aiming to achieve several goals. First, the project wanted to gain more details and information about the environmental context of the archaeological sites and their development during the last ten thousand years. Second, they wanted to extend Braidwood’s (1937) survey that concentrated mainly on tell sites to focus more on the surrounding landscape and uplands. Third, they wanted to evaluate the pottery chronology. Even though one of the main goals of the AVRP was to fill the gaps in the chronological pottery sequence that was created by Braidwood 50 years ago, the Late Chalcolithic pottery is still not well understood in the Levantine region. The survey aimed to extend Braidwood’s survey by bringing together all the data concerning the sites and to understand the environmental changes and effect on the well-known sites (Figure 13). The biggest Chalcolithic sites in the Amuq and the ones that have witnessed excavation work are Tell Kurdu (AS 94) and Tell Imar al-Jadid al-Sharqi (AS 101). In addition, Tell Judaidah presents Chalcolithic material from Amuq C to E. However, there were only few

![Amuq Valley Regional Project (AVRP) Map showing the distribution of LC sites based on the AVRS](image)

**Figure 13** Map showing the distribution of LC sites based on the AVRS

### 3.1.6 Tell Imar al-Jadid al-Sharqi (AS 101)

This is a large Late Chalcolithic damaged site 500 x 350 meters (Figure 14), located near Tell Kurdu in the center of the Amuq Valley. Some earth movement and bulldozing exposed part of the northern side of the site that resulted in the discovery of Amuq F ceramics associated with massive architecture and a stonewall. Tell Imar al-Jadid al-Sharqi (AS 101) appears to have been the largest documented Amuq F settlement in the Amuq Valley. The massive wall was found near the base of the mound and the presence of eroded large stones all over the sides of the Tell suggests that the wall could have been the city wall that was used as a fortification feature (Yener et al, 2000; Casana and Wilkinson, 2005).
This site, in particular, is a very important indication for urbanism in the northern Levant primarily because of its unique large 4th millennium BCE architecture, which the northern Levant lacks. It is also important for the absence of southern Mesopotamian intrusion that suggests a local development towards urbanism.

![Figure 14 Contour Plan of Tell Imar al-Jadid al-Sharqi -AS 101(Casana & Wilkinson, 2005).](image)

**Figure 14** Contour Plan of Tell Imar al-Jadid al-Sharqi -AS 101(Casana & Wilkinson, 2005).

### 3.1.7 Tell Karacanlik (Karacanlık) AS 92

The site has an extended area of 400x250 meter and is 5 meters in height. It is one of the sites buried underneath sedimentation and not discovered until the survey work has revealed the existence of Amuq Phase G and F ceramics, which suggest that it was an important settlement during the 4th/3rd millennium BCE, probably as important as Tell Imar al-Jadid al-Sharqi (Casana and Wilkinson, 2005).
3.1.8 Tell Nebi Mend

Tell Nebi Mend, located 24 kilometers southwest of Homs, gives a great example of the development of urbanism in the 4th millennium BCE. Late Chalcolithic ceramics were discovered in trench VIII at the northeast portion of the site (Mathias & Parr, 1989). Some of the ceramics from the site were dated to EBA but these levels fall towards the end of the 4th millennium BCE as the later radiocarbon analysis showed (Philip, 2002). For example, Phase 2 in the sequence fits with the end of the 4th millennium BCE, which made Phase 1 even earlier and put it before the mid-4th millennium BCE sequence (Philip, 2002).

3.1.9 Tell Afis

Tell Afis is 23 hectares in size and situated 70 km to the south of Aleppo (Figure 2). Late Chalcolithic occupation has been excavated also at Tell Afis in levels 18-19 (Giannessi, 2002). What is unique about the Late Chalcolithic at Tell Afis is the discovery of architecture that is a type of evidence mostly missing in the northern Levant during this period. The type of architecture especially the city wall attached to a terrace showed that the site was an important settlement during the Late Chalcolithic period (Mazzoni, 2000). The long sequence of LC occupation with well-preserved architecture at Tell Afis presents a great example of complex society formation of this poorly known period in the 4th millennium BCE in the northern Levant. The LC sequence at Tell Afis was represented in Levels 25 up to 8 cover four structural phases, which showed some improvement in the structure and only few changes in pottery types (Mazzoni, 1998).
3.1.10 Hama

Hama or Hamath, a large prehistoric settlement on the Orontes Valley (Figure 2), the sounding revealed Late Chalcolithic stratum found in level K. What significant about the Hama ceramic sequence is the presence Uruk materials like the bevel-rimmed bowls (BRBs) and the Eye Idol of a type known primarily from southern/northern Mesopotamia that shed some light on the vague relationship between the Levant and Mesopotamia. Phase K represents the 4th millennium and the 1st half of the 3rd millennium BCE. There was a debate about the eye-idol because some suggested that they might be not the Urukian eye-idols but spinning tools that were found before at some sites in north Mesopotamia and Syria (Breniquet, 1996). However, the Hama sequence is not very clear and still there are gaps and missing data making it difficult to explain the existence of Uruk materials at Hama, and some argue that their existence dates to the end of the 4th millennium (Philip, 2002).

3.1.11 Homs Basalt

The Hama Basalt is a region located on the Orontes River Valley. The sites in this region are considered smaller and fewer compared to those located in the marshlands region. The basalt rocky nature of this area is reflected in the architecture built with basalt stones, gathered from the surface. Almost 70% of the sites are now buried underneath modern villages. For example, some Chalcolithic sites like SHR 860 and SHR 888. However, SHR 49 in one of the survival sites and considered the largest site in the region, is an excellent example of different occupation levels and ceramic sequences, especially early occupations during Chalcolithic and Bronze ages. The environment surrounding SHR 49 appears to be suitable for agriculture and there is evidence showing that the region was agriculturally active in Roman-Byzantine times and in modern times as well. For instance, some of the current villages, located near SHR49, are built on top of
ancient sites like SHR 860, 888 and Tell Kissin; these show some evidence of agricultural activities and furthermore sites were located along the same valley (Philip & Bradbury, 2010). Chalcolithic materials also were found at the Roman-Byzantine site of Dar es-Salaam, and the small soundings around the sites showed the presence of cairns. The general result from the study and the evidence gathered from these sites in the North Study Area indicate that during the Chalcolithic period most of the sites in the region were active even though there are still many sites are still buried underneath later phases and hard to reach. Twenty sites have been surveyed among the 75 identified ones and the survey showed evidence of Chalcolithic occupation at all of them.

3.1.12 Chalcolithic Evidence in the Syrian Coast Sites

Some of the mid-late 4th millennium BCE ceramic types that were discovered in the coastal area, like metallic ware vessels and red-slipped bowls and plates, were similar to the ones found in the southern Levant and Byblos at the end of the 4th millennium BCE. The ceramics found there show no presence of Uruk materials. For example, recent publications from Ras-Shamra have clarified the 4th millennium BCE presence in the region in particular in the RS IIIB sequence (Contenson, 1992). This level revealed the presence of Ubaid-related materials, but later Mazzoni observed the presence of some mid-late 4th millennium materials like chaff-tempered bowls (Mazzoni, 2000). The discovery of both Ubaid-related materials and mid-late 4th millennium ceramics may lead to the reconsideration of RS IIIB, a long sequence that spans the whole 4th millennium BCE or the end of Amuq E and during Amuq F. Another site on the coast with 4th millennium materials was Qal’atar-Rus where reversed slip decorated bowls with both chaff and mineral tempered wares were found (Philip, 2002). The ceramic sequence at Qal’atar-
Rus in level 18-16 was parallel to ceramics that excavated at the end of Amuq F and beginning of Amuq G, which is around the end of the 4th millennium BCE (Yener, 1996). Tell Sukas as well revealed the presence of 4th millennium occupation and similar ceramic to Qal’atar-Rus discovered in levels MI and L4 (Oldenburg, 1991). The documented ceramics from the coastal sites can be characterized as having ceramics not earlier than the late 4th millennium BCE with no evidence of Uruk materials. Byblos is one of the significant sites in the southern Levant where some evidence of 4th millennium BCE occupation was found. At the beginning, the estimated date for this occupation spans from 3700 to 3200 BC, by comparing Byblos ceramics and EBA 1 Palestine ceramics. The results showed that the phase extends chronologically more than the second half of the 4th millennium BCE. Other ceramic types from Byblos paralleled Chalcolithic Palestine (straight sided with flat base bowls and red bands painted around the rim); this puts it under the earlier than 3500 as well. Another debate centers on the presence of Dynastic Egyptian influence in Byblos in the 3rd millennium BCE; some archaeologists suggest a communication between both cultures. What makes it unclear is the presence of southern Mesopotamian influence in Egypt and its absence in Byblos, which is located between the two regions. It may be that the communication route followed a path through the gulf region from Mesopotamia to Egypt (Philip, 2002).

Philip (2002) observes that some sites with monumental city walls like Ras-Shamra, Byblos and two in southern Anatolia like Tarsus and Beyce Sultan indicate that the Levantine region witnessed significant local urbanism during the 3rd/4th millennia, and there are many other early sites that have been buried underneath later periods waiting to be discovered.
Chapter 4: The Late Chalcolithic at Tell Qarqur

Tell Qarqur is a major archaeological site located in the Orontes River Valley at the northern edge of the Ghab Basin in northwestern Syria. Tell Qarqur is formed by two attached mounds; the one to south, nearly 30 meters in height and 6ha in area, is larger and higher than the one to the north which is 17 meters high and 5ha in area (Figure 15).

![Figure 15 DEMs of Tell Qarqur, Syria, produced by (A) stereo CORONA imagery, (B) total station survey, and (C) 90m (Casana & Cothren, 2008).](image)

The material culture of various occupations covers about 50ha (Figure 16) of the surrounding lands sometimes seen as big lumps with a low elevation above the plain (Casana, 2012). What gives Tell Qarqur its uniqueness, disregarding the huge damage that occurred to the site long time ago due to earthquakes, is the long history of occupation. The high elevation of Tell Qarqur helps testify to its very long history of early and continuous occupation. Late Chalcolithic or the Amuq F ceramics were recovered frequently in excavations, but only in extrusive contexts. As reported in Dornemann’s (2003), many Amuq F sherds are present, but not in context. Recently in 2010, this has changed by the discovery of an enormous agglomeration covered with Late
Chalcolithic sherds not far from the two main mounds that form Tell Qarqur, and through the results of the sedimentary coring.

4.1 Sedimentary Coring at Tell Qarqur

In 2010 in addition to the excavation work, some coring work using a simple soil auger was conducted by Anna Wieser on the lower town of Tell Qarqur. The purpose of the coring was first to clarify the expansion of the occupation around the tell and second to find out if there was a connection between Tell Qarqur and both the Orontes River and the Ghab marsh (Wieser, 2012). The location of Tell Qarqur by the older course of the Orontes River made it difficult to identify precisely the limits of the lower town due to the sedimentation that covers the surrounded lands. The results from the coring showed the existence of Late Chalcolithic material at the site, came from the coring project in 2010 conducted 200m to the south of the tell that has shown as well that the flood plain has risen considerably (Wieser, 2012). In addition to that, traces of an ancient river channel that existed from the Neolithic through the Hellenistic periods (Wieser, 2012). This also explains the erosion on the section of northern lower mound. Floodplain deposit covered with recent marsh deposit was discovered to the western and southern ends to the site suggesting that the marsh may have been a recent feature (Casana, 2012).
Figure 16 Topographical map of Tell Qarqur showing excavation areas and several soundings around the main mounds (Dornemann, 2012).
4.2 Surface Collections and Urbanism at Tell Qarqur

The discovery Late Chalcolithic sherds in Tell Qarqur in 2010 was not the first time they had been discovered; in the 2005 season, a survey to the southeast of the high mound revealed some Late Chalcolithic sherds scattered on the surface of a low elevation. A year after, in 2006, a small sounding was conducted in the same area but it revealed no evidence of Late Chalcolithic material or occupation (Casana, 2012). However, the new discovery of the LC mound in 2012 is very significant because of its size, exceeding 4 ha, and the huge amount of LC sherds or Amuq F that dominated its surface. Very few Hellenistic and Roman sherds were found in the LC collection even though these sherds are very common on every other part of the site. The newly discovered Late Chalcolithic mound is located to the east of tell Qarqur about 500m away from the low tell, and 2-3 meters above the modern floodplain. The pottery is consistently Late Chalcolithic in date, of the Amuq F type (Braidwood and Braidwood 1960, Fugmann 1958), representing the ceramic of this time period which is characterized by coarse, plain or red burnished chaff-faced pottery, as well as chaff tempered pots, bowls and jars, in addition to many lithics. The sherds that were collected are very similar in shape and ware to the Late Chalcolithic ceramics from the Jazireh region in particular LC2 and LC3. Most importantly, no evidence of Uruk pottery was found among the Late Chalcolithic ceramics on the surface.

In Area A and E at Tell Qarqur, Chalcolithic ceramics were found and in both squares A26 and A29 underneath the street pavement, Chalcolithic ceramics mixed with other earlier ceramics were uncovered. In Area E square E5, Chalcolithic ceramics mixed with earlier sherds were found (Dornemann, 2003). In addition to that, the repeated finding of Late Chalcolithic sherds
during the excavation in the main tell suggests the existence of a Late Chalcolithic settlement extending in a large area on the site, around 30-40ha (Casana, 2012).

4.3 Analysis of LC sites in Northern Levant via CORONA imagery

CORONA satellite imagery from the 1960s and early 1970s has proven to be a valuable method in detecting archaeological sites and has been integrated into several survey projects in the Near East since its declassification in 1960 (Casana, Cothren and Kalayci, 2012). The introduction of CORONA imagery into the Amuq Valley Regional Project in 2001 led to the discovery of many new sites and other ancient cultural features in the surrounding landscape (Casana & Wilkinson, 2005; Casana, 2003, 2007). Because the AVRP survey provides the most comprehensive information regarding Late Chalcolithic occupation (Figure 17), I have attempted to analyze all Amuq F/G sites documented in the region on CORONA satellite imagery, made available through the University of Arkansas’ CORONA Atlas of the Middle East (www.corona.cast.uark.edu). Below are some of the sites that were detected by AVRP that have Chalcolithic and Late Chalcolithic materials (Table 3).
Figure 17 Topographic map of LC sites identified by AS numbers, AVRS - elevations as found on ASTER 2012 DEM.

<table>
<thead>
<tr>
<th>Names and numbers of the LC sites</th>
<th>Dimension in Meters</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirmitli Hoyuk (AS 3)</td>
<td>140x60</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Yassiyurt (Sivrice) (AS 6)</td>
<td>90x90</td>
<td>LC pottery (few painted sherds)</td>
</tr>
<tr>
<td>Yusufu (AS 7)</td>
<td>35x35</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Dana Hoyuk (AS 9)</td>
<td>110x90</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Pasakoy (AS 11)</td>
<td>150x60</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Acarkoy (AS 12)</td>
<td>225x145</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Soguksu (AS 17)</td>
<td>170x150</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Tell Malta (AS 28)</td>
<td>240x150</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Esen Tepe (AS 29)</td>
<td>N/A</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Kizilkaya (AS 36)</td>
<td>100x80</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Killik Tape (Buyuk) (AS 50)</td>
<td>110x90</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Akpinar Hoyuk (AS 52)</td>
<td>230x140</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Kurcoglu (AS 55)</td>
<td>170x150</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Site Name</td>
<td>Dimensions</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Tell Kecebey (AS 75)</td>
<td>125x95</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Misir (AS 76)</td>
<td>100x120</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell al-Rasm (AS 80)</td>
<td>170x90</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Uzunarab (AS 84)</td>
<td>300x180</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Mudanbo (AS 85)</td>
<td>150x150</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Kaeacanik (AS 92)</td>
<td>400x250</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Hasanusagi (AS 93)</td>
<td>220x110</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Karahoyuk (AS 95)</td>
<td>120x120</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tarfah Hoyuk (AS 96)</td>
<td>120x80</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Hasanusagi (AS 97)</td>
<td>350x200</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Imar al-jadid al-gharbi/Omercedit (AS 100)</td>
<td>79x49</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Imar al-jadid al-shaqi (AS 101)</td>
<td>500x350</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Tutu Hoyuk (AS 105)</td>
<td>100x80</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Uctepe (AS 108C)</td>
<td>150x150</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Kucuk Avara (AS 114)</td>
<td>100x150</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Buyuk Avara (AS 116)</td>
<td>220x250</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Tell Karatas (AS 117)</td>
<td>140x40</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Keles (AS 124)</td>
<td>180x150</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Tell Akrad (AS 137)</td>
<td>150x220</td>
<td>Chalcolithic</td>
</tr>
<tr>
<td>Besarslan (AS 143)</td>
<td>180x100</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Mastep (AS 156)</td>
<td>280x240</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Yazi Hoyuk (AS 158)</td>
<td>110x85</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Davutpasa (AS 164)</td>
<td>160x90</td>
<td>LC/Chalcolithic</td>
</tr>
<tr>
<td>Chatal Hoyuk (AS 167)</td>
<td>400x250</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Karaca Khirbet Ali (AS 168)</td>
<td>200x100</td>
<td>LC</td>
</tr>
<tr>
<td>Tell Qinah (AS 169)</td>
<td>75x50</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tell Qirmidah (AS 172)</td>
<td>100x100</td>
<td>LC pottery</td>
</tr>
<tr>
<td>Tell Judaidah (AS 176)</td>
<td>270x110</td>
<td>LC/Chalcolithic</td>
</tr>
<tr>
<td>Tell Dhahab (AS 177)</td>
<td>40x60x30</td>
<td>Chalcolithic</td>
</tr>
<tr>
<td>Hasan Bell Hoyuk (AS 178)</td>
<td>100x80</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Tabarat al-Akrad (AS 182)</td>
<td>120x80</td>
<td>Possible LC</td>
</tr>
<tr>
<td>Atci Tape (AS 195)</td>
<td>175x175</td>
<td>Possible LC</td>
</tr>
</tbody>
</table>

**Table 3** Identified LC-dominated sites according to the AVRS and CORONA Imagery (Casana & Wilkinson, 2005).
4.4 Comparison of the Morphology and the Distribution of the LC Settlements between Northern Levant and Northern Mesopotamia

A CORONA image of Tell Imar al-Jadid al-Sharqi (530x350 m), the largest documented Amuq F site located in the center of the Amuq Valley, shows the extent of the Late Chalcolithic settlement of the site. It also reveals a typical pattern in the distribution of the small sites measuring 2 -4 ha around the central site forming a shape like an arc (Batiuk, 2005) (Figure 18).

Figure 18 Map of the Amuq Valley showing the distribution of Phase F/G sites around Tell Imar al-Jadid al-Sharqi – AS 101 (Batiuk, 2005).
The distribution of small sites around the large central tells is a phenomenon that has been seen in northern Mesopotamian sites such as Tell Hamoukar and Tell Brak (Ur, 2000; Ur, 2010) and they might have been reliant on the central sites that form the first hierarchical tier and the small sites that form the second tier. Mostly the sites in the Amuq region were dependent on dry farming of cereals for agriculture. This suggests that the small sites surrounding Tell Imar may have had a low level of subsistence independence taking into consideration that the sites were located outside its catchment (Batiuk, 2005). By combining the CORONA images and the AVRP results, I have identified additional possible 4th millennium sites distributed around the central and the large site of Tell Imar than the sites mentioned by Batiuk (2005). The CORONA image of the Tell Imar region (Figure 19) shows the distribution of small sites 2 to 6 ha in the area surrounding Tell Imar and the distance between the small sites and the central one, ranging from 2 to 7 km. This spatial arrangement of sites is more similar to that in northern Mesopotamia, as at Tell Hamoukar (Figure 20).
Figure 19 Image showing the distribution of 4th millennium sites around Tell Imar al-Jadid al-Sharqi for site names see (table 3). The sites are dated to the 4th millennium BCE according to AVRS (Casana & Wilkinson, 2005).

The survey at Tell Hamoukar (104.8 ha / 15 m) reveal the existence of local ceramics with no southern intrusions in the small sites around it (Figure 20). These sites date primarily to the first half of the 4th millennium BCE before the Uruk expansion. However, some other sites show the presence of southern Mesopotamian ceramic types like beveled-rim bowls, but those southern materials are dated to the later period of the 4th millennium BCE (Ur, 2010).
Figure 20 Image showing the distribution of 4th millennium sites (Phases 5a/5b) around Tell Hamoukar with indigenous ceramics (According to THS- Ur, 2010).

At Tell Brak, the survey by Eidem and Warburton (1996) has also revealed similar results to the Hamoukar survey. Small 4th millennium sites are located in the area surrounding the main Late Chalcolithic tell (Eidem & Warburton 1996). The image below shows the detected ceramic scattered around the main site that dated to the first half of the 4th millennium BCE (Figure 21), and indicate that complexity was not related to southern Mesopotamian influence (Oates, 1993).
At Tell Mozan, no regional or off-site survey has been undertaken, although by looking at the CORONA image of the region, I did a preliminary investigation to determine locations of possible Chalcolithic /Late Chalcolithic Sites (Figure 22). One of the sites, Tell Haj Naser (Figure 22), which has been investigated previously, has Halaf and 4th millennium BCE pottery with no evidence of the existence of the Uruk materials. While most other sites in the vicinity cannot be dated, they show similar distribution to sites surrounding both Brak and Hamoukar.
The CORONA images of the region surrounding Tell Qarqur (Figure 23) show some of the sites that have the same pattern of distribution and morphology as the 4th millennium sites around Tell Hamoukar, Tell Brak, Tell Mozan and Tell Imar. The size of the sites 2 to 5 ha and the distance between Tell Qarqur and these potential 4th millennium sites fluctuates between 2.5 to 4.2 km. The phenomena of small sites surrounding the central large sites, has been seen in northern Mesopotamia at Tell Hamoukar and Tell Brak, and in northern Levant at Tell Imar al-Sharqi al-
Jadid. This suggests that Tell Qarqur may have served as a large urban center during the 4th millennium BCE with a complex sociopolitical system that controlled the small towns around it.

**Figure 23** Image showing the distribution of the 4th Millennium sites around the Late Chalcolithic settlement at Tell Qarqur.

In 2006-2007, the archaeo-geophysical investigation, in particular the electrical resistivity tomography (ERT) combined with ground-penetrating radar (GPR), showed high resistance of architectural features, possible remains of defensive system (Casana et al. 2008; Figure 24). Other various resistant features found near the base of mound measure less than 1m below the surface and 1-2m in size, suggesting the remains of a fortification structure such as a city wall and a glacis dating to earlier period than the 2nd/3rd millennia at sections 5A and 5b - feature F and G (Figure 24). This discovery proposes that Tell Qarqur conceivably was a massive
settlement during the 4\textsuperscript{th}-3\textsuperscript{rd} millennia. This kind of site formation can be seen in the Amuq Valley to the north at Tell Imar al-Sharqi al-Jadid (Casana et al, 2008).

\textbf{Figure 24} Resistivity profiles illustrating high resistance features with possible remains of defensive 2\textsuperscript{nd} millennium structures indicated at A-D and other features on the base on the mound F-G with possible remains of earlier defensive structure; 4\textsuperscript{th} millennia (Casana, 2008)
Despite the lack of the excavation and the discovery of architecture, the results above show that the 4th millennium BCE in northern Levant was a significant period with large settlements like Tell Imar, Tell Afis and Tell Qarqur. The location of these large sites and the distribution of small sites encircling the main sites strongly suggest a hierarchical social structure and an active exchange in agricultural products. The CORONA image below shows that the distance between these three sites varies from 45 to 63 km, suggesting both connection and separation between the three sites in the 4th millennium BCE, and possible sociopolitical and economic relationships (Figure 25).

The long sequence of LC occupation with well-preserved architecture at some sites like Tell Imar (101), Tell Judeideh and Tell Afis presents an important example of complex society formation from this poorly known period in the 4th millennium BCE in the northern Levant. It contributes substantially to the understanding of the development of centralization that was associated with the growth in population and economy.
Figure 25 Image showing the location and the distance between large 4th millennium settlements in northern Levant.

Such models of large Late Chalcolithic settlements can be seen in the Jazireh region, especially at Tell Hamoukar and Tell Brak (Ur, 2010). While in the Amuq Plain, two sites can be considered as large settlements, Tell Imar and Karacanlik (Casana & Wilkinson, 2005) which unfortunately are now covered under the new alluvial deposit. However, the approximate measurements of the sites exceeded 15ha, and the eroded portion of Tell Imar showed architecture containing large stones forming a massive wall (Yener, 2000; Casana and Wilkinson 2005). This discovery is unique because 4th millennium BCE structures are very rare in northern
Levant and is an indication of local development since there were no Uruk materials found. 4th millennium architecture like a city wall attached to a terrace was also discovered at Tell Afis showing that the site was an important settlement during the Late Chalcolithic time.

Because the Late Chalcolithic period saw the beginnings of urbanism in both areas and the new discoveries of the similarities in the pottery between Tell Qarqur and the Jazireh region this thesis focuses on the question of the existence of a cultural connection between northern Jazireh urbanism and the development of urbanism in the northern Levant. In addition, this research seeks to find the answers to questions involving the impetus to urbanism in the northern Levant: was it a local independent development of the urbanism or was it stimulated by outside cultural pressures.

**Chapter 5: The 4th Millennium BCE Chronology in the northern Levant**

Although the Amuq chronological sequence remains vital and a standard reference for Near Eastern chronology, some periods, like Amuq F, are not well understood. The Amuq F ceramic sequence is based on a ceramic catalogue from excavations in the first half of the 20th century, before the discovery of dating technology like radiocarbon. One of the most difficult problems with the Amuq F phase is its length, covering the whole of the 4th millennium BCE and possibly longer. In comparing it to other regional sequences, we can see that the 4th millennium BCE sequence is broken into many phases, for instance in southern/northern Mesopotamia. It is now possible to align the Amuq F sequence with the recent discoveries and the chronologies from other regions. In addition to that, the lack of excavations in the Levant in comparison with the numerous ones in northern Mesopotamia hampers the accuracy of the sequence. These reasons led Levantine archaeologists working in earlier times to depend on the chronology of north
Mesopotamian sites; this happened in the establishment of the Amuq sequence for instance. Therefore, many archaeologists refer to the Amuq sequence in correlation with the northern Mesopotamian one; however, there have been some debates as to how to relate the two sequences with each other without misconceptions. For example, some archaeologists refer to Amuq E and F as the end of the Ubaid period and the whole Uruk period (Watson, 1965). Others saw that there was a discontinuity between the end of Ubaid and the beginning of Uruk period (Braidwood and Braidwood, 1960). Ubaid-related ceramics were discovered in some sites in the Amuq Valley as well as Hama (Braidwood and Braidwood 1960; Fugmann 1958) and Ras-Shamra (Courtois, 1962). The Amuq F sequence according to Braidwood’s chronology comes directly after the Amuq E sequence, although it shows little similarity with the previous ceramic tradition (Akkermans, 1988) leading Braidwood to conclude that there must have been a chronological break between the two phases. The discoveries at Hecinebi, located in the Euphrates River Valley in southeastern Turkey, show that the production of Ubaid pottery stopped at the end of the 5th millennium BCE in the Euphrates Valley. While to the west in the Levant, production stopped even earlier. Another consideration centers on the question of the Ubaid-related painted ceramic and if it continued for more centuries after prevailing further north. In other words, the discontinuity occurred only in the Ubaid-related unpainted ceramics but not in the Ubaid-related painted tradition.

The findings from Tell Sheikh Hassan and El-Kowm, located in Syria to west and south of the Euphrates River Valley, showed that some Middle and Late Uruk materials did occur on the Middle Euphrates Valley and further south (Boese, 1995). For instance, the El Kowm assemblage show Late Uruk ceramics, not even well known in Uruk itself; however, these ceramics reflected the Uruk culture in the Middle Euphrates. This evidence indicated that El-
Kowm was more connected to eastern Euphrates communities than the western ones (Boese, 1995). However, some authors proposed that El-Kowm was like a station that connected southern Mesopotamian and the Levant (Algaze, 1993).

5.1 The Amuq F Ceramic

The Amuq F phase comes primarily from Braidwood’s sounding at Tell Judaidah in the Amuq region from JK 3 level, in particular floor 22 and floor 21 (Braidwood & Braidwood, 1960). It is perhaps the most confusing phase in the Amuq sequence in general due to the lack of material and other excavations in the 4th millennium BCE in the northern Levant and chronological discontinuities with both earlier and later assemblages. The date of Amuq F within the 4th millennium BCE is still uncertain and as stated above, some authors say that there could be a gap between Amuq E and F (Akkermans, 1988); while others say, that Amuq F covers only part of the 4th Millennium BCE (Mazzoni, 1998). In some early publications, Amuq F and G ceramic types were not very distinguishable and sometimes were recognized as EBA ceramics. For instance, in (Dornemann, 1988), some sherds were described as chaff-tempered and red-black burnished ware parallel to Tell Hadidi and classified under EBA catalog (Figure 26). Similarly, in the Amuq survey, many sites are classified as Amuq F/G or simply Amuq G if they lack clearly identifiable Uruk-related materials, even if much of the assemblage could arguably be classified as Amuq F (Casana and Wilkinson 2005).

Sherd number 37 (Figure 26) shows some similarity in shape to beveled-rim bowls, but the diameter of the rim (around 30cm), is wider than the common beveled-rim bowl diameter (around 18cm).
Philip (2002) and Akkermans (1988) have both attempted to link the Amuq F sequence (Figures 27-28) with ceramic sequences from other regions in order to have a comprehensive understanding of the phase and to determine its chronology. The earliest excavated level of Amuq F came first from JK22 from Tell Judaidah, which is characterized by small grit tempered pottery; then it appeared in the JK21 level just in 15 percent of the total ceramic. Level JK21 also
showed some mineral tempered ceramics found in level 20-18, considered Amuq G. The continuing sequence between the two levels, led some archaeologists to consider some of the first levels of Amuq G under the Late Chalcolithic category and the other later levels of Amuq G dated to EBA due to the existence of 3rd millennium materials, such as the abundant Plain Simple Wares, within it. The radiocarbon analysis of Tell Judaidah showed that JK 21 and 18 are the levels where the transition between Amuq F and G occurred, around the end of the 4th millennium BCE (Philip, 2002).

Only a few Uruk materials have been assigned under Amuq F like BRB at W16 level 6 at Catal Höyük, but this level was considered mixed with latter intrusions. Therefore, the Uruk intervention in the Levant was not evident during the Middle Uruk period; it had only started to appear in the Late Uruk period at the end of the 4th millennium BCE that is called LC 5 (Philip, 2002).

Figure 27  Amuq F Chaff-Faced Simple Ware, Tell Judaidah. Scale, 1:3 (Braidwood & Braidwood, 1960).
5.2 Tell Qarqur Late Chalcolithic Ceramic Analysis and Comparison with Other Regions

The Late Chalcolithic ceramic in the 4th millennium BCE in the Levant is similar to the ceramics in north Mesopotamia and southeast Anatolia, characterized mostly by chaff-tempered jars and bowls (Algaze, 1993). The production of chaff-tempered pottery was a fundamental transformation in the ceramic history of the Near East, changing from fine painted ceramic to very coarse and mostly unpainted types. While they are fairly distant geographically, the Northern Levant and Northern Mesopotamia share many aspects of this chaff-tempered ceramic tradition, and these similarities offer an opportunity to place the Levantine Amuq F materials, like those from Tell Qarqur, within the much better dated Northern Mesopotamian Late Chalcolithic (LC) 1-5 sequence (Ur, 2010). The change towards chaff-tempered pottery in northern Mesopotamia started to be noticed during the LC1-2 period through the appearance of
the “Coba bowls”; after this, the changes became very clear by the beginning of LC3 (Jayyab, 2013). While this transformation is clear in the northern Mesopotamia, it is still not very clear in the Levantine region (Philip, 2002).

The ceramic surface collection at Tell Qarqur was typical of the Amuq F sequence, characterized mostly by straw tempered and chaff tempered ware, few burnished wares, and red slipped wares (Figures 29, 30,31, 32) (Table 4). There was no evidence of painted pottery or what is called Ubaid-related painted pottery, which is typical of the earlier Amuq E assemblage. The surface collection also lacks any Plain Simple Ware, the dominant type associated with most phases of Amuq G in the 3rd millennium BCE.

The comparison between LC sherds from Tell Qarqur with LC sherds from northern Mesopotamia in particular Tell Hamoukar, shows a number of similarities in the wares and the shape types and in particular to LC 2 and LC 3. The shape profile of LC2 bowls, found in the southern extension of Tell Hamoukar (Figure 32) and described as burnished gray and red slipped (Jayyab, 2013), are parallel to what we found at Tell Qarqur such as sherds 15, 8 and 14 (Figure 30). Sherds 1, 2, 3, 4, 9, 10, 16 and 18 (Figure 31) are comparable to LC2 cooking pots that are very common at Tell Hamoukar, Tell Brak and Tell Ramadi. Sherd 13 (Figure 30) is similar to a LC3 type, also sherds 19 and 20 (Figure 29) can be seen in LC2 and LC3 in northern Mesopotamian sites. Sherd 11 (Figure 29), which shows incised horizontal lines in the inner surface of the rim, matches LC3 ceramic at Tell Hamoukar as well. In general, the fabrics seem to have more in common with LC3 than with LC2, but many of the shapes are LC2 with some LC3 shapes (Figure 32). The ceramic temper as well is similar to the LC ceramic temper at Tell Mozan.
It appears then from the evidence of Qarqur, Mozan and Hamoukar that at the beginning of LC3 the fabric and some LC2 shape types continued to be made but the surface treatment changed. This suggests dating the LC ceramics at Tell Qarqur perhaps to the end of the 5th millennium BCE and the first half of the 4th millennium BCE.
Figure 29 Tell Qarqr LC sherds drawing I – Eastern extension
Figure 30 Tell Qarqur LC sherds drawing II – Eastern extension
Figure 31 Tell Qarqur LC sherds drawing III – Eastern extension
Figure 32 Burnished grey wares (1-2) and red slipped (3-4) bowls from LC2 level 1 at Tell Hamoukar (Jayyab, 2013).

<table>
<thead>
<tr>
<th>Sherd #</th>
<th>Ware</th>
<th>Temper</th>
<th>Core</th>
<th>Surface Color</th>
<th>Rim Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQ N15</td>
<td>Coarse</td>
<td>Exclusive medium size chaff, Few fine size chunks of white calcite chunks and medium size grit</td>
<td>Not fully oxidized</td>
<td>2.5 YR-6/8 light red</td>
<td>29cm</td>
</tr>
<tr>
<td>Eastern extension 11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQ N15</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, Few fine chunks of white calcite, many medium shells</td>
<td>Unoxidized</td>
<td>5 YR-7/6 reddish yellow</td>
<td>32cm</td>
</tr>
<tr>
<td>Eastern extension 22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQ N15</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, Few fine chunks of white calcite, few fine sands</td>
<td>Unoxidized</td>
<td>5 YR-7/6 reddish yellow</td>
<td>30cm</td>
</tr>
<tr>
<td>Eastern extension 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQ N13</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, Few fine grit, many medium chunks of white calcite</td>
<td>Unoxidized</td>
<td>5 YR-7/6 reddish yellow</td>
<td>34cm</td>
</tr>
<tr>
<td>Eastern extension 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQ N15</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, Few fine grit, few fine chunks of white calcite</td>
<td>Unoxidized</td>
<td>5 YR-7/6 reddish yellow</td>
<td>37cm</td>
</tr>
<tr>
<td>Eastern extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>TQ N13 Eastern extension 5</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff/burnished- red slipped</td>
<td>Unoxidized</td>
<td>2.5 YR-6/8 light red</td>
<td>36cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 12</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, many medium grit, many fine chunks of white calcite</td>
<td>Not fully oxidized</td>
<td>10YR-6/4 Light yellowish brown</td>
<td>40cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 15</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, few fine chunks of white calcite /burnished- red slipped</td>
<td>Not fully oxidized</td>
<td>2.5 YR-5/8 red</td>
<td>28cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 13</td>
<td>Coarse</td>
<td>Exclusive fine Chaff, many fine chunks of white calcite / inside surface has red-slipped spots</td>
<td>Unoxidized</td>
<td>2.5 YR-6/8 light red</td>
<td>30cm</td>
</tr>
<tr>
<td>TQ N13 Eastern extension 8</td>
<td>Coarse</td>
<td>Exclusive fine Chaff, many fine chunks of white calcite and grit/burnished- red slipped</td>
<td>Unoxidized</td>
<td>2.5 YR-5/8 red</td>
<td>30cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 14</td>
<td>Coarse</td>
<td>Exclusive fine Chaff, some fine chunks of white calcite, few grit/burnished- red slipped</td>
<td>Unoxidized</td>
<td>2.5 YR-5/8 red</td>
<td>32cm</td>
</tr>
<tr>
<td>TQ N13 Eastern extension 6</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff and fine chunks of white calcite /burnished- red slipped</td>
<td>Unoxidized</td>
<td>2.5 YR-5/8 red</td>
<td>46cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 17</td>
<td>Coarse</td>
<td>Exclusive fine Chaff and fine chunks of white calcite</td>
<td>Not fully oxidized</td>
<td>5 YR-5/2 reddish gray</td>
<td>14cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 16</td>
<td>Coarse</td>
<td>Exclusive fine Chaff and fine chunks of white calcite</td>
<td>Unoxidized</td>
<td>5 YR-5/4 reddish brown</td>
<td>14cm</td>
</tr>
<tr>
<td>TQ N13 Eastern extension 3</td>
<td>Coarse</td>
<td>Exclusive fine Chaff, some fine grit and fine chunks of white calcite</td>
<td>Unoxidized</td>
<td>5 YR-5/6 yellowish red</td>
<td>20cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 18</td>
<td>medium</td>
<td>Exclusive fine Chaff and fine chunks of white calcite</td>
<td>Unoxidized</td>
<td>5 YR-6/6 reddish yellow</td>
<td>20cm</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------</td>
<td>-----------------------------------------------------</td>
<td>------------</td>
<td>-------------------------</td>
<td>------</td>
</tr>
<tr>
<td>TQ N13 Eastern extension 2</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff, many fine chunks of white calcite</td>
<td>Not fully oxidized</td>
<td>5 YR-6/6 reddish yellow</td>
<td>20cm</td>
</tr>
<tr>
<td>TQ N13 Eastern extension 4</td>
<td>Coarse</td>
<td>Some fine Chaff, many fine and medium size chunks of white calcite and grit</td>
<td>Oxidized</td>
<td>2.5 YR-6/8 light red</td>
<td>23cm</td>
</tr>
<tr>
<td>TQ N13 Eastern extension 1</td>
<td>Coarse</td>
<td>Exclusive Medium Chaff and medium chunks of white calcite</td>
<td>Oxidized</td>
<td>2.5 YR-6/8 light red</td>
<td>28cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 9</td>
<td>Coarse</td>
<td>Some Medium size Chaff, Few fine chunks of white calcite, few medium size grit</td>
<td>Not fully oxidized</td>
<td>5YR-7/4 pink</td>
<td>28cm</td>
</tr>
<tr>
<td>TQ N15 Eastern extension 10</td>
<td>Coarse</td>
<td>Some Medium size Chaff, Few fine chunks of white calcite</td>
<td>Oxidized</td>
<td>2.5 YR-6/4 light reddish brown</td>
<td>24cm</td>
</tr>
</tbody>
</table>

**Table 4** The Analysis of the 4th millennium surface collection ceramic from the eastern extension at Tell Qarqur.
Figure 33 A Photograph of the LC sherds from Tell Qarqur - TQ N13 Eastern extension.
The LC ceramics excavated in J1 at Tell Mozan showed that there are few LC 2 ceramics mixed in the LC 3 features, the vast majority of the LC ceramics can be dated to the LC3 period. The coarse wares are very similar to LC ceramics found at Tell Qarqur characterized with low fired, usually with a wide carbon core, have a red-orange to orange-brown surface (Figure 33). Moreover, the LC ceramics from Tell Mozan are tempered with large calcite nodules, some quartz, and small black lithic, probably feldspar (Figure 34). In most medium and large vessels, chaff has been added. The surface treatment of most vessels shows that they were wet-smoothed, but some have been burnished. A restricted amount of fine ware vessels is also present. These are exclusively small and delicate vessels that were probably imported from the Amuq region (Kelly-Buccellati, 2009). The typical coarse ware shapes at Mozan include hammerhead rim bowls, plates, platters and casseroles, are not similar to the coarse ware shapes at Tell Qarqur. The LC ceramics at Tell Qarqur and in north Levantine sites do not have any hammer-headed bowls, which are very common not only at Mozan but in all of northern Mesopotamia; in Qarqur most of the bowls are the extended ledge type with no internal extension. Some of the jar’ types at Tell Mozan are similar to the jar’s types at Tell Qarqur like sherds number 12 (Figure 29) and sherd p14 (Figure 36). The ceramic shapes at Tell Mozan are among the dominant forms in the Khabur region LC3 sequence. They would have been employed in cooking and eating activities. It appears then that north Levantine connections with northern Mesopotamia are closer in the production of both cooking vessels and jars, which could be used for short-term or long-term storage. Bowl shapes however are different in the two regions indicating that serving and eating functions were carried out in vessels made in a local style. The hammer-headed rims (Figure 35) that are very common types at Tell Mozan and other north Mesopotamian sites like Tell
Hamoukar and Brakare not documented at north Levantine sites and very rare at Tell Hammam et-Turkman ceramic sequence.

**Figure 34** Scanned section of LC sherd from Tell Mozan (Kelly-Buccellati, 2009).
Figure 35 Late Chalcolithic Coarse bowls and platters – Tell Mozan.
Figure 36 Late Chalcolithic Coarse Jars – Tell Mozan.
Figure 37 Late Chalcolithic bowls and pots – Tell Mozan.
The Amuq F sequence is also associated with Hammam et-Turkman VB ceramics; however, the comparison with the Hammam sequence points to an 800 year-gap between Amuq phases E and F (Akkermans, 1988). Hammam VB ceramics (3600-3200) are characterized by Chaff-Faced Simple Ware similar to Amuq F ceramics and sometimes to the earlier phase of Hammam V, but many of the earlier V, types are no longer produced and changes in the technology can be noted as well. Hammam VB represents the ceramic sequence discovered in the last Late Chalcolithic level at Tell Hammam et-Turkman, and the Hammam VB ceramics were expanded north, east and west and found at many sites such as Kurban Höyük, Tell Brak and Tepe Gawra. There were just a small number of plain-rim bowls and no evidence at all of Coba Bowls in Hammam VB. Beaded-rim vessels with carination underneath the out-rolled lip were the most common bowl type (Figure 39, sherd 150) and suggested that these types replaced the Coba bowls and became the dominant one in daily household use (Akkermans, 1988). There were no documented Coba bowls in the LC ceramic at Tell Qarqur and not even in the whole Amuq F sequence, but LC assemblage at Tell Afis presented a large number of Coba bowls. This might suggest that the location of Tell Afis further east allowed for more connection with north Mesopotamian sites or to a chronological difference between the assemblages. Another indication of the trade route coming through that area is the presence of the Coba bowls in El Kowm as well. The bowls at the Hammam VB sequence present varieties in various rim shapes, and some of them parallel to the bowl rim shapes at Tell Qarqur. For example, sherd 134 from Hammam VB (Figure 38) is similar to sherd 14 at Tell Qarqur (Figure 29). Some jar types from the Hammam VB sequence parallel Qarqur LC jar types such as Hammam VB sherd 158 (Figure 40) and Qarqur LC sherd 18 (Figure 30), Hammam VB sherd 154 (Figure 40) and Qarqur LC sherd 17 (Figure 29), and Hammam VB sherd 157 (Figure 40) and Qarqur LC sherd 12 (Figure 29). We notice more
similarities between Hammam V B and Mozan in bowl’s shapes than Qarqur bowls types. This is another indication that the preferred production of bowl shapes in the northern Levant was for locally developed shapes. Hammam V B ceramics are also documented at Tell Hamoukar, Tell Brak and Tell Leilan in northern Mesopotamia. Interior channeled-rim jars with low collared, beaded-rim jars, turned-in and out-rolled-rim bowls and inner ledge and carinated bowls were documented in the Amuq F sequence and Hammam VB.

Late Chalcolithic coarse painted bowls similar to Hammam V were documented at Tell Tabara al-Akrad (AS 137), an LC site (150x220 m) in the Amuq Valley (Figure 17), in level VII. In addition, beaded-rim bowls with a grey-burnished surface were found at Tabara parallel to the ones at Hammam VB. At Hama as well, Hammam VB ceramics were discovered such as beaded-rim thin carinated bowls, and low-collared rounded-rim large jars (Akkermans, 1988). The Coba bowl or the so-called wide flower pot in Hammam V B in (Figure 38 - sherds 118-121) only exists in LC2. Furthermore, sherd 134 (Figure 38) and sherds 138, 147, 148 and 150 in Hammam V B (Figure 39) resemble the grayish wares from Brak and Hamoukar, which are also typical for Zeidan LC 2 ceramics (Jayyab, 2013). The inwardly beveled rim bowls in Hammam V B (Figure 39 - sherds 140-142) are present in the LC2 and LC3 although these look like LC2 ones based on dimension. The LC ceramic comparison between Qarqur, Hammam V B and Hamoukar showed that Qarqur LC ceramics have some similarities to Hammam V B, which is typical for early LC 3 and LC2 ceramics at Hamoukar, dating this type firmly to 3900-3840 BC. This suggests the presence of a gap in the Amuq sequence between the Amuq E and Amuq F ceramics that does not fit in the comparisons with ceramics from other regions. The similarities in the shapes and the wares between northern Mesopotamia and northern Levant and the lack of
Uruk materials suggest an existence of relationships between both areas before the Uruk expansion, which occurred based on the few sherds found at the end of the 4th millennium BCE.

Figure 38 Selected Hammam IV A and VB sherds - Tell Hammam et-Turkman (scale 1-3) (Akkermans, 1988).
Figure 39 Selected Hammam VB sherds- Tell Hammam et-Turkman (scale 1-3) (Akkermans, 1988).
The LC ceramic assemblage at Tell Afis (Figures 41-44), represented in Levels 25 up to 8, has many parallels with the Amuq F assemblage; it is characterized by Chaff Faced Ware, the beaded-rim bowl, the everted rim jars and cooking pots. Simple Ware was also documented at
Tell Afis in shapes of cups and curved plain rim bowls. Some of the Simple and Chaff Faced Ware was found with painted decoration such as wavy bands on the rim and shoulders that could be a continuation of the Ubaid Painted Ware. Few Burnished Wares were found in the LC assemblage and they are mostly imported such as the Reserved Slip Ware. However, Wet Smooth Burnished Brown Ware in a shape of everted rim bowls is considered local with the possibility that it imitated Black Burnished Ware. Level 18, a deposit placed against the LC wall and its fill, yielded the most LC ceramics; 700 analyzed sherds of the sample that contains 1100 sherds in total from 19-26 levels. Level 18 itself is divided into sub-phases due to its stratified and distinctive layers by the wall. Chaff Faced Ware, the most characteristic ceramic type from level 18 is a type with a rough exterior surface caused by the large quantity of chaff temper added to the fabric. This ware continued throughout the subsequent levels (Mazzoni, 2000). There are some similarities between the bowls from Tell Qarqur and Tell Afis in particular sherd 15 (Figure 30) and sherd 14 (Figure 41). In addition, some Afis jar types sherd 4 (Figure 43) parallel Qarqur sherd 12 (Figure 29), and Afis sherd 4 (Figure 44) and Qarqur sherd 2 (Figure 31).

The Late Chalcolithic ceramics that were discovered at Tell Afis had special designs and shapes, in addition to the continuation of some patterns from the previous Ubaid-related culture and the existence of some Anatolian traditional Burnished Wares. These ceramic characteristics gave the Levantine Late Chalcolithic culture a local distinctiveness. However, it is not very clear yet whether there were any connections with the southern Mesopotamian and the Levantine cultures (Mazzoni, 2000). The importance of the location of Tell Afis is that it is not far from two large and significant sites: Hama and Tell Kurdu.
The Tell Afis sequence also concurs with the results of the Amuq sequence concerning the absence of Uruk materials in the region. However, a few Uruk sherds at some sites may have been found but in a secondary setting like the few BRB sherds found at Tell Mardikh (Mazzoni, 2000). Coba Bowls dominate the Late Chalcolithic period at Tell Afis, as well some of the late painted Ubaid sherds. While in the Amuq sequence, those types were not documented. This makes the Tell Afis LC ceramic sequence confusing. The presence of earlier material as the Coba Bowls and the Ubaid-painted ceramics along with the existence of late painted Uruk sherds (Philip, 2002) in the 4th millennium sequence suggests that the sequence may have been mixed with Amuq E and G ceramics.

The Hama ceramic sequence is considered significant by many archaeologists because it has some Uruk materials like Beveled-rim bowls. Different theories were raised regarding the presence of the BRBs in Hama; some authors said that it could be a phenomenon of the existence of a group of foreigners living on the edges of the sites similar to what has been assumed at Hecinebi (Stein, 1998). Others suggested that the BRBs could be domestic industry imitating a particular type of nonlocal ceramic shape (Philip, 2002; Thomas, 1996).

Excavations at Tell Nebi Mend intended to try to fill the gap in Late Chalcolithic ceramics found in trench VIII (Mathias & Parr, 1989). What distinguishes the Tell Nebi Mend sequence from the sequences of Judaidah and Afis was the disappearance of Ubaid related materials in Phase 1 and the existence of some Neolithic sherds. Phase 1 also showed Amuq F shape sherds including bowls and jars with coarse and fine wares, and corresponding to shape IIIA from Hama, made in a type called fabric C. While the other fabric A represented vessels that match the cooking pots from the Amuq F sequence and Hama phase K shape VA. Phase 3 at Tell Nebi Mend, has witnessed the appearance of wheel-made pottery characterized as being parallel to the ones in
Amuq G and Hama. This parallel between the sequences shows the strong connection between the sites in the upper Orontes Valley.

The results from Tell Nebi Mend indicate that the ceramics were domestic in nature with no evidence of Uruk ceramics or any Uruk-related materials, and that the fast wheel was used to make some types in the late 4th millennium BCE. However, the employment of the fast wheel had already recognized at sites like Arslantepe and Hacenebi at the beginning of the 4th millennium BCE. It also showed that the Painted Simple Wares had disappeared by the end of the 4th millennium BCE. The absence of some types of sherds indicated that the Orontes Valley did not have connections with other regions like the southern Levant and the coastal area. Although there was variety in the ceramic industry in the region, the quality did not improve, in contrast, it became worse than before (Philip, 2002).

The interesting result of comparing the LC ceramics at Tell Qarqur with other regions shows that northeast Mesopotamian sites like Tell Hamoukar, Tell Brak and Tell Mozan, seem to have connections with Tell Qarqur in particular into the early LC3, which is not seen at other sites in this early period. For instance, (Figure 29 – sherds 22) and (Figure 31 sherd 10) look like early northeastern LC3 (Figure 36 - sherd 28). However, these assumptions are still tentative because what we have at Tell Qarqur is a small number of the ceramics from the surface collection.
Figure 41 Chaff-faced bowls- Tell Afis level 18 (Mazzoni, 2000).
Figure 42 Chaff-faced bowls- Tell Afis level 18 (Mazzoni, 2000).
Figure 43 Chaff-faced Jars and cooking pots- Tell Afis level 18 (Mazzoni, 2000).
Figure 44 Chaff-faced Jars and cooking pots- Tell Afis level 18 (Mazzoni, 2000).
Chapter 6: Conclusion

As we have seen above, many archaeologists have emphasized the effect of the environment and irrigation on the emergence of complex societies in southern Mesopotamia, being called by some “the Mesopotamian advantage” (Algaze, 2001). However, even though the environment and irrigation were considered as the main factors of the origins of first urban cities in southern Mesopotamia, we still cannot apply it on other areas like north Mesopotamia. Since the recent discoveries in northern Mesopotamia suggested that in fact the emergence of complex societies occurred in northern Mesopotamia, where agriculture was depended on rainfall, even before the Uruk expansion from the South (Ruthman, 2002a, b).

Northern Levant is a region that is endowed with many of the environmental factors conducive to the development of urbanism. First, the presence of the marshlands that are considered by some scholars central to the growth of civilizations in the ancient Near East. Because of its natural resources, as a producer of food and construction materials and at the same time water for transportation (Pournelle, 2003). Second, the existence and the accessibility of the mountains in northern Levant that have served as the hinterland for inhabitants to obtain their raw materials like wood, stone and other natural resources with no need to travel for far distances. Third, the northern Levant is opened to the Mediterranean Sea to the west, which adds more advantages to the unique natural environment of the region. It is because of these combined factors that give the argument for emergence of urbanism in the northern Levant that predates the 4th millennium BCE and even earlier than that.

The lack of excavation and ceramic analysis of the 4th millennium BCE sites in the northern Levant previously had narrowed our understanding of this period obscuring the significant role
that local societies played in the development of urbanism. This neglect came from archaeologists being so focused on only one prevalent idea, that urbanism spread from southern Mesopotamia without giving any credit to the local people in the northern Levant. Moreover, this lack of information made many archaeologists assume that Uruk-related sites were created in the area for the exploitation of metal resources, and thereby not giving any recognition of the metal manufacturing activities that were going on even long before the Uruk expansion. Another factor that may have affected this oversight is the small size of the sites in northern Levant region when compared to the sites in southern Mesopotamia and northern Mesopotamia. However, recent discoveries have revealed indicators of localized urbanism in the northern Levant, in the form of food production with huge grain storage facilities, advanced metal exploitation, and large tiered settlement systems featuring large, fortified sites and monumental architecture. Evidence is derived through a few soundings and small-scale excavations, as at Tell Judaidah, Tell Afis and Tell Imar al-Sharqi al-Jadid, and shows no presence of Uruk materials in these levels. Although there is some later evidence of Uruk materials at few sites, there is little evidence for direct contact with southern Mesopotamia, particularly in the earlier phases of the 4th millennium BCE. Uruk sherds were documented at Tell Imar al-Jadid al-Sharqi, at Tell Hama and Tell Judaidah, but recent studies demonstrate that earlier occupation is buried underneath the long accumulation of later ones, suggesting that settlements grew locally before any Uruk contact. The Umm el-Marra survey in the Jabbul Plain similarly did not detect any Uruk materials, which corroborated the theory that southern Mesopotamian influence did not expand beyond the western side of the Euphrates River. The few BRBs were considered to be out of context. The presence of rare Uruk materials at Hama and Tell Judaidah does not necessarily indicate that there were direct relationships between southern Mesopotamia and the Levant. The ceramics from the Orontes
Valley showed no external influence, especially no Uruk influence; the few scattered Uruk sherds were found out of context or they would have dated to the late 4th millennium BCE. This led some authors like Philip (2002) to suggest that the connection between Uruk and Egypt may have occurred through the route through Tripoli-Homs then to Byblos or alternatively via the Arabian Gulf, bypassing the northern Levant entirely (Wilkinson, 2002).

The 4th millennium BCE sequence is still the least known phase in the Amuq region. While surveys have revealed the presence of Late Chalcolithic occupation at more than 35 sites in the Amuq plain, none of these sites was excavated with the aim to discover the development of Late Chalcolithic in the region, and in most cases these phases are deeply buried by later occupational levels. Furthermore, we must consider that there were massive environmental changes in this region, sites dating to early phases such as the Neolithic and Chalcolithic are frequently obscured by geomorphological processes including inundation of the Antioch Lake, flooding of rivers, and long-term later human settlement. All this contributes to making this phase not as attractive for archaeologists as other phases or other regions like northern and southern Mesopotamia.

However, by cautious examination of available data for the Late Chalcolithic material of the northern Levant, I have tried to reach a clear summary of our current understanding of the history of the cultural development and urbanism in this very significant region.

The Levantine ceramics show the absence of Uruk influence in the Levant, which has been a source of astonishment to archaeologists especially in comparison with the major widespread area the Uruk culture had reached, contrasts with the idea that Uruk ‘world system’ was the essential network that was connecting north Mediterranean region with southwest Asia (Sherratt, 1993). The lack of Uruk materials and the similarities in types and temper between northern Levant and northeastern Syria, suggests an active relationships before the Uruk expansion, and
this is evident by the presence of Coba bowls at Tell Afis which is located further east in the Levant. Other similarities between northern Levant and northern Mesopotamia are seen in ceramic types like storage jars and cooking pots, although the serving vessels like bowls kept a local characteristic in the Levant. The disconnection between northern Levant and southern Mesopotamia clashes with other aspects like the prevalent chaff-tempered ceramics that showed a ceramic connection in design and technology between northern Mesopotamia, northeastern Syria and southeast Anatolia. However, very narrow links were found between the chaff-tempered ceramic from northwestern Syria and southern Mesopotamia.

The ceramics at Tell Qarqur in particular, show more similarities to northeastern Mesopotamian ceramics such as those found at Tell Hamoukar and Tell Mozan than the other Levantine sites, but at the same time, Tell Qarqur maintained its own distinctive ceramics. This suggests that Tell Qarqur might have trade connections with northeastern Mesopotamian settlements. However, the connections between Tell Qarqur and the sites on the Middle Euphrates River and further south were not as strong as those with Tell Afis. It is possible that Tell Afis was the main trading center between the northern Levant and the Middle Euphrates, a hypothesis based on its geographic position farther to the east and on the fact that the ceramics there show a different array of types than in other northern Levantine sites. The lack of the Uruk materials at Tell Qarqur, Tell Afis and in all northern Levantine sites in general, contrasts with what we have seen in northern Mesopotamia. There we see a substantial presence of Uruk influence in the second half of the 4th millennium BCE, while in northern Levant the uncommon presence of Uruk influence dated to the end of the 4th millennium BCE. In addition to that, the continuance and uninterrupted local development of the Late Chalcolithic ceramic sequence in the northern Levant, raises the concept that Tell Qarqur in particular and north Levantine sites in general, had
their own distinctive culture and urbanism. Despite the connection with north Mesopotamian sites and other sites on the Middle Euphrates River Valley and further south, formation of complex societies in the northern Levant had their own trajectories within a characteristic local development.

The recognized impact of the Mesopotamian culture has been seen in the improvement of the early Egyptian state, but at the same time was not present in the southern Levant, which is located between both regions. Moreover, the obvious indications of considerable communication in the beginning of the 3rd millennium BCE between the Levant and both Mesopotamia and Anatolia, make it easier to imagine that there should be a pre-existing connection between these regions in order to build such magnificent 3rd millennium networks (Philip, 2002). Even though the discovery of the Uruk colonial sites like HabubaKabira and Jebel Aruda has skewed archaeologists’ perspective of the Uruk expansion.

It is possible that the trade network connecting E-Kowm with southern Mesopotamia branched at this important center in the Syrian Desert: the major branch going to the Middle Euphrates region and the second, the minor one, going to the Northern Levant. In this way, we can explain the limited occurrences of Uruk-related ceramics in Hama and other sites in the northern Levant. The recent discoveries in northern Mesopotamia has shown that complexity started before any southern culture expansion to the north and northwest, and the existence of Uruk material was dated to the end of the 4th millennium BCE. Moreover, evidence of wheel-made ceramics was discovered in Anatolia and the Levant a long time before the Uruk expansion and the location of the Levant between Egypt and Mesopotamia, suggest the existence of urbanized settlement with large buildings and fortification system in the 4th millennium BCE.
The CORONA image and the survey data from several areas within the site of Qarqur prove the existence of a large LC settlement at Tell Qarqur in the 4th millennium BCE and even before that, at the end of the 5th millennium (shown by the similarities between Qarqur ceramics and LC2 ceramics at Tell Hamoukar). Moreover, the location of Tell Qarqur in the Orontes Valley between the Amuq and the Ghab Valley and its position between the two mountains that are very rich with accessible natural resources, made it more reasonable to assess the role the LC settlement at Tell Qarqur played in the 4th millennium BCE.

The 4th millennium settlements pattern in the northern Levant like in Tell Qarqur, Tell Imar and Tell Afis, showed a kind of urbanism throughout the distribution of the large settlements with small sites around them. This suggests a possible substantial sociopolitical and economic connection and clarifies the significant developments towards centralization, which was linked to the growth in economy and population.

Because of my experience with the Qarqur excavations and the survey of 4th millennium BCE areas within Qarqur, I decided to investigate this period in the whole of the northern Levant. After reviewing the survey and excavation work in Northern Levant through this thesis, I felt that the 4th millennium BCE was neglected because it appeared to be outside the current focus on the formation of complex societies stimulated by foreign contacts, specifically from northern and southern Mesopotamia. Through this thesis, I have shown the importance of local development in the 4th millennium site of Qarqur mirrored by other sites in the northern Levant.

Further excavations and survey work of the 4th millennium sites in the northern Levant in general integrated with the CORONA images will provide a better understanding of the 4th millennium sites in this significant region. It will also facilitate in answering questions regarding the cultural
connection among the northern Levant and northern and southern Mesopotamian regions as well as the broader processes in the emergence of first urban complex societies.

Findings presented in this thesis were based on a very short analysis of ceramics from Tell Qarqur, discovered in the last season of fieldwork conducted there in the summer of 2010. We were planning to return to the site to undertake more intensive investigation of the significant Late Chalcolithic materials, but our work was postponed due to the onset of political unrest and armed conflict in Syria during spring 2011.

The current tragic situation in Syria has prevented any excavations to take place after 2010. Because of this, the new fourth millennium discoveries at Tell Qarqur could not be further investigated and excavations of the surveyed areas of the fourth millennium site could not be undertaken even though this was planned. When survey and excavation activities can be restarted, it is envisioned that research on the extent of the fourth millennium site of Qarqur and an accurate assessment made through excavations of this stage of urban development. In Tell Mozan, also excavations had to stop: just as a major niched building was discovered high on the temple terrace. These significant new developments in our knowledge of the fourth millennium will shed a new light on the Late Chalcolithic impact in the region. We hope that the present disastrous situation in the country will resolve itself peacefully and that exploration of the rich cultural resources will continue to be investigated.
Bibliography


Akkermans, P.M.M.G. & Schwartz, G.M. (2004). The Archaeology of Syria: From Complex Hunter-Gatherers to Early Urban Societies (c.16,000-300 BC), Cambridge University Press.


-----2012. The Qarqur Challenge: Middle Islamic through Iron Age


Kelly-Buccellati, M. article submitted 2009, “Mozan/Urkesh in the Late Chalcolithic Period,” to be published in festschrift in Germany.


