Early Bronze Age settlement system and village life in the Jenin Region/ Palestine : a study of Tell Jenin stratigraphy and pottery traditions

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CHAPTER 1

INTRODUCTION: THE RESEARCH QUESTION

1 INTRODUCTION

This dissertation is to present a case of village settlement pattern in Palestine by viewing settlement systems continuity and change during the Early Bronze Age I (EBI). The development and proliferation of the EBI culture appear to be debatable issues in Palestinian archaeology. Various approaches have been undertaken. Many researches view the EBI period as a transitional stage toward EBII urbanism. A debate continues between those who view the EBI as an internal development stage out of Late Chalcolithic village life and those who regard it as a product of external factors.

One must agree in general with Joffe that the study of Early Bronze Age complexity lacks a theoretical basis and a proper approach (Joffe 1993). In particular, few studies consider the maximum use of a regional approach and settlement pattern analysis to reconstruct ancient cultural systems, although, the use of survey data in landscape study is noted (See Esse, 1991, Greenberg 2002). No attempt was made to follow the steps of Vita-Finzi and Higgs (1970) in studying site catchment. Nor was any technological study of the pottery done in this respect.

Moreover, the archaeological resources available from excavations and surveys are still limited. Fewer than 5,000 sites were surveyed (out of 15,000 main archaeological localities in Palestine), and only dozens were excavated. This of course imposes limitations on pursuing detailed landscape analysis. Regardless of that, the maximum use of available data will help in reconstructing the settlement pattern, site catchments and land use, population tendencies, and the material culture (pottery) of a settlement. Doing so needs a theoretical framework which in addition should guide the analysis of village cultural and settlement systems.

In developing a model of Jenin region settlement systems during the EBI period, I followed four steps: 1) A review of the general models used in settlement pattern analysis; 2) An updated review of the relevant literature and models that are often used to imply 'cultural complexity' particularly in the Near Eastern archaeology; 3) Out of this review developed a model based on archaeological, ethnographic, and ethno-historical data from Jenin region, 4) Incorporation of EB pottery technology research in building a specific local tradition. This latter issue requires a definition of the concepts of tradition stability and change (or continuity and discontinuity) in relation to pottery remains.

The model is to be built by extracting information from historical and ethnographic resources, archaeological surveys, excavations, and laboratory analysis. A primary database was built by combining all available data from these resources.

2 A REVIEW OF SETTLEMENT PATTERN STUDIES RELEVANT TO EB CONTINUITY AND CHANGE

The core of this introduction is to present a discussion of settlement pattern analysis into Palestinian Archaeology, in response to a narrow site-specific approach. Settlement pattern analysis had been one focus of Landscape Archaeology, in which a settlement positively interacts with its natural and cultural surroundings. The common questions addressed below by archaeologists are related to the causes of change and their effects on a regional cultural trajectory. Site catchment analysis is becoming a popular approach. In specific, site catchment analysis involves the reconstruction of the reciprocal human/ natural

impacts rather than the abstract form of culture (artifacts and stratigraphy). Its final goal is to imply land use patterns and economic needs by measuring settlement territory and its general relationships. The site catchment analysis should not be seen as an approach departing from the world system theory, but rather an attempt to focus on small-scale systems that are managing their micro-environment- and then merging with larger political systems until reaching the central power.

Thus, the following section reviews some fundamental models dealing with continuity and change in regional settlement systems. Subsequently, it analyzes some attempts to apply a settlement pattern approach to the Palestinian context.

2.1 MODELS OF SETTLEMENT PATTERNS AND SITE CATCHMENT ANALYSIS

2.1.1 Definition of Regional Settlement Pattern

In distinguishing it from landscape archaeology, Attema defines regional settlement pattern analysis as "*those studies based on site inventories mapped on a macro-regional scale rather than those limited to parts of the landscape*" (Attema 2002: 18). He proposes that landscape archaeology should be concerned with the land surface details, but settlement pattern studies concerned with a more general reconstruction of settlement relationships. Therefore, reconstructing ancient cultural systems is challenged by: 1) a need for comparative regional data to build urbanization theory, and 2) a potential of regional settlement analysis to reconstruct the landscape's social dimension. So, landscape archaeology *"will add significantly to a theory of centralization, urbanization and colonization"*, which *"takes into accounts the changing mentality of the various social groups lived" in a region* (Ibid: 19). Wilkinson (2003), reviewing the various approaches to landscape, also addresses the fact that a landscape is the creation of the mind and so he stresses continuity because few settlements developed on virgin terrain.

With this recent view of settlement archaeology, one can see a dynamic change reflecting human influence on its natural landscape where socio-economic factors are a major force (see McGlade and van der Leeuw 1997, Bintliff 2002a). Simply, it is difficult to specify the identity of the people who influence the past traditions. It should be noticed that it is people who interact with each other, *but not settlements*. This interaction is subject to many factors. The rise and fall of human cultural systems (and so settlement systems) are subject to a cause and effect scenario activated by cultural and natural forces.

2.1.2 A Cause and Effect Approach to Regional Continuity and Change and Village Life

Since the publication of *Settlement Archaeology*, edited by Chang (1968), settlement pattern approach influenced many theories trying to explain causes of human changes, as for example the site formation theory by Schiffer (1972) motivated by Ascher's (1968) article and giving birth to a field called *landscape archaeology*. Trigger (1968) lists several human and natural causes determining the settlement pattern. His basic summary sets the ground for developing settlement pattern studies in terms of causes and effects. Certain factors more than others leave a very clear imprint on one or more levels of change. Specifically, some may cause rapid change; others may cause very slow development. In general, the causes of change are usually divided between natural and human (cultural) causes.

2.1.2.1 CULTURAL CAUSES

The force that humans use to interact with their environment had tremendous effects on shaping their future. Agorsah (1993: 9) stresses the role of cultural and social arrangements in settlement pattern. A main factor causing settlement clusters is the "*closer relationship' between groups who shared the space in a very dynamic social interaction and "mutual role relations*". The landscape is not considered as "*a cosmology that can be cut into pieces and sold as parcels*". He further argues

that the "*social process which produced a spatial pattern may not be necessarily spatial in character, because generally different processes may give rise to similar patterns*" (Ibid: 19). However, archaeologists had recognized that such interrelationship between social groups may develop into a complex level, be that in peace or conflict. Both ways affected much the pattern of settlement and suggest continuity or change on space. Among the most common cultural issues addressed by archaeologists are warfare/invasion and trade/long distance contact.

Warfare

Some scholars see warfare as a form of cultural adaptation, though it is the ugliest form (Haas 2001, Harris 1984). Haas's review suggests that cycles of warfare and peace dominated the human history, particularly in the ancient Near East. Haas proposes that creating agriculture as a new stable source "*relieving the economic stress within the system and eliminating a primary impetus for waging war*" (Haas 2001). However, to him it is not the full time farmers who engage in war but "*the rise of more complex and centralized polities*", when warfare became dominant. The relation between warfare and settlement pattern is seen in the prosperity of the economy by gaining more territory and so extending the state rule. In Haas's words:

"*As social systems become more complex, signs of warfare appear more frequently in the archaeological record and it has a greater impact on social systems. People aggregate into defensive communities, coordinate strategies between communities, and develop specialized social and technological devices for waging war. At least in some areas, warfare played a central causal role in the eventual evolution of even more complex centralized chiefdom and state societies*" (Ibid: 48).

Furthermore, Harris (1984) makes connections between warfare and population density, when he argues that warfare causes unbalanced male to female ratios, polygamy, shifting village alliances, and thus increases demand for economic resources. So, his idea of warfare falls into the Malthusian model where population growth of "villages" leads to crowding and so stimulates warfare. Some, however, believe that warfare was a solution to economic crisis (Chase-Dunn and Hall 1997). "*In some systems endemic warfare functions as a demographic regulator by reducing the population density and alleviating (temporarily) population pressure*" (Ibid: 410).

Other emphases are that warfare leads to abandonment, settlement shift and population dispersion (Trigger 1968). The population may disperse causing a wave of refugees who either establish new locations or re-establish abandoned locations and so relocate themselves into smaller villages; or alternatively they may join existing settlements. Thus, warfare leads to either establishing new settlements in new locations or shifting the location to a more secure place. In addition to that, Trigger (1968: 69-73) argues that warfare leads to fragmentation of large centres and clustering of smaller ones. Smaller settlements or villages may not be affected directly by war. As a result, a new centre of power may be established.

Hassan (1993) stresses the need for advanced transportation to protect food resources and major traffic roads and so facilitate military campaigns (warriors had to be transported in short time). A kind of settlement pattern will be established, mainly of forts and castles, to protect the main routes. In addition, certain cultural aspects not known before such as fortifications may appear as a result.

Warfare had also negative aspects on settlement systems. It may cause economic crisis, famines, epidemic diseases, high mortality rate and changes over the natural landscape.

Peaceful Interaction via Trade and Long Distance Contact

Economic welfare and prosperity are main causes of systems change. It had been long stated that the agricultural revolution had a major

impact on motivating culture and moving it to prosperity (Childe 1942). Farmers have ever since been playing a major role in the human economy. Emerging from the world system theories, archaeologists attempted to explain ancient societies in terms of their economic development. The ancient world is divided into cores/centres and peripheries. The term is used to replace modern political terminology such as "developed" and "underdeveloped" or "first", "second" and "third" countries. Often, "core" is refers to an urban centre and "periphery" to the countryside (see Champion 1989 and Chase-Dunn and Hall 1991). However, this approach reacts to previous works which "*suffers from being too concerned with the spatial patterning rather than the social reality, and from weakness in moving from one frame of reference to another. Furthermore, the type of relationship typically analyzed in this way has been comparatively small-scale*" whether it is a small region or "*single central point*", a catchment area or a large urban centre (Champion 1989: 3). Two issues are often discussed in terms of "urban" and "rural" relationships: Capital/food surplus and trade/long distance contact.

Cultural change and continuity is in the view that the world today is a product of accumulation of wealth and power for 5000 years (Gills and Frank 1991 and Frank 1993). In this sense, the core and periphery "*includes but is not limited to the transfer of surplus between zones of the world system*". The production and management of capital are major concerns to ancient political systems.

Hassan (1993) sees the accumulation of capital as a way of relating the nomes (towns) to their villages. The villages had to pay tribute to the centres. The need is to transport large food amounts via a trade network using the Nile as a major route. The effect of this on the settlement pattern of ancient Egypt is seen in locating the settlements in a distance acceptable for collecting the capital tributes.

Second to surplus is trade. Kohl (1996) argues that both faces of trade, deficiency and surplus (luxury), provoke war and peace interaction. The "*innovation characters of ancient peripheries*" (ibid: 151), will lead peripheries to create trade items in competing with the cores. All in all, trade is a peaceful form of contact playing a significant role in transferring knowledge and beliefs to far areas. Major highways were established to build efficient trade networks. One of the best examples is the via Maris international highway which linked Egypt with Bilad esh Sham/ The Levant and Anatolia. This was one of the forces leading to establishing "centres" along the coast. Therefore, new settlement patterns may develop along trade routes.

Hassan (1993) gives an example of such a synthesis where settlements are been laid down against the stream. Algaze (1989, 1993) suggests that a main reason for Uruk expansion was the long distance exchange of goods, leading to a settlement pattern extending into the periphery. Trade relations between centres and peripheries will develop to an advanced form when raw materials and mineral sources are located in distant areas. Long distance trade may cause the emergence of large settlements in the "peripheral region" (Bintliff 2002b).

In a similar way, a settlement pattern is also affected by the need for local markets to distribute the goods, causing inter-regional trade networks to form (Marfoe 1987, Mellaart 1982). Settlement networks are established in order to manage the food surplus and protect the trade routes.

Connecting war to economic prosperity is one of the major issues of concern to the world system theory. The need for more territories may lead to cycles of war and economic expansion (Kohl 1996). However, the village is less affected by such changes since it is known that cultural changes will take longer time than changes of political domain.

2.1.2.2 **NATURAL EXTERNAL CAUSES**

Natural causes affecting settlement pattern and social systems have long been recognized (Butzer 1982). Actually, some have seen

environmental fluctuations as a determinant role in continuity and change (See Dalfes et al. 1997). Hole (1994) supports the influence of natural fluctuations on creating complex societies. The alluvium effect was a basement for village creation and the nucleation of new centres. However, "environmental degradation" had an impact on settlement distribution when ecological constraints limited the development of complexity and allowed a global spatial structuring (Chase-Dunn and Hall 1997: 409; *Figure 2*). Bottema suggests that climate "drought" theories are based on qualitative analogies with reference to the present understanding; the idea of ancient drought has little foundation if a palynological approach is taken (Bottema 1997).

Among the interesting discussions is the connection between the cycles of cultural developments (growth and decline) and natural environment changes. Bintliff recently reviewed the interaction between human and natural impacts on the environment. Alluvium is a core issue in viewing the interrelation between time of erosion and collapse of culture (abandonment) (Bintliff 2002a). Such a provocative argument, where environmental fluctuations such as soil erosion cannot be a major factor in decline of systems (Ibid: 425), will re-direct our thinking toward other causes of settlement pattern change and continuity which for long had been recognized as natural. Human misuse of the natural habitat is one force that has been neglected. The "social response" to the environmental fluctuations is an element not to be avoided when analysing ancient settlement patterns (Rosen 1995). This approach will create a distance from the one assuming that environment catastrophe is a determinant factor in shaping the urban life of the past (Butzer 1997).

Among some other factors relating environment to cultural systems are flooding and alluvium (Hassan 1997, Algaze 2001), desertification (Yassoglou 1998), epidemic diseases (Issawi 1988), earthquakes, volcanic actions, and drought (Bottema 1997). These studies among others by Wilkinson (1990, 1997,

and 1998) stimulate the role of the positive environment, such as rain and fertility, as a force for extending land use and improving farming techniques. The same positive effect may be seen on settlement relocations and shifts through time in a Messenian Greek village as social and political responses following an earthquake (Buck-Sutton 1994).

2.1.3 **Definition of Site Catchment Approach**

Site catchment analysis is an outcome of a long interest in relating human adaptation to natural habitats. One basic site catchment analysis aims at understanding the settlement surrounding resources, as a shared environment. Understanding a human territory and a settlement system will lead to reconstructing the settlement systems and their economic needs.

Vita-Finzi and Higgs's pioneer work (1970) paved the way toward a new approach of identifying the ancient cultural systems. They define site catchment as "*the study of the relationships between technology and those natural resource lying within economic range of individual sites*" (Ibid: 5). They use geographic, ethnographic and archaeological data to obtain the distance between the settlement and its natural resources. The potential rather than the actual sustainable area lies within a radius of 5 km, or two hours walking from the centre. Following this study, "*site catchment analysis developed as a response to the realization that at different times or places the biophysical environment may offer very different possibilities for exploitation*" (Roper 1979:121). The method of the "least effort", that is the need to travel a long distance with spending less energy, is used to define the catchment boundary (ibid: 120). Moreover, the effect of site catchment analysis on the settlement pattern is implied by defining the bounded competitive resources between settlements (see Butzer 1982: 226-227). The site catchment has not been in use in the 1980's and 90's (Bintliff 2000). Bintliff (2000: 21) pointed out one problem with catchment analysis, which is the "*question of variable territory size and social factors affecting the spacing and size of settlements*".

Archaeologists made an attempt to develop site catchment analysis into a more elaborate approach of understanding regionalism and settlement zonation. Site catchment is obtained in three ways: Euclidean distance, travel time and natural boundaries (Christopherson et al. 1999). "*The size of the area varies according to the size of the site and the available resources, but is usually limited to a reasonable travel distance*" (Ibid). Testing the area against empirical data is a problematic task, though it is feasible. In one example, Flannery (1976b: 109) reached the conclusion that a typical village catchment consists of "ever-widening concentric circles", starting with a radius of 5 km and ending with 50 km radius (a catchment of 200 km in diameter is suggested as required by a village). The radius of 5 km may exceed the village need (ibid: 111).

Therefore, the common method is to create arbitrary distances between the settlement and the farthest resource areas. A simple way is to draw a circle; the radius is defined according to the assumed distance travelled per day. Relying on ethnographic sources, the distance estimated to be 7 to 12 km or 5 to 10 km is used (see Roper 1979). Bintliff (2002b: 159-60) advances this radius method to include a dynamic structure, which geometric representation includes more than one radii (sustaining radius), to reflect the variations of land use, territorial need and the development of settlement systems, which "arose via fission out of older" when village population exceeds the 150 persons and so dividing the original 5 km radius between them, so dynamically by inter-connecting circles (Bintliff 2000: 23, see below for a detailed discussion). He further suggests Thiessen polygon analysis to illustrate the various geometrical settlement territories (1999a: 522), as another mean to circles. Overall, the analysis of the settlement "sustaining territory" is based on "guesstimate" with approximates which may differ from the physical landscape (2002b: 158).

Christopherson et al. (1999) used site catchment analysis in their attempt to discover "*competing central places*" or "*mother and daughter sites*" and examine the relation between major urban settlements and their satellite in competitive environment and the location of a specific settlement in the resources.

One of these uses is to differentiate between settlements in a way of use of resources, such as land use, and then to create centre and periphery distinction. There is also the issue of "*catchment constraints*" which had an impact on defining the settlement location and territory (Bintliff 2002b: 159). The factors leading to reconstruct ancient settlement systems are identifiable (Bintliff 2002c: 32-33).

However, since the settlement landscape changes through time, due basically to alluvium activities; it becomes difficult to define the actual exploitation area. The basic concept of the site catchment had then created an analysis shift from focusing on a single settlement through excavations to an intensive survey of its surroundings. The following section will attempt to go to the detailed application and site catchment along other economic models focusing on the Near East.

2.2 SITE CATCHMENT APPLICATIONS IN THE EARLY BRONZE AGE

Section 2.1 reviews the causes of settlement systems and their economical surroundings. Taking into consideration these causes, archaeologists working around the Mediterranean made an attempt to create models in explaining the Early Bonze Age settlement system continuity and change. The majority of the studies developed out of or are modified versions of von Thünen's model of land use. Often many models fall under the effect of the world system theory, especially the attempts to explain settlement systems from the core-periphery relations.

Bintliff summarizes eight basic models that are being followed to explain regional analysis (1997, 2002c: 30). Each model then needs to be tested and revised in accordance with the improvement of data recovery methods. He calls for multi causal explanations for the development of cultural systems. He believes that these models may base their application in

understanding regional cultural systems and the attempts to explain rise-and-decline cycles of complex societies. This is done by means of examining population growth and decline, and abandonment and settlement shift. Two criteria are followed: the first is measuring settlement territory emerging out of site catchment analysis and then using settlement sizes as a measure of population intensity and growth. The main objective is to point out major centres (urban places) from rural minor centres. For long, Bintliff argues for the need to recover as much detailed data as possible based on intensive surveying (Bintliff 1988, 1992, Bintliff et al 2002). Uncovering hidden data will lead to a better understanding of the settlement systems and will consider small settlement impact upon the outcome of regional studies. By carefully examining the region's surface, such as "off-site" pottery sherds or "*underrepresentation*" of small and medium settlements, different conclusions can be reached regarding a region trajectory (Bintliff 1997: 22). By doing so, Bintliff calls for multi causal approach to explain regional cultural systems, where it is often characterized by a small polity state network.

In his conclusion and review, Bintliff (1999a, 2000) calls for a dynamic model of settlement system and its evolution. Bintliff's model (2002b: 158-159) for urbanism:

"commences with a village network in which certain settlements enlarge to a 'corporate community' size of more than 500 inhabitants. They then become 'village-states', to use Ernst Kirsten's term for Greek polis emergence (territories with a radius typically from 2-5 km). This is succeeded by incorporation of contiguous villages into a small city-state modular district (stage I of Tony Wilkinson's city-state emergence model for North Mesopotamia, see infra — territories with a typical radius of 5-6 km). Over time, competition between these simple city-state systems gives rise peaceably, or forcibly, to absorption of similar solar-modules of city-states with their satellite villages by a dominant city. This allows much greater 'imperial' and supra-regional territorial states to emerge with an additional layer of settlement hierarchy (urban

centre, secondary urban provincial centres, dependent villages)".

Thus, his regional system starts with a basic area, and then this area is divided by the community following social factors. In this fissioning, new villages keep occupying empty spaces, where large settlements give their territory away to smaller ones. So, each new generation reduces the catchment size from 5 to 2.5 to 1.72 km (Bintliff 1999a: 522, 2000). The limit of the village is 150-200 persons, assuming face-to-face relationships. The most common settlement system is that of 2-3 km (1999a: 516).

Consequently, Bintliff's site catchment model assumes that "*urban support areas*" differ through time, based on population size. There are two radii; the first one is that of the core "catchment area" which comes to about one travelling hour or 5 km radius. This radius will be reduced by almost 50% in case of intensive land use. The second radius goes by "*secondary villages and towns*" whose export estimate is 1/3 of production. So according to Bintliff the avenue of each urban centre is composed of the product of a 5 km "*core access zone*" added to 1/3 of a product of a larger zone (limit may be 15-20 km radius). Villages reached complexity at the limit of 500 persons. If population of a town exceeds a figure of 500-600 persons, it may be capable of organizing its natural and human resources to reach production surplus. Then, the larger settlements grow on power on the surplus of food (2002: 33), mainly from their hinterlands. The social organization is formed by settlement networks (small states) of a "*putative territory of 200 km*", (or in Bintliff's words village networks or proto-polities or "*potential village states*"). The connection between the villages should not exceed a day-return or 10-30 km, to keep a relation with the centre, "*which stresses the central importance of their subsistence sustaining area and its available rural manpower resources — in other words their political territory. As a corollary, I shall argue that the size of such towns was closely related to the territorial scale of the city-state or territorial state of which they formed the administrative heart"* (2002b: 157).

But due to change in the means of production following the Iron Age, *"we could expect to find that towns grew in scale at the same time as their required sustaining areas shrank"* (Ibid). He agrees with many scholars who consider town in the Near East *"incapable of supporting its own population's food needs and is reliant on extracting food surpluses from dependent satellite towns and villages. This is manifested clearly by the creation of a settlement hierarchy forming a network associated with major city-state centres* (2002b: 157).

This model raises the point that a site catchment limits the advancement of technology and food production, allowing perhaps more settlements to develop; contrary to many thoughts that consider larger settlements need more "sustaining territory" and thus need an advanced organization to run this expanding territory.

It does not mean that each settlement system is an independent entity, but it is one form of urbanizing that suggests multiple controls that are hierarchically organized from the small to the large. A large settlement of 150 ha may control an area of 32 km radius, and this will incorporate a network of inter-dependent centres encircling radii of 23, 12.4, 9.7, 6.6 and 5 km (Ibid: 160).

Hassan (1993) adopts an ethno-historical approach to reconstruct ancient Egyptian town/rural interactions. His model links three various settlement attributes: political organization, agricultural productivity, transport and taxation (tribute) (Hassan 1993: 559). He believes in the notion that the ancient cities of Egypt resembled the Greek nomes, each nome was a major city forming the capital of a local state; and so agreeing with Butzer's hierarchy of large centre, small centres and large village (Ibid: 522). Urban inhabitants estimated 5 to 8% of the total population, with a town of village ratio of 1:65 (assuming a coefficient value of 119 to 300 person/hectare (per/ha)). A settlement population hierarchy is ranked into: Large villages (700-900 persons), medium village (500-600 persons) and small village (250-400 persons). Accordingly, the rural small villages form 66.5% of the total population, while the city dwellers, large village and medium village forms 1.5%, 18%, 24% respectively. Each one of the ancient Egyptian capitals supports an area of 33 to 43 km. He estimated the production of urban residents to 3 times an average person and so needs subsistence consumption of about 200 kg grains per year. Accordingly, the urban elite of 23 towns would have required no less than 30 million kg of grain. The revenue is estimated at 60 million kg leaving 50% surplus to be shipped to the nome capital. Hassan measured the productivity under the assumption of 80 farmers per one square km, so each nome capital requires 2.60 million kg of grain, and tax revenue equals 17 million kg of grain. By using these figures, he proposed that transportation of surplus and tax limited the distance between nomes, and so the location and its territory were determined by the Nile. This requires an advance means of transportation achieved by using the Nile rather than land transportation (using donkeys which travel only 20 km/day). Furthermore, he estimated a nome area of about 350 km^2, with an average of 5.4 km^2 needed by each village (equivalent to a radius of 1.3 km). This area will include five large villages, with an average distance of 9.4 km; each serves as a local market and a centre for collecting the main capital. So, any village will be part of a network if it is located within a distance of 4.7 km.

Because of this distance, the centralized power was weakened and so smaller state systems appeared at the periphery. "*The aggrandizement of power of the provincial ruler was at the expense of the centralized government that depended on the revenues sent from the nomes. A series of low floods apparently worsened the situation*" (Ibid: 567). Hassan also stresses the need for a divine kingship to control the rural side, in a society where disastrous flooding is a major threat to its existence. As a result, the divine kingship had a major role in controlling the nome capitals.

One of the main points raised by Hassan is that central authority was not the major force in shifting power and settlements. The peasant society did not have to rely on the central power

for its continuity and survival against natural causes (see also Hassan 1997). The potential of villages to carry complexity is their productivity surplus and location.

Hunt creates a framework for Near Eastern complexity based on "*subsistence provisioning*". To him, "*cities have not always been a factor in human culture … largest settlements are villages with fewer than a few hundred people*" (Hunt 1987: 162). He simulates a model of subsistence and economy based upon a small state of a hypothetical number of 100,000 rural inhabitants and 10% urban. He assumes an average production of 1000 kg per hectare and so he reached the following calculations by calculating the nutrition needs of a population (Ibid 165-167): A total area in grain every year of 14,000 ha, area in fallow of 14,000, and an area of pasture, waste and wood etc. of 20,000. So, the total area of economy is 48,000 ha or 480 km^2. The population density for such an area is 208 persons per km^2. The average radius is 12.4 km with the city at the centre. This calculation implies a complex form of social organization to manage the food production and surplus extraction, processing, transportation, distribution and storage.

One of the impressive models of Near East settlement pattern and cultural development is that presented by Wilkinson (1994, 1997). It is formed of a "*center relying upon satellites for crucial supplies and the satellites being tied to the center by obligation, by force, or by economic factors*" (Wilkinson 1994: 484). His model of land use and site catchment is "*based upon the productive potential of the surrounding land, taking into account principles of least effort as expressed by the land–use model of von Thünen*" (Ibid), illustrating the relationship between production, labour supply, settlement and population. A settlement catchment is divided into a "*three-tiered settlement hierarchy*" connected by a radial shaped "linear hollows" of 2-4 km from the centre. The urban site catchment is defined by these hollows, sherd scatters (density reached a peak between 0.5 and one kilometre and declines to 1-5 sherds per 100 m^2 at 3-4 km radius), and manuring intensity.

His modular system is formed by six adjacent catchments with each having a 5 km radius and in the same time surrounding a major centre; each one will contribute a surplus to the centre. There exists a range of settlement territorial limits ranges from one km up to a maximum of 5-6 km. The settlement pattern includes "*a large central settlement a number of nucleated secondary centers, and surrounding satellite villages*" (ibid: 495). Wilkinson used a population coefficient of 100 per/ha, to analyse the settlement needs. Equilibrium will be maintained if the population density was within the range of 100-150 per/ha, while food resources will fall short if the population figure rises to over 200 per/ha (Wilkinson 1999: 49). Assuming that each individual needs about 250 kg of cereals annually, a 5 km radius will suffer deficit if the population exceeds 6,000-8,000 persons or if the settlement size exceeds 50-60 ha. Then the system had deficits and needs to rely on outside resources (he calculated a mean carrying capacity for 5 km radius= 5,850 persons). Productivity declines progressively beyond this area. Food strategy requires an adequate supply for the catchment area. When this falls short due to population pressure imports from neighbouring territories are required. Accordingly, Wilkinson's urban/territorial model (1994: 500-503) suggests a "modular catchment" of seven settlements, each with 5 km radius (ca. 7,850 ha). This individual catchment will be integrated in a larger settlement (3,500 persons of each community which needs 12-14 ha of sustainable areas) or a "*compound catchment model would result in regional modules of ca. 15-km radius with adjacent centers about 28-30 km apart*", then followed by a small centre 10 km away, and other connected centres 20 km away (a distance of return to the main centre in one day). This is because "*increased distance from the center would have reduced the efficiency of transport of goods*" (Ibid: 502).

Various other models illustrate the Near Eastern regional systems development from diverse perspectives (Ucko et al., eds. 1972, Adams 1981). Among the models affected by the world system theory is Algaze (1993, 2001), which calls for a multi-causal model toward

viewing the development and expansion of the Uruk complexity, based on "geography, environment, and trade". O'Connor (1993) and McIntosh and McIntosh (1993) followed a model where the periphery of Ancient Egypt formed an independent trajectory toward urbanism and regional cultural systems by arguing that small settlements of up to 5 ha can develop a flexible urbanism form. However, only few studies have used site catchment analysis in the Palestinian contexts and especially related to the Early Bronze Age. The following section will review these studies.

2.3 THEORIES OF CULTURAL CONTINUITY AND CHANGE OF EBI IN PALESTINE

2.3.1 General Discussions, General Models

Joffe (1993), Herzog (1997) and Greenberg (2002) had recently reviewed the various approaches to Early Bronze Age urbanism. However, it is relevant to review the development of the research and the evolution of the settlement pattern approach in Palestine.

Studies in the settlement history of EBI cultures fall into three stages. The earliest stage, which attempted to see Palestine in relation to external influence, begin with the work of Kenyon (1957, 1960), and is marked by the works of Hennessy (1967), Lapp (1970), and de Vaux (1971). Based on her data from Jericho, Kenyon (1979) argues that the EBI was invented by invaders who after a while introduced urban life in Palestine. Kenyon builds her argument on tomb remains. She claims that the typology and customs of the rockshaft tombs reflect a new tradition that was not known during the Chalcolithic period. By the pottery found in these shaft tombs, she divides the period into three cultural traditions: The Red Painted, the Red Burnished, and the Grey Burnished. The Grey Burnished pottery is not found in Jericho, but it is restricted to settlements of the Northern region. Although, Kenyon is aware of the fact that many sites had produced evidence of association among all these groups, she believes that data from Jericho produced evidence of separate ethnic groups (See Kenyon and Holland

1982 and Holland 1986). The invaders had little knowledge of architecture, which is her basis for arguing that the new groups were nomads who invaded the country from East of the Jordan. These groups did not have the knowledge of urban life, but they were able to acquire it gradually.

Lapp argues that other data than pottery show continuity (1970: 103). Some Chalcolithic elements continued into the EBI, and other ceased. This argument differs in principle from that of the Kenyon, who believes that the Chalcolithic culture died out and was replaced by the new cultural traditions. However, Lapp prefers the possibility that the EBI urban culture combines the ideas of a new population and the innovation of new techniques by the indigenous people. He argues that towards the end of the period, more houses were added to the existing villages. Then the new village cluster was suddenly surrounded by fortifications. This mixture of elements produces the urban life in Palestine.

The second stage had a slightly different approach initiated by Kempinski. Affected by V. G. Childe's approach to archaeology, and the development of Kenyon school, Kempinski (1978) believes that the Early Bronze Age was marked by the improvement of the means of production because of the introduction of metalwork at the end of the Chalcolithic period. In addition, the village centre is enlarged because of inter-regional immigrations and the concentration of population into larger areas. The new clusters required a new social organization; and so urbanization was accelerated by the development of external political factors. He argues that urban life in Palestine is parallel to Mesopotamia and Egypt, adopting the definition of V.G. Childe for urban development (1978: 4). To Kempinski, urbanisation is a phenomenon imported into the Syro-Palestinian area, finding expression as this area came into the orbit of a foreign cultural and political sphere (Ibid: 6). He bases his argument on settlement size and fortification system, monumental building, settlement planning, industrialization and market production. The rural side was ignored in his

synthesis and he thought that it *"apparently absorbed into the urban settlements"* (Ibid).

At the same time, a contra-hidden debate characterized the work of Amiran (1985) after her Tell Arad experience. She argues that the cultural traditions of the Early Bronze Age evolved from the Chalcolithic cultures on the basis that the *"factor of continuity is more pronounced than the factor of change"*. The EBI developed from the *"agricole-pastoralist"* society of the Chalcolithic into a fully developed farming society. Shortly, the progress of *"agro-technology"* with the introduction of the *"pair yoked oxen tracting the plow*", the use of copper, and trade relations with Egypt led the population to cluster toward a central political and social system (towns) (Amiran 1985, Amiran and Gophna 1989). By so doing, Amiran stresses the continuity of life from village to town life. The definition of urban life according to Amiran as an indigenous phenomenon is well documented at the urban centre of Arad. To test some of these hypotheses various research was undertaken by Broshi and Gophna (1984, 1986 see below) using immature survey data.

In between these two views, Hanbury-Tenison (1985: 6) made an earlier effort to collect comprehensive data on the Chalcolithic transition, arguing that the problem of the transition from the Late Chalcolithic to Early Bronze Age faced the lack of stratigraphic determination and absolute dating. The transition from Chalcolithic to Early Bronze Age is a gradual indigenous development without any massive immigration. Accordingly, the settlements of the Early Bronze age IA (EBIA) concentrated on the most fertile lands. Most of the settlements were not developed into fortified towns. Nevertheless, large settlements with extended territory and a large habitat continued to rise during many periods (Tell el Far'a, Tell el Mutassalim (Megiddo), Tell el Husn (Beth Shean)). The major economy continued to be based on agriculture. Because of that, the transition is determined by socio-economic factors, rather than environmental causes.

The publication edited by Miroschedji (1989)

marked an increased interest in the issue of urbanization. The volumes collect various data, including faunal and floral remains. However, no radical views were expressed. In this publication, for example, Braun (1989b: 7) suggests a scholarly shift toward a "*paradigm of indigenous development*" in the attempt to explain the origin of the EBI cultures vs. the idea of a foreign intrusion. He is in favour of combining external and internal factors that lead to the change of life pattern during the past. What he views as "*cultural horizons*" means that each horizon is defined as an individual entity separated from one another. Accordingly, Braun believes that the division between the EBI and its cultural horizons is evident and clearly reflected in the archaeological record (Braun 1996). One can conclude from his argument that the forces, which created each cultural horizon is different and may be unrelated to each other, though the factor of continuity is stressed among them. These views dominated the field until the early 1990's, all based on excavated materials with little use of survey data.

The third stage was initiated by D. Esse (1989a, 1991). Survey data was used to obtain a comprehensive synthesis into the economy and settlement pattern of the Early Bronze Age. Esse favours the argument that the population size of the Early Bronze Age is difficult to estimate and so population growth is hardly seen as an indicator of movement to urbanism. He assumes no increase in the median size, but the increase could be seen in the number of settlements (Esse 1989). The settlement shift in the northern region suggests that there is some continuation of the same Chalcolithic cultural tradition. One example of this continuity is reflected in temples. Unlike his predecessors, Esse (1989b) believes that the change in pottery is due to regional variations, and so he rejects the idea of new groups penetrating into village life in North Palestine. Urban life is an indigenous phenomenon that is a result of *"population agglomeration"* without any increase in population size. The sudden death of Esse did not allow him to develop this model, which was one of the earliest to incorporate survey data in reconstructing settlement systems.

Following the steps of Esse, Joffe (1991, 1993) summarizes the development of the EBI period. He agrees with Esse that early scholars' *"attempts to create models on the basis of explicit theoretical concerns are less frequent"* (1991: 4), and proposes a model of "*indigenous development*". This is one of the earliest applications from a world system theory. Joffe argues that the EBI arose "*not in the context of multiple western Asian cores but in the association with the emergence of the far larger Egyptian polity*", where Egyptians "*intensified a local trajectory towards rising complexity*" (Ibid).

By comparison with other urban centres in the Near East, Palestinian settlements are relatively smaller (Joffe indicated that Uruk size of 4,400 ha is "two thirds" the size of the combined EBI settlements in Palestine). Therefore, he calls for a different perspective to understand complexity, based on Sahlins' mode of production. The fragmentation and spatial dispersal of smaller settlements proposed that the social unit of the EBI was the independent family.

Furthermore, climatic fluctuations, "*attenuation of the socio-political organization*" of the Northern Naqab (Negev), and social fissioning into small villages are the three major factors ending the Chalcolithic culture. Cycles of social complexity and collapse had various trajectories in the various Palestinian regions. Regional systems had not developed in the same way. While the southern region cultural systems collapsed, the northern regions had continued with expansion of settlement towards the upland areas (Joffe 1993: 41-43). Joffe suggests that the settlements of the south never developed into towns because of their status as peripheral to the Sinai copper network (1991: 17).

By using data from 753 Chalcolithic settlements, he concluded that Chalcolithic communities fission themselves into smaller communities of one hectare, where about 71% were new settlements (1993: 46). This stage was followed by a growth at the end of EBI, indicated by "*a more complex settlement hierarchy,*

suggesting increasing economic dominance of 'hinterlands' by individual site". This society is formed by a political system based on chiefdom (tribal system).

Several attempts to reconstruct the EBI settlement system emerged following this stage. In the course of the latest settlement pattern studies, archaeologists working in Palestine took two stands: The first believed in a single trajectory of influence as the cause of external or internal factors, and the second assumed multiple trajectories and regionalism. The following section will attempt to review these major studies, specifically as applied to the Palestinian settlement system based on survey data.

2.3.2 **Settlement Pattern Models of Continuity and Change**

Motivated by the regional studies, many archaeologists attempted to develop models to explain the EBI transition. Early Bronze Age settlement pattern studies in Palestine were stimulated by the early work of Broshi and Gophna (1984, 1986) and Gophna and Portugali (1988) who assumed a positive correlation between the variables of *settlement size*, *population density*, and *settlement distribution*. In their early views, population is measured "not by a fixed coefficient but a variable coefficient related to settlement size and different periods (Broshi and Gophna 1984: 11). The settlements falling into different sizes will have different density coefficients, with the largest being lower than the smallest for instance population of 150 per/ha for a settlement size smaller than one hectare, 120 per/ha for a settlement size of 2 to 5 ha, and 100 per/ha for a settlement between 10 to 12 ha. There are only three settlements of this category.

Accordingly, the Coastal Plain population was estimated at about 8,576 persons during the Chalcolithic period, down to 2,475-7,705 persons during the EBI, and in EBII 13,000-17,000 persons when larger settlements were established. However, bad economic organization failed to support this population growth, and so a social

re-organization was required. "*Urbanisation is thus conceived of as an outcome of the tension between the natural environment and population*" (Ibid 21). However, they observe a regional density difference from south to north. "*The southern coastal plain was probably the more densely populated region in Palestine*" (Ibid: 21).

In a follow-up article (Broshi and Gophna 1986), regionalism was a core issue. Here they use a fixed population density coefficient of 250 per/ha. The data summary showed a decrease on settlement number and size from the EBII-III to the Middle Bronze Age, a case which is uncommon to later surveys of the mountain areas (see Zertal 1996, Table 11). The settlement number doubles while the overall settlement area remains close to the same in all periods, suggesting an increase in the number of small settlements, but a decrease of the large settlements from the EBII-III to MBIIA (Broshi and Gophna 1986: 87).

Finkelstein and Gophna (1993) stress the cultural continuation from Chalcolithic to EBI in the mountain regions. Most of the settlements increased in size up to about four times. They argue that the increase in population size in the mountain areas was gradual and influenced by immigration from the coastal settlements. Thus, the transition and increase in number of settlements are marked by economic conditions. The transition period is highlighted by permanent activities, particularly the development from dry farming to craft specialization. Similarly, there was an increase in the size of settlements and population towards the end of the EBI and beginning of the EBII. Many villages were abandoned. Other settlements continue into the EBII. Many villages developed to urban centres, a process marking the beginning of urbanization in North Palestine. The phenomenon of urbanization is explained by economic factors. In particular, specialized farming emerged after establishing a strong trade contact with Egypt for the main export of wine and olive products. These developments led in turn to the increase of village size and accelerated the introduction of a complex system based on social stratification and

the rise of local leadership, and thus the development of large urban centres (Ibid: 14). Each regional centre was surrounded by chiefdoms formed by small villages and farmsteads.

Finkelstein and Gophna base this argument upon calculating settlement size through time. Their sample represents 103 different sites from the mountain area (not using of course the results of recent surveys by Zertal). Size was organized into 5 categories, ranging from 0.1 ha to 10 ha. Few settlements fall into the largest size (one site only on the mountains and 3-6 sites in the coastal region), while the category of less than one hectare has a high ratio. Based on their Tables 1 and 3, the change of accumulated settlement areas in the mountain region was very dramatic for the three periods while in the coastal region it was gradual (70.2, 94.9 and 144.3 ha). Accordingly, the population density decreased from the EBI to EBII. They argue against settlement immigration from the coast because there is a continuity of settlement process from the Chalcolithic in both regions; and the expansion on the cost was limited and failed to reach the region carrying capacity. "*This is a 'mature' settlement pattern, with large centres (such as 'Ai), regional centres, small settlements, and farmsteads*". And so, the hill country inhabitants can "*easily engage in an autarchic subsistence system, by practicing the traditional triple-faced economy of the Middle East- grain growing in the intermediate valleys and flat areas of the central range, pastoralism in the desert fringe, and horticulture on the hilly slopes*" adaptations to agriculture. This is one approach, which sees a different trajectory between the mountains and the coast and at the same time shows that the mountain region did not have a peripheral or marginal role.

Finkelstein (1995) pushed further the idea that urbanization is not an independent entity. Political networks link the relation between the countryside and the urban centres, where each part depends on the other. There is a settlement shift involved in creating an urban centre where he proposed that each network should forms an urban centre. For example, Tell el Qadi (Dan)

and Tell el Qadah (Hazor), each had a territorial political domain. This reminds us of the system of city-states dominating the Early Bronze Age and later periods.

Falconer in his original model (1987, 1994a, 1994b) and in his revised model (Falconer and Savage (1995), attempts to put a framework for "C*anaanite society in terms of rural complexity rather then urban preeminence*" (Falconer 1994a: 121). To test this model of Bronze Age settlement, Falconer used five factors: 1. settlement density for 100 km^2, 2. population density estimated for the same area, 3. mean settlement area, 4. urban population (proportion of aggregate settlement area of 35 ha and larger). 5. rural settlements of less than four ha. These small settlements could support themselves easily even with a high population density (250 per/ha) and small catchment area of 3 km radius. *"They may be considered potentially independent rural elements of regional settlement systems"* (Ibid: 122).

This test was followed by a rank-size analysis toward the same goals (Falconer and Savage 1995). They used a population coefficient of 100-250 per/ha, a mean subsistence requirement of 1.5 ha per person, and sustaining area bounded at a radius of 3-4 km to model the settlement pattern of the Ghor area. They concluded that half of Palestine's inhabitants remained in settlements larger than 7 ha through most of the Early Bronze Age. Settlement size dropped through the sequence, while "*settlement density grew noticeable while population density increased more modestly*" (Ibid).

Falconer favours different trajectories of settlement system development, where "*Canaanite towns and cities concentrated largely in the coastal and northern peripheries of Palestine, leaving an overwhelmingly rural heartland in the central hill country and Jordan valley.*" (Falconer 1994a: 139). Also, "*early Levantine urbanism rarely adheres to either of these general patterns, but represents a distinct geographic and chronological mosaic that defies simple categorization*" *(*Falconer and Savage 1995: 55*).*

Small settlements are independent and develop their own trajectory as community networks, contrary to the traditional view of considering their peripheral and marginal role. Therefore, *"rural population may have adopted strategies of 'resilience' (Adams 1978) based on increased pastrolism that peaked during urban collapse"* (Ibid: 54).

The uniqueness of the Falconer and Savage model lies in its favouring *"village complexity"* and the stress that the Palestinian regions developed their own trajectory. Thus,
1. The Bronze Age society followed a multiple course development, with the coastal region being considered as the heartland of urbanism, whereas *"some settlement in the central hills may have compensated for the otherwise under-represented realism of the coastal plain*" (Falconer and Savage 1995: 53).
2. Regarding village complexity the *"Levant merits archaeological attention not because of its relatively modest peripheral cities but because of the intriguingly unexpected expressions of rural complexity in its villages"* (Ibid: 35). With this observation, Falconer and Savage highlight the role of small settlements.

In his summary, Greenberg (2002) uses a regional approach to reconstruct the Hulah basin development of settlement system. He argues against arbitrary division of regional boundaries. Instead, a small region may develop its own trajectory toward cultural complexity. As a marginal region, Hula basin developed little continuity from the Chalcolithic to the EBI. To him this period *"terminated old trajectory rather than building a new one"* (ibid). The common system is a *"primate relationships" and underdeveloped economic and political system"*, implying that urbanization does not develop out of the EBI system, but rather emerged after the local need to control the valley and its resources.

He further argues against the adoption of the Mesopotamian model of urban development, and also against "*a central place model modified by environmental constraints elongated site*

catchments". So he abandons this former approach in favour of Marfoe (1978) calling it "*an impressionistic and qualitative*" model, since the intensity of settlements increased at the valley gateway and so the routes played a major role in settlement pattern. To him, "*ecologically based site-catchment analysis, which rectifies some of the shortcomings of location theory, is too strongly bound to the individual site and does not contribute toward an understanding of partly integrated economics such as that of urban EB*" (Ibid).

The Hulah Basin is an isolated region with little contact with the neighbouring lands. It had to rely more on its own resources. The total built area is only 10 ha with a population estimated to 1,200-1,500 (using a coefficient of 150 per/ ha), which needs about 15,000 ha (10% of the total area). This population showed a very dramatic increase to 12,000, about 10 times the population; and so 80% of the resources had been in use during the EBII (Ibid). So, the "*renewal of settlement at the regional centres*" required planning and the need of economic control by establishing central authority. "*Only an established authority could ensure balanced distribution of resources, recruitment, and distribution of surplus for town-dwellers*" (Ibid: 90). EBII settlements are "*rural settlements practicing a mixed, basically autarkic agro-pastoral subsistence economy and exhibiting local cultural variation within a broader sphere of limited interaction. This culture is not part of any evolutionary 'trajectory', and must be considered on its own merits*" (Ibid: 88). This is a gradual urbanization, which emerged out of an earlier one within the same region.

2.3.3 **Summary and Reviews**

In concluding this section, the theory of invasion and external influence has dominated the explanations of cultural change in Palestinian Archaeology. It had been long argued that EBI cultural urbanism was introduced by newcomers. However, such a traditional view is abandoned, though some believed that it still a major force that brought urbanism (Getzov et al. 2001). The current thought is that the EBI culture developed from small peaceful farming villages which spread over the valleys during the Late Chalcolithic period. Fertile soils and water springs were preconditions for establishing new villages. The EBI settlements occupied the low lands and were placed in the open space. The belief that urbanism is a natural development of the indigenous Late Chalcolithic culture is worth considering on the basis of settlement pattern data. However, these arguments, whether true or false, were based on excavated large sites only; little work with survey data was done.

Only recently have some archaeologists like Esse, Joffe, Falconer, and Greenberg used survey data. The shortage of survey data is due to two reasons: the first is concerned with the nature of survey data itself (see Chapter 2), and the second is that few surveys were conducted in the region (see Joffe 1993 for this matter). Even with the recent publication of survey data by the Archaeological Survey of Israel, it is noticed that the data are limited and not presented in a standard way, and the surveys were done by different surveyors using various techniques and dating methods. The surveys aimed at identifying large settlements with little attention to small settlements. Lots of hidden data are still there to be recovered by a more advanced survey methods. This in part explains the "shortage" of reported EBI settlements.

On the other hand, even with the use of survey data, it is noticed that few researchers followed recent models of settlement patterns. One shortage of these studies is the study of settlement shift indicated by catchment analysis. Could this be followed, more accurate conclusions would be reached regarding occupational gaps and settlement abandonment. For example, Greenberg argues that a settlement gap is noticed after the EBI due to an abandonment phase. The question to be addressed is that do people really leave an entire region, or shift their settlements toward a new location, more likely within a territory of one kilometre radius. If we study this one kilometre territory, it will be an efficient parameter to understand continuity and change in a regional settlement system. It is not enough, though, to

use the settlement distribution as the only means to reconstruct the cultural history of the region.

The argument by Falconer regarding rural and urban diverse trajectories to urbanism is promising in the wake of variations between Palestinian settlements and settlement from neighbouring regions. Many studies concluded that small settlements formed the highest percentage, a situation common these days to the Palestinian village community. Falconer, however, relied greatly on preliminary data sources published in the early 80's, predating the last published surveys. Some of Falconer's conclusions may differ in the wake of recent survey data, especially when dealing with the issue of regionalism and urbanism.

Combining the ideas discussed on this section will lead toward a model where villages played a central role developing settlement systems (similar to that developed by Bintliff and Wilkinson). Site catchment analysis is the tool to see how these village communities reacted to the cultural process. This issue will be followed in Chapter 2 where an attempt will be made to do a catchment analysis for the Jenin region.

3 A FRAMEWORK OF CULTURAL CONTINUITY AND CHANGE

In the previous sections, the issue of continuity and change was critical to view settlement change. What was lacking of course is a criterion to define both these issues. In this section, I will review some basic theoretical concepts, which will be used to define the issue of continuity and change in the Jenin region settlement systems.

3.1 DEFINING THE CONCEPT TRADITION

Tradition is a concept that developed in archaeological theory as early as the beginning of the 20th century. Childe did not view the continuity of tradition as an abstract entity, but rather as a proof of cultural diffusion (McNairn 1980: 23 ff). In a simple way, he defines tradition as technological and economic behaviour, giving the example of metalwork. He

believes that 'cultural traditions' change because of internal and external factors (Trigger 1989: 393).

In an early paper, Haury et al. (1955:38) define tradition as a "*socially transmitted form unit (or a series of systematically related form units) which persists in time*". The "*form unit*" can be defined as an observable phenomenon, such as a dominant decorative unit or an artifact type, found in a well-defined space and time span. Similarly, Binford (1972: 203) defines tradition as "*a demonstrable continuity through time in the formal properties of locally manufactured craft items*". He separates the formal attributes with relation to manufacture from the functional attributes, which relate to the use of a certain form. The first mentioned continue while the latter ones may not continue to be the same through time. Thus, tradition may be related to a "*single class of artifacts*" or to a cluster of "*several classes of artifacts of a socio-cultural system*" (Ibid). The emphasis of Binford on continuity of local traits in defining the concept *tradition* suggests that a tradition is connected to a certain place. Tradition alone cannot explain change (Binford 1972: 205). Change and cultural variability have to be analysed after the isolation of other variables, namely interactive spheres and adaptive spheres (Ibid). This is done because environmental constraints influence culture in a different way than social constraints do.

According to Rathje and Schiffer (1982:103), the concept tradition "*refers to a basic stability in the artifacts of a specific regional system*". The longer the tradition persists in time, the slower are the changes, so it will be a factor of strong continuity for the inhabitants of the region.

Some recent arguments state that continuity is not a pre-condition to social evolution, but rather to instability (McGlade and van der Leeuw 1997). A settlement may have what they called a *dynamic continuity*. This term may apply well to the Palestinian cultural landscape where it combined both continuity and change over the space. Dynamic continuity may then refer to the similar adaptive strategies followed to use the

same place, and in specific by considering the balance between farming, pastoralism and urban development. It will be argue that any defect in this balance causes a failure in the settlement system.

3.2 ABANDONMENT VERSUS SETTLEMENT SHIFT AND CONTINUITY

Recent discussion of the abandonment issue shows that archaeologists often misuse the term. Abandonment studies were initiated by Stevenson (1982), who outlines the various types and concepts of abandonment behaviour. Two types are distinguished: *temporary abandonment* where anticipation of return is expected; and *permanent abandonment* where return to the site is not expected. These two types are reflected in the archaeological record (Cameron and Tomka 1996). Since then, abandonment is seen as a "*normal process of settlement*", and all purely archaeological settlements have been abandoned (Cameron 1996: 6). Horne (1996), however, addresses the issue of "*location stability*" in reoccupation of an area from the point of view that settlement location is a "static phenomenon" (Horne 1996: 43). He distinguishes between spatial stability and occupational stability. In addition, recent studies (Cameron and Tomka 1996) illustrate the many abandonment causes. The most common is catastrophe. None of the studies, however, demonstrate that an entire region will be abandoned even following a catastrophe. The case may be of settlement shift, as shown in the study of Buck-Sutton (1994), where settlements shifted to new locations.

In this instance, the place of occupation can hardly be abandoned. Unoccupied settlements will not have occupation gaps. It can be argued that within a settlement's occupation territory within a one kilometre radius range will be occupied in all periods. In this case, Tomka (1996: 21) sees a residential abandonment not being followed by regional abandonment. In another view, Bintliff (1999a, 2000) shows that a shifting landscape leaves few artifact remains and so archaeologists will misinterpret the landscape. Abandonment in this case is created by poor archaeological techniques rather than reflecting the settlement's reality.

Therefore, a model will be followed based on the notion of a *settlement shift* as the typical mode of settlement system rather than that assumes desertion of settlements. Specifically, this model will be more proper to explain the idea that the Early Bronze Age urbanism is a product of the late Chalcolithic settlement systems. It is one of the successful adaptive strategies used in the Jenin region. This model will be developed further in the next two chapters.

3.3 DEFINITION OF POTTERY TRADITION CONTINUITY AND CHANGE

3.3.1 **Pottery Tradition**

A pottery tradition is one form of culture that continues and changes in time. Pottery is made from local clay resources known to the potters of a region. The knowledge about dealing with these resources is transmitted from one generation to another and so persists in time. After being defined as traditions, pottery types can detect the local from foreign cultures. For example, Shepard believes that a conquest may affect stability and change of pottery traditions. Oppressive conquest may lead to decline of pottery traditions, contrary to a "*benign rule*" that may introduce new traditions (1980: 350).

Willey limits the definition of the pottery tradition to the development of techniques or styles through time (1945: 53). Binford (1972: 199-201) argues that the change and variability of pottery traditions can be defined by primary functional variations and secondary functional variations. If two distant traditions share common elements, then it does not mean that they have cultural relationship. They may not belong to the same cultural phase. Binford stresses that tradition is local to one region that continues in time. If this is not so, then it means that other variables influencing the culture should be used such as interaction spheres or environmental spheres as mentioned before. To him, tradition is limited to the stylistic aspects of culture, including technology (Binford 1972:

203-205).

In fact, pottery tradition and change are influenced by the factors which change or stabilise other elements of the material culture. From this follows the assumption that pottery materials cannot be studied independently from the study of the socio-economic and environmental systems (Peacock 1982, van der Leeuw and Pritchard, eds. 1984, Rice 1987). The original criterion of Steward influenced the views of adaptation and cultural integration. Steward (1955: 40) points out to three procedures of cultural ecology, namely,

1. The analysis of the interrelationship of productive technology and environment, which reveals the forms of material culture that vary according to the complexity of the technological means. For example, in case of a simple technology, the environment (climate, topography, soils etc.) restrain the development of culture.
2. The analysis of the behaviour patterns involved in the exploitation of a particular area, which reveals the complexity of a particular technology. It limits or simplifies the traditional culture behaviour patterns in a certain geographic region.
3. The analysis of the effects of the behaviour patterns upon other cultural aspects, which reveals the historical domain of cultural patterns over a specific geographic region.

In all these procedures, however, there is a relationship among the development of a certain technology, the way a technology is adapting to the environment, and the restraints of the environment.

The approach of Steward influenced pottery analysis when Matson (1965) called for using pottery to explain ecological aspects. The result of this approach is the development of various techniques to understand pottery origin and distribution, particularly petrographic analysis (van der Leeuw and Pritchard, eds.1984, Kolb 1988)

Furthermore, among the most interesting surveys of continuity and innovation is that of

Nicklin (1971). He lists the factors that influence pottery stability and innovation, based on ethnography. The influence of economy, environment and the individual potter is the core of his discussion.

The work of Arnold (1985) in Guatemala is much influenced by the ecological approach. Although he is aware of the different variables that influence ceramic change, the focus of his analysis is the explanation of the mineralogy and composition of the clay fabrics. In his general conclusions, tradition and change are stimulated by the efficiency of production techniques in coping with the economic and environmental pressure as, for example, a population increase or a climatic change (Arnold 1985).

In a later review of the ecological approach, Kolb (1988) emphasizes the manipulation of resources and technology in making pottery traditions. Also, his volume reviews the role of pottery in changing social habits and the effect of changing the production sequence techniques in popularising pottery traditions.

During the previous decades, many archaeologists attempted to translate pottery data into a specific approach to tradition and change, an approach largely generated from ethnography. A debate arose between those who agree that observable pottery change alone, and so tradition, means stability or change of culture (Adams 1979, Stanislawski 1978, and Rice 1984), and those who believed that cultural change is reflected in pottery tradition (Longacre 1981, Peacock 1982, Annis 1985 and Arnold 1985, and Kolb 1988). In particular, van der Leeuw (1976) and Peacock (1982) had presented equivalent models to classify pottery systems into modes or states. Each mode of production had its own factors to endorse stability and change. For example, commercial pottery is open to change more than household pottery due to the pressure imposed by the market demand.

London's work is an attempt to define pottery traditions from the ethno-archaeological perspective of an individual potter's tradition (London 1991b, 2000). She illustrates the

example of cultural continuity in Cyprus where style and decoration of pottery does indicate continuity (London 2000).

3.3.2 **Pottery Tradition in Palestine**

In applying the concept of pottery tradition continuity and change to Palestinian Archaeology, archaeologists interpreted pottery remains as abstract types based on morphology and style. The interest in ancient pottery forms as museum masterpieces minimizes the analysis of pottery technology and traditions. It is noticed that the published articles fall short in answering vital questions related to Early Bronze Age pottery traditions. Many studies focus on shape, and few key 'wares' of selected characteristics , with a common neglect of fabric, manufacturing techniques and quantification (Philip and Baird 2000: 4). The articles cover local and regional assemblages, but there are no discussions of the statistical component to define and compare groups. Rather the research into the potters deals with materials at a qualitative level. In their views, the North/South issue of specialization is not simply a geographic separation, but rather an issue stressing social and economic connections (ibid: 14). Although their volume (Philip and Baird, eds. 2000) is to be considered the latest summary of thought on Early Bronze Age pottery analysis, no contributions addressed pottery tradition as a whole, i.e. from the process of clay manipulation and preparation, through forming techniques till the finished forms. Rather the focus was on one technological aspect without relating it to others.

Petrie (1891) was one of the earliest archaeologists to point out the relation between pottery typology and the Tell stratigraphic sequence. Since then many archaeologists have preferred to catalogue pottery according to common types (Albright 1932; Wright 1937, Lapp 1961, Amiran 1969, 1978 and Gitin 1990). These studies produce a fair ceramic corpus based on pot form, shape and decoration. The contrary consequence was to abridge the role of pottery traditions for reconstructing ancient systems. Others like Frankfort (1924), Kelso and Thorley (1943, 1944), Tufnell (1958), Franken

(1969), Hammond (1971) and Bennett (1972), used slightly different criteria based on potmaking methods and technology, with limited ethnographic data at the background of their reports. However, Franken was one of the earliest to point out the term *tradition*, and made a clear difference between it and other terms, such as types. His definition caused a shift toward pottery technological analysis.

Franken defined pottery traditions as an abstract notion of all the technological aspects of the pottery that is transmitted from one generation to another (1974: 16). The knowledge of the place and its resources is a prerequisite to understand the development of pottery traditions. To him, tradition indicates the product of a potmaking method within a single pottery workshop (1974: 16), which is "*one system of making one kind of pottery*" (1974: 20). However, one workshop may produce more than one tradition, though it is "*producing pottery according to a fixed pattern*". This fixed pattern defines the product of a workshop. The method of Franken draws a line between the local and the imported pottery in a single settlement.

In his most recent review of the concept tradition, Franken (1995: 98) reemphasizes the need to define pottery traditions as "*the basis for virtually all aspects of archaeological ceramic studies*". Under the assumption that pottery traditions emerge after a long-term experience with pottery production, he defines tradition "*by the study of recurring traits in pottery production or the constant*s" (ibid: 99).

Franken's method (1969, 1971, 1974, 1995 and Franken and Kalsbeek 1975) influenced the work of many young archaeologists since the early 1970s (van As 1984, 1992, London 1985, Salem 1998/99, van der Leeuw 1976). It is the idea of moving from the profile of the pottery to the profile of the potters (Glock 1975) that nowadays should characterize any pottery study. Pottery is not an abstract form of culture. It is made, distributed and used by people. It is important to analyse and study the human force behind it. One cannot neglect the role of the living traditional potters in creating a conceptual

framework for our understanding of the ancient pottery traditions (Glock 1982, 1983a, Longacre, ed 1991, London 1985, 1991a, Salem 1986, 1999b, 1998/99, 1999c, van As 1984, 1992). Only in a few cases can we find archaeologists apply the ethno-archaeological approach. Especially of concern was the application of technology while the process of enculturation of pottery craft is needed to be done (van der Kooij 2002: 19).

Finally, until this decade the common technological approach to the Early Bronze Age pottery traditions is restricted to clay and mineral resources with reference to mineral behaviours (See Philip and Baird, eds. 2000). Few attempts are made to move beyond the representation of Early Bronze Age pottery as an abstract form of cultural materials. Again, the analysis of pottery tradition is restricted to certain attributes. The technological aspect is limited to petrographic analysis and mainly to relate the clay and mineral resources to a certain region, and in certain extreme cases to point out the individual potter's skill in mastering clay resources (See Goren and Zuckermann 2000).

Therefore, many pottery studies had not fully explored pottery traditions as a means of reconstructing the EBI cultural traditions. Some studies, though, use pottery types and other materials in explaining EBI cultural change and chronology. In this regard, the following section outlines the major conclusions on the EBI cultural development in Palestine.

4   CHRONOLOGY AND NOMEN-CLATURE

Recent excavations changed the dominant views about the chronology and nomenclature of the EBI period. Since the late 1930s, many archaeologists followed the line of Wright (1937) in dividing the EBI (From now on EBI) into three sub periods (EBIA, EBIB, EBIC). Each period represents an individual culture. The distinction is based on the appearance or absence of three pottery types. Wright uses the Grey Burnished pottery to identify the earliest phase, the Red Burnished pottery defines the

second phase, and the Line Painted pottery defines the last one. Lately, many theories built on Wright's classification scheme collapsed in the wake of data produced by newly excavated sites. Tell el-Far'a produced two of these pottery types in the same stratum and so they belong to the same chronological phase (de Vaux 1971).

Kenyon (1979) agrees on dividing the period into three sub periods but prefers using different nomenclature. Kenyon believed that Palestine was developing towards urban life and the terms used by Wright (1937) and de Vaux (1971) create a confusion concerning the chronology and the cultural tradition of the period. As an alternative, she named the period Proto-Urban A, B, C. It should be noticed that Kenyon had based her sequence on pottery remains found in tomb contexts but not on the site stratigraphy. From that, she divided the period into three consecutive traditions. The Red Burnished pottery was associated with PUA, the Line Painted pottery was associated with PUB and the Grey Burnished pottery was associated with PUC. This division is different from Wright's, who believed that the Grey Burnished pottery belonged to an earlier date, or EBIA, which force him to revise the EBI chronology (1958). Kenyon believed that the EBI division has to be connected with newcomers, a term she often used to refer to new ethnic groups. She went further to assume that the identity of these groups could be recovered from the pottery.

De Vaux (1971) dated the period to an earlier time and used the term *Chalcolithique Superieur*. According to him, it was a period of drought that led to the abandonment of many villages in the south, forcing their inhabitants to move northward. Simultaneously, people who are of Armenoid or Anatolian origin came and settled in the middle regions and moved to the northern ones. What is important in his model is that de Vaux rejected Kenyon's division based on the association of the Grey Burnished and Red Burnished pottery together in one tomb context. However, the co-existence of the three traditions did not change much the rule that the Grey Burnished pottery is a tradition that spread in the

northern part of the region.

Among the many discussions of the 1970s, one should note Mirochedji's (1971) on phase EBID. The remains of Tell Umm Hammad in East Jordan distinguish this phase. The use of this term confused the terminology and chronology of the period. It brought attention towards the importance of understanding local pottery development in one region and a tradition that may be contemporary with another but is different from it.

It is agreed that the EBI should remain undivided or, if necessary, it should be divided into two phases only (Kempinski 1978, Esse 1984, Stager 1992). Strictly speaking, Esse's review calls for the abandonment of the term EBIC based on the existence of some known EBII pottery types within the stratigraphic contexts of EBIC settlements (Esse 1984). One should agree with him that the stratigraphy of many sites was not clear enough to reflect an accurate classification of the period (ibid). It is widely accepted nowadays that the EBIC is to be included in the EBII phase. The EBI should be divided into two phases. An earlier one which is more related to the Late Chalcolithic and the later one where the EBII culture emerged from.

In conclusion, the chronological division of the EBI suffers from a clear definition of the attributes that define the local from the extra-regional pottery traditions in a region. Some pottery traditions which may have been developed locally may be seen as a new tradition and so belonging to another phase during the EBI culture. To avoid such a weakness some studies attempted to do regional analysis the pottery origins. Amiran relied on the petrographic analysis of Tell Arad wares from Late Chalcolithic and EBI to conclude that the pottery is locally made and so it represents cultural continuity. These conclusions lead her to abandon the terms used by many archaeologists to distinguish EBI cultures.

In view of a few C-14 dates obtained from Palestinian sites, it is widely accepted today that the EBI period is divided into two phases extending from 3500 B. C. to 3000 B. C. These dates suggest a longer span rather than the 200 years known before (Stager 1992, Sebbane et al. 1993, Carmi et al. 1995, Dessel and Joffe 2000).

5 CONCLUSIONS

The challenging application of models to reconstruct the Jenin region settlement systems will be the subject of Chapter 2. The discussions into models and approaches to study ancient settlement systems will lead us to two approaches to looking at the ancient systems. In this discussion a debate between those who believe in a one-world system and local systems may continue. This debate does not affect regional studies, for it should be the basis for any research into settlement systems. So, these two approaches will complement each other, following Bintliff's advice that archaeologists should not follow a single model to explain a region trajectory.

Human experience in developing and planning their settlement systems varies from one place to another. It is subject to cause and effect mechanisms. There are common causes which affect cultural systems and also settlement systems. However, people react in a different way to these causes. In order for a human settlement system to develop, it needs its own merits and impetus. One region will be developing a cultural settlement different from another. However, there is still a general pattern that can be implied. Each one of the micro-systems will merge with a large one in a consecutive process to reach a global system. Therefore, there are two major levels of change: political and cultural.

Political change is rapid and revolutionary, bounded by power and wealth. Meanwhile, cultural levels are very slow and limited. Political changes may not lead to cultural changes, but they may influence the settlement systems. The example in Chapter 2 of the Jenin chiefdom illustrates this point. The change of leadership does not automatically lead to change in the life style of the peasants. This is because village communities live in a same degree of

isolation and are less affected by changes surrounding them. External factors, political changes, may affect them in the end but on a much slower level than urban centers. Therefore, while large political systems collapse, village communities continue their life normally through their ways of surviving major crises, and so being capable of re-establishing themselves and adapting to the space they know very well. Also, village communities are more attached to traditional ways of living. They keep traditions in part and are concerned less with change. In such cultural conservatism, the ancestral past plays a great force in shaping the present way of life. The population cares more for its daily needs and managing its ongoing life ways, and has less time to consider change. They learn how to survive.

To understand these communities in the past one has to make a detailed analysis of the settlement system and economy by moving from the specific to the more general details. Starting from a generalized settlement system will move beyond the capacity of an individual research and will remain a matter of a speculation. In generalized theoretical frameworks attempts are made to study the mobility of cultural items between world systems. This is a difficult task. Even with scientific advances and the application of various techniques such as x-ray diffraction and petrographic analysis, it is still difficult to see movable items as a product of one system. Human communities create diversities. Therefore, they develop diverse cultural systems.

On the other hand, it is an almost impossible mission to reconstruct regional and cultural boundaries. Boundaries are flexible, because innovations and change may lead to high mobility of cultural norms (Reisenleitner 1998, David and Kramer 2001). No one region stands in isolation but is open to free systems via trade and other means. There is a mixture of local system continuity and global cultural dynamics leading to change.

In the end, to understand the Early Bronze Age communities we should first reconstruct the settlement systems of individual regions and then

see the interaction of these small-scale systems in a general one. A site catchment analysis approach will give us a great deal of information by relating settlements to their major economic resources and so to the more general regional system.

Therefore, this thesis is divided into three sections. The first is the application of models of local regional approach, which will be covered in Chapter 2. My selection of Tell Jenin itself as a research site is based on two factors.

First, the site was excavated by Birzeit University, which allows me to work on the final publication through direct access to the archival and excavated materials. This privilege would not be possible in working with materials from other excavations.

Second, the Tell Jenin excavations indicate that the settlement is one of the important centres for the EBI in the region south of the Marj Ibn 'Amir. Although the excavations were limited in time and space, they revealed remains of some typical EBI architectural elements such as the apsidal house.

To understand how the Jenin Region cultural system is developing, a review of the published historical, archaeological and ethnographic data was made. The chapter then highlights Tell Jenin's inter-relationships with the cultural landscape by focusing on the EBI cultural connection between the settlement and other neighbouring settlements. One major aim of this chapter is to reconstruct the settlement systems of the Jenin region in the transition periods within the Early Bronze Age. To do so, a test is made to verify the models presented above and the results will be given in Chapter 2 along the reconstruction of the Jenin regional systems.

Chapter 3 presents the second section through the analysis of first-hand data excavated from Tell Jenin. A detailed stratigraphy of the EBI is presented. It is then followed by a phasing summary of the site. The section on the history of Tell Jenin is relevant to our understanding of the abandonment and continuity issue of the

various strata. These components will provide an example of a stratified EBI village community in the Jenin region. .

Because no pottery study can be isolated from the site stratigraphy, the micro stratigraphy of the site provides a precise spatial context and a specific time framework. Contrariwise, imprecise stratigraphy leads to misleading conclusions in the development of pottery traditions. The method followed in this research is based on first analysing the context, or the site stratigraphy. The content, pottery, is studied after that. This method deviates from some techniques and practices that attempt to construct the site stratigraphy by only following the pottery types. By such a method, the phases distinguished in the site may or may not be clustered within a single cultural tradition. The abstract presentations of isolated pottery traits cannot be self-defining indices of cultural tradition. Pottery traditions comprising all traits related to pottery from a more advanced indicator of the stability and change of the related cultural tradition.

The third section is contained in Chapter 4, which presents the pottery traditions of Tell Jenin. The pottery is presented in term of types, where one or more types may represent a pottery tradition. A summary of the traditions following the type analysis is made. One way to identify traditions is by viewing the pottery traditions as a way of maintaining and continuing village community life.

Finally, Chapter 5 content is the conclusions from the preceding three sections. Investigating these sections together leads to reconstructing the overall settlement systems in the Jenin region. The settlement systems are formed by small states or often refer to as the *city–states*. The *state* is an organisational pattern of a place based on resource utilisation and distribution. It will be argue that the early Bronze Age states are similar to the local chiefdom system found during the Late Ottoman period. The Early Bronze Age I system emerged out of the late Chalcolithic use of the same place. Within this framework, it can be assumed that Tell Jenin region forms a settlement nucleus for the successive long term

occupation of same places. These places were never abandoned. The common settlement trend is to shift occupation location within them. Then, the Early Bronze Age is a result of this continuous cultural behaviour.