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Political Centralization in the Syrian Jezira during the 3rd Millennium: A Case Study in Settlement Hierarchy[1]

Introduction

By the mid-3rd Millennium B.C. a massive urban development came into prominence in the dry farming belt of Northern Mesopotamia. While irrigation is the only practical agricultural strategy in the arid south, large areas of Northern Mesopotamia receive enough rainfall to facilitate an extremely productive dry farming regime. Whereas the high agricultural productivity enabled by artificial water supply with channel networks has been considered a decisive variable in the development of complexity in the south, it appears that the northern dry farming plains also had the potential to produce an agricultural surplus extensive enough to support endogenous urban development.

Within this process a distinction can be made between two separate archaeological cultures that developed in the north: the so-called *Nineveh V culture* in the eastern part from the basin of the River Tigris to the upper Khabour and the so-called *Kranzhügelkultur* (circular walled site culture) in the west, from Wadi Zergan in the upper Khabour to Wadi Hammar in the upper Balikh basin and in the plains north and south of Jebel ʾAbd al-ʾAziz.[2]

The urban sites in Northern Mesopotamia and Syria show cultural traits typical of the Early Dynastic II and III epochs of Southern Mesopotamia. In centres like Assur, Tell Chuera or Mari we find in the visual arts the reflections of a horizon of style that must have been influenced directly by the south. Also writing emerged in the *Early Jezira II* period in Northern Mesopotamia, as evidenced by the

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[2] Orthmann (1986, 62).

archives of Ebla/Tell Mardikh[3] and Tell Beydar.[4] They document for the first time that this part of Syria adopted cuneiform writing for its "Northwest Semitic" language. In particular it is interesting to see a construction of a *temenos* like oval wall around the temple terrace in Tell Mozan[5] that parallels identical buildings in Khafaji or Tell Obaid.

Simultaneously, political organisation in Southern Mesopotamia was transformed. The first palaces appeared during the transition from the late Early Dynastic II to the beginning of the Early Dynastic IIIa period. The change from temple to secular rule marked a radical realignment of the socio-political structure. The historical records, such as the stele of the vultures, which, with its visual representations of phalanx-formations testifies the full development of a military institution, provide evidence that conflict among city-states became endemic. Unlike the Early Bronze Age urban sites of the southern Mesopotamian alluvial plains, which spread over areas of 400 and more hectares, those of the north appear to reach a maximum size of 150 hectares. The growth of these is associated with the construction of city walls[6] and large monumental buildings.[7]

Since the beginning of the 20th century an enormous number of excavations and surveys have been conducted in the Jezira region. More recently, these were followed by environmental reconstructions, interpretations of satellite images and other types of studies. For our work we have considered the published material, focusing particularly on the middle centuries of the 3rd Millennium B.C., before the rise of the Akkadian empire. In this article, based on the archaeological records, we will develop an analysis in order to give an integrated picture of the political complexity as visible through settlement hierarchy for the specific period called Early Jezira III in the Northern Mesopotamian Jezira from Wadi Hammar to the eastern extreme of the upper Khabour basin. Moreover, we will attempt to highlight the form and the level of territorial integration in this specific area.

In interpreting the settlement data from Northern Mesopotamia we decided to apply Vincas Steponaitis' model to analyse political centralisation in pre-market societies.[8] According to this approach, it is necessary to relate information regarding *site size* to data concerning *site catchment productivity* in the study of settlement systems. The application of this specific model opens new ways in interpreting the archaeological data for the reconstruction of the political situation of the 3rd Millennium B.C. in the Syrian Jezira.

[3] Matthiae (1995, 241 pp.).
[4] Bretschneider - Lebeau - Talon - van Lerberghe (1997, 179 pp.).
[5] Dohmann-Pfälzner - Pfälzner (2002).
[6] Weiss (1986, 83).
[7] Bretschneider - Jans (1997, 68 pp.).
[8] Steponaitis (1981).

Geographical Setting

The Jezira is an undulating plateau stretching between the Tigris and the Euphrates in South-Eastern Turkey, Northern Syria, and North-Western Iraq (Fig. 1). Along its course it maintains an altitude of about 300–450 m above sea level, being interrupted by two major elevations: Jebel ʾAbd al-ʾAziz and Jebel Sinjar, which respectively rise up to 877 and 1368 meters. An open, flat steppe country characterises this region, which receives sufficient rainfall to support a subsistence economy based on cereal dry farming and pastoralism. A semi-arid climate with long, dry, hot summers and rainy cool winters dominates the Jezira. In particular the north-eastern zone lying within the moist steppe zone[9] receives a mean of 350–500 mm of rainfall per year. The region to the south of Hassekeh in Syria, lying at or beyond the limits of rain-fed cultivation, receives an average precipitation of 200–350 mm.

In this study we will focus on the north-eastern part of Syria, an area that extends approximately from the archaeological site of Tell Chuera, in the basin of Wadi Hammar, to the site of Tell Hamoukar, on the eastern edge of the Khabour triangle: a broad area which offers relatively good conditions for dry-farming agriculture. Today land use in this part of Syria is dominated by cereal monoculture, especially wheat and barley. The dearth of field evidence of irrigation systems in the rain-fed parts of the Jezira suggests that this region was predominantly dry-farmed also during the 3rd Millennium B.C.[10] In this zone, yields are generally low, but because large areas are available for farming gross production may be high, so that traditionally the Jezira has a reputation as the granary of the Near East.

Theoretical and methodological framework

Political centralisation and territorial integration are two of the several elements involved in the formation of stratified societies. The state, which is of primary interest for our case, is the formalisation of the institutional socio-economic division, called classes, and the monopolisation of the legitimised physical force in the hands of a ruler or governing institution. As considered by evolutionary approaches[11] this kind of social organisation and form of accumulating power is the ultimate step in the process of political centralisation in territorial as well as in social sense.

Following Nicholas' definition of power as "control over resources, whether human or material ..."[12], Vincas Steponaitis[13] proposes that "social power in a

[9] Guest (1966, 71–72).
[10] Weiss (1986, 72, 82).
[11] Service (1975).
[12] Nicholas (1966, 52).
[13] Steponaitis (1982, 322–323).

formal political or administrative hierarchy is manifested in the officeholder's access to some specified portion of his subordinates' surplus goods and labour, usually extracted in form of tribute".[14] The surplus in pre-capitalistic societies emerges basically in the transformation of the landscape into a renewable means of production through farming. This condition leads to the endeavour to control fertile lands and the most important productive force, the human being. For this reason, in pre-mercantile economic systems greater settlements are to be expected in the vicinity of resource rich places or highly productive zones in order to maximise surplus benefits.

The exaction of tributes demands a hierarchically structured decision-making organisation[15] and a political division of the population over the territory. Richard Adams[16] defines the process of centralisation as a stepped gaining of power for a political unit in relation to others: single units gradually acquire more and more influence so that they can take decisions that are binding on the rest. Each time this growth sequence of centralisation is repeated: additional levels of political control emerge in the hierarchy and more inclusive political units result. In ethnographical and ethnohistorical records we find societies with a centralised administrative organisation, which can be categorised according to the number of the existing hierarchical decision levels. According to Johnson[17] these seem to be directly related to the complexity of the society (Fig. 2). By combining these data we can assume that an increasing political centralisation must be expressed in form of differentiated levels of administrative functions and political units in a territory.

The spatial concentration of administrative services together with the secondary production sector results in the agglomeration of non-food-producing full-time specialists, a process which leads to the formation of centres and eventually to urban sites. The dependency of the urban settlements on their *hinterland*, which provides them with the basic consumption goods, implies the development of a hegemonic structure that can extend from the political centre over a broader peripheral area including smaller towns and villages. In the archaeological records urban centres can be recognised through the presence of artisan quarters, central depots, or temple structures which exceed the necessities of a smaller communal group. The discovery of these material indicators depends mostly on the conditions of their conservation and on their visibility made possible by extensive excavations. Unfortunately, for our intention,

[14] The tributes are constituted by all goods and services exploited, which include comestibles, labour invested in public architecture, craft items, and labour in military service. Archaeologically, the most visible manifestation of these tributes is revealed by the existence of monumental architecture.

[15] Johnson (1973, 3).

[16] Adams (1975, 206–217).

[17] Johnson (1973, 4–12).

these elements are difficult to measure, which makes comparison of different degrees of political complexity arduous to accomplish.

Therefore, Vincas Steponaitis' approach consists in an estimation of relative quantities of comestibles controlled as tributes at different administrative levels in an early stratified society.[18] He supposes that food obtained as tribute is used to support and feed the population of the "non-food-producing specialists, who [...] are for the most part connected with the political establishment". In this sense, systematic differences in the availability of food in sites are related to respective levels in the administrative hierarchy, a fact that must result in systematic differences in the number of people living in settlements. Steponaitis assumes that the number of inhabitants is directly reflected by the site sizes.[19] The settlement size alone, however, cannot be taken as indicative for any hierarchical level because villages, i.e. rural settlements, can also enormously increase their dimensions due to a high agricultural productivity in their surroundings, a circumstance that does not demand any form of external tribute flows for urban settlement growth. Based on the work of Elizabeth Brumfiel[20], Steponaitis postulates that settlements can exceed the ideal site size provided by the carrying capacity of the *hinterland* through extensive tribute inputs. These sites, which will be called *centres* in our work, correspond to higher levels in the administrative and political hierarchy respectively. Consequently, rank size levels in a settlement system will be defined through the correlation of *site size* together with *site catchment productivity*. In fact, only by relating these two factors will it be possible to draw a likely picture of the settlement hierarchy in a given territory and subsequently make a statement about the degree of political complexity for a specific area.[21]

In our work we applied Steponaitis' model on the Khabour plain in order to form an impression of the degree of political complexity and territorial integration in the course of the 3rd Millennium B.C. It must be also emphasised, with Steponaitis, that "the settlement model [...] will in no sense be comprehensive, for it will not encompass all possible factors that influence the configuration of a settlement hierarchy in such societies".[22]

[18] Steponaitis (1981, 321-324).

[19] For urban centers population is assumed to be directly proportional to site size minus 15 % that is taken up by public architecture, Steponaitis (1981, 334, 339).

[20] Brumfiel (1976, 247). Elizabeth Brumfiel detected rank size levels in the formative central Mexican settlement systems, as nearly parallel proportional raising lines on a scatter diagram that correlates site size with site catchment productivity.

[21] For Steponaitis (1981) this calls into question the applicability to chiefdom and simple state societies of the technique based on Central Place Theory, where modalities in a histogram of site size frequencies are interpreted as levels in a hierarchy. See also Johnson (1977).

[22] Steponaitis (1981, 321).

Sources of our Data

For our regional settlement analysis, first of all we need to determine the size of each settlement. In particular, we will concentrate on the period identified in the material culture by the so called undecorated *Stone* or *Metallic Ware*.[23] In order to achieve our goal, we have to consider the various and numerous surveys, excavations and other studies that have been conducted since the beginning of the 20th century. Following this, we will briefly mention the most important works that have proved more interesting and useful to complete our study.

Baron Max Freiherr von Oppenheim recorded the first important observations about settlements in the North-Eastern Jezira on his riding excursions in 1911–1913 and 1929. In particular, he collected information regarding site size and morphology of the so-called *Kranzhügel* settlements. Ursula Moortgart-Correns[24] made parts of his unpublished diaries available after his death. The first important excavation in our study area was conducted by Anton Moortgart starting from the middle of the 1950s in the site of Tell Chuera.[25] Later, the works were continued by his wife, Ursula Moortgart-Correns, by Winfred Orthmann, and by Jan Waalke Meyer.[26]

Diederik Meijer, from the University of Amsterdam, carried out the first intensive survey between 1976 and 1979.[27] He concentrated his investigation on the area to the east of Wadi Djaghdjagh. Since 1976, David Oates has been conducting excavations in Tell Brak. Very recently, in 2001, a new publication appeared with the aim of drawing a comprehensive picture of the 3rd Millennium materials found in Tell Brak during fourteen campaigns.[28] The area around this settlement has also been surveyed thanks to Eidem and Warburton.[29]

In 1984 Giorgio and Marilyn Buccellati[30] began their excavation project in Tell Mozan, being joined later by Dohmann-Pfälzner and Pfälzner.[31] Almost contemporarily "The Tell Leilan Project", directed by Harvey Weiss, combined excavations with a multi-stage programme of archaeological surveys in the region around this site.[32] A preliminary reconnaissance identified sites within a 15 km radius from Leilan.[33]

[23] Kühne (1976); Oates - Oates - McDonald (2001).
[24] Moortgart-Correns (1972, 26).
[25] Moortgart (1965 and 1967).
[26] Moortgart-Correns (1988); Orthmann - Hempelmann - Klein - C. Kühne - Novak - Pruß - Vila - Weicken - Wener (1995).
[27] Meijer (1986).
[28] Oates - Oates - McDonald (2001).
[29] Eidem - Warburton (1996).
[30] Buccellati - Kelly-Buccellati (1988 and 1999).
[31] Dohmann-Pfälzner - Pfälzner (1999, 2000, 2001 and 2002).
[32] Stein - Wattenmaker (1990).
[33] Weiss (1986).

Under the direction of Frank Hole[34], the Yale University Khabour Basin Project conducted four archaeological surveys from 1988 to 1997 in the Jebel 'Abd al-'Aziz region. This work documented more than 130 archaeological sites: most of them were identified for the first time. During the 1990s even more scholars concentrated their efforts on the Khabour region. Bertille Lyonnet[35] held a specific survey program on the western part of the upper Khabour, managing to increase the number of sites known for their 3rd Millennium occupation. Since 1991 an European-Syrian joined team led by Marc Lebeau has investigated the site of Tell Beydar. By the end of the 1990s Tony Wilkinson was also involved in the "Tell Beydar project", conducting a two-year survey around this *Kranzhügel* settlement.[36] His work focused on the occupation sequence for all the visible sites within a 12-km radius from Beydar and the better analysis of offsite features such as the so called "hollow lines". From 1999 the Syrian-American Hamoukar Expedition started excavations and intensive surveys around the site of Tell Hamoukar, a project still in progress.[37]

Calculating Site Catchment Productivity

Site catchment productivity is defined as the maximum of comestibles produced in the agricultural sustaining area of a settlement. We assume that in the course of the 3rd Millennium B.C. we do not face any elaborate irrigation system in the rain-fed part of the Syrian Jezira, so that, following Harvey Weiss[38], the region was dominantly dry farmed. Farming is not likely to have varied much from contemporary traditional practices, although obviously the agricultural activities nowadays are embedded in a socio-economic system totally different from what we suppose for the early proto-historic times.

The site catchment boundaries are estimated through the so-called "shallow hollows" or "soil marks". Van Liere and Lauffray[39] identified them for the first time in the 1950s by studying some aerial photographs (Fig. 3). They counted a total of 573 lines for 106 sites, about 5 lines per site. Commonly these hollows stretch from a minimum of 0.6 km to a maximum of 20 km, for an average length of 3.8 km[40], and they can cover over 100 m across and 2 m in depth.[41] Since they cross the terrain mostly radiating from sites, they are thought to be courses of former routes resulted from the sustained repeated passage of humans and animals along them.[42] Also the use of chariots in the 3rd Millennium B.C. is docu-

[34] Hole (1997).
[35] Lyonnet (2000).
[36] Wilkinson (2000a and 2000b).
[37] Gibson et al. (2002); Ur (2002).
[38] Weiss (1986, 82).
[39] Van Liere and Lauffray (1954).
[40] McClellan - Grayson - Ogleby (2000, 137).
[41] Ball - Tucker - Wilkinson (1989, 15).
[42] Van Liere - Lauffray (1954); Wilkinson (1994, 492).

mented through the iconographical record.[43] Moreover, in the case in which they do not lead to a nearby site, linking two settlements, they can be considered as the print mark of the surrounding cultivation area: the *site catchment*. A good example is given by the Tell Brak situation (Fig. 4), where we cannot see almost any settlements in the area crossed by the holloways. Another hypothesis suggests that they were run-off channels used for water supply.[44] However, this idea seems unlikely for topographical reasons, since they cross over run-ups and even over watersheds.[45] It might appear difficult to define when they were formed and in which period they were in use, but since most of them run from sites occupied in the Early Bronze Age it seems probable they were in use at least starting from this time, possibly even some earlier.

We based our calculation of site catchment mostly on the Van Liere and Lauffray map. However, we do know that for some specific regions and limited areas these holloways have been studied more precisely also thanks to the analysis of satellite images. A good example of this new amount of data is presented by Tony Wilkinson's survey for the region around Tell Beydar[46], in which three new holloways have been identified in comparison with the van Liere and Lauffray map.[47]

The gained data on *site catchment* have to be modified because of the decreasing productivity per hectare from the north-eastern to the south-western part of the Jezira, which we can still observe today. This decrease is due to the variations in annual rainfall. For our region the amount of rain ranges from 200 mm, for the southern part, to 500 mm for the northernmost corner (Fig. 5). This aspect obviously has to be considered as a factor that deeply influences the total *site catchment productivity*.[48] The decrease of agricultural productivity per hectare is based on modern data recorded from 1986 to 1989 for unirrigated wheat yields, expressed in tonnes, for three different localities of the Khabour region: Qamishli, Ras al-Ain, and Hassakeh (Fig. 6). These modern cities lie in three different annual rainfall zones: from 450 mm to 250 mm. Assuming that the ratio between the productivities of different zones has not mutated from today's situation, we calculated the following factors to correlate each area (Fig. 7). In the area considered, Qamishli is the locality with the relative highest produc-

[43] Bretschneider - Jans (1998).

[44] McClellan - Porter (1997, 52-55); McClellan - Grayson - Ogleby (2000, 137 pp.).

[45] Wilkinson (1993); Wilkinson (1994, 492).

[46] Wilkinson (2000b).

[47] Other methods to calculate *site catchment* have been recently applied. For example, Kouchoukos (1998, 389 pp.), in his Ph.D. dissertation, defines the limits of a site's sustaining area by evaluating the gradient of salinity of the soil. The analysis of the soil sediments is obtained through the correlation of digital terrain data and interpretation of satellite images.

[48] Another factor that is not considered in our work, but that deeply influences the agricultural productivity, is the soil quality. The reader must be aware of the fact that this additional data would modify the results of our study.

tion rate, 100 %, meaning that we can assume its production per cultivated hectare as factor 1. The other factors are obtained by calculating what percentage of wheat was produced relative to Qamishli yields. Finally we multiply the agricultural sustaining area of each site (expressed in hectares) by these factors and obtain the index of each *site catchment productivity*.

An example will better explain this calculation procedure. We take the case of Tell Beydar. This settlement receives an amount of rainfall of 300–350 mm per year. This means that Beydar belongs to the zone corresponding to production factor 0.8275. The agricultural sustaining area for Tell Beydar is about 2400 hectares. Multiplying 2400 hectares by 0.8275 we obtain the index of its site catchment productivity. In this case it results in index 1986.

Chronology

To analyse the evolution of settlement systems and hierarchies during the early and mid-3rd Millennium it is important to handle a more or less comfortable period system based on pottery typology and stratigraphy. In the preparation of our paper we have often faced difficulties in dealing with the different sources in literature. First of all, it was problematic to deal with the specific ceramic terminology as nearly the same finds are frequently called with different names on each site. The result of this, sometimes, chaotic situation is a difficulty in correlating regional chronological data. To solve this problem we decided to adopt the "Early-Jezira-Chronology" suggested by Peter Pfälzner and Marc Lebeau.[49] Time and new studies will probably modify it, but since it turned out to be the latest proposed periodisation, we used it for our paper and tried to co-ordinate all our data according to it. Here follows a brief chronological review of the three main periods of the first centuries of the 3rd Millennium B.C. before the rise of the Akkadian empire.

The EJ I period[50] is characterized by the presence of the so-called *Nineveh V painted* pottery and later by the first finds of the *Nineveh V incised* ceramic.[51] Tell Leilan presents the longest and best described sequence for the 3rd Millennium finds. In Leilan this period is recognised in phase *IIIa–c*.[52] In Tell Brak EJ I corresponds to phase J and to the beginning of phase K.[53] However, the presence of painted Nineveh V is much less documented than in Leilan. In the eastern region, Chuera is the largest and best excavated *Kranzhügel* settlement. On the basis of the available material its occupation during the EJ I cannot be proved.[54] Also the investigations of Tell Beydar confirm this trend.

[49] Pfälzner (1998); Lebeau - Pruss - Roaf - Rova (2000, 167 pp.).
[50] In the following text we will use the abriviation EJ for *Early Jezira*.
[51] Roaf/Killick (1987).
[52] Weiss (1986, Figure 8).
[53] Oates - Oates - McDonald (2001, Table 1).
[54] Still no finds of *Nineveh V painted* pottery can be verified, Kühne (1976).

In the following period, EJ II, the ceramic belonging to the *Nineveh V* tradition is now characterised by an incised and very highly elaborate excised decoration while the painted production has practically ended. It seems worth noting that the pottery finds are dominated by bowl and beaker forms. This new type is well documented and easily recognisable among a great number of sites in the Jezira region. In fact late *Nineveh V* pottery appears very uniform in regard to its forms and decoration. The excised *Nineveh V* ceramic defines a cultural horizon especially for the western area of the considered region. In Tell Leilan this pottery type is identified with the local phase IIId, contemporary to the first noticeable growth of the settlement.[55] In Tell Brak late *Nineveh V* pottery is characteristic of phase K, and it is found over the whole mound.[56] The first appearance of *Metallic Ware* overlaps the late *Nineveh V incised-excised* pottery. Particularly in the outer city of Mozan, in the tomb of two adults, earlier forms of *Metallic ware* conical cups were found associated with a number of later grooved and incised *Nineveh V* vessels.[57] EJ II is identified in Tell Chuera with phase B and in Tell Beydar with phase II.[58]

In the EJ III period the pottery finds present a new dominating type: the *Metallic Ware*. This is found across the settlements of the Western region of the Khabour plain. It is especially recognised in phase III in Beydar and 1C/D in Chuera.[59] In Leilan, during urbanised period II, decorated ceramics disappeared, and were replaced by mass-produced, highly standardised undecorated vessels.[60] In Tell Brak this pottery type is called *Stone Ware*, and corresponds to local phase L.[61] The production of this particular pottery type continues into the EJ IV period, but our study does not take these further developments into consideration.

Settlement Patterns at the prelude of State Formation in EJ I and EJ II

In the following lines we will briefly discuss the dynamics of the settlement pattern during the EJ I and EJ II periods. For this time span we are not able to present any new evaluation different from what is already published. In fact, the available material on the sites is too scarce to attempt any application of Steponaitis' settlement method, in particular because the *Nineveh V* pottery is often handled as a whole temporal horizon, without dividing it into its specific phases. Only recently has Japanese scholar Numoto[62] proposed a finer chronological subdivision of the *Nineveh V* pottery.

55 Weiss (1990a, 205 pp.).
56 Oates - Oates - McDonald (2001, 191).
57 Kelly-Buccellati (1990, 130).
58 Lebeau - Pruss - Roaf - Rova (2000, Table III).
59 Lebeau - Pruss - Roaf - Rova (2000, Table III).
60 Weiss (1986, Figure 8).
61 Oates - Oates - McDonald (2001, Table 1).
62 Numoto (1991 and 1992).

EJ I - The Preurban Period

When the Uruk-system declined, the upper Khabour plain remained isolated from Southern Mesopotamia for about 300 years. Schwartz[63] emphasises that no clear evidence for a state formation is discernible during the *Nineveh V* period. According to him, the lower social differentiation existing in the burial customs of the period, which do not exhibit any kind of extensive differences in wealth and status like the contemporary cemeteries in Southern Mesopotamia, only provides arguments for a political complexity typical of chiefdom societies.[64]

The results of the survey programme in the region around Tell Leilan reveal the emergence of a differentiated system of small centres and rural settlements.[65] With an extension of about 15 hectares each, Tell Leilan and Do Gir were the two largest sites, the others being smaller than 10 hectares. This pre-urban settlement configuration in the area around Tell Leilan is characterised by a low overall level of regional integration, divided into at least two possible competing local centres with their surrounding villages.

The excavations and surveys in Tell Brak highlight a different pattern. The *Nineveh V* pottery is spread across most of the main mound, extending over an area of about 40 hectares.[66] This nearly urban site dimension is opposed to the image gained by the Leilan settlement system. So we have to consider the possibility of very particular developments in the different parts of the Khabour triangle. In this sense, according to the data presented by Kouchoukos, it seems that the settlements of the western area tend to be relatively small, attesting on an average of only 0.4 ha each, which suggests that they might have been occupied only seasonally.[67]

EJ II - The Protourban Period

At the end of the EJ I period, settlements were radically enlarged. This process was for the first time described through occupation phase IIId in Tell Leilan, when the site expanded enormously from 15 to 75 hectares.[68] This goes parallel to a notable change in the architecture on the acropolis. While in the former phase IIIc we still find domestic structures on it, now a block of rectangular depots is present. The reception and distribution of goods was in the hands of a central administration, as reflected by 188 broken door and jar sealings retrieved within the storerooms.

[63] Schwartz (1987, 94).
[64] Schwartz (1986).
[65] Stein - Wattenmaker (1990, 12 pp.).
[66] Oates - Oates - McDonald (2001, 380).
[67] Kouchoukos (1998, 373 pp.).
[68] Weiss (1990a, 194); Weiss (1990b).

Surface collections confirm this trend of urban growth also for the site of Tell Hamoukar, which reaches an extraordinary size of 105 hectares.[69] As already mentioned, Tell Brak maintains a proto-urban configuration during the *Nineveh V* period. This is evidenced also by the findings of late *Nineveh V* pottery in different areas of the excavations. On the basis of these data an occupation of at least 40 hectares for this period is hypothesised.[70] In the northern area, Tell Mozan with its extension of a minimum of 30 hectares presents some new interesting architectural features. Outstanding is a brick terrace with a monumental ramp situated on top of the high mound. It is interpreted to have been the foundation of an early temple in association with late *Nineveh V* pottery.[71]

The *Kranzhügel* sites, like Chuera and Beydar, testify that also in the western part of the Jezira begins an urbanisation process which, however, cannot yet be described due to the scarcity of data. In our opinion, the extraordinary systematic site plan of the circular walled settlements is possibly due to a spontaneous urban development on "virgin soil" without any essential previous occupation. This contrasts with the situation of the eastern part of the Jezira, where we face a longer settlement history, a fact that could account for the more irregular morphology of the sites.

In explaining the increasing political complexity along the Khabour plain during the EJ II period, Harvey Weiss[72] argues from an ecological point of view. He underlines that the climatic conditions were marked by reduced precipitations on the Anatolian plateau, as evidenced by the irregularities in the Tur Abdin stream flows. According to him, the centralised administered urban economies may have presented adaptive advantages by facilitating maximum agricultural production under increased variability of rainfall.

Political centralisation and state foundation in EJ III

Harvey Weiss[73] proposes that starting from the end of the EJ II period the settlement pattern in the Khabour plain is radically altered with the sudden emergence of indigenous state-level society. Our study, dealing with the site hierarchy of the region, confirms his statement, in particular regarding the north-eastern extreme of the Khabour basin.

The analysis of the political centralisation of the area in question (Fig. 9), for which 47 representative sites were taken into consideration (Fig. 8), reveals four separate rank size levels. The lowest hierarchical level is constituted by rural settlements, called *Villages*, with their population sustained only by what is pro-

[69] Ur (2002, 68).
[70] Oates/Oates/McDonald (2001, 191).
[71] Buccellati/Kelly-Buccellati (1999, 14); Dohmann-Pfälzner/Pfälzner (1999, 28).
[72] Weiss et al. (1993, 995 pp.).
[73] Weiss et al. (1993, 996).

duced in their own site catchment. The three upper levels correspond to the category of *Centre*, which is subdivided according to the extension of its political influence in *Major Regional*, *Regional*, and *Local Centre*. The subsistence economy of the *Centres* is characterised by additional tribute inputs coming from outside their closer catchment area.

Plotting the sites on the topographic map (Fig. 10), we completed it with additional rural settlements, differentiating them into smaller and larger villages, in order to give a more likely picture of the general settlement distribution in the considered area. Still, we face an empty space particularly for the area to the North of the Jebel Sinjar and to the easternmost extreme of the Syrian Jezira, around Tell Hamoukar, since this region has not yet been systematically surveyed. We can assume that this zone must have been populated also during the EJ III period, as the old Van Liere and Lauffray map locates a lot of prominent sites in the area, such as Tell Rumaylan or Tell Mosti.[74] Any new data or further study will therefore modify our preliminary interpretation.

First of all, in our work, we detected a general pattern in which sites belonging to the category of *Centre* are present only in the region to the north of Jebel ʾAbd al-ʾAziz and Jebel Sinjar. Accordingly, it seems that the process of political centralisation was "determined" by the geographical situation of the upper Khabour basin, an area that receives enough rainfall to develop an agricultural production independent of any artificial water supply. This preliminary result is surprisingly in contradiction to what is traditionally assumed to be the decisive factor for the development of stratified societies in Southern Mesopotamia, i.e. irrigation farming.

Analysing the distribution of the settlements, we notice that, on the one hand, the *Regional Centres* are all located in the north-eastern sector of our studied area, evidencing a three- to four-tiered site hierarchy. On the other hand, the south-western part and the central region around the confluence of the upper Khabour is dominated only by *Local Centres*, which means that we face here only a two-tiered site hierarchy. Most of the western settlements correspond in their morphological characteristics to the *Kranzhügel* type.

Starting the description of the settlement pattern with the westernmost area, Tell Chuera is the largest site with an extension of 65 hectares[75], followed by the eastern neighbour Tell Khanzir, which covers an area of 33 hectares.[76] Further south, the circular walled sites of Mabtuh Gharbi, with 28, and Mabtuh Sharqi, with 45 hectares, both corresponding to the category of *Local Centre,* are placed along the northern piedmont of the Jebel ʾAbd al-ʾAziz.[77] Their locations are probably related to the higher rainfall precipitation on this mountain which,

[74] Van Liere/Lauffray (1954, map 1).
[75] Orthmann (1990, 11).
[76] Kouchoukos (1998, 369).
[77] Kouchoukos (1998, 368).

due to the lack of a river drainage, possibly supplied and seasonally raised the groundwater level. Following Kouchoukos[78], in this area the hierarchical disposition of the settlements presents no evidence for a "network of so called secondary settlements".

According to the results of the survey conducted by Tony Wilkinson[79], in the basin of Wadi Awedj one can notice a pattern that "is remarkably linear, with tells being evenly spaced about every 3 km." Tell Beydar, the easternmost example of the *Kranzhügel* type, is the only *Local Centre*, with about 28 hectares[80], while all the other settlements fall into the category of *Village*. The contemporary tablets found on the acropolis of Tell Beydar record that this site was under the dependence of the EN of *Nagar*, a kingdom usually identified with the archaeological site of Tell Brak.[81] On the basis of our data, we have come to a more contradictory result since Tell Brak is one of three *Local Centres* that are located relatively close to each other along Wadi Jaghjagh.[82] This provides no evidence that Tell Brak exercised a major political influence on a regional scale, which is, instead, suggested by the historical documents. It is also worth noting that there is still no information concerning the presence of any outer city wall either in Tell Brak, Tell Hamidi, or Tell Barri, a feature that seems to us necessary for the protection of the capital of a major political unit like that one dealt with in the written records. In this sense it seems interesting to emphasise that Mirjo Salvini[83] suggests a location for *Nagar* further north in the Jezira rather than with Tell Brak.[84]

As previously mentioned, the pattern in the north-eastern extreme is more complex. At the moment, the situation around Tell Leilan is probably the best documented one. Here, the major site, Tell Leilan, reached an extension of 75 hectares inside the city wall, which was constructed at the beginning of phase IIa.[85] For the EJ III period, the Tell Leilan regional survey[86] registered a growth in the number of settlements as well as in their dimensions. This expan-

[78] Kouchoukos (1998, 394).
[79] Wilkinson (2000a, 14).
[80] Lebeau (1997, 9).
[81] Matthews - Eidem (1993, 205-206); Van Lerberghe (1996); Oates - Oates - McDonald (2001, 99 pp.).
[82] The distribution of the sites along wadi Jaghjagh seems to be due to the geographical situation, since this stream is thought to have been a perennial river in former times, Kühne personal communication.
[83] Salvini (1998, 110).
[84] Even more puzzling is a treaty between the kings of Apum and Kahat in which the reign of Kahat, identical with the modern site of Tell Barri, is defined as the land "between Nawar and Nawar". So there were possibly two contemporary locations with the name of *Nagar*. One might be possibly identified with Tell Brak, while the second was located to the north of Tell Barri, Salvini (1998, 109 pp.).
[85] Weiss (1990a, 193).
[86] Stein - Wattenmaker (1990, 15).

sion is more evident at the larger sites, but also villages show an enlargement. With the extension of the settlement size at every level, the supposed site catchment area of virtually all sites in the Leilan *hinterland* began to overlap.[87] Gil Stein and Patricia Wattenmaker[88] suggest that "the villages and secondary centres played some role in provisioning Tell Leilan" with agricultural products. According to Harvey Weiss' interpretation[89], Mohammed Diyab and Do Gir, the largest settlements after Tell Leilan, occupied the second tier in the site hierarchy. Moreover, he postulates that the politico-territorial control of Tell Leilan extends up to 25 kilometres from this centre (Fig. 11).

The results of our study lead us to a partly different hypothesis. In fact, Tell Leilan was a *Regional Centre* dominating the lower level *Local Centre* Mohammed Diyab, while Do Gir seems to have been only a rural settlement without any centralised administrative functions. The supposed influence sphere of Tell Leilan seems to have been exaggerated since we count three other *Regional Centres* limiting the extension of its political control to the west, southwest and southeast. As a matter of fact, one of these, Tell Farfara, lies at only about 25 kilometre from Tell Leilan. We considered 100 hectares as its site size, but, at present time, no excavation has been conducted on this tell.[90] Possibly, this *Regional Centre* might have dominated one or more of the *Local Centres* along Wadi Jaghjagh.

If, according to our analysis, the site of Tell Hamoukar belongs to the category of *Regional Centre*, little more can be said concerning its dominated territory. The Syrian-American Hamoukar Expedition[91] concentrated its surface investigation only within a five-kilometre radius from the mound itself, an area which might correspond only to the dimensions of its own site catchment.

In general, the situation in the north-eastern part of the Khabour plain is characterised by a three-tiered hierarchy, especially as revealed by the settlement system of the Leilan cluster, which represents a degree of political complexity that, following Johnson's proposal[92], corresponds to the administrative organisation of an early state type society. In the western region we face a more fragmentary pattern which highlights a lower level of political centralisation possibly integrating less population.

On the northern border of the plain we find a totally different pattern. With an extension of 150 hectares, Tell Mozan, the largest site of the entire studied

[87] Stein – Wattenmaker (1990, 16).
[88] Stein – Wattenmaker (1990, 16).
[89] Weiss (1992).
[90] The estimation of its extension was based on the assumption that the most prominent tells in this area of the Syrian Jezira reached their maximum growth during this specific period.
[91] Ur (2002).
[92] Johnson (1973, 3).

region[93], dominates this area and is labelled as the *Major Regional Centre*, without any other competitive centre on its rank size level. Public architecture was erected on its acropolis: in particular, a building has been identified as a temple facility.[94] Also the outer city wall[95] is supposed to have been constructed sometime in EJ III.[96] The contemporary appearance of major defence structures in Tell Mozan and Tell Leilan, as well as the diffusion of *Kranzhügel* settlements in the west, gives us the impression that conflicts become endemic among the political centres in the Khabour triangle in EJ III.

Surprisingly, in a radius of 25 kilometres around Tell Mozan, we find only rural settlements, while to the southeast the nearest second- and third-tiered centres are located just along or nearby Wadi Jaghjagh. We may speculate that Tell Mozan extended its direct political control over a large territory incorporating several urban centres to the southeast. Thanks to the discovery of several king seal-impressions, today we are able to identify Tell Mozan with the historical kingdom of Urkesh.[97] Piotr Steinkeller[98] postulates that although the creation of the first kingdom able to control a broader territory occurred just by the time of the reign of Naram-Sim (EJ IV), the beginning of the state formation is suggested even some earlier.

Considering the settlement data obtained through our analysis, we have come to recognise the presence of a kind of northern "heartland of cities" in the EJ III period in the north-eastern section of the upper Khabour plain, an area that in the course of the 4th Millennium was already characterised by a proto-urbanisation process, as recorded in Tell Leilan, Tell Brak, and Tell Hamoukar.[99] Also at the end of the 3rd Millennium the powerful Hurrian kingdom of *Urkesh* and *Nagar* was centred in this particular area.[100] In our opinion, as highlighted through the history of its settlements, here the more favourable conditions for dry farming, and not the precarious climate situation as argued by Harvey Weiss[101], can be considered as a primary thrust factor to ensure an agricultural surplus extensive enough to constantly support political centralisation and urban development.

Conclusion

In our regional settlement study we have tried to apply Steponaitis' rank size analysis in order to gain new ideas for the political complexity in the Khabour

93 Buccellati - Kelly-Buccellati (1999, 15).
94 Buccellati - Kelly-Buccellati (1999, 14–15); Dohmann-Pfälzner - Pfälzner (2002, 175 pp.).
95 Dohmann-Pfälzner - Pfälzner (2002, 181 pp.).
96 Buccellati (1998, 18).
97 Buccellati - Kelly-Buccellati (1995/96).
98 Steinkeller (1998, 93 pp.).
99 Weiss (1986); Oates - Oates - McDonald (2001); Gibson et al. (2002).
100 Steinkeller (1998, 96).
101 Weiss et al. (1993, 995 pp.).

triangle. At the beginning of the EJ II period, the emerging state formation is clearly announced by a dramatic site size enlargement on the eastern part of the Syrian Jezira and by the first appearance of large *Kranzhügel* settlements in the western part of our study area. In the EJ III period, the process of political centralisation spread across the entire Khabour plain, a fact that is possibly due to an intensification of rain-fed agriculture. As we have observed, where we face better climatic conditions for dry farming - as for instance in the north-eastern extreme - we encounter a more differentiated settlement system, with at least three rank size levels, which possibly integrates also a broader regional territory. In the western part, the territorial units appear to have included less population since the dry farming regime was more precarious. The historical records give us a likely picture that the genesis of the kingdom of *Urkesh*, identified with Tell Mozan, the most prominent site in the settlement hierarchy, may date back to the EJ III period. Once more, we have to stress that this work represents only a preliminary interpretation, intended as an "open model" in which any new data dealing with site size or site catchment productivity will have to be considered in order to get a more comprehensive view of the political complexity in the Early Bronce Age Syrian Jezira.

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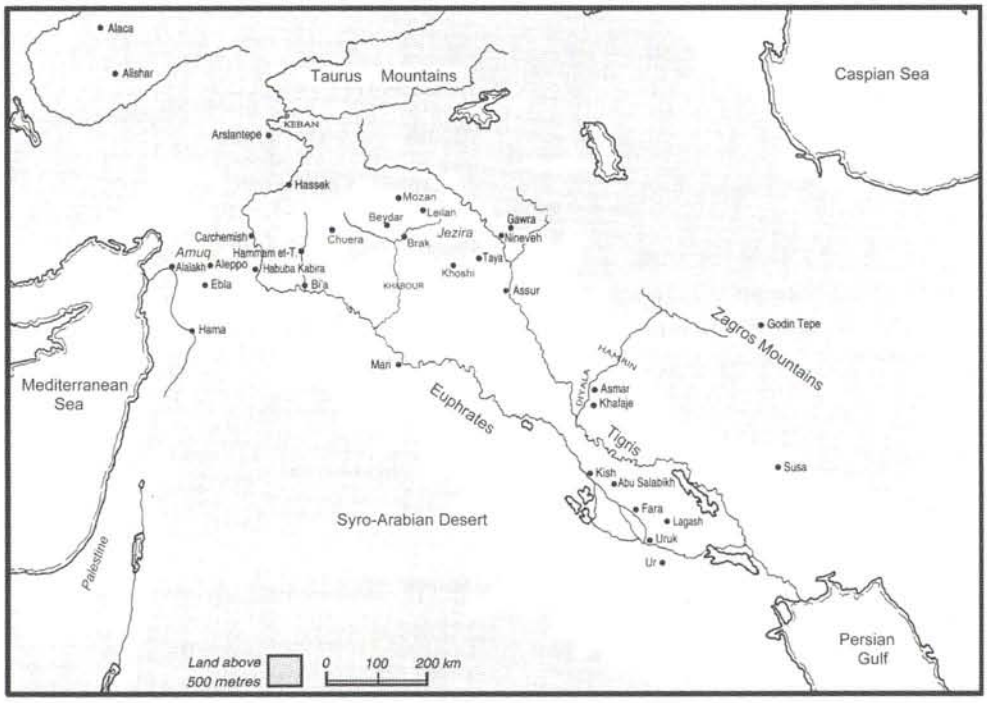

Fig. 1. Map of the Near East, showing some major archaeological sites of the III Millennium (after Matthews, 1997, Pl. 1)

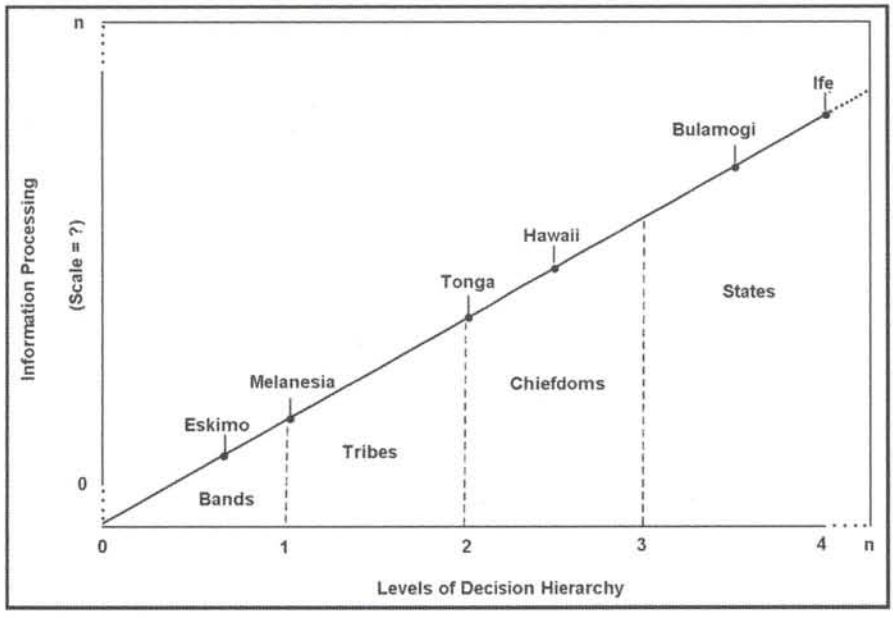

Fig. 2. Development of Decision Hierarchies - Scatter Plot (Johnson 1973, 11)

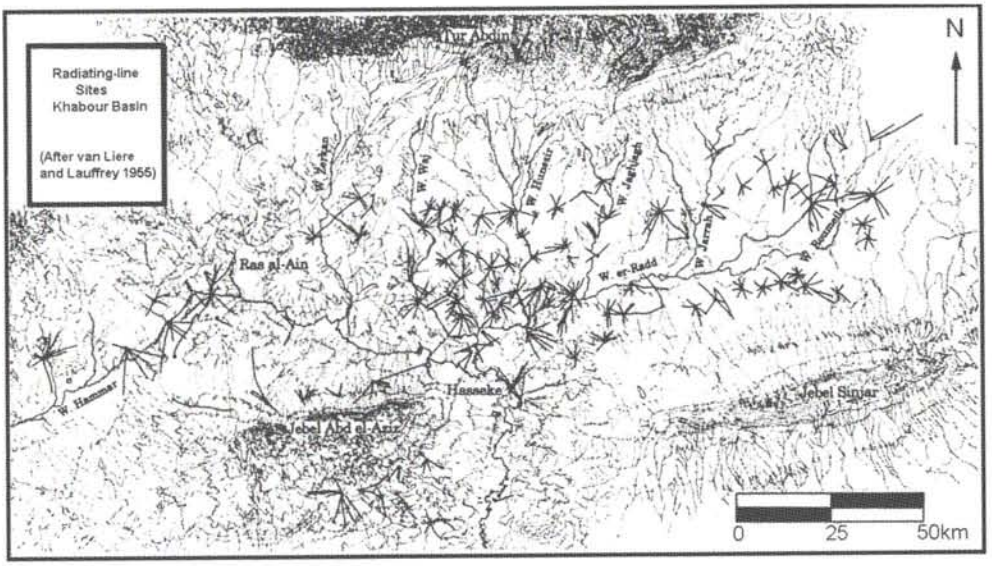

Fig. 3. Holloways in the plains of the upper Khabour (McClellan et al. 2000, fig. 1)

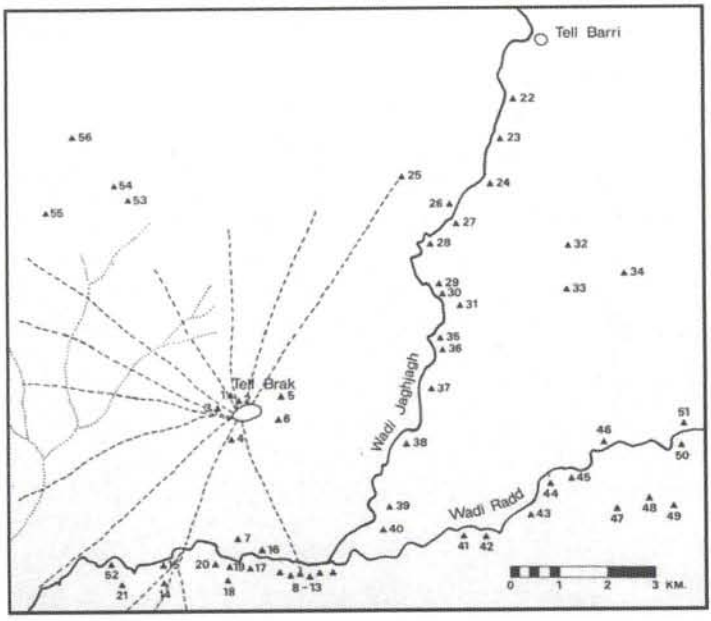

Fig. 4. Holloways around Tell Brak (Eidem and Warbuton 1996, Fig. 2)

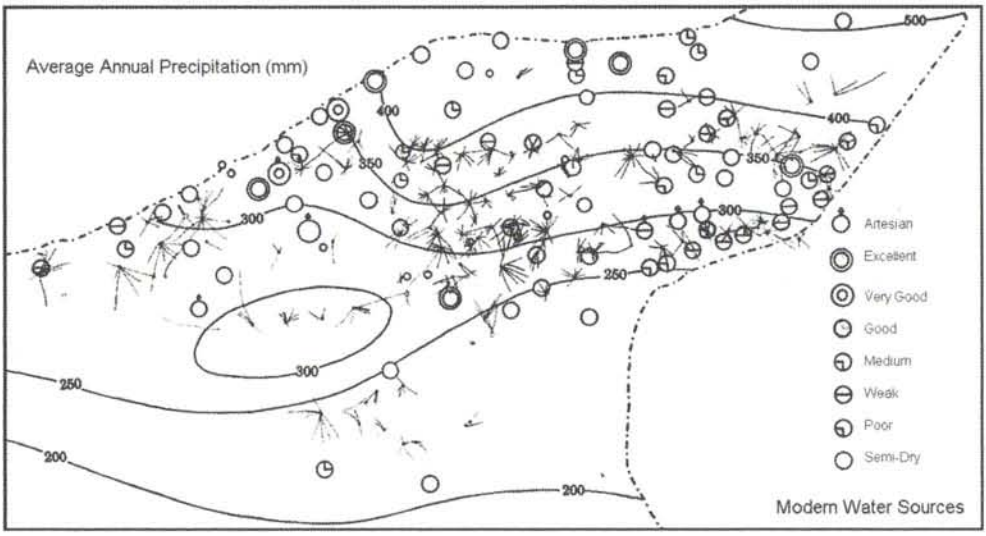

Fig. 5. Precipitation pattern in the Khabour region and distribution of modern ground water and of radial holloways (McClellan et al. 2000, Fig. 20)

District	1986	1987	1988	1989
Qamishli	1.61	1.26	2.23	0.38
Ras al-Ain	1.23	0.85	2.08	0.36
Hassakeh	0.93	0.82	2.08	0.25

Fig. 6. Unirrigated wheat yields in the Khabour region, tonnes per hectare (after McClellan and al. 2000, 151; source ICARDA)

Rainfall per year (in mm)	Factor
400-500	1
350-400	0,9
300-350	0,8275
250-300	0,77
200-250	0,6

Fig. 7. Agricultural production factors for the rainfall zones in the Khabour region

Sites	Site Catchm. (ha)	Rainfall Zone	Factor	Site Catchm. Product.	Settlem. Size EJ III (ha)
Mozan	2800	400-500mm	1	2800	150 (127,5)*
Leilan	2200	400mm	0,95	2090	75 (63,75)*
Farfara	2900	350mm	0,87	2523	100 (85)* ?
Hamoukar	5000	350-400mm	0,9	4500	105 (89,25)*
Khanzir	1900	300mm	0,77	1463	33 (28,05)*
Chuera	5150	250-300mm	0,705	3630,75	65 (55,25)*
Moh. Diyab	2000	350-400mm	0,9	1800	50 (42,5)*
Mabtuh Shar.	3050	300-350mm	0,828	2523,875	45 (38,25)*
Hamidi	2450	350mm	0,87	2131,5	45 (38,25)*
Barri	2500	300-350mm	0,828	2068,75	34 (28,9)*
Brak	3700	300-350mm	0,828	3061,75	60 (51)*
Beydar	2400	300-350mm	0,828	1986	28 (23,8)*
Mabtuh Ghar.	2700	300-350mm	0,828	2234,25	28 (23,8)*
Mabtu'a	2300	200-250mm	0,6	1380	8,4
Abu Shahat	5600	250-300mm	0,705	3948	28
Muezzar	5050	200-250mm	0,6	3030	11,25
Jamilo	2500	300-350mm	0,828	2068,75	8
Chagar Bazar	2100	350-400mm	0,9	1890	8
Do Gir	2600	400-500mm	1	2600	17
Garassa	2500	350mm	0,87	2175	11
Moh. Kabira	1800	350-400mm	0,9	1620	12
Arbit	1900	350-400mm	0,9	1710	5,8
Nourek	2000	300-350mm	0,828	1655	6
As Sa'id	800	300mm	0,77	616	3
Bergui al Buz	800	300-350mm	0,828	662	0,28
Aswad Fouq.	1700	300-350mm	0,828	1406,75	7
Aswad Taht.	2350	300mm	0,77	1809,5	2,3
Bati	2200	300-350mm	0,828	1820,5	3,5
Effendi	1600	350-400mm	0,9	1440	7
Sekar Fouq.	1200	350-400mm	0,9	1080	5,5
Hanou	1850	350-400mm	0,9	1665	7,5
Aloni	1200	300mm	0,77	924	2,5
Aatach	840	300-350mm	0,828	695,1	1
Majdal	2000	250-300mm	0,705	1410	17,7
Shour	1700	300-350mm	0,828	1406,75	6
Bugha	3300	250-300mm	0,705	2326,5	18
Dabesh	2400	350mm	0,87	2088	3,5
Magher	1500	300-350mm	0,828	1241,25	9,8
K 202 **	800	250-300mm	0,705	564	0,56
Tuainan	2200	200-250mm	0,6	1320	10,8
Khaznah	1700	300-350mm	0,828	1406,75	3
Tukal	2450	250-300mm	0,705	1727,25	4
Tuaikil	1600	250-300mm	0,705	1128	2,25
Marthiya	1950	200-250mm	0,6	1170	3,2
K 241 **	2250	200-250mm	0,6	1350	8
H. ad Dib	3150	200-250mm	0,6	1890	4

Fig. 8. List of the sites considered for the rank size analysis

* The value in parenthesis corresponds to the site size minus the space that is taken up by public architecture

** Site code from the *Yale University Khabour Basin Projekt*

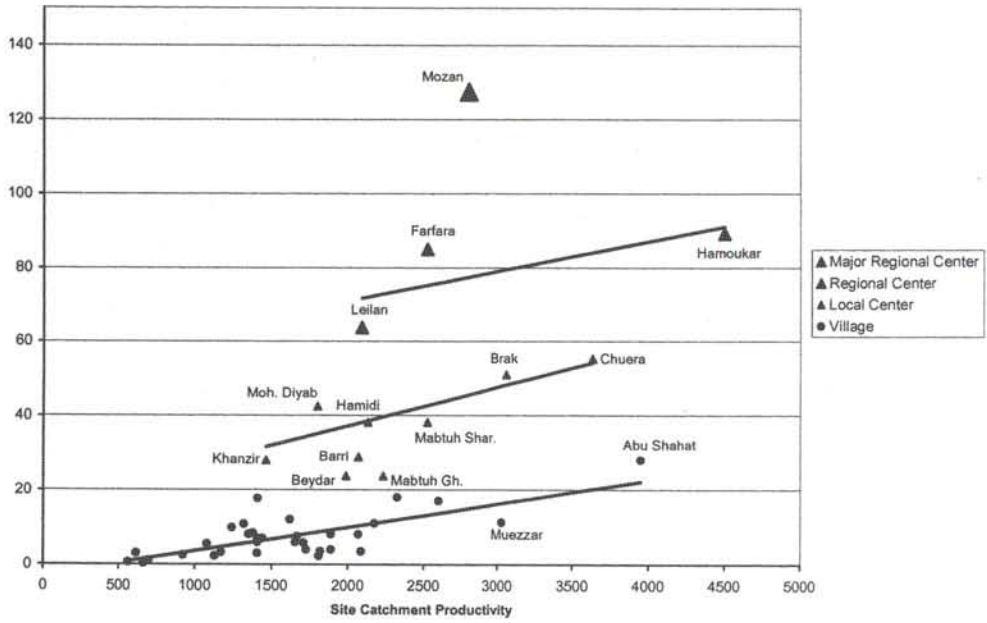

Fig. 9. Site Size versus Site Catchment Productivity in the Khabour plain during the Early Jezira III Period

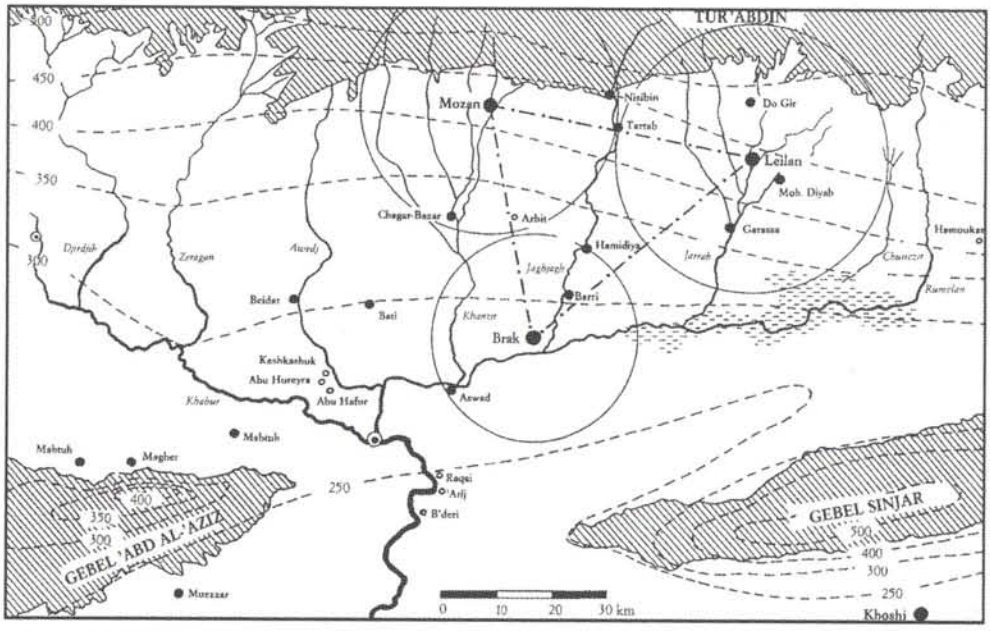

Fig. 10. The three major political units in the Syrian Jezira according to Weiss (Weiss 1993, 45)

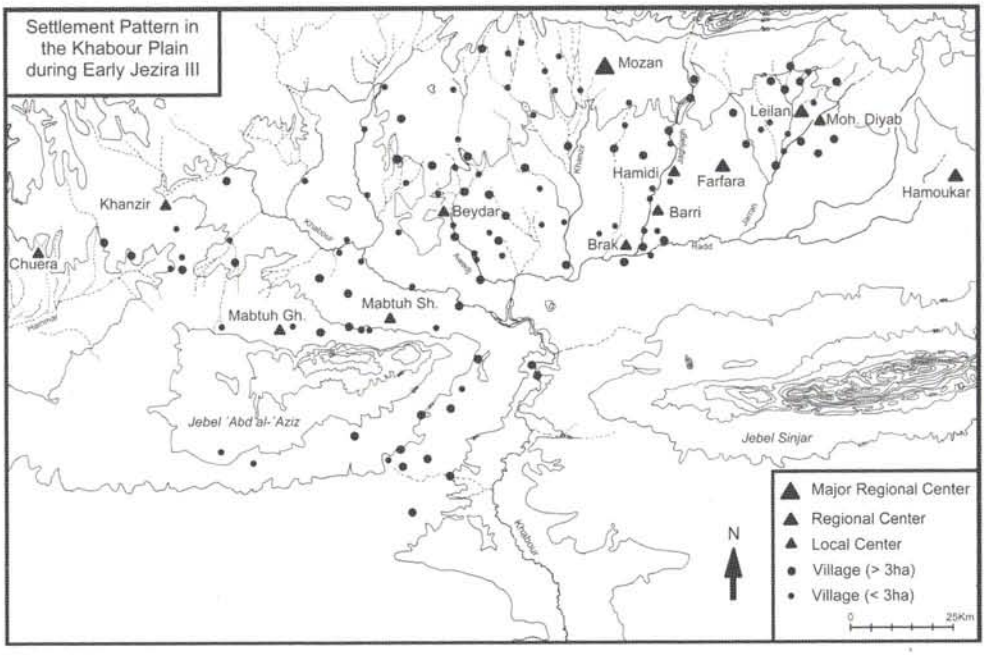

Fig. 11. Settlement Pattern in the Khabour Plain during Early Jezira III