The Urban Mind
Cultural and Environmental Dynamics

Edited by
Paul J.J. Sinclair, Gullög Nordquist, Frands Herschend and Christian Isendahl

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ABSTRACT
The significance of interaction and networking in the development and change of societies is emphasized in this brief long-term study of a wide geographical area of the ancient Near East.

The discussion of some, in particular cognitive, aspects of the emergence of early societies begins with the first signs of sedentism which appear among the Natufians of the southern Levant c. 12500 BP. The chapter continues with some glimpses into early farming at Jericho and later the Pottery Neolithic of the village culture of Çatalhöyük in central Anatolia. Eventually the focus shifts to the urbanisation process of Lower Mesopotamia in the fourth millennium BC, where agricultural innovations and economic networks, based on regional interaction and long-distance colonization of Upper Mesopotamia, were made possible through the strict religious and administrative organization.

The study shows that social and economic interaction was deeply rooted in cognitive expressions and should be connected to the dispersal of material culture and ideas over extended geographical areas. Accordingly this promoted different forms of development and change in early societies.

Introduction

Artefacts do not have minds of their own. But neither do people. Both are caught up from the first in networks of action that are the basis for our ability to people the world, live in settled communities and diversify our material worlds beyond anything known to other species.¹

Recent research on cognitive archaeology underlines the importance of sociality, interaction and networking in the development and change of both the human mind and human societies. Essential in this connection is the understanding that

¹ Coward & Gamble 2009, 63.
human networks incorporate relations with material culture, plants, animals and the landscape.²

The intention of this study is to highlight the importance of networking – the interaction and cultural exchange between peoples – in the emergence of village and urban societies in the ancient Near East. Focus is also put on the cognitive expressions and changes in these processes as reflected in the material culture and the environment, including the landscape, flora and fauna.

The study is ordered chronologically from the first sedentary settlements and village cultures in the southern Levant and central Anatolia, to the initiating urbanisation processes in southern Mesopotamia and the interconnection of this area with eastern Anatolia and northern Syria. Given the vast geographical and chronological scope of this subject only glimpses can be provided here, but hopefully they will inspire further research in the field.

The dynamic dimension of the relationship between peoples, material culture and environment

The gradual incorporation of material culture into social networks has been argued to be a key process in the development from face-to-face social interaction to complex human societies.³ The predicted increase in the size of hominid groups as a measure of growing social complexity, including for instance hunting in large groups – activities requiring communal strategies, division of labour, and sharing of meat – correlates with increased brain size according to Dunbar's social brain model. This phenomenon is seen especially in the disproportionate expansion of the neocortex, which is the part of the brain where the most significant features of human cognition are found. Social bonding is cognitively demanding, and accordingly it is suggested that the evolution of the neocortex is driven by the complex interaction between group members. The physical manifestation of these processes is visible in the sequence of fossil crania over the last three million years.⁴

The ability to produce and use material resources promoted cooperation between individuals and groups of people. This ability gave several advantages to the human species at an early stage and is considered to be the key mechanism behind the spread of humans throughout the world.⁵ Consequently material remains gave the humans a culture and a history – or rather cultures and histories.⁶

The gradual and continued adoption of material culture by human communities promoted the extension of social interaction networks beyond the limitation of face-to-face interplay, since artefacts and ideas can travel long geographical distances and leave their traces throughout the record of the human past. Social

² Coward & Gamble 2009; Dunbar 2007, 91; Renfrew 2007, 103.
³ Coward & Gamble 2009; Dunbar 2007, 97.
⁴ Dunbar 2003, see also Dunbar 2007, 91–92, fig. 8.1 for a contemporary comparison with other hominids.
⁵ Coward & Gamble 2009, 58.
⁶ However, recent work on chimpanzee and other animal communities that focuses on tools and settlement construction has challenged previous ideas about the uniqueness of human involvement in material culture.
relationships are represented by the shared material cultures, or imitations, in nodes of such networks.

Traces of materiality are also incorporated as imprints in the landscape, recognized for example in monuments and cairns that can be found in systems all over the globe, not least in West Asia. The structured location of several hundred Bronze Age cairns, distributed on strategic hill tops and wadi outlets in the mountain range outside the ancient trading centre of Palmyra in Syria, indicates that in addition to being used as burial chambers these cairns might have served as landmarks along routes in an extensive ancient trading network (Plate 1).

The dynamic dimension of the relation between people and material culture can be found in A. Giddens’ structuration theory, which puts forward the idea that we actively create material, social and cognitive structures (e.g. networks) through our actions, and these structures in turn react upon us and bring about new actions. The interplay between action and structure, and between mind and material, is the basis of the use of structuration theory among archaeologists. People produce material culture with certain aims, which in turn can have repercussions on their thoughts and actions. In this way changes are an integral part of society; neither society nor structure will remain static because of the continuous mutual impact of structure and action.\(^7\) Episodic changes (fundamental changes in the social system), to which both sedentism and urbanism should be counted, are according to Giddens caused by the conflicts and frictions that can arise when

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societies with totally different structures meet, for example when hunter-gatherers or pastoralists meet a sedentary community (see examples below). These meetings often lead to a relation of dependency, for instance in the exchange of information and goods. The contact with a dissimilar society opens up for new and alternative ways of thinking, which might dissolve the ideological cohesion (e.g. religion or politics as a means of control) that holds a society with inherent oppositions together and prevents change and development.

The interaction between peoples, material culture and environment is more clearly understood if we consider the process of sedentism and urbanism from this perspective. The structuration theory claims that man intervenes actively and intentionally in his environment and social system. Favourable environmental conditions in the beginning of the Holocene triggered the active involvement of humans in landscape exploration, which gradually led to experimentation in farming and animal domestication. The increasing production of material culture and the technological innovations were further repercussions. This process did not occur without confrontation and interaction with societies that were structured in different ways, such as hunting-fishing communities and sedentary societies, and this promoted new ways of thinking with regard to culture, ideology, and economy. Likewise the human ability to intentionally create and manage social and economic networks, including the dispersal of material culture and ideas over great geographical distances, should be regarded as a key constituent in the process of early urbanism.

Sedentism and initial farming in the southern Levant – man’s relation to landscape and animals

The narrow Levantine corridor between the Mediterranean Sea and the Arabian Desert – the only land-based path out of Africa – in combination with favourable environmental conditions of the Dead Sea Rift, extending from the Lebanon Beq’a Valley along the Jordan River, has created a concentration of cultural encounters over the last two hundred thousand years, from the Middle Palaeolithic and onwards.

The Inhabitants of the Natufian villages – sedentary or semi-sedentary hunter-gatherers

The Natufians were Mesolithic groups of people that had their core settlements in the southern Levant, including the Jordan Valley in the ancient Mediterranean

9 This is contrary to Marx, who saw the society as an isolated unit where subversive changes were caused by a self–timing power within the society.
10 This is contrary to most deterministic theories that see man as passively managed by a social, cultural or economic system.
11 Bar Yosef (2009) suggests that this process was initiated earlier, in the last centuries of the cold and dry Younger Dryas period, when some Natufian groups chose to settle down near streams where resources were stable and where they gained knowledge of the life cycle of plants.
12 Algaze 2008; Coward & Gamble 2009, 63; Kohl 1987.
Oak-Pistachio belt with sites such as Jericho, Hayonim and Ain Mallaha (for chronological periods and sites see Table 1 and Fig. 1). The entire cultural complex extended from the Negev desert in the south to Abu Hureyra by the Euphrates in the north. These groups constitute a fundamental cultural and economic transition from the preceding hunter-gatherers to intensive foraging and a sedentary or semi-sedentary way of life. Their rapid appearance in the final Pleistocene phase (c. 12 500 BP) coincided with favourable climatic conditions in

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14 For the distribution of all Natufian sites in the Levant see Moore 1991, fig. 7.
The subsistence strategy of the Natufians indicates a change towards an increase in gazelle hunting and small game such as birds, hare, fox, badger and fish in combination with a storable surplus of vegetable provisions like nuts and wild cereals. This shift in the ‘man-land relationship’ bound the people to a territory, symbolically marked by numerous graves and permanent, semi-subterranean, rounded dwellings of stone. Unlike the isolated huts of earlier, these semi-subterranean dwellings were more carefully made, included hearths, and were organized in groups, and therefore these sites are referred to as ‘Natufian villages’. The burials were often close to the houses and sometimes located under the floors inside them. The material accompanying the dead expresses heavy symbolic meaning, such as cup-marked stones; red ochre; stones placed on or under the head, chest, joints, hands or feet; and animal remains like gazelle horn-cores, horse teeth and tortoise carapaces. Especially towards the end of the period there appears a practice of separating skulls from the skeletons in graves. This practice continues for several thousand years in the ancient Near East, and a similar treatment of the deceased bodies can also be seen in some burial traditions in Scandinavia during the Neolithic.

In this period there was not only a shift in people’s interaction with the land-

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15 This is now firmly established by local pollen diagrams from the Natufian core area of the Southern Levant (Baruch & Bottema 1991, 18; Leroi-Gourhan & Darmon 1991). Regarding the problems of dating these early periods see Bar–Yosef 1998b, xiv–xvi; 1989.
17 See Mattes, this volume.
scape, but also a change in their attitude to animals. The Natufians’ preference for hunting gazelle led to the practice of manipulating this species by sex culling, that is, killing only animals of specific ages and sexes, which is interpreted as proto-domestication – a stage between the management of wild animals and true domestication.\textsuperscript{18} The presence of domesticated dogs, and burials containing the remains of both dogs and humans as exemplified by graves on the Hayonim Terrace and at Mallaha (\textit{Plate 2}), hint at a special relationship between man and animal that developed during this period. Whether the relationship between man and dog was affectionate, ritual, or that of hunting partners is, however, difficult to tell.\textsuperscript{19}

Other cognitive changes in the Natufian period are represented by the evidence for artistic expression, often connected to symbolic behaviour, which first appears in the archaeological record of this area. Examples include human and, in particular, animal figurines as well as engraved stones and ostrich eggshells. In addition there are body decorations made of shells, bone and stone pendants, beads, and the use of ochre. Such body ornamentation is interpreted as mirroring social interaction.\textsuperscript{20} Kuhn and Stiner compare body ornamentation to technology for social communication, which, depending on the audience, can express aspects of identity such as group affiliation, age, sex, marital status, social standing and wealth. It has also been suggested that the increase in body decoration reflects a growing need to communicate and exert control in the interaction with an increasing number of people, as well as a fundamental change in the ability to carry out social actions through the use of long-lasting exotic objects ‘to communicate across large distances or across generations’.\textsuperscript{21} Evidence of early inter-regional networks of exotica in this period is seen in the wide dispersal of shells from far-away places.\textsuperscript{22}

Were the Natufians sedentary? The abovementioned subsistence strategies together with evidence for self-domestication of the wild mouse into the house mouse and the appearance of self-domesticated House Sparrows during this period, as well as evidence for gazelle hunting in both summer and winter (based on gazelle tooth increments), intensive building activities, and improved tools and artefacts such as larger sickle blades, mortars and pestles – all suggest that the so-called Natufian villages were of sedentary character.\textsuperscript{23} However, there are different opinions as to the degree of this sedentism since the settlement patterns also include smaller seasonal camps in mountain and desert areas.\textsuperscript{24} Burials, figurines and ornaments occur only in the large ‘base-camps’, which indicates that ritual activities took place when everyone had returned from the seasonal sites.\textsuperscript{25} According to a recent investigation of refuse disposal strategies at Natufian sites, these groups had not yet adapted their various sanitation practices to the requirements of a full-time sedentary life, as seen in the later Pre-Pottery Neolithic vil-

\textsuperscript{18} Cope 1991.
\textsuperscript{21} Kuhn & Stiner 2007, 47–48, 51–52.
\textsuperscript{22} Mienis 1987; Reese 1991, 623–624; table 2 and 3.
\textsuperscript{24} Perlès & Phillips 1991, 639–643.
\textsuperscript{25} Perlès & Phillips 1991, 643.
lages; instead these practices were adapted to a long-term base-camp stay with sporadic departures.\textsuperscript{26} However, these might not have included the entire group.\textsuperscript{27}

Sooner or later increasing sedentism impoverishes the local environment because of the exploitation of the landscape. One strategy for such communities was to develop symbiotic relationships with nomadic and hunter-gatherer groups in order to conduct exchange, which was in fact initiated in this period.\textsuperscript{28} The relationships with neighbouring groups seem to have been friendly overall, since signs of violence are extremely rare in Natufian societies.\textsuperscript{29}

\textit{Sedentism based on farming – the pre-pottery neolithic}

About 10300 years ago, evidence of early sedentism that was based on farming (pulses, wheat and barley) as well as hunting appears in several places in the Jordan Valley (for periods and sites see Table 1 and Fig. 1).\textsuperscript{30} A millennium later this economy was supplemented by domestication of animal livestock. The first sheep and goats were followed by pigs and cattle, probably introduced into the Levant from domesticated local game in the Anatolian Taurus and the Zagros Mountains when farming started to appear in those areas.\textsuperscript{31} The Pre-Pottery Neolithic (henceforth PPN) period is, of course, characterized foremost by the change to agricultural sedentism, but it also has other significant characteristics such as the change from rounded, subterranean houses with one or two rooms and dirt floors in PPNA, to rectangular or squarish houses in PPNB, sometimes with plastered floors which differed as to the number of rooms and internal division.\textsuperscript{32} Published structures are rare but do occur (see the tower of Jericho below). The removal of adult skulls from the skeletons in burials continued in this period, but the skulls were now modelled with plaster or asphalt and the eyes were decorated with shells (\textit{Plate 3}).\textsuperscript{33} This treatment, and the finds of buried, painted, plaster statues, is interpreted as an organized ancestor cult. Small figurines of limestone or clay are found in this period, mainly of seated women with accentuated eyes and breasts. This is a change from the Natufian period when most of the figurines depicted animals.\textsuperscript{34} Triggered by the Neolithization of Taurus, the long-distance trade of objects such as shells, obsidian and greenstone increased as did the intersocietal exchange between communities of different economic structures, such as farming, pastoral and hunter-gatherer communities. The by-product of these exchange systems was the dispersal of techniques and innovations.\textsuperscript{35}

This was again a period of improved climate in comparison to the previous colder and dryer Younger Dryas at the end of the Natufian period.\textsuperscript{36}

\begin{itemize}
\item \textsuperscript{26} Hardy-Smith & Edwards 2004, 284–285.
\item \textsuperscript{27} Valla 1998, 183–184.
\item \textsuperscript{28} Tchernov 1991, 335. An example of the development process of such a symbiotic relationship, although in the Neolithic period between farmers and pastoralists, is indicated at ninth century BP Ain Ghazal (see below).
\item \textsuperscript{29} Belfer-Cohen, \textit{et al.} 1991, 421.
\item \textsuperscript{30} See e.g. Ain Ghazal (below); Gilgal (Noy \textit{et al.} 1980); Netiv Hagdud and Salibiya (Bar-Yosef \textit{et al.} 1980; Bar-Yosef 1981).
\item \textsuperscript{31} Bar-Yosef 1998a, 196; B. Hesse 1982.
\item \textsuperscript{32} Banning & Byrd 1989; Bar-Yosef 1998a, 192, 198.
\item \textsuperscript{33} See several examples from Jericho in Kenyon 1981\textit{a}, plates 50–64.
\item \textsuperscript{34} Bar-Yosef 1998a, 197–198.
\item \textsuperscript{35} Bar-Yosef 1998a, 192–199; Köhle-Rollefson & Rollefson 1990.
\item \textsuperscript{36} Baruch & Bottema 1991, 18; Bar-Yosef & Valla 1991, 2–3.
\end{itemize}
The Natufians inhabited the earliest levels of Jericho (Tell es-Sultan) in the Jordan Valley, a site that after a settlement gap of almost a millennium (c. 11200–10350 BP) was re-occupied by early farmers of the PPNA stage (for periods and sites see Table 1 and Fig. 1).37 The nearby spring, Ein es-Sultan, in combination with favourable climatic conditions and the alluvial soil of the surrounding wadi systems, constituted a perfect setting for initial farming. PPNA Jericho shows a fully established sedentary village with solid structures consisting of one-roomed circular dwellings with mud brick walls. The floors were sunk below the courtyards, and porches sloped down, with or without steps, into the rooms where a variety of flint and bone tools were found together with limestone dishes and cups. The settlement of this period (c. 10350–8900 BP) expanded comprehensively and rapidly throughout the tell, and comprised an area of approximately four hectares. The population, (over?) estimated to about 2000 inhabitants, is suggested by the excavator to have been largely dependent on agriculture possibly supported by irrigation.38

The most striking architectural structure is the large wall, from c. 10000–9300 BP, ‘encircling’ the settlement soon after its expansion. The western part of the wall is still preserved to a height of 5.75 m. In this part, on the inside of the wall, there was a huge tower constructed of undressed stones, with a diameter of 9 m at the base and 7 m at the top. The tower was solid with no rooms or features except for a central staircase leading to the top of the tower (Plate 4). Storage

38 Kenyon 1993, 676. The estimated population rate should probably be less than half of Kenyon’s suggestion (Bar-Yosef 1986, 157).
buildings attached to the tower hint at its role in the public sphere. The remains still stand to a height of 7.75 m.39

Ancient walls have always been surrounded by myths. Consider, for instance, the later Bronze Age wall in Jericho that was captured by Joshua in the biblical story, or the impenetrable wall of Troy in the Homeric epic. The earliest walls of Uruk are also interpreted as reflecting symbolic rather than defensive values.40 Walls are also considered to be the material manifestation of that which by definition separated villages from towns and cities.41 The latter were defensively motivated and had the organizational capacity and manpower to build them.

Kenyon claims that the wall and adjoining tower of the eleventh millennium BC Jericho together with the rather densely built houses bear witness to a degree of communal organization and a flourishing town life. She further stresses that

40 Collins 2000, 40; Liverani 2005, 51.
41 Liverani 2005, 51; Tracy 2000, 1.
the ‘urban society [i.e. PPNA Jericho], which succeeded in solving its defensive problems, was able to provide the manpower and the organization needed to create an irrigation system’, although no evidence of such a system is detected at PPNA Jericho. Thus, the great importance of Jericho, as the ‘earliest city’ in the world, turns mainly on its PPNA wall. However, this exceptionally early town wall is very puzzling, and it triggered a closer investigation by Bar-Yosef. He points out that this period was rather peaceful, and there was no need for such a defence system; besides, there are no other fortified sites in the archaeological record from the Near East until c. 5500 BC. From a logical point of view, he further asks why the tower was located on the inside of the wall and not on the outside from where it would be easier to attack enemies. Instead he argues convincingly that this wall, whose remains were only discernible on those sides of the tell that faced the mountain chain, was instead a protection against the annual flooding from the wadi system running from the mountains; thus the wall should be understood as an effort to harness the forces of nature. This interpretation is also supported by the increase in precipitation during this period in combination with the inhabitants’ clearing of the landscape by cutting (the protective) woods and bushes, as seen in the archaeological material. Bar-Yosef further suggests that the tower most likely had a mud brick superstructure that might have functioned as a shrine. The later, less substantial, PPNB wall is suggested to have been a terrace revetment that constituted the support for the platform on which the houses were built. In this period the height of the tell was no longer reachable by the flooding. A similar example of a wall that has been reinterpreted as a retaining wall and support for buildings instead of as a fortification is found in Dimini in later Neolithic Greece. The later walls of Jericho, however, which originated in the Bronze Age and differed in many ways from the earliest walls, surely functioned as true fortifications of what by that time was the great city of Jericho.

Several similarities, such as the rectangular house forms, the abundant use of plaster, the burials under the floors and the appearance of cult houses, have been observed by Kenyon in the cultural features of the PPNB site of Jericho and the contemporaneous site of Çatalhöyük in central Anatolia, although, as she points out, these similarities should probably be seen as indirect.

**Human impacts on the landscape and climatic change at the end of the PPNB**

In the Neolithic period, variations in climate were the most important factors in the shaping of the Near Eastern landscape. Nevertheless, human interference also affected the landscape at an early stage of sedentism, as seen by archaeological and palaeobiological evidence. Köhler-Rollefson and Rollefson have studied the situation for early farmers and shepherds at PPNB Ain Ghazal in Jordan.

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42 Kenyon 1993, 676.  
44 Bar-Yosef 1986, 158–162.  
45 Preziosi & Hitchcock 1999, 37.  
49 Köhler-Rollefson & Rollefson 1990.
They suggest that crop cultivation and goat husbandry initially were a productive combination at this site, since goats cleared the landscape for farming. However, gradually this symbiosis entered into competition with the surrounding landscape of the village. Trees and brush were removed by grazing, which resulted in a scarcity of fuel and material for building construction. The rivalry in grazing also led to a decrease in the wild animal stock, which had so far supplemented the economy of the village. The inhabitants had to compensate this loss with a larger number of goats and other domesticated species. This enlargement in the domestic livestock escalated the conflict between pasture and arable land; hence the range of pasturage increased from a one-day radius to an absence from the site during most of the year, which meant that the herds could no longer be a permanent part of the settlement. Hence, in the course of time there was a dispersal of the population into smaller and economically specialized groups, although they were still in contact with each other. The mobile group, by then pastoral nomads, provided the village with meat and other products from goats, as well as with external goods and raw materials from faraway places, in exchange for agricultural produce from the village. A new symbiosis, as mentioned above, between two different subsistence groups (herding societies dependent on farming communities and vice versa) was created, which in turn involved these groups in a long-distance exchange network.

The expansive period of PPNB collapsed abruptly in the Levant and Anatolia. According to Bar-Yosef this event was contemporaneous with the climatic crisis, dated to 8400–8200 calibrated BP, which is recorded in ice and pollen cores and in speleothems. He suggests that a series of droughts and the change in the precipitation pattern resulted in lower harvest yields in the villages and extended the search for pastures farther away. A period of social upheaval followed when larger villages were dissolved in favour of smaller hamlets or farmsteads. This led to an increased mobility with flexible subsistence strategies, such as adaptation to pastoral nomadism. The central ceremonial places, which had appeared in PPNB, were abandoned and instead the local shrines became important in the Pottery Neolithic period.

The Pottery Neolithic Village Culture in Anatolia

Despite the similarities between Jericho and Çatalhöyük observed by Kenyon, the Taurus Mountain chain is broadly speaking a cultural, economical and environmental divide throughout the period from the Neolithic to the Bronze Age. This does not mean that there were no contacts and connections through the mountains. The area to the south of the mountains belonged to the Levantine-Mesopotamian zone including southeast Anatolia, while the area to the north of Taurus identified with the central and western Anatolian cultural sphere.

Two important phenomena, linked to material with opposite implications for social life, can be recognized at the emergence of the Pottery Neolithic (PN) in Anatolia (for periods and sites see Table 1 and Fig. 1). First and foremost, of course, is the invention of pottery; this material made people more attached to hearth

50 Köhler-Rollefson & Rollefson 1990, 6–11.
52 Özdoğan 1999; Sagona & Zimansky 2009, 44.
and home, which now became the fixed point in human life. The invention of pottery should be regarded as a developmental stage in the use of clay, a material highly associated with sedentism and rarely used by mobile groups. The location of permanent sites near arable land but far from natural shelters or building material like timber might have been one reason for the start of the use of clay as building material in huts. The demand for storage containers for supplies of food for annual consumption, necessary at permanent sites, might have been another motive and the next stage in exploring this material. Besides, it is suggested that the prolonged use of permanent houses made it worthwhile to decorate them and make them comfortable.\textsuperscript{53} Sedentism made possible the use and production of items in burnt clay. Many of these had a functional use in the home (cooking pots, storage containers etc.), but there was also a great number of symbolic items in this period. Parallel to sedentism and farming, the production of human figurines in clay, especially female such, increased in comparison to previous periods (Fig. 2).\textsuperscript{54} This interest in female figurines has been observed by several scholars who have interpreted them in various ways, for example as mirroring a fertility cult and/or depicting goddesses; they are also suggested to reflect a change in the social role of women during this time.\textsuperscript{55} A distinction between genders is also seen in wall paintings. As in Egypt three thousand years later, males are painted red whereas women are shown in white. The women are depicted ‘fat and plump’, as in the figurines, while males are ‘tall and slender’ (Plate 5).\textsuperscript{56}

The other important occurrence in this period was the intensification and reorganization of the obsidian trade, which engaged more people in faraway contacts and in cultural, economic and ideological exchange. This attractive material with possible symbolic implication was involved in extensive trade networks more than 1000 km from the various source areas north of the Taurus Mountains, reaching the southern Levant and several other destinations. Obsidian was

\textsuperscript{53} Schmandt-Besserat 1977, 149.
\textsuperscript{54} Cauvin 1994.
\textsuperscript{55} Cauvin 1985; Mellaart 1962, 57; Sagona & Zimansky 2009, 97.
\textsuperscript{56} Mellaart 1962, 60 Pl. XIIIa, b, XIVc.
an attractive material for exchange already in the Mesolithic period. The trade peaked in the sixth millennium BC when it changed from being monopolized by large node settlements such as Abu Hureyra in Syria, Ain Ghazal in Jordan and Çatalhöyük in central Anatolia to being incorporated into a highly diversified trade network that included settlements with an increasing infrastructure along various routes.\textsuperscript{57}

Çatalhöyük – the importance of hearth and home

Prestige goods such as obsidian, fine-grained flint, copper, greenstone, dentalium shells, gypsum and vesicular basalt did not occur naturally in the area of Çatalhöyük and had to be imported to the site, to maintain its wealth and position. The organization of the trade varied for the different materials. The trade with neighbouring communities is suggested to have been carried out through direct access or by so-called wandering pastoralists, that is, itinerant ‘traders’ who provided special services and exotic goods. Analyses show that obsidian was brought mainly from the Acigöl area of central Anatolia and was extensively prepared before it reached the site.\textsuperscript{58} Obsidian had a significant position at Çatalhöyük where it was found in caches inside the houses, under the floor near the ovens and the entrances. Hodder regards the obsidian as having socio-symbolic value.\textsuperscript{59}

However, too little has been studied regarding trade at Çatalhöyük, where instead the main concern has revolved around the hearth and the home. Mortars, querns, ovens and deposits of carbonized wheat, peas and seeds bear witness to an economy based on farming but supported by hunting, as seen by finds of arrowheads and javelin heads, frescoes, paintings and bone remains.\textsuperscript{60} According to Hodder the house and activities connected to it constituted the most significant sphere and phenomena for the people who lived at the site.\textsuperscript{61} The reasons for this may be related to the introduction of pottery and a sedentary lifestyle, as well

\textsuperscript{57} Conolly 1999, 72; Sagona & Zimansky 2009, 73.
\textsuperscript{58} Conolly 1999, 70–73.
\textsuperscript{59} Hodder 2006, ch. 7.
\textsuperscript{60} Mellaart 1962, 56.
\textsuperscript{61} Hodder 1990, 2006.
as to the agricultural economy, which in turn brought about a new ontology reflected in different ritual and cultic expressions performed within the domestic area or in house-like shrines. The focus on the house and the home might also be ascribed to the research methodology at the site. The very meticulous contextual approaches so far used in the renewed project at Çatalhöyük have opened up for innovative interpretations regarding domestic, symbolic and spiritual aspects of the village life; but at the same time they might have overshadowed questions of more economic and socio-political character. This discrepancy will hopefully be balanced in the future.

During its long lifespan, 7200–6000 BC (calibrated ^14C years), an unusually stable continuity and conformity regarding the town plan and the house architecture prevailed at Çatalhöyük. According to the excavator, this conservatism was maintained through historical-mythical traditions reflected in the symbolic images and shared histories of humans and animals, with a preference for leopards and bulls as seen by depictions on the walls of the main rooms as well as in reliefs and large sculptures of, for instance, plastered bull-horns fixed to the walls and set in benches. The longevity of the settlement is also due to highly controlled rituals based on the ancestor cult, as revealed in burials under the floors of the main rooms, in which the heads were often removed from the skeletons and sometimes also plastered (cf. the abovementioned Natufians and PPN people in the Levant). Exaggerated repeated plastering of walls and floors in these rooms (sometimes as much as 450 times) seems to have a connection with the burial rites; other repetitive patterns of keeping the houses in repair by using the old walls and plans bear witness to a deeply rooted conservative building tradition.

This tradition was especially seen in levels VII–VIA, which were very densely built-up (Fig. 3). The access to the houses was via ladders through roof openings that also served as smoke vents. It became very impractical to reach the houses in the centre, which seem to have been ritual buildings. This dense neighbourhood is suggested to have manifested a kind of group identity but might just as well have functioned as a defence system against foreigners and enemies. However, recent research shows that in level V (from around 6500 BC cal. ^14C) there was a change, perhaps after a fire, towards more open space and larger houses that were more accessible through ordinary door openings. The cult houses, now located on the fringes, also became more accessible. Building continuity was abandoned, and the individual buildings now seem to have lost their historical significance. Might these changes signify a shift in group identity at the site, occasioned by the arrival of newcomers?

Hodder claims that despite its large size (approx. 3500–8000 inhabitants) Çatalhöyük does not show any of the typical features of a town; it has no evidence of public spaces, administrative buildings, elite quarters, real craft special-

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63 Hodder 2006, Ch. 6, 136; see also Hodder 2005 for a discussion on the conservative expressions in the houses as reflecting memory on an individual level. For illustrations and discussions of paintings and sculptures see e.g. Mellaart 1962. Mellaart sees at Çatalhöyük various cult influences, e.g. ancestor cult, fertility cult, bull cult and hunting cult, in the artistic expressions of images, sculptures and figurines as well as in burial customs (1962, 51–57). Hodder interprets these images somewhat differently and relates them to cognitive expressions of the inhabitants' adjustment to the introduction of agriculture (1990).
64 Sagona & Zimansky 2009, 88.
ization, or social stratification, and therefore he interprets it as a ‘very, very large village’, which probably had some kind of committee of elders whose task was to organize activities and see that law and order were kept.  

Towards complexity and commercial networking in Upper and Lower Mesopotamia

From the late fifth to the early fourth millennium BC the impact of human society on the environment increased considerably and in some places became the most crucial explanation in the transformation of the Near Eastern landscape. These environmental changes can be related to the emergence of, and degree of complexity in, societies and their control of raw material extraction in other distant human communities. The development of urban centres was based on a surplus extracted from, for example, stock breeding and grazing, agriculture, mining activities, and the terrestrial and maritime movement of goods — activities that consequently led to deforestation, draining, salinization, alluviation and other effects on the landscape.

To understand the process of the earliest urbanisation in the ancient Near East we have to study both the development of its core area, and thus the sites of the Lower Mesopotamian alluvial plain in the south, as well as the emergence of pre-states in its northern periphery in the Upper Mesopotamian and Euphrates area, which comprised parts of northern Syria and eastern Anatolia. The Late Chalcolithic period in Anatolia and northern Syria corresponds roughly to the various stages of the Uruk period of Lower Mesopotamia (4200–3100 BC).

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66 Hodder 2006, 95–98.
68 Sagona & Zimansky 2009, 147 and references therein.
c. 3800 and 3100 BC these areas became increasingly involved in interaction, a phenomenon called the ‘Uruk Expansion’, which is indicated by the appearance of south Mesopotamian (Uruk) cultural elements in the north and in a few sites in the east (for periods and sites see Table 1 and Fig. 1). This interaction was one of the main factors in the urbanisation process. The environmental differences between Upper and Lower Mesopotamia in combination with various emerging social ideologies gave rise to the different development trajectories in the sites in these two regions.

Upper Mesopotamia

The landscape of Upper (or northern) Mesopotamia is divided into small, distinct, geographical areas of mountains, plains and river valleys, the latter of which sometimes cut deeply into the landscape. These natural conditions restricted the interaction between states and their hinterlands as well as between the states themselves, and this resulted in more dispersed and smaller agglomerations than in the south. Yet distinct regional centres emerged, as evidenced by the similarities in pottery types within these regions. Agriculture based on rain-fed dry farming as well as sheep and cattle herding constituted the economical base in Upper Mesopotamia, together with resources that were lacking in the south such as wood, metal and obsidian. Finds of crafted prestige items of imported materials such as lapis lazuli, gold and silver at these sites demonstrate their involvement in international long-distance trade, which is further testified by several stamp seals and sealings at important sites like Arslantepe (see below) and Nineveh. The blow-pipe smelting of copper into tools cast in moulds was a great technical breakthrough in the fifth millennium BC in Anatolia, and was one of a range of revolutionary inventions that triggered material, and hence cultural, exchange between different environments. The copper metallurgy tradition was, for instance, probably the main reason that the Lower Mesopotamian states became interested in Anatolia in the fourth millennium. The divided and multifaceted social structure of Upper Mesopotamia made it less dependent on communal efforts and large-scale organization, in contrast to, as will be seen, the situation in the south.

In this Syrian-Anatolian area the emergence of large societies started to crystallize at the end of the fifth millennium BC. One such society was Arslantepe in eastern Anatolia, which constituted the northern periphery of Greater Mesopotamia. This was an extensive site with monumental architecture and with archaeological evidence of some form of administrative record keeping and an area that indicates craft specialisation. There was also an imposing (elite?) building with wall paintings and plastered columns at the top of a mound, as well as a ceremonial building, a temple, that showed evidence for storage and the distribu-

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69 This period and culture is named after the main site of the Southern Mesopotamia, Uruk/Warka.
70 E.g. Algaze 2005, 2008; Stein 2005b.
71 Algaze 2008, 144–146.
72 Lupton 1996, 35.
73 Collins 2000, 12, 15; Lupton 1996, 38.
74 Sagona & Zimansky 2009, 139.
75 Stein et al., 1998, 174.
76 Sagona & Zimansky 2009, 145; Stein et al., 1998
tion of commodities. The latter is reminiscent of the ceremonial buildings from Lower Mesopotamia. The domestic buildings were rectangular, and the ancestors were buried under the floors. In the mid-fourth millennium the decorated high-quality pottery, produced within the households, gave way to a standardized pottery mass produced on fast wheel in central workshops. All of this evidence shows an independent growth towards complexity and should, according to the excavator, be seen as a form of Early State without "urbanisation". Especially the later phase of this process was stimulated by the prevailing interaction with the southern communities of the Upper Euphrates Valley.77

Also at the southeast Anatolian site of Hacınebi Tepe there is evidence of monumental buildings, advanced techniques in copper metallurgy and pottery production, as well as seals and sealings, all of which shows that Hacınebi, like several other Anatolian and Syrian sites (e.g. Hassek Höyük, Tell Brak and the abovementioned Arslantepe), was a highly developed society already before the involvement of the southern Uruk cultures.78 Yet, these sites should not be classified as urban centres similar to those that started to grow in the southern alluvium plain of the Lower Mesopotamia. City-states, like those in the south, did not evolve in Upper Mesopotamia until the mid-third millennium BC.79 Nevertheless, recent research shows that the development in the north was more dynamic than previously thought.80 Sagona describes this process as ‘one of a mosaic of interacting polities... each of which reacted differently to the Uruk impact’.81 So, these northern sites were involved to a very high degree in the process of urbanisation that took place on the southern plain.

Lower Mesopotamia

A variety of ecosystems provided a multitude of agricultural and other products on the large alluvial plain of Lower Mesopotamia (Fig. 4). Orchard and garden crops, especially dates, were grown close to permanent watercourses.82 The arable land was interspersed with rough land and harvested fields, which were used as pasture for cattle. The swamps in the far south provided wildfowl, fish and other small game as well as building material such as mud, palms and reeds. Additionally, the Tigris-Euphrates river systems constituted an enormous natural transportation and information network.83

The constantly changing courses of the river branches made people flexible in regard to land conditions and supply. Crop failure at one place could be managed through acquisition of food from another place, thus forming risk-buffering networks facilitated by the system of rivers and marshes. The unstable character of the landscape is suggested to have produced a common south Mesopotamian ideology based on order and stability with an ‘overarching religious affiliation’.84

According to information in later written documents, which probably also should be valid for at least the later part of the Uruk period (for periods see

78 Stein et al., 1998.
79 See e.g. Cooper 2006.
81 Sagona & Zimansky 2009, 147.
82 Powell 1990; concerning gardens see Pedersen this volume.
84 Collins 2000.
Table 1), the temple was integrated into the community in Mesopotamia and, besides securing the survival of the state by serving the gods, it was involved in the organization of human daily life such as ceremonies, burials (although almost no archaeological evidence of burials are found in Lower Mesopotamia), financial affairs and festivals. In exchange for these services the rulers and the people provided the temple with financial support, taxes and offerings, and thus a kind of interdependency existed that formed a communal whole.\(^{85}\)

A system of ‘embryonic city-states’ is suggested to have existed already in, or just before, the Early Uruk period in southern Mesopotamia. During the Uruk period the population was absorbed into centres in the south through migration from peripheral areas, which stimulated the process of urbanisation. At the end of the Uruk period a population of about 100000 people is estimated to have inhabited the main parts of the area surveyed in the southern alluvium – a population density two to three times higher than in Upper Mesopotamia. Primary among the alluvium centres was Warka, also known as Uruk, which comprised an area of 250 hectares. According to available data, Warka was four to five times larger than the nearest second tier site. This fact might be explained by randomness of discovery in the, in parts, poorly surveyed areas and by the geomorphologic processes that changed the course of the Tigris and Euphrates. These processes could have obscured smaller and even larger sites. The superiority of Warka is further suggested to reflect its religious rather than political importance, which could account for later evidence of tablets revealing ritual offerings that were sent to Inanna of Uruk from other cities. It is also reflected in the great religious ar-

chitecture of the Anu Ziggurat area and the Eanna precinct. However, the most plausible reason for Warka’s primacy, and that of the alluvium as a whole in the Uruk period, was its favourable location and natural conditions which were conducive to both agricultural production and regional and interregional trade (Fig. 4). It was close to the regional delta eco-system, the fertile plain and pastureland, and had access to navigable marshes and river transportation in a time when the domestication of the donkey fuelled the long-distance trade to obtain raw material from the Upper Mesopotamian areas. All these aspects were important in the explosive process of urbanisation that occurred in southern Mesopotamia in the second half of the fourth millennium BC.

The urbanisation process of Lower Mesopotamia

In the second half of the fourth millennium, Upper and Lower Mesopotamia no longer developed in parallel. The natural advantages of southern Mesopotamia made possible an efficient administrative and religious organization of the state which in turn enabled the revolutionary expansion of these communities, whereas the societies in the north did not have the natural conditions to grow at the same rate. Accordingly the focus of the process of urbanisation in the mid-fourth millennium was on the southern alluvial plain.

Agricultural innovation in the form of sloping long fields irrigated by means of furrows leading from canals was a great invention when compared to the former, small, family fields watered by inundation. Long fields together with technological innovations like the seeder plough, the threshing sledge and clay sickles brought about a production increase of about five hundred to a thousand per cent – an early example of a green revolution. Crucial for these developments was a central ‘coordinating agency’ (the temple and later also the palace institutions), which from the very beginning of the creation of the long fields was likely to have been the organizer of these activities. The surplus was used to increase the agricultural infrastructure, defence, and to maintain specialists and administrators. The emergence of huge temple buildings in this period mirrors the importance of this institution as a means to control the labourers and thus the surplus, since the temple was the only institution that could convince producers to give up substantial parts of their work for the advantage of the community and its administrators, represented by their divine hypostases.

The rulers needed resources to construct the monumental buildings (e.g. temples and palaces) as well as for luxury items, in order to legitimise their power. Paradoxically the alluvial soil of Mesopotamia did not contain sufficient raw materials, and hence these had to be obtained from distant places. The cost advantage of water transportation of necessary imports such as wood was considerable compared to land transport; this was, of course, also valid for the export of bulk goods such as grain and wool textiles. Evidence of direct interaction between

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88 The matter of the interlacing nature of religion and royal rule in the ancient Near East has recently been discussed in publications and congresses, see e.g. Olmo Lete 2004; Porter 2005.
Lower Mesopotamia and southeast Anatolia – what is suggested to be the world’s earliest colonial trading system – is found, for instance, at Hacinebi Tepe from the first half of the fourth millennium. The archaeological remains at this site as well as at other colonies such as Sheikh Hassan, Habuba Kabira and Jebel Aruda show intensive interaction with the south Mesopotamian core area. In addition to colonies there were also smaller enclaves and trading outposts established by the Uruk administration. Whether this interaction between Upper and Lower Mesopotamia should be seen as an unequal centre-periphery relation or as part of a larger intercultural interaction network is difficult to tell. However, there are several similarities between the Mesopotamian trading system and the organization of the later Old Assyrian colonial trade (c. 1800 BC), of which the karum (colony) in Kaneš is most well known through the thousands of written documents found at this site. The Old Assyrian trade was part of a vast interaction network extending from the Mediterranean Sea and the Anatolian plateau, southwards to Babylon and southeast to Afghanistan and Iran, and further to the Indus Valley. In the Uruk period much of the raw material (e.g. lapis lazuli, gold and silver) that Lower Mesopotamia obtained as refined goods from the Middle and Upper Euphrates was not locally available at these latter places but had to be imported. This indicates that these sites were also involved in extended network systems.

The city-state was divided into a) the city proper, where the religious and political administration was located and where the elite, craftsmen and other specialists resided; and b) the surrounding villages, from where the labour was obtained. In the city the surplus was kept in the temple stores, and from there it was redistributed. This procedure, including the administration of the colony trade, required the keeping of records in written form – an innovation that developed when the existing pictograms were combined and abstracted into cuneiform signs on clay tablets. The oldest evidence from the initial phase of writing derives from the Uruk colonies in Upper Mesopotamia in the mid-fourth millennium, and consists of signs on seals, bullae and tokens used as administrative tools in the handling of trade goods. Besides writing, several other innovations appeared parallel to urbanisation. All these new expressions show cognitive changes in the way that humans perceived the world, for instance regarding concepts of time, space and value. Liverani claims that a ‘standardization of reality’ occurred during this period, and hence the necessity of ‘computing and cataloguing’ to meet the needs of the temple administration, the latter of which managed most of the administrative matters within the city-state as well. This standardization is seen, for instance, in lexical texts (used for the training of scribes) and in the standardized range of forms and dimensions used when making vessels for spe-

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93 Algaze 2008.
94 Regarding the Core/Periphery perspective see e.g. Chase-Dunn & Hall 1993; Hall 1999. Regarding Interregional Interaction Networks see Stein 1999a, 1999b.
95 Regarding the Old Assyrian trading system, see e.g. Larsen 1976; Özgüç 2003; Veenhof 1995. See Stein 2005b for a comparison between the Old Assyrian and the Uruk trading systems.
98 Glassner 2003, 45 figs. 2.3.
specific purposes. It is also seen in the estimates of labour in ‘man-day’ units, and in rations that are calculated on parameters of age, sex, rank and specialization. Space depended on linear measures which were based on human body parts (forearm, thumb etc), the proportions rounded off to fit into the sexagesimal system on which all calculations (time, space, area, volume and even value) were based and which were thus multiplicable and dividable by using the relationship of 1:6, 1:60, 1:360 etc. An administrative calendar with a year of 360 days, 12 months and 30 days was used, with five or six (feast?) days inserted at the end of the year to compensate the difference.

The urban revolution also brought about a new concept of a polytheistic religion. The pantheon was structured along the lines of anthropomorphic relations such as kinship, hierarchy and professional specialization; each earthly activity was supervised by a specific god. Thus, the real world was reflected in the religious ideology, which along with myths and proverbs – collected in wisdom texts – guided and motivated the people of Lower Mesopotamia to make contributions to the central agency. The end of the Uruk phenomenon is still an enigma and needs more research, not only at the south Uruk sites proper but also in the so-called peripheral areas. The seeds of its collapse might paradoxically also be sought in the cultural encounters in the colonies and enclaves, in the repercussions these encounters had on the inhabitants of the south Uruk societies, and in these inhabitants' relation to their very strict socio-religious ideology.

Concluding remarks

The basic fact remains that the development or cultural evolution of any society is dependent on its relations with other societies; that cultures are open, not closed, systems; and that studies, be they based on excavations of a site or settlement data from surveys of precisely defined, well-demarcated, but bounded areas, that fail to consider broader patterns of interaction are necessarily incomplete and partial.

Exchange and cultural contacts were part of people's everyday life since the very first sedentary and semi-sedentary societies in the ancient Near East. The motive for this interaction, as seen in the archaeological material, was to obtain raw material and special goods not found naturally in the society's own environment or economy. These cultural and economic encounters were initially mostly direct but were also structured in networks for the procurement of exotic faraway materials such as shells and obsidian. Shells and other exotic goods were often used to express identity and status in body decoration, and thus represented face-to-face interaction by the use of material in a symbolic way – a developmental stage of cognition called ‘material symbolic’ that began at the time of sedentism.

The interaction between societies of various cultural and economical structures promoted the dispersal of material, ideas and innovations connected to economy (e.g. farming, animal domestication, herding) and ideology (e.g. burial customs, cult and symbolism) over large areas of the ancient Near East. Interaction was

100 Liverani 2005, 63–65.
101 Kohl 1987, 1–2.
102 Renfrew 2007, 113.
not always intense; at Catalhöyük domestic and cultic needs seem to have been prioritized over external acquisition, which is reflected in the conservative building plans that prevailed for a long time and eventually led to an unbearably dense village situation.

Environmental advantages stimulated the more rapid development of some societies before others. Such advantages could be found in the multiple eco-systems of the Lower Mesopotamian alluvium where early urban societies started to form. Agricultural innovations and economic networks, based on regional interaction and long-distance colonization of Upper Mesopotamia, were made possible through the religious administration in the south. This elite was able to control and use the agricultural surplus for own interests in order to obtain refined, exotic, raw material. The complex administrative situation required external memory storage in the form of writing and standardized means of registering, calculating and measuring. This phase of human cognition is called the ‘theoretic stage’ and reflects a new, and theorized, way of perceiving the world, characterized by external data storage located outside the human brain and body.¹⁰³ For the elites such means were necessary when managing the growing cities and their populations in the urban landscape of Mesopotamia.

Interaction, both social and economic such, is in itself deeply rooted in cognitive expressions closely connected to the dispersal of material culture and ideas over extended geographical areas, which accordingly promoted the different forms of development and change in societies.

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