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**ISLAND ARCHAEOLOGY AND THE ORIGINS  
OF SEAFARING  
IN THE EASTERN MEDITERRANEAN**

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Albert J. Ammerman and Thomas Davis



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## THE HOMELANDS OF THE CYPRUS COLONIZERS: SELECTED COMMENTS

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### Abstract

This paper is not a comprehensive review of the entire geographic range of the lands that were the source areas for the foragers travelling to Cyprus during the Terminal Pleistocene or the colonists that settled in the island. Several selected issues for the rich literature on the Neolithic of the eastern Mediterranean, namely the Levant and Anatolia are discussed in the text. The most basic aspect is the diachronic changes in the socio-economy of the region, the emergence of cultivation as a prelude to full-fledged farming and the domestication of goat, sheep, cattle and pig. The success of farming as a subsistence strategy is seen as leading to experiments in new modes of social organization. The importance of networking and long distance connections is discussed by stressing the poorly studied role of river transport cross the Mesopotamian lands, the eastern wing of the Fertile Crescent. The more difficult crossing characterized the Levant. The success of long distance transfer of technology, plants and animals led to the experimentations with social organizations. One that was tried and finally failed is the formation of the Göbekli Tepe culture as a chiefdom. In addition potentials for conflicts are brought up and the closing remarks raise several options for the motivations of foragers and later colonist to establish Cyprus as part of the Near Eastern Neolithic world.

**Key words:** Levant, Epi-Paleolithic, Neolithic, conflicts, river transport

### OPENING REMARKS

In my 2001 review I presented the socio-economic changes during the late Palaeolithic and early Neolithic that took place over the lands of the eastern Mediterranean with the assumption that both Anatolia and the Levant were the geographic origins of the first Cypriote inhabitants (Bar-Yosef, 2001). The time passed since the paper was written and published resulted in rapid accumulation of considerable amounts of new information in these geographic regions as well as in the Aegean islands. Given the fast growing number of detailed reports and overall surveys of the data in journals makes the task of writing a similar overview unnecessary. Among these several overviews are the papers in *Current Anthropology* 2011, vol. 52, Supplement No.4 by Bar-Yosef, Goring-Morris and Belfer-Cohen, Belfer-Cohen and Goring-Morris, Özdoğan,

Zeder, Vigne, and Weiss and Zohary. In addition several Neolithic site reports became available, such as Mureybet (Ibáñez, 2008), Geshert (Garfinkel and Dag, 2011), Gilgal (Bar-Yosef, Goring-Morris and Gopher, 2010), Basta (Gebel *et al.*, 2006), Mersin-Yumuktepe (Caneva and Sevin, 2004) as well as the five volumes on the Neolithic of Turkey edited by Özdoğan, Başgelen and Kuniholm (2011-2013).

Hence, I limit my comments to topics that on-land research results may assist us in illuminating the settlement history of Cyprus. Among these are a brief summary of the sequence of socio-economic changes in the Levant, trials and errors in forming new social structures, evidence for or absence of raids and alliances, and long distance transportation and the potential reasons for migrations to this island. Although we assume that most colonizers came from Anatolia and the Levant I suggest for example that the changes

in house plans and lithic industries may indicate more precisely the source area of the colonists.

## SOCIO-ECONOMIC CHANGES

The terrestrial sequence that is relevant to the archaeology of Cyprus began with the harsh cold and dry period of MIS2, ca. 24/23-19/18 ka cal BP, known on land as the Late Glacial Maximum (LGM). Many areas across Eurasia were abandoned or became sparsely populated by foragers who were affected by the depletion of resources. One may even describe it as a genetic “bottle neck”, meaning a time when extinction of human lineages occurred. But, the improved climatic conditions after ca. 19/18 ka cal BP were marked in the Near East by a steady increase of temperatures and precipitation that bettered the environmental conditions, mainly in the steppic and arid belts of the region. These changes allowed hunter-gatherers to slowly re-occupy areas of open woodland as well as semi-steppic to semi-arid belts. The expansion of the Geometric Kebarans, exploiting every ecological niche from the northern Levant to southern Sinai at around 17,500 -14,600 cal BP, demonstrate the success of local foragers. During more or less the same time, non-local hunter-gatherers, the Mushabians and Ramonians (or Late Mushabian; Bar-Yosef and Phillips, 1977; Goring-Morris, 1995), were attracted by the improved environmental conditions of the previously semi-arid Sinai, migrated from Northeast Africa and colonized the Sinai and the Negev. Apparently they pushed out the Geometric Kebarans and took over this region.

What is most intriguing and yet unclear is whether a short abrupt climatic crisis (known in Europe as the Older Dryas) caused a temporary reduction of the steppic belt causing certain groups, possibly of Ramonian descent, to establish the Early Natufian hamlets. This is a hypothesis that needs to be carefully examined and tested.

Without discussing in detail the available evidence, the critical point is the initial formation of human agglomerations (villages or hamlets) by the Natufians, representing bands or larger clusters of sub-clans. Whether this shift from higher mobility of a pattern of anticipated

restricted mobility resulted from the need for security, defense of particular territory, or stemmed from territorial subdivisions within larger units (tribes?) is unknown (Roscoe, 2008, 2009). We once referred to this new societal organization as a “point of no return” (Bar-Yosef and Belfer-Cohen, 1989; Belfer-Cohen and Bar-Yosef, 2000). It was definitely a “tipping point” that led to the formation of the Early Natufian and thus initiated long socio-economic processes that initiated what one can call, in spite of lack of writing systems, the “History of the Ancient Near East”. Undoubtedly, as pointed earlier by J. Cauvin (2000), the complex evolution of Near Eastern cosmologies that were later expressed in artistic and written form, began at least with the initial formation of this new settlement pattern. It finds its most unique expression during the PPNA and PPNB in the sculptures and relief-shaped animals in Göbekli Tepe (Schmidt, 2011 and references therein).

The small Natufian hamlets (ca. 14,600 -11,700/500 cal BP) were constructed from a series of brush huts built above circular stone foundations often dug in the ground, sometimes even into earlier occupations. The evidence for the local territorial ownership is a conclusion derived from the on-site presence of cemeteries, particular industries and artistic expressions. Adopting the subdivision of the Natufian into two or three schematic phases (Valla, 1984) and following the Natufian fleret during the Bølling-Allerød period, the Final Natufian was a tumultuous time due to the effects of the unstable climatic conditions during the Younger Dryas (ca. 13,000/800 -11,700/500 cal BP; Orland *et al.*, 2012). Under the circumstances of ecological stress in the various habitats of the Levant the reactions of the human groups were determined by their in-group organization and socio-cultural concepts (Bar-Yosef and Belfer-Cohen, 1991; Simmons, 2007; Belfer-Cohen and Goring-Morris, 2011; Goring-Morris and Belfer-Cohen, 2011; Bar-Yosef and Valla, 2013 and paper therein) as summarized here:

(1) Increased mobility that is archaeologically characterized by the distribution and occupation intensities of several sites of Late/ Final Natufian age. A particular ecological adaptation in the Negev and Sinai is the Harifian culture characterized

by the Harif point – the invention of a new arrowhead (Goring-Morris, 1991).

(2) Increased sedentism, demonstrated via the establishment of Late Natufian villages as the examples of Mureybet and Abu Hureyra in the Euphrates valley (Ibáñez, 2008; Moore *et al.*, 2000).

(3) Intensified hunting and gathering and part time cultivation (that may indicate increased sedentism) that commenced in the northern Levant, such as in the middle Euphrates River Valley. The evidence for cultivation, although minimal due to poor archaeobotanical evidence, is represented by the presence of arable weeds similar to those found in later Neolithic fields (Willcox *et al.*, 2009; Willcox, 2012; Willcox and Stordeur, 2012), and the symbolic use of green beads (Bar-Yosef Mayer and Porat, 2008).

The effects of the general decrease in resources is clearly shown by the nature of the latest occupations at Eynan (Ain Mallaha) in the Hula Valley (Valla *et al.*, 2007), an area that was ecologically a most suitable niche for sedentary communities and was hardly ever affected in a major way by abrupt climatic changes. Apparently we need to search for additional reasons for the seemingly semi-abandonment state of affairs of the occupations at Eynan.

The overall change in the Levant was rapid when we view it from the viewpoint of the Upper Paleolithic chronology. Early Neolithic communities of what is still referred to as Pre-Pottery Neolithic age (PPNA), instead of relating to the particular cultural entities of that time span, such as Khiamian, Mureybetian and Sultanian (ca. 11,700/500 – 10,700/500 cal BP), are generally villages, eight times (or more) larger than their ancestral Natufian hamlets, a reflection of rapid population growth (e.g., Bocquet-Appel, 2011).

It is important to stress that Levantine PPNA people are generally considered as the direct descendants of the Natufians. However, in contrast to their ancestors, they spent more energy in constructing their households. Circular and oval stone foundations continued to portray the standard shape of the domestic unit, but the use of quarried clay and hand-molded plano-convex bricks for the walls, as well as flat roofs that required supporting posts, represent increased investment in building activities. Moreover, the

“kiva” type underground buildings, possibly following a Natufian concept (e.g., structure 131 in Eynan (Valla, 1988, 1989), required additional energy investment. However, while these special buildings had particular functions within each community, the construction of the temples (called ‘enclosures’) in Göbekli Tepe, demonstrates that a social entity within the northern Levant, invested more than their neighbors in creating a major ceremonial center. I will return to this issue below.

Additional changes are expressed in the shapes of ground stone objects that indicate different techniques of food preparation, i.e., the ‘grinding and rubbing stones’ (*metates* and *manos*) although some mortars and pestles are still present (Rosenberg, 2008). Stone artifacts include for the first time arrowheads designed for a different hafting technique, among which the el-Khiam point with parallel double notches is the better known one.

The estimated population growth from 30-50 persons (rarely up to 100) in the Natufian sites to 250-400 persons in early Neolithic village, within apparently two-three centuries requires an explanation. It seems to me that without the benefits of systematic cereal cultivation, which commenced in the closing centuries of the Final Natufian, during the very late YD, in sites like Tell Qaramel (Willcox, 2012 and references therein), it will be hard to explain this rapid population growth across the Levant.

During the PPNA through PPNB times the Levantine economy evolved from cultivation of plants to domesticated brands and from hunting to tending and herding domesticated goats, sheep, pigs and cattle (e.g., Vigne 2011, 2013; Vigne *et al.*, 2009, 2012; Zeder, 2011, 2013; Willcox, 2012; Asouti and Fuller, 2012, 2013; Abbo *et al.*, 2010, 2013; Lev-Yadun, 2000; Zohary *et al.*, 2012). Issues pertaining to plant domestication are still debated but, in brief, the process of cereals’ domestication as well as that of the legumes took place within several centuries to a millennium or millennium and half, as discussed in the above citations. The cultivation and eventual domestication of cereals and legumes, when compared to their gathering during previous millennia of foraging, provided staple food that allowed a fast demographic change (Bocquet-Appel, 2011 and references therein). While there

is an ongoing discussion about the details of the processes involved, including whether human choices played a major role, there is no doubt that by the Middle PPNB all the plants of the “agricultural package” were domesticated and could be transported to other regions.

Similarly, the process of animal domestication took about a millennium. To cite J.D. Vigne ... "The earliest detected [animal] domestications are from the Near East. They concern the Oriental mouflon (*Ovis orientalis*), which gave birth to sheep (*O. aries*), bezoar goat, which is the ancestor of the domestic goat (*Capra hircus*), extinct aurochs (*Bos primigenius*), which generated domestic cattle (*Bos taurus*), and wild boar (*Sus scrofa*), the domestic form of which being the pig (*Sus domesticus*). All these domestications date approximately from the middle of the 11th millennium BP" (2011:174).

PPNA villages in the Mediterranean and steppic belts, however, do not show the same crowded ‘clustering’ that became a marker among several later PPNB sites, including those labeled as “mega sites” along the Jordanian plateau. AMS calibrated radiocarbon chronologies of short-lived samples indicate that the abandonment of almost every village, except for rare cases such as Jerf el-Ahmar (Stordeur and Abbés, 2002; Stordeur and Willcox, 2009; Willcox and Stordeur, 2012; Willcox, 2013), occurred everywhere in the Levant. Apparently, even villages situated near a copious spring (like Jericho) or on the bank of a river (like Mureybet) survived only for a few centuries. A similar settlement history was recorded for the following PPNB period (ca. 10,700/500–8,200 cal BP) in spite of the fast accumulating evidence that indicates better climatic conditions (e.g., Weninger *et al.*, 2009). This phenomenon of most villages surviving, on average, only several centuries demands an explanation. In some cases an abrupt climatic change indicates a temporary abandonment as at Sabi Abyad (van der Plicht *et al.*, 2011), which can be assumed in additional cases as well. Other explanations were offered including social rivalries and in-village violence, conflicts with neighbors and fear of constant raiding, disease, and soil depletion but all hypotheses require systematic testing (e.g., Bar-Yosef, 2010 and discussion by reviewers). However, abandonment of on-land villages may

explain the need for migration and thus crossing a short distance of the Mediterranean to Cyprus becomes an option. PPNA colonization such as recorded in Klimonas (Vigne *et al.*, 2011) is the best testimony for the ability of early farmers to cross the sea as was done most probably already by their predecessors.

This was something that their predecessors, the forager-voyager who visited the island on a seasonal basis and who made short-term campsites on the coastline (see Ammerman and Simmons in this issue), had been doing since the time of the Younger Dryas. From the perspective of island archaeology, it is worth adding at this point that to date only two settlements with stone tools and architecture characteristic of the PPNA are currently known on the island: Klimonas and Asprokremnos (Vigne *et al.* 2012; McCartney *et al.* 2007; Manning *et al.* 2012). Recently excavations have been carried out at both sites, each of them has yielded a series of AMS dates that fall in a fairly narrow time range (clustering around 10,750 cal. BP or the end of the PPNA and the transition to the PPNB; see Manning in the next issue). In short, we still have a good deal to learn about how much of the island was actually occupied or colonized in the PPNA period and the degree to which the settlements were successful or not. As on the mainland, these two PPNA on Cyprus may have had comparatively short lives. In any case, people on the mainland in the ensuing PPNB period would continue voyaging over the sea to Cyprus. Indeed, many scholars today take the position that the island should not be seen at this time as constituting an integral part of the wider PPNB world in the Near East.

## NETWORKING AND INTERACTIONS

Hunter-gatherers and farmers surviving in terrestrial environments know each other whether they belong to the same mating system or speak the same dialect. Such acquaintances are not only among close neighbors, but also further away, as people know others in distant groups as well. Ethnographic studies recorded regions displaying both close and distant contacts among the inhabitants and that foragers often speak more than one language or dialect. Thus

a topic for prehistoric research is defining which communication systems existed and what means for such contacts were available. I will start with the latter subject, discussing the potential means.

In the area of the Fertile Crescent there are two rivers that served for transport for millennia, namely the Euphrates and the Tigris. Although the spring melting of snow in the mountains of eastern Turkey - the source area of the water - caused rapid flow and sometime flooding, that resulted in major alluviation events within the Mesopotamian basin, these rivers served as major highways. Floating and rowing in small boats made of reeds and covered with the hides of hunted animals would not take more than a month or two to reach southern Mesopotamia. Similarly, a simple wooden raft placed over several animal hides filled with air were a means of transportation recorded during the Assyrian period, still used, as recorded historically, during the 19<sup>th</sup> century (McGrail, 2001).

Indeed, by employing these simple vessels for aquatic transport, information, technologies, seeds and animals could be moved into the Zagros foothills. Claims based on the archaeobotanical assemblages from Chogha Golan for independent initiation of wild barley cultivation (Riehl *et al.*, 2011, 2013) can be refuted through the explanation that this local cultivation could simply be the outcome of information brought by humans from the 'core area' while boating along the Tigris River.

Another option of river transport that needs to be examined through the archaeological information is the movement south on the Orontes River and after a short distance on land in the Litani River thus reaching the Galilee. Both the river transport and the overland walking should be examined to explore the means and ways the Anatolian obsidian reached the southern Levant.

Similar trips would explain the connections between sites along the Euphrates River and its tributaries, the Balikh and the Habur rivers. Hence, we should not be surprised that the "kiva" type construction occur in Mureybet, Tell 'Abr 3 and Jerf el-Ahmar that may actually reflect the spread of one social entity. Therefore we need to consider the option that such vessels or even simpler ones allowed Epi-Paleolithic foragers to use continuously the rivers for transport. The idea

that there were seafaring vessels which served as means of crossing open seawater during the Terminal Pleistocene was validated through the evidence that foragers brought the wild boar to Cyprus (Vinge *et al.*, 2009).

As a final comment, coastal navigation is an option to keep in mind, but we have to explore in greater depth the challenges that were involved in voyaging of this kind; many of the small boats, mentioned above, that could use on rivers and lakes are not really suitable for this purpose. On the other hand, that boats were voyaging in the Eastern Mediterranean already by 12,000 cal. BP is now shown by three lines of evidence (outside of the Levant itself): (1) obsidian from the island of Melos is found in layers of Epipalaeolithic age at the Franchthi Cave in Greece; (2) on Cyprus, there is a good series of radiocarbon dates for stratum 2A at Aetokremnos going back to the Younger Dryas; and (3) close parallels are observed between the microlithic tools recovered from Dive Site C at Aspros on the west coast of Cyprus and those dating to the Younger Dryas at the cave site of Okuzini (levels Ia and Ib) on the south coast of Turkey (see Ammerman in this issue).

Still, movements along the Mediterranean coastal mountain ridges and valleys, including the Jordan Valley, and along the Syro-Jordanian plateau, in either north or south directions, had to be done mostly on foot. The meandering Jordan River could be an option but its narrow channel and frequently shallow depth were a hindrance even in historical times. These overland obstacles may have delayed the transmissions of information, material culture and animals into the southern Levant. I will mention only two cases illustrating just such slow dispersals of new inventions from the northern 'a area' to the southern Levant. First, as has been shown by the study of arrowheads (Gopher, 1989, 1994; Gopher *et al.*, 2001), the type called 'Helwan point' (with a tang and two parallel notches in the hafted area) appeared earlier in the north and arrived only later to the south. Second, the archaeobotanical evidence demonstrated the primacy of this region (e.g., Lev-Yadun *et al.*, 2000; Bar-Yosef, 2002; Abbo *et al.*, 2011). In addition, in Motza, an early PPNB site near Jerusalem, the faunal assemblage is dominated by hunted gazelles when domesticated

goat and sheep were already being shipped to Cyprus (e.g., Khalaily *et al.*, 2007; Sapir-Hen *et al.*, 2009; Vigne *et al.*, 2013). Hence, arguments against the concept of a northern Levantine 'core area' (e.g., Fuller *et al.*, 2011) do not stand an in-depth scrutiny (e.g., Abbo *et al.*, 2010; Gopher *et al.*, 2013 and references therein).

## SOCIAL STRUCTURES

Efforts to reconstruct prehistoric social structures are besieged with inherent difficulties and ambiguities as well as diverse interpretations. Each study in this domain is rooted in ethnographic and historical researches that are used to provide information concerning the social structures and eventual social transformations. For this purpose the most prominent case studies were and are still based on anthropological documents from South and North America, Southeast Asia, New-Guinea, Polynesia and Melanesia. Formerly, a social evolutionary scale was formulated as a linear change from the so-called 'simple bands' of hunter-gatherers, through complex societies of foragers to chiefdoms and state formation, indeed, Marx and Engels based this linear progressive scale of social and economic aspects on such earlier ethnographic writings. Yet during the early 20<sup>th</sup> century archaeologists, such as the influential G. Childe, pointed out the difficulties in this simplistic reconstruction of historical changes. Even terms such as Barbarism, Neolithic Revolution, Urban Revolution and the Ascent of Civilization were criticized. Changes in viewing the past concurred with the advent of 'processual' and 'post-processual' archaeology. Modern research of the extant hunter-gatherer groups, the recognition of the potential roles of symbolic behavior, rituals and ceremonies as part and parcel of economic activities, resulted in a better understanding of social structures, of differing bands of hunter-gatherers, of complex societies based on hunting and gathering, the various organizations of farming societies, and the variable paths to power in each of these societies. But perhaps the most important realization in anthropological archaeology is the cyclical nature of social and economic organizations. Farmers, who due to inter-societal conflicts become

foragers is just one such example (e.g., Oota *et al.*, 2005). Another example is the cyclical nature of sedentism (e.g., Bar-Yosef, 2001).

Our starting point in this discussion is the social structure of foragers who spread in the Near East following the LGM. They were the local Levantine population until the emergence of the Natufian culture, and its settlement pattern differed according to the particular environmental circumstances. Among the Geometric Kebarans we can identify two basic patterns of mobility. Within the Mediterranean belt of dominantly oak and terebinth forests and parkland the common annual migration cycles were between semi-sedentary sites, where sometimes the foundations of flimsy huts were preserved, located in the lowlands along the Israeli coastal plain, and summer ephemeral camps in the mountain ranges. At that time the Jordan Valley was still covered by the salty Lisan Lake. On the Syro-Jordanian plateau, a similar pattern occurred when semi-sedentary sites were situated near fresh water tributaries that flow from the east into the Jordan River. On the plateau, beyond the belt of the forests and woodland, the settlement pattern included many smaller sites indicating higher mobility, with a few large aggregation sites such as Kharaneh IV (Maher *et al.*, 2012). Small sites were spread, based on current evidence, from northern Sinai sandy areas through all the way to Wadi Feiran in the south (Bar-Yosef and Killbrew, 1984). Thus a model of residential and logistical mobility that would fit to the ecological variability can be the explanation for the published diverging evidence. In addition, one should remember the uniformity of the regional lithic industry, in terms of operational sequence and shaping of the microliths, as it seems that the same teaching system has been documented from northern Syria to south Sinai, a distance of some 1300 km. Needless to mention that mortars and pestles were part and parcel of food preparation techniques all over the area. Burials were uncovered in the more sedentary sites such as Neve David (Kaufman, 1987; Bocquentin *et al.*, 2011) and Uyyun al-Hammam (Maher, 2007a, b) and thus support the expected pattern of territorial aggregation sites.

The main change took place with the appearance of the Natufian culture characterized

by its more permanent sites, either fully or partially sedentary, rich material culture, burials that demonstrate some social differences in their body decoration, art objects and more. All of these caused considering the Natufian as a society of 'complex hunter-gatherers'. In the site of Eynan (Ain Mallaha) we also find the prototype of the "kiva" building that is found later in PPNA sites such as Mureybet, Tell 'Abr, Jerf el Ahmar and Wadi Faynan 16 (Finlayson *et al.*, 2011 and references therein). What we do not have is evidence for an open aggregation site, in spite of the large number of sites, still we may hypothesize that annual aggregation could occur at the outskirts of a major site such as Eynan. There is evidence for special localities like Hilazon Cave with its unique burial of a female shaman or medicine woman. The same site provided also evidence for feasting which could be found in special loci of other sites such as in Hayonim cave (e.g., Belfer-Cohen and Bar-Yosef, 2013). Based on differences in material culture elements we can identify actual defined territories already in the Early Natufian. Thus, it is quite apparent that the growing population of Terminal Pleistocene foragers already practiced a social structure that was more complex than that of their predecessors.

The first centuries of the Neolithic Revolution demonstrate the presence of several villages larger than any previously known Natufian site, of up to 2.5 hectare in size. Later, during the PPNB, villages grew even up to 12 hectares and are known as "mega-sites" mostly located in the Jordanian plateau (Simmons, 2007). While this process was caused by relatively rapid population growth, it is a challenge to the excavators to recognize the presence of leadership, or Big Man. Suggestions to view these societies as egalitarian are untenable in light of the reported differences in material culture accumulated during these three and half millennia (ca. 11,700/500 – 8,200 cal BP). Moreover, we can, in my view, observe the different experimental efforts for social organizations if we examine in details the archaeological documentation through the entire Levant. The best example is the society that erected the impressive temples or shrines in Göbekli Tepe, a central ceremonial site, as well as in several other villages within a clearly defined

territory. I suggest seeing the Göbekli culture as a relatively short-lived social experiment in creating a chiefdom or a 'proto-chiefdom' (if this is an appropriate term). Indeed, identifying chiefdoms in the Near East is not an easy task as explained by Flannery (1999a, b) using the example of the Halfan. Additional discussions of this aspect of complex human organization in the same Levantine region are in the literature (e.g., Stein, 1998; Bolger and Maguire, 2010).

The discovery of Göbekli Tepe in the northern Levantine 'core area' is still a "mystery" for those who write about the Neolithic Revolution in the Levant. In part the obstacles for a more comprehensive view is the lack of a well-established local Late Paleolithic archaeological record in the area of SE Turkey, that would indicate which forager society gave rise to the emergence of this culture. The presence of Terminal Pleistocene foragers in northern Syria only supports the notion that it is the lack of research-oriented surveys similar to those that uncovered many Neolithic sites in SE Turkey, which is the reason why we miss this information. Hence, when the T-shaped pillars at Göbekli Tepe were recognized and the site was excavated, and the first interpretations, based on the faunal collections of game animals suggested that it was a settlement of hunter-gatherers. With the progress in the excavations and the finding of additional sites where T-shaped pillars are an architectural component, first in the excavations of Navali Çori in the Euphrates valley and later through surveys which discovered Hamzan, Sefer and Karahan it became apparent that this is a wider, geographically limited, cultural phenomenon (Çelik, 2000, 2004, 2006; Schmidt, 2005, 2011, 2012; Huaptman, 2011).

The new dates indicate that the site was probably founded several centuries after the onset of intentional cultivation in the region (Willcox, 2012 and references therein), ca. 11,500 cal BP (Dietrich *et al.*, 2013) and thus one can imagine that the security of staple food during five-six centuries, resulted in a rapid population growth. The quarrying of the T-shaped pillars required many hours of work as well as the presence of workers that had to fed in each of these sites. Organized and coordinated labor in carrying out the plan of building and erecting the pillars, as

demonstrated in the village of Nevali Çori is a good indication of communal efforts. Moreover, in the construction of an entire ceremonial center first at Göbekli Tepe and then in Karahan (yet unexcavated) reflects investment of a larger group of humans. The chronological sequence at Göbekli Tepe expresses the size decrease of the T-pillars during PPNB times. When temples went out of use they were intentionally filled in as was customary elsewhere (i.e., filling in houses in Neolithic sites; Özdoğan and Özdoğan, 1998). Was this a decision, driven by religious beliefs, that the house or the temple became impure, or was it the result of an order by a higher authority? In any case the refilling of the buildings at Göbekli Tepe required coordinated and intense efforts.

There is no doubt today that Göbekli Tepe was a ceremonial center besides having some mundane living quarters. A clear evidence for its use as a holy place is the sacrificed animal that according to the archaeological analysis were hunted. However, I wonder if additional analysis will not discover that several of the ungulates remains were tended or penned stock. The ratio of 5:1 of bulls to cows (Peters *et al.*, 1999; Peters and Schmidt, 2004) means that it was not a village of farmers as shown in the close-by site of Gurçütepe where the ratio was 5:1 cows to bulls. This high ratio of the sacrificed bulls as well as that of other male animals is known from the history of traditional sacrifices in Near Eastern temples of later periods, where males were preferred over females (e.g., Albright, 1957).

In sum, when we briefly examine the information concerning the variability among chiefdoms evidence in historical and in archaeological records it seems that Göbekli Tepe society was a sort of chiefdom. In several writings on chiefdoms authors stress the dynamic properties of a tribal system (Friedman, 1975, 1979; Friedman and Rowlands, 1977; Zeidler, 1987). This type of organization incorporates kin-based lineages, and alliances entailing ritual feasting through which prestige items were exchanged and accumulated resulting in the rise of individual entrepreneurs and creating a social ranking.

Following Drenan's suggestion that "it is identifying differences in different sequences of development and seeking to explain them

that provide us with one of our most powerful approaches" (Drennan and Uribe, 1987:319), I propose to identify the society responsible for the emergence and demise of the Göbekli Tepe culture as a chiefdom, based economically on farming, fast population growth, organized labor, presence of leadership, and perhaps a degree of inter-group coercion. Possibly it failed when farmers revolted, and the carving of T-shaped pillars stopped even at the single village level. Similar energy consuming investment did not emerge until several millennia later with the rise of Mesopotamian and Egyptian civilizations. However, it is fully understood that by employing the descriptive term of "chiefdom" I propose an interpretation of a social organization visible in the archaeological remains yet affirming this suggestion will require additional testing.

## CONFLICTS

The question discussed in this section deals with the interrupted sequences or sudden disappearance of villages as recorded in many Early Neolithic sites. I tried to explore this subject elsewhere and received a large number of interesting reactions (Bar-Yosef, 2010 and comments). The main arguments are summarized below.

Violence among hunter-gatherers could happen when both intra-group fissioning and individual conflicts play a major role. It seems that there is less violence among mobile or semi-sedentary (that corresponds often to anticipated mobility-transhumance) for example, during the Geometric Kabaran. Possibly a higher level of personal disagreements occurred during the three millennia of the Natufian culture. Undoubtedly social pressures grew during the PPNA and PPNB periods.

It is known that intra-group conflicts were caused by "scalar stress" that probably triggered the splitting of villages (e.g., Roscoe, 2008, 2009; Goring-Morris and Belfer-Cohen, 2008). The 'breaking up' of communities could explain why Gilgal (Bar-Yosef *et al.*, 2010) and Netiv Hagdud (Bar-Yosef and Gopher, 1997), more or less contemporaneous PPNA sites, are situated only 1.5 km apart. Another option is that Jericho, 12 km south of both sites, was founded earlier,

and either Gilgal or Netiv Hagdud represents a budding-off community.

Fear and the need for security played a role too. It is better expressed during the PPNB, a time when the economy flourished and communities became richer. For example, Ba'ja (Gebel, 2005; Gebel and Kinzel, 2007) is located in a closed valley with a narrow and difficult access passage through Wadi Musa, in south Jordan, but there are also examples of house clustering, i.e., Beidha in the same region, Bouqras (Akkermans *et al.*, 1981) near the Euphrates and Çatalhöyük (Hodder, 2011; Hodder and Cessford, 2004) and Aşıklı Höyük (Özbasaran, 2011) in the Anatolian plateau. Similar tight household agglomerations were exposed in Magzalia and Yarim Tepe in northern Mesopotamia (Bader, 1989). Although it is tempting to interpret Neolithic walls and ditches as fortifications, using their superficial similarity to Bronze Age towns, there is no supporting evidence to consider them as indications of warfare. The alternative interpretation for the few cases where such walls were uncovered of either a full or partial perimeter wall (e.g., those erected in Jericho) is as protection against floods (Bar-Yosef, 1986). Thus not surprisingly the tower in Jericho, which carried a symbolic meaning, was built during the PPNA inside the village and was protected by the perimeter wall and the ditch. Similar protection walls were uncovered in Beidha (Byrd, 2005) where a staircase was built on the outer face was exposed, in 'Ain Ghazal (Rollefson and Kafafi, 1997), and Mezra'a Teleilat, both built as terrace wall resembling the PPNB wall in Jericho (Özdoğan, 2011).

Among the reasons for site abandonment of late PPNB settlements was the impact of a climatic change known as the "8200 cal BP cold event". It had possibly lasted a few centuries in the Eastern Mediterranean (e.g., Bar-Yosef, 2001; Weninger *et al.*, 2009; Berger and Guilaine, 2009; van der Plicht *et al.*, 2011). Droughts were probably a recurrent phenomenon that forced farmers to abandon their villages and move elsewhere, and in the southern Levant caused the cultural shift from PPNC to the Yarmukian, and the establishment of very small Pottery Neolithic sites across the southern Levant. The large village of Sha'ar HaGolan on the banks of the Yarmuk River is rather an exception and even

there a well had to be dug to obtain fresh water for either symbolic use of underground water or due to growing awareness for hygiene (Goring-Morris and Belfer Cohen, 2010). Was it due to the increase of disease frequency as recorded in skeletal remains (Eshed *et al.*, 2010) or simply due to demographic pressure that elevated the density of village population, is unknown. However, it would not be surprising that in such times the archaeological evidence for violence becomes visible.

Finally, arrowheads were the projectiles used for hunting, but in general their reported numbers in most PPNA sites in the 'sown land' are relatively small (e.g., Gopher, 1994; Cauvin, 2000). However, the Big Arrowhead Industry (Kozłowski and Aurenche, 2005) demonstrates that in many farming communities the frequencies of arrowheads are high if one considers the MNI of hunted species. In addition, many steppic and semi-arid sites of foragers, such as in the southern Sinai or the margins of the Syro-Arabian desert produced staggering amounts of PPNB projectiles (e.g., Gopher, 1994). One potential explanation for these frequencies is that the groups that used the "desert kites" for trapping gazelles and sometimes aurochs and wild donkeys, hunted and supplied animal tissues and hides to PPNB sedentary settlements as part of their mutual interactions (e.g., Bar-Yosef, 1986, 2001).

Clearly, to test the hypothesis regarding the evolution of warfare among Neolithic societies of southwestern Asia, as was shown among the Neolithic groups in Western Europe (Guilaine and Zammit, 2005), we need to find skeletal evidence of violence, burned houses, and skeletons (or parts of skeletons) buried in the rubble. While we often operate under the premise of the 'noble savage,' searching for the evidence of warfare among the ancient farming communities of the Levant and Anatolia would be beneficial for understanding one of the motives for human migrations.

## CLOSING REMARKS

The migrants who colonized Cyprus came from the Anatolian-Levantine homelands. They did it over quite a prolonged time as the current data indicates (Vigne *et al.*, this issue).

At this point, it is perhaps useful to make a short digression on the use and abuse of the term “colonist” and the verb “to colonize” a place. In archaeology, both in the literature on Cyprus and elsewhere, there is a tendency in the literature on early Cyprus to use these two terms in rather loose and inappropriate ways. On one hand, we no longer use the term “colonist” in writing about forager-voyagers in the time before the PPNA, who made seasonal trips to Cyprus and then returned to the mainland. Such mobile foragers had their feet at once in two or more different places, and they did not necessarily put down deep roots as such on the island. On the other hand, we still encounter the misguided habit of calling anyone who went out from the mainland to the island – even over the entire course of the PPNB (a period lasting more than a thousand years) – a colonist. To illustrate the problem here, let us consider very briefly the case of the colonization of North America, where the term is an appropriate one when it comes to writing about the Europeans who crossed over the Atlantic during the arc of time between the 16<sup>th</sup> century and the 18<sup>th</sup> century. In contrast, one does not use the term “colonist” when one speaks about the Germans who migrated to New York City in the 1850s or the Italians who moved to Boston in the 1890s or the Koreans who came to Los Angeles in the second half of the 20<sup>th</sup> century. In all three cases, they are called simply immigrants and not colonists. In the fields of population biology and demography, *colonization* is used with reference to the first generations of those in a population who go out to a new place and not the subsequent history of that population over the long course of many generations. And in the context of human populations, there is also the idea that the occupation of the place should involve permanent forms of habitation there (those working at a research station in Antarctica for a month have not *colonized* the place). Thus, in the literature on early Cyprus, what is called for is a more careful and nuanced usage of terms of this kind. Not all migrants who came in different times and by different means arrived from the same area. During certain periods such as the PPNB and late Neolithic the new colonizers maintained seasonal or annual contacts with the mainland. However, as with other archaeological enigmas we are in

search of the ‘why’ question. In particular we are interested to know ‘why did it happen’ when a major culture change or a migration occurred. Inhabiting a new land, be it an island or a new ecological environment, whether uninhabited or already occupied by an older population, triggers the same query. Thus, like in different cases in the course of the Paleolithic and Neolithic cultural sequences, a few possible causes should be considered.

The most common reasons for migrations known from historical records are: the human drive to find new places, economic pressures at home forcing people to move, and religious persecution. The first is probably the inherent trait of curiosity of most mammals and humans. “What is in the next valley?” would trigger the crossing of mountains if this was a feasible endeavor. People are always wanting to find out more about distant locations when invading a lowlands landscape that stretches beyond the horizon. As on clear days Cyprus is visible from the Anatolian and Levantine coasts, once sea vessels were invented (perhaps by the users of river transport) the means to get to Cyprus (or the Aegean islands) were available.

The economic motivations for movements was part and parcel of the “budding-off” phenomena in villages that became either over-populated or had to be fully or partially abandoned due to the reasons mentioned above. For example, the collapse of the Göbekli Tepe culture could be one of those events the caused people to seek refuge in new lands.

Undoubtedly the colonization of Cyprus for religious reasons, as suggested by Ronen (1995,1999) was done by people who were seeking a ‘home’ away from the old one, and a departure from their contemporaries on the mainland in order to practice their particular symbolic behavior under both, mundane and ritual circumstances, based on a different cosmology than that of the people they left. Viewing the PPNB or the so-called A-ceramic population on Cyprus as a sect revolting against dominant religious practices is a valid hypothesis which needs, like the alternative interpretations, to be tested again as the amount of information from the Neolithic sites in Cyprus increases.

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