On 'sedentism' in the Later Epipalaeolithic (Natufian) Levant

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Abstract

A poorly defined notion of 'sedentism' continues to feature prominently in archaeological discussions of the Epipalaeolithic/Neolithic transition in Levantine prehistory. While acknowledging the valuable contribution of previous studies on the subject, this article argues that interpretations of the archaeological evidence are being hampered by the continued adherence to 'sedentism' as a concept for explaining social transformations in settlement and landscape, and that there is little more to be said from this perspective. I suggest that recent perspectives on 'social landscapes' will help further our understanding of this period in human history. In the specific case of the Later Epipalaeolithic (the Natufian and other 'cultural entities'), this engagement would be profitably grounded in discussion of the histories of human communities' perceptions and uses of space, place and landscape, and how these perceptions and uses changed over time. It is argued that the Early Natufian – when, it is claimed, sedentism first appears in the Levantine sequence – needs to be studied in its own right as a particular set of social practices and traditions, and not as some kind of 'precursor' to the Neolithic almost three millennia later.

Keywords

Epipalaeolithic; Natufian; landscape; sedentism.

Introduction

The archaeology of the Epipalaeolithic and Neolithic in south-west Asia is currently undergoing fundamental changes. Recent excavations at, for instance, Mallaha and Kfar HaHoresh (Israel), Jerf el Ahmar (Syria), and Çatalhöyük and Gobeckli Tepe (Turkey), have made it quite apparent (a) that the environmental and socio-economic models characteristic of cultural ecology and human behavioural ecology cannot adequately account for the nature of the archaeological evidence coming from such sites and (b) that an understanding of the processes of social transformation that evidently took place in the Epipalaeolithic and Neolithic requires consideration of the complex relationships between

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human communities and landscape use which resulted in the organization of the archaeological material that we now see before us. Traditionally in Levantine prehistory, these relationships have been discussed within a social evolutionary and environmentally driven paradigm, which has tended to focus on the identification of settlement patterns, as well as material culture variability, to understand the perceived transition from the complex hunter-gatherer communities of the Later Epipalaeolithic to the agriculturists of the Neolithic.

Early Natufian sedentism

A particular focus of this type of study has been for many years the identification of sedentism which, it is argued, first emerges as a way of life in the Early Natufian phase (*c.* 12800–11250 BP) of the Later Epipalaeolithic:

> the Early Natufian, in which evidence of sedentism was clearly observed... was culturally a complex hunter-gatherer society that predated the agricultural communities by almost 3,000 radiocarbon years.
>
> (Belfer-Cohen and Bar-Yosef 2000: 22)

> The establishment of a series of sedentary Early Natufian hamlets in a delineated homeland is seen as a reaction to an abrupt environmental change that necessitated a shift of resource scheduling.
>
> (Bar-Yosef 1998: 168)

> The Natufian marks a major change in the development of Epipalaeolithic societies in the Levant, with larger and more permanent settlements, including some that were occupied year-round by communities of sedentary hunter-gatherers.
>
> (Watkins 2005: 210)

From these statements, it seems that the Early Natufian in parts of the Levant could be regarded as the original case of 'sedentism in non-agricultural societies', and indeed, this phase of the Later Epipalaeolithic is routinely regarded as the period when hunter-gatherer groups in areas such as the Carmel, the Galilee and the Upper Jordan Valley first became sedentary, and took the first steps towards the domestication of certain plant and animal species. A recognized area of contention, however, is that the Early Natufian not only predates the appearance of agriculture by anything up to 3000 years (Belfer-Cohen and Bar-Yosef 2000), but also that the intervening Late and Final Natufian phases (*c.* 11250–10300 BP) rarely display a comparable wealth of evidence for a sedentary way of life. Until fairly recently, scholars found this a difficult problem to tackle. Why would people who had been living in sedentary communities for the best part of two millennia decide to return to the mobile way of life of their ancestors? And why, after around another 1500 years (the Late and Final Natufian) did the onset of the Pre-Pottery Neolithic witness a return to sedentism, only this time accompanied by the adoption of plant/cereal cultivation? The current consensus seems to favour the Younger Dryas, which apparently corresponds exactly to the Late/Final Natufian, and

so not only has the perceived return to mobility been effectively explained, but so also have the origins of cultivation, agriculture, animal husbandry and, ultimately, civilization.

If sedentism can be 'clearly observed' in the Early Natufian, we must be able to identify exactly what kinds of archaeological evidence make this observation possible. In the Levant, there are a number of archaeological and biological categories of evidence that archaeologists routinely equate with the appearance of sedentism in the Early Natufian. The principal categories can be listed as follows:

1. Stone architecture
2. Heavy-duty material culture, such as large stone mortars
3. Storage pits
4. Cemeteries
5. The presence of commensal faunal species, specifically the house mouse, the house sparrow and rats
6. Seasonality of hunting as indicated by cementum increments on gazelle teeth
7. Thickness of archaeological deposits.

Taking these in turn:

Stone architecture

The Early Natufian is characterized, at a number of sites, by the appearance of substantial stone-built structures (Valla 1995). These are quite unlike structures from sites dating to the Earlier Epipalaeolithic, e.g. at Ohalo II on the southern shore of the Sea of Galilee, where excellent organic preservation demonstrates that huts were constructed from thick branches and brush (Nadel and Werker 1999). There are a few examples of stone architecture prior to the Early Natufian, for example at (Geometric Kebaran) Neve David on Mount Carmel (Kaufman 1989), but nowhere is there a comparable level of the kind of 'monumentality' witnessed at, for example, Mallaha (Eynan) in the Upper Jordan Valley, where the largest Early Natufian structure (no. 131) has a diameter of around 15m (Valla 1988). This structure underwent several rebuilding episodes over time. Similarly, at Wadi Hammeh 27 in the Jordan Valley three large circular stone structures with evidence for post supports represent a substantial Early Natufian occupation (Edwards 1991; Hardy-Smith and Edwards 2004). Hayonim Cave, western Galilee, while not on the same scale as Mallaha or Wadi Hammeh 27, nevertheless contains a 'honeycomb' arrangement of several conjoined circular stone structures, each between 1.5 and 2.5m in diameter (Belfer-Cohen 1988a). A tentative reconstruction of a large Early Natufian structure on the terrace of el-Wad, Mount Carmel, has recently been put forward (Goring-Morris 1996), and in the central Negev, the site of Upper Besor 6 has yielded a 7m diameter oval stone structure (Goring-Morris 1998). The sites described here are generally regarded as Early Natufian 'base camps', with the majority being located in a Natufian 'homeland' (Bar-Yosef 1998: 162; Belfer-Cohen and Bar-Yosef 2000: fig. 1), and there is some consensus that 'these are sedentary occupations' (Goring-Morris and Belfer-Cohen 2003: 71).

Heavy-duty material culture

The Early Natufian by no means witnesses the earliest use of heavy groundstone artefacts in the Levant (Belfer-Cohen and Hovers 2005; Wright 1991), but we do see a proliferation in both quantity and variety (ibid.). These take the form of limestone and basalt mortars (both free-standing and bedrock), pestles, bowls, grinding stones and other forms. The large mortars can weigh up to 150kg (Bar-Yosef 1998), and have been found at a number of the so-called 'base camps'. Along with architecture, these items are regularly cited as 'secondary evidence' for sedentism (Belfer-Cohen and Bar-Yosef 2000: 20) due to the fact that they are not easily portable (or not at all portable in the case of bedrock mortars). It is often assumed that the presence of pestles and mortars reflects 'an increased intensity in the harvesting, storing and processing of dry seeds' (Watkins 2005: 208), but it has been long recognized that they are not associated exclusively with food-processing activities, as the numerous examples stained with substances such as ochre and lime testify (e.g. Belfer-Cohen 1991; Edwards 1991; Weinstein-Evron 1998: 96). Nevertheless, the perceived non-portable nature of many of these artefacts seems to warrant their inclusion in the list of possible indicators of sedentism.

Storage

Our next category of (indirect) evidence for sedentism is storage pits. There appears to be a general assumption that the Natufian exhibits the earliest evidence for storage (e.g. Hayden 1990; Perrot and Ladiray 1988). Often termed 'silos', pits are indeed a feature of some Natufian sites, although Mallaha is the only one with numerous examples (Valla 1995). Olszewski has argued that, '[w]hile storage facilities are not numerous... they may indirectly reflect the importance of plant food storage for some Natufian populations' (1993: 424). Goring-Morris and Belfer-Cohen note that, although 'evidence is virtually non-existent, it is likely that there were advances in storage facilities' (1998: 80).

Cemeteries

The Early Natufian provides a wealth of mortuary evidence unprecedented in the Levant. To provide a sense of perspective, the Early and Middle Epipalaeolithic (*c.* 19,000–12,800 BP) burial record for the entire Levant consists of fewer than twenty individuals from around five sites (with at least six of these individuals coming from one site, the Geometric Kebaran occurrence at 'Uyyun al-Hammam in Jordan (Maher 2005)). By way of contrast, the Early Natufian has to date furnished upwards of eighty human burials (Byrd and Monahan 1995).These cemeteries appear mainly at the 'base camp' sites: el-Wad (Garrod and Bate 1937), Mallaha (Perrot and Ladiray 1988) and Hayonim Cave (Belfer-Cohen 1988b). Unlike the other 'base camps' Wadi Hammeh 27 has only a small number of fragmentary burials (Edwards 1991), as does Kebara Cave, Mount Carmel (Turville-Petre 1932). A group of human skulls was recovered from the rock shelter of Erq el-Ahmar in the Judean Desert (Neuville 1951), but this is the only example of Early Natufian mortuary practice outside the Carmel/Galilee/Jordan Valley

areas. According to Bar-Yosef (1998: 168), the energy expenditure in digging graves (as well digging storage pits and shaping large, heavy mortars) fulfils one of the archaeological criteria for recognizing sedentism.

Biological indicators I: commensal species

Bar-Yosef and Meadow mention that 'assertions that one site resulted from year-round occupation and another from short-term seasonal use *must be based solely on biological evidence* and not on arguments about the presence or absence of permanent structures, storage facilities, burials and heavy tools' (1995: 51, emphasis added). Primary among this biological evidence is the presence in archaeological deposits of the remains of commensal species – house mice, house sparrows, rats, wolves (Tchernov and Horwitz 1991) which, it has been argued, are attracted to the kinds of habitats created in and around sedentary human occupation. Several years ago, the pages of the journal *Paléorient* saw scholars lock horns in a heated debate over the significance or otherwise of the presence of commensal species in Natufian deposits (Tangri and Wyncoll 1989; Tchernov 1991b; Wyncoll and Tangri 1991). Despite the inconclusive nature of this debate (and see other contributions such as Edwards 1989; Hardy-Smith and Edwards 2004; Valla 1995, 1998), commensalism remains a persuasive criterion for many researchers.

Biological indicators II: incremental cementum growth

As a biological marker for sedentism, the study of cementum increments on gazelle teeth helps identify, it is argued, seasonal hunting patterns based upon an estimation of the season of death as indicated by the nature of the outermost cementum band (Lieberman 1991, 1993, 1998). It has become generally accepted that Lieberman's research has established that 'hunting by the inhabitants of Natufian base hamlets took place in both winter and summer' (Bar-Yosef 1998: 168), which has been taken by some scholars to mean that 'year-round hunting of gazelle' (Belfer-Cohen and Bar-Yosef 2000: 20) was practised. This type of analysis has enjoyed fairly widespread support among Natufian specialists (but see Lieberman (1993) for discussants' responses and, particularly, Stutz (2002)).

Thickness of archaeological deposits

A less frequently cited indicator of sedentism, the thickness and density of Early Natufian archaeological deposits have nevertheless been regarded as evidence for increased population as people became sedentary (e.g. Henry 1985, 1989). More people occupying sites on a continuous basis led to greater accumulation of cultural material, including refuse, as well as the rebuilding of architecture in the same or nearby location, hence the relative thickness of deposits compared to earlier periods.

Other considerations

These are, then, the main categories of archaeological and palaeobiological evidence routinely considered more or less reliable indicators of a shift to a sedentary way of life

in the Early Natufian. In recent years, further criteria have included perceived 'scalar stress indicated by the rise in the number of children' (Belfer-Cohen and Bar-Yosef 2000: 20) and other demographic factors including indications of social stratification and disease (ibid.).

Some recent doubts

The perspectives on the archaeological evidence for possible sedentism outlined here are not without their critics. Some years ago Edwards (1989) delivered a comprehensive critical review of the different criteria used to identify permanent occupation of Early Natufian sites. In terms of architecture and storage, he pointed to the numerous ethnographic examples which demonstrate that these criteria should not be regarded as diagnostic. Similarly, Bar-Yosef and Belfer-Cohen (1989, 1992) have stressed that the presence of structures and storage facilities is not enough in itself to indicate sedentism. Further, Valla (1995) emphasizes that the use of storage structures needs to be demonstrated rather than assumed. Mallaha is the only Early Natufian site which contains numerous pits, the fills of which attest to a variety of uses (e.g. refuse, human burial). Edwards (1989) sees the appearance of graves and cemeteries within settlements not as a reliable signature of sedentary occupation, but rather as a change in burial strategy from 'off-site' to 'on-site' deposition of the dead.

The biological criteria strongly advocated by some researchers (e.g. Bar-Yosef 1983; Bar-Yosef and Belfer-Cohen 1992; Bar-Yosef and Meadow 1995; Henry 1989; Tchernov 1991b) have also been called into question. Tangri and Wyncoll (1989) and Wyncoll and Tangri (1991) have argued that commensal species are often present in non-sedentary occupations and, importantly, that the presence of such fauna may be as the result of factors entirely unrelated to sedentism. The issue of seasonality has been tackled recently by Stutz (2002), who demonstrates that Lieberman's (and others) cementum increment analysis 'may not offer a significant independent source of seasonality and mortality profile data' (2002: 1344) due to post-depositional leaching of collagen and the recrystallization of apatite which can create bands which effectively mimic genuine seasonal cementum growth layers (2002: 1343).

Post-depositional factors are also cited by Edwards (1989) in his discussion of the 'thickness of deposits' criteria. He points out that the stratigraphic resolution on most Natufian sites is inadequate to explain the complexity of the archaeological deposits, which could quite feasibly be the result of the accumulation of repeated episodes of occupation rather than permanent settlement.

By far the most robust critique of the categories of evidence presented here comes from a recent article by Hardy-Smith and Edwards (2004) which attempts to go beyond what they see as the 'problematic status' of this evidence towards an ethnographically based interpretation of the relative intensity of Early Natufian settlement (and that from earlier and later periods) based upon refuse disposal strategies. They observe that 'human communities in the Natufian period had not tailored their indifferent household sanitation practices to the long-term requirements of sedentary living' (2004: 285), the implication being that it was not until the Pre-Pottery Neolithic period that refuse

disposal strategies consistent with a fully sedentary way of life became routine practice. Thus, Hardy-Smith and Edwards conclude: 'the debate over Natufian settlement strategies can profitably move on from facile dichotomization into sedentary or mobile to a more nuanced appreciation of residential scheduling; one of lengthy base-camp stays and intermittent evacuations' (2004: 285). In other words, our current conceptions of sedentism are too simplistic given the highly ambiguous nature of the evidence. Should we then consider different degrees of sedentism? I suggest not for reasons outlined below.

While I am in sympathy with the desire to move beyond the traditional dichotomous position, and with the overall conclusion that the Early Natufian evidence for sedentism is ambiguous, the principal aim of Hardy-Smith and Edwards' analysis remains to 'distinguish degrees of mobility and sedentism' among Natufian communities. Similarly, I am in agreement with Shewan's recent position which states that 'arguments for Natufian sedentism as conventionally claimed are ambiguous and the issue remains insoluble in those terms' (2004: 80), and 'that there is now no decisive position on the Natufian requires a new line of enquiry or redirection in some other way than has been offered to date' (2004: 57). I have attempted to begin such a line of enquiry (Boyd 2002, 2004, 2005, 2006), and to take this further I propose here (a) the abandonment of the use of the concept of sedentism to explain the nature of the archaeological evidence of the Early Natufian and (b) the rejection of any causal link between the Early Natufian and the beginning of the (Pre-Pottery) Neolithic period, some 1500 years after the end of the Early Natufian. I will outline my reasons for this by reconsidering the nature of the evidence reviewed above, followed by a conclusion which suggests a different perspective from which to view the archaeological material of the Early Natufian. In other words, what would an archaeology of the Early Natufian look like viewed in its own terms rather than 'retrospectively' through the lens of the Neolithic?

Other ways of looking

Architecture: the elaboration of place

Let us begin by consideration of what marks out the Early Natufian as different from earlier periods. As is generally accepted – and Geometric Kebaran Neve David notwithstanding – the principal innovation is stone architecture. The appearance of substantial stone architecture in the Early Natufian is not, as others have noted, a reliable indicator of sedentism. Permanence of structure does not necessarily reflect permanence of occupation; this much should be uncontentious. However, rejecting the use of the concept of sedentism entails more than the basic acknowledgement that 'non-sedentary' communities sometimes build stone architecture (see, e.g., Plate 1, a modern-day Bedouin structure from the northern Negev, startlingly similar in its detail to the proposed reconstruction of structure 131 from Mallaha, Valla (1991)). This type of dichotomous thinking simply leads to the use of ill-defined, vague and inconsistent notions such as 'semi-sedentary' or 'semi-permanent' (note the infrequency of terms such as 'semi-mobile' in social evolutionary accounts of the Natufian). But this is not merely an issue of

Plate 1 Modern Bedouin structure, northern Negev.

terminology. It should be made clear that the notion of sedentism as currently employed in the Natufian context refers not simply to perceived degrees of residential mobility based upon the criteria discussed above but, crucially, to changes in social organization: 'On the eve of the Epipalaeolithic... an irreversible transformation took place from small bands of an ephemeral nature and high residential mobility... to a *sedentary social structure* in the Natufian' (Horwitz et al. 1999: 64, emphasis added). Architecture is seen as a key feature of this transformation: 'architecture ultimately reflects and denotes social organization and the manner in which it is imposed upon space' (Goring-Morris and Belfer-Cohen 2003: 76).

In this way of thinking architecture is seen as a reflection or representation of past processes or social forms rather than, I would argue, a social technology which facilitated particular forms of understanding and action. The architectural traditions established at the beginning of the Early Natufian do not reflect some kind of new social organization or way of life. Rather, they indicate a change in strategies of construction and changes in human perceptions and understandings of place. The innovative practice of construction in stone (as opposed to wood or brush) indicates the elaboration or embellishment of particular places – locales – in the landscape. The reasons why such places were chosen – Mallaha, Hayonim, el-Wad, Wadi Hammeh 27 – may differ, but the history of some of these places as ancient burial grounds may have been one decisive factor in this elaboration of place (Boyd 2005). Building in stone at these places may well seem (to us) to 'fix' those locales but it does not follow that the people who carried out those acts of construction then became similarly fixed. In other words, what we may well be seeing is evidence for hunter-gatherers building in stone at certain significant

points in their seasonal cycles and routines. This perspective rescues the category of 'architecture' from its current status as a static concept, which can be described only in terms of 'permanence' or otherwise, and avoids reducing the social use of space to 'settlement pattern'.

The non-portability of artefacts

Large, heavy mortars embedded in the floors of structures (or bedrock examples) certainly appear to give an impression of fixity. But, again, this is ambiguous and does not necessarily equate with permanent settlement. If we have established above that certain places were becoming elaborated – fixed – through the construction of stone structures, then we can posit a situation where materials/resources were also drawn into, and became part of, those new architectural traditions. Certainly there seems little reason to dispute the argument that objects such as extremely heavy groundstone mortars were not constantly transported around the landscape by hunter-gatherer groups moving from one point in their seasonal cycle to another, but this is by no means an indication that those groups were becoming any less mobile. In addition, it is apparent that the raw material for such objects, if not the finished objects themselves, was procured at quite some distance from their places of eventual deposition (Weinstein-Evron et al. 1999), indicating that if the raw material or finished objects *were* required to be moved then they certainly could be. The movement of these object via possible exchange networks aside, the solution to their non-portability could have been to simply leave them within particular places for use during subsequent periodic visits. They would have become part of the architecture of those places. It should be noted that groundstone artefacts, or fragments of, may have been used in mortuary rituals (Boyd 2005).

Storage facilities

Evidence for storage needs to be demonstrated rather than, as is presently the case, assumed. To be clear: there is no direct evidence – i.e. botanical remains – whatsoever for storage on any Early Natufian site. As mentioned earlier, the so-called 'silos' and pits from Mallaha (numerous) and other sites (very few) tend to contain refuse, generalized fills and, at Mallaha at least, human interments. In other words, the evidence for storage of foodstuffs in the Early Natufian is actually non-existent.

Cemeteries: a reason for building?

If, as I have suggested, the Early Natufian 'innovation' of using stone as a building material has more to do with marking certain places in the landscape, places which seem to have a long history of hunter-gatherer use and occupation (e.g. Valla et al. 2004: 57ff.), we now need to demonstrate why those particular locations were selected. As mentioned above, it seems reasonable to associate the architectural projects at Early Natufian sites with the presence of human burials. It should be stressed here that there is a common misconception that, during the Natufian, the dead were routinely buried under the floors

of houses/structures. That is, floors were dug through in order to bury the dead. This is simply not the case. There are but a handful of examples where this may have occurred. In general, where Early Natufian structures overlie burials (Mallaha, Hayonim Cave) the structures clearly post-date the interments. In other words, the dead were already present – possibly for quite some time – when architectural projects commenced. These stone structures, rebuilt and reworked over the many centuries of the Early Natufian phase at Mallaha, Hayonim Cave and, possibly, el-Wad may therefore indicate not permanent settlement, but rather periodic and persistent returns to 'ancestral' places in the landscape. These episodic returns to ancient burial places would have involved the rebuilding of particular structures – some of which directly overlay burials (Belfer-Cohen 1988a, 1988b, 1991; Perrot and Ladiray 1988) – and the deposition of selected objects (see structure 131 at Mallaha: Boyd 1995; Goring-Morris and Belfer-Cohen 2003; Valla 1990), practices which in all likelihood related to the presence of the dead. Communities would have returned to these locations time and time again, coming together to carry out obligations – rebuilding projects which would also involve the ceremonial deposition of artefacts – which made reference to the presence, practices and traditions of earlier generations (Boyd 1995, 2002; Goring-Morris and Belfer-Cohen 2001: 263). Of course, the time-depth issue must be factored in here. The Early Natufian lasts some 1500 years and so a more detailed argument of these practices must take into account the lifetimes and experiences of particular communities, and what Jones refers to as 'the persistence of memory' (2001).

The issue of chronological resolution is important here. The Natufian as a whole is poorly dated. For example, at Mallaha, we do not know the length of time that separates the numerous burials underlying structures 1 and 131 (the earliest known substantial architecture at the site) and the construction of those buildings. Years, decades, centuries? Similarly, we have no indication as to how long structures were abandoned before episodes of rebuilding took place. As Edwards (1989) notes, there is an urgent need to resolve some basic sedimentological (and thus chronological) dilemmas before assumptions regarding the length of different episodes of occupation are made.

Human-animal relations

A similar point can be made regarding the presence of commensal fauna. There is little agreement on the time-depth of human occupation required to facilitate commensal invasion and, as with all the categories of evidence outlined here, there seems to be no satisfactory resolution. If it takes three months for mice, rats, sparrows and so on to adapt to a human presence, where does that leave the definition of sedentism based upon biological criteria? Again, the concept of sedentism is simply not an adequate tool to deal with the nature of the evidence which, in this case, points to new forms of *human-animal relations*.

In a number of academic disciplines the concern with relationships between human and non-human animals is resulting in a radical revision of the ways in which we think people construct their social worlds. In the archaeology of the Epipalaeolithic Levant, animals – as we have seen – are generally regarded as indicators of sedentism, seasonality, 'broad spectrum' diet and so on. Above all, archaeologists and archaeozoologists are especially

concerned with identifying the very earliest stages of animal domestication in the pre-Neolithic periods (but see Valla 1991, 1995). A social archaeology of human-animal relations (Boyd 2006), on the other hand, focuses on hunter-gatherer perceptions of animals in the 'new' social landscapes and architectures of the Early Natufian. We can draw a contrast between the apparent exclusion of animals from most areas of daily practice apart from those relating to food procurement and consumption (and a relatively low level of worked bone) in the pre-Natufian Epipalaeolithic, with the dramatic transformation in material conditions in the Early Natufian discussed above. This transformation may have partly facilitated fundamental changes in people's perceptions of animals and, consequently, animals were drawn into a range of social practices – technological (flourishing of worked bone technologies), artistic representation (animal depictions on bone and stone objects), mortuary practices (gazelle, dog and tortoise remains occasionally accompanying human burials) and so on. A social archaeology of human-animal relations considers the use of animal bones to create artefacts, the depiction of animals in 'art', the placing of animals in graves, and the use of their bodies in ritual practices, just as much part of the early processes of 'domestication' as biological factors. In this way, we can circumvent the problems raised in relying on inappropriate Cartesian dualisms, such as 'nature/culture' and 'sacred/profane' in our discussions of how the relationships between human communities and animals came together in the world of lived experience (Boyd 2005).

Again, we should be wary of relating these practices and traditions of human-animal relations to subsequent developments in the Neolithic several millennia later: 'PPNB traditions reflect both the longevity (at least 3–6 millennia, going back to the Natufian) and the deep-seated nature of the beliefs involved during a period of dramatic, experimental and what were, no doubt, bewildering changes in community sizes, social organization, economic subsistence, and gender roles' (Goring-Morris 2005: 101).

Conclusions

My argument has been, first, that the concept of sedentism as currently employed in Levantine prehistory is not nuanced enough for analysis of the nature of the evidence we see before us in the Early Natufian and, second, that the Early Natufian should be considered in its own terms aside from concerns relating to 'The Neolithic'. In an effort to go beyond the grand narratives and social evolutionary scenarios of the transition to the Neolithic and the origins of agriculture and domestication, I have attempted to refocus instead on how the establishment of architectural traditions – acts of construction and the shaping of place – allowed a different way of inhabiting the social landscapes of the Early Natufian than that of earlier traditions. This was not some kind of evolutionary change from one form of social organization to another, rather the introduction of new traditions of acting and ways of being in the world. The lives of people operate in this way, and archaeology should focus on how such traditions and ways of being are introduced, maintained and, at other times, lost. Ironically, with our focus on the Early Natufian, perhaps this is one possible way to think about the perceived 'return to mobility' in some of the Late Natufian landscapes. The Younger Dryas notwithstanding, and for whatever reason, the traditions and ways of being of earlier times became lost.

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References

Bar-Yosef, O. 1983. The Natufian of the southern Levant. In *The Hilly Flanks and Beyond* (eds C. T. Young, P. E. L. Smith and P. Mortensen). Chicago, IL: University of Chicago Press, pp. 11–42.

Bar-Yosef, O. 1998. The Natufian culture in the Levant, threshold to the origins of agriculture. *Evolutionary Anthropology*, 6: 159–77.

Bar-Yosef, O. and Belfer-Cohen, A. 1989. The origins of sedentism and farming communities in the Levant. *Journal of World Prehistory*, 3: 447–98.

Bar-Yosef, O. and Belfer-Cohen, A. 1992. From foraging to farming in the Mediterranean Levant. In *Transitions to Agriculture in Prehistory* (eds A. B. Gebauer and T. D. Price). Madison, WI: Prehistory Press, pp. 21–48.

Bar-Yosef, O. and Meadow, R. H. 1995. The origins of agriculture in the Near East. In *Last Hunters-First Farmers: New Perspectives on the Prehistoric Transition to Agriculture* (eds T. D. Price and A. B. Gebauer). Santa Fe, NM: School of American Research Press, pp. 39–94.

Belfer-Cohen, A. 1988a. The Natufian settlement at Hayonim Cave: a hunter-gatherer band on the threshold of agriculture. Unpublished PhD thesis. Hebrew University, Jerusalem.

Belfer-Cohen, A. 1988b. The Natufian graveyard at Hayonim Cave. *Paléorient*, 14: 297–308.

Belfer-Cohen, A. 1991. Art items from Layer B, Hayonim Cave: a case study of art in a Natufian context. In *The Natufian Culture in the Levant* (eds O. Bar-Yosef and F. R. Valla). Ann Arbor, MI: International Monographs in Prehistory, pp. 569–88.

Belfer-Cohen, A. and Bar-Yosef, O. 2000. Early sedentism in the Near East: a bumpy ride to village life. In *Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation* (ed. I. Kuijt). New York: Kluwer/Plenum, pp. 19–37.

Belfer-Cohen, A. and Hovers, E. 2005. The ground stone assemblages of the Natufian and Neolithic societies in the Levant – a brief review. *Journal of the Israel Prehistoric Society*, 35: 299–308.

Boyd, B. 1995. Houses and hearths, pits and burials: Natufian mortuary practices at Mallaha (Eynan), Upper Jordan Valley. In *The Archaeology of Death in the Ancient Near East* (eds S. Campbell and A. Green). Oxford: Oxbow Monograph 51, pp. 17–23.

Boyd, B. 2002. Ways of eating/ways of being in the Later Epipalaeolithic Levant. In *Thinking Through the Body: Archaeologies of Corporeality* (eds Y. Hamilakis, M. Pluciennik and S. Tarlow). New York: Kluwer/Plenum, pp. 137–52.

Boyd, B. 2004. Agency and landscape: abandoning the 'nature/culture' dichotomy in interpretations of the Natufian and the transition to the Neolithic. In *The Last Hunter-Gatherer Societies in the Near East* (ed. C. Delage). Oxford: BAR International Series 1320, pp. 119–36.

Boyd, B. 2005. Transforming food practices in the Later Epipalaeolithic and Pre-Pottery Neolithic Levant. In *Archaeological Perspectives on the Transmission and Transformation of Culture in the Eastern Mediterranean* (ed. J. Clarke). Oxford: Council for British Research in the Levant and Oxbow Books, pp. 106–12.

Boyd, B. 2006. *Beyond Bones: Towards a Social Archaeology of Human-Animal Relations.* Cambridge: Cambridge University Press.

Byrd, B. F. and Monahan, C. M. 1995. Death, mortuary ritual and Natufian social structure. *Journal of Anthropological Archaeology*, 14: 251–87.

Edwards, P. C. 1989. Problems of recognising earliest sedentism: the Natufian example. *Journal of Mediterranean Archaeology*, 2: 5–48.

Edwards, P. C. 1991. Wadi Hammeh 27: an Early Natufian site at Pella, Jordan. In *The Natufian Culture in the Levant* (eds O. Bar-Yosef and F. R. Valla). Ann Arbor, MI: International Monographs in Prehistory, pp. 123–48.

Garrod, D. A. E. and Bate, D. M. A. 1937. *The Stone Age of Mount Carmel.* Oxford: Clarendon Press.

Goring-Morris, A. N. 1996. The Early Natufian occupation at el-Wad, Mt. Carmel, reconsidered. In *Nature et culture* (ed. M. Otte). Liège: ERAUL, pp. 417–28.

Goring-Morris, A. N. 1998. Mobiliary art from the Late Epipalaeolithic of the Negev, Israel. *Rock Art Research*, 15: 81–8.

Goring-Morris, A. N. 2005. Life, death and the emergence of differential status in the Near Eastern Neolithic: evidence from Kfar HaHoresh, Lower Galilee, Israel. In *Archaeological Perspectives on the Transmission and Transformation of Culture in the Eastern Mediterranean* (ed. J. Clarke). Oxford: Council for British Research in the Levant and Oxbow Books, pp. 89–105.

Goring-Morris, A. N. and Belfer-Cohen, A. 1998. The articulation of cultural processes and Late Quaternary environmental changes in Cisjordan. *Paléorient*, 23: 71–93.

Goring-Morris, A. N. and Belfer-Cohen, A. 2001. The symbolic realms of utilitarian material culture: the role of lithics. In *Beyond Tools* (eds I. Caneva, I. C. Lemorini, D. Zampetti and P. Biagi). Berlin: ex orient, pp. 257–71.

Goring-Morris, N and Belfer-Cohen, A. 2003. Structures and dwellings in the Upper and Epipalaeolithic (ca. 42–10 k BP) Levant: profane and symbolic uses. In *Perceived Landscapes and Built Environments: The Cultural Geography of Late Paleolithic Eurasia* (eds S. A. Vasil'ev, O. Soffer and J. Kozolwski). Oxford: BAR International Series 1122, pp. 65–81.

Hardy-Smith, T. and Edwards, P. C. 2004. The garbage crisis in prehistory: artefact discard patterns at the Early Natufian site of Wadi Hammeh 27 and the origins of household refuse disposal strategies. *Journal of Anthropological Archaeology*, 23: 253–89.

Hayden, B. 1990. Nimrods, piscators, pluckers, and planters: the emergence of food production. *Journal of Anthropological Archaeology*, 9: 31–69.

Henry, D. O. 1985. Preagricultural sedentism: the Natufian example. In *Prehistoric Gatherer-Hunters: The Emergence of Cultural Complexity* (eds T. D. Price and J. A. Brown). New York: Academic Press, pp. 365–84.

Henry, D. O. 1989. *From Foraging to Agriculture: The Levant at the End of the Ice Age.* Philadelphia, PA: University of Pennsylvania Press.

Horwitz, L. K., Tchernov, E., Ducos, P., Becker, C., Von Den Driesch, A., Martin, L. and Garrard, A. 1999. Animal domestication in the southern Levant. *Paléorient*, 25: 63–80.

Jones, P. 2001. The persistence of memory. Unpublished MA dissertation. University of Reading.

Kaufman, D. 1989. Observations on the Geometric Kebaran: a view from Neve David. In *Investigations in South Levantine Prehistory* (eds O. Bar-Yosef and B. Vandermeersch). Oxford: BAR International Series 497, pp. 275–85.

Lieberman, D. E. 1991. Seasonality and gazelle hunting at Hayonim Cave: new evidence for 'sedentism' during the Natufian. *Paléorient*, 17: 47–57.

Lieberman, D. E. 1993. The rise and fall of seasonal mobility among hunter-gatherers. *Current Anthropology*, 34: 599–631.

Lieberman, D. E. 1998. Natufian 'sedentism' and the importance of biological data for estimating reduced mobility. In *Seasonality and Sedentism: Archaeological Perspectives from Old and New World Sites* (eds T. R. Rocek and O. Bar-Yosef). New Haven, CT: Peabody Museum Bulletin 6, pp. 75–92.

Maher, L. 2005. Excavations at the Geometric Kebaran encampment of 'Uyyun al-Hammam, al-Koura District, Jordan. Unpublished MS.

Nadel, D. and Werker, E. 1999. The oldest ever brush hut plant remains from Ohalo II, Jordan Valley, Israel (19,000 BP). *Antiquity*, 73: 755–64.

Neuville, R. 1951. *Le Paléolithique et le Mésolithique du Désert du Judée*. Paris: Masson.

Olszewski, D. I. 1993. Subsistence ecology in the Mediterranean forest: implications for the origins of cultivation in the Epipaleolithic southern Levant. *American Anthropologist*, 95: 420–35.

Perrot, J. and Ladiray, D. 1988. *Les Hommes de Mallaha (Eynan), Israel*. Paris: Association Paléorient.

Shewan, L. 2004. Natufian settlement systems and adaptive strategies: the issue of sedentism and the potential of strontium isotope analysis. In *The Last Hunter-Gatherer Societies in the Near East* (ed. C. Delage). Oxford: BAR International Series 1320, pp. 55–94.

Stutz, A. 2002. Polarizing microscopy identification of chemical diagenesis in archaeological cementum. *Journal of Archaeological Science*, 29: 1327–47.

Tangri, D. and Wyncoll, G. 1989. Of mice and men: is the presence of commensal animals in archaeological sites a positive correlate of sedentism? *Paléorient*, 15: 85–94.

Tchernov, E. 1991a. Biological evidence for human sedentism in southwest Asia during the Natufian. In *The Natufian Culture in the Levant* (eds O. Bar-Yosef and F. R. Valla). Ann Arbor, MI: International Monographs in Prehistory, pp. 315–40.

Tchernov, E. 1991b. Of mice and men: biological markers for long-term sedentism: a reply. *Paléorient*, 17: 153–60.

Tchernov, E. and Horwitz, L. 1991. Body size diminution under domestication: unconscious selection in primeval domesticates. *Journal of Anthropological Archaeology*, 10: 54–75.

Turville-Petre, F. 1932. Excavations at the Mugharet el-Kebarah. *Journal of the Royal Anthropological Institute*, 62: 271–6.

Valla, F. R. 1988. Aspects de sol de l'abri 131 de Mallaha (Eynan). *Paléorient*, 14: 283–96.

Valla, F. R. 1990. Le Natoufien: une autre façon de comprendre le monde? *Journal of the Israel Prehistoric Society*, 23: 171–5.

Valla, F. R. 1995. The first settled societies – Natufian (12,500–10,200 bp). In *The Archaeology of Society in the Holy Land* (ed. T. E. Levy). London: Leicester University Press, pp. 169–90.

Valla, F. R. 1998. Natufian seasonality: a guess. In *Seasonality and Sedentism: Archaeological Perspectives from Old and New World Sites* (eds T. R. Rocek and O. Bar-Yosef). New Haven, CT: Peabody Museum Bulletin 6, pp. 93–108.

Valla, F. R., Khalaily, H., Valladas, H., Tisnérat-Laborde, N., Samuelian, N., Bocquentin, F., Rabinovitch, R., Bridault, A., Simmons, T., Le Dosseur, G., Rosen, A., Dubreuil, L., Bar-Yosef, O., Mayer, D. E. and Belfer-Cohen, A. 2004. Les fouilles de Mallaha en 2000 et 2001: 3ème rapport préliminaire. *Journal of the Israel Prehistoric Society*, 34: 49–244.

Watkins, T. 2005. From foragers to complex societies in southwest Asia. In *The Human Past: World Prehistory and the Development of Human Societies* (ed. C. Scarre). London: Thames & Hudson, pp. 200–33.

Weinstein-Evron, M. 1998. *Early Natufian el-Wad Revisited*. Liège: ERAUL.

Weinstein-Evron, M., Lang, B. and Ilani, S. 1999. Natufian trade/exchange in basalt implements: evidence from northern Israel. *Archaeometry*, 41: 267–73.

Wright, K. I. 1991. The origins and development of ground stone assemblages in Late Pleistocene southwest Asia. *Paléorient*, 17: 19–45.

Wyncoll, G. and Tangri, D. 1991. The origins of commensalism and human sedentism. *Paléorient*, 17: 157–9.

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