

Funerals and feasts during the Pre-Pottery Neolithic B of the Near East

Nigel Goring-Morris¹ & Liora Kolska Horwitz²

Evidence for a Neolithic funeral feast has been excavated in northern Israel. A herd of eight wild cattle (aurochs) were slaughtered and joints of their meat placed in a pit which was covered over and the human burial laid on top. This was covered in turn with plaster, but the human skull was later removed through an accurately sited hole. It was the feast that began this funerary sequence, and the authors conservatively calculate that it provided a minimum of 500kg of meat. Given a 200g steak apiece this could theoretically feed some 2500 people, endorsing the authors' claim that the site was a central cult site serving surrounding villages. It is also suggested that the aurochs skulls, missing from the pit, may have been reserved for ritual purposes elsewhere, an early example of the Near Eastern bull cult that was later to have a long history in Europe.

Keywords: Neolithic, PPNB, Israel, Levant, aurochs, feasting, mortuary behaviour

Introduction

The site of Kfar HaHoresh, located in northern Israel (Figure 1), is the first centralised mortuary-cum-cult site to be identified in the Neolithic of the Levant (Goring-Morris 2000; 2005). It has been suggested that the site functioned in a manner similar to the ancient Greek *amphictyony*, that is a central shrine serving neighbouring villages (Goring-Morris 2000; Belfer-Cohen & Goring-Morris 2003). The precise nature of the relationship between these sites and the mortuary centre is undoubtedly complex, since inhumations have also been recovered from the villages in question (Hershkovitz *et al.* 1986; Garfinkel 1987; Goring-Morris 2005). While the demographic profile of the recovered population at Kfar HaHoresh includes males and females of almost all age groups, it differs in certain significant aspects from other Pre-Pottery Neolithic (PPNB) populations in the Mediterranean zone of the southern Levant (Eshed 2001; Eshed *et al.* in press). This probably indicates that only certain members of communities were deemed to warrant burial at Kfar HaHoresh.

During the recent excavations at Kfar HaHoresh, several unusual human-faunal associations were found which provide early evidence for the celebration of funerary feasts. In the following sections we document these associations and discuss them within the wider context of the ritual world of the PPNB in the region.

¹ Institute of Archaeology, The Hebrew University of Jerusalem, Jerusalem 91905, Israel (Email: goring@mscc.huji.ac.il)

² Department of Evolution, Systematics and Ecology, The Hebrew University of Jerusalem, Jerusalem 91904, Israel (Email: lix100@excite.com)

Received: 3 September 2004; Accepted: 3 February 2005; Revised: 10 November 2006

ANTIQUITY 81 (2007): 902–919

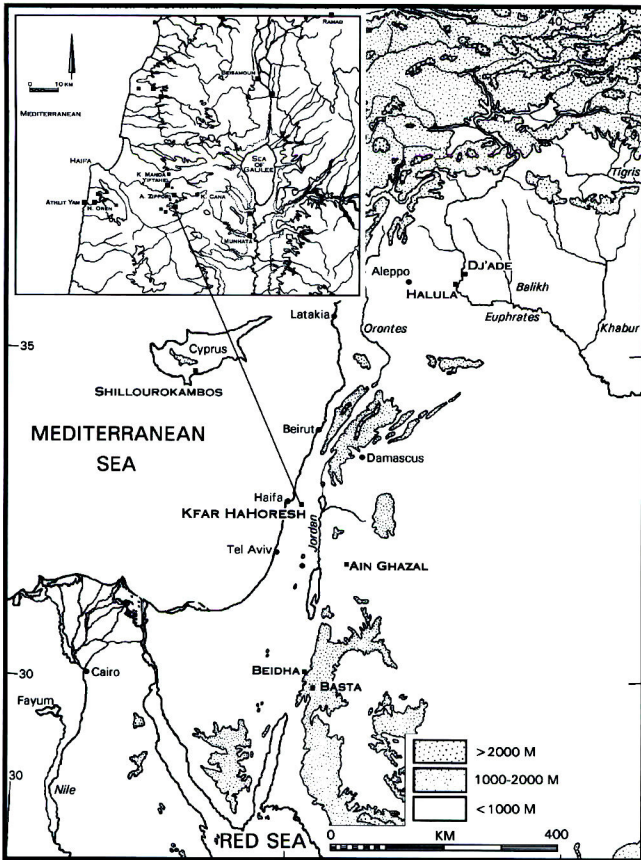


Figure 1. Map of the Near East showing the location of Kfar HaHoresh and other PPNB sites in Galilee.

The site

The site of Kfar HaHoresh, located in the uppermost reaches of a secluded wadi in the Nazareth hills of lower Galilee, nestles in a natural embayment beneath a low cliff at the

base of a steep, north-facing hill (Goring-Morris 1991; 1994; 2000; 2005; Goring-Morris *et al.* 1994-5; 1995; 1998). The site is small and covers no more than 0.75-1.0ha. A series of ^{14}C determinations and the finds from the complex stratigraphic sequence securely date the site to the end of the Early (EPPNB) through to the Late PPNB (LPPNB), c. 8000-6800 cal BC (Goring-Morris *et al.* 2001).

Within the 425m² excavated, four principal activity zones have been identified (Figure 2): a *production area* located on the eastern side of the excavation that is characterised by industrial and maintenance features such as kilns for lime plaster production and flint knapping; *midden deposits* rich in burnt bones and ash deposits centred on the southern and western part of the excavation; a *cult area* located in the western and north-west part of the excavation with remains of plastered and stone-lined hearths and what appear to be narrow and wide monoliths; and a *funerary area* located in the central and especially western area, which is defined by an arc of lime-plastered surfaces often overlying numerous primary and/or secondary, single and multiple human interments (Goring-Morris *et al.* 1998). Postholes, seemingly not associated with functional architectural features, are also common, perhaps as markers.

The site assemblage contains the same repertoire of lithic and faunal types found in many other PPNB village sites in the Mediterranean zone (Goring-Morris 1994; Goring-Morris *et al.* 1994-5; 1995; 1998). Mountain gazelle is the most common faunal taxon followed by the Persian wild goat (Horwitz *et al.* 1999; Horwitz 2003). As at other contemporaneous sites (Davis 1982; Garrard *et al.* 1996; Horwitz *et al.* 1999), all other large mammals – aurochs, wild boar and deer – are represented in low frequencies. A broad spectrum of small carnivores (especially red fox), reptiles, rodents and birds as well as fish is also represented at Kfar HaHoresh (Goring-Morris *et al.* 1994-5; 1995).

Unlike its contemporary village sites, Kfar HaHoresh lacks obvious rectangular residential structures and is characterised by isolated L-shaped walls associated with human burials interred beneath lime-plastered surfaces. It is thought that these plastered surfaces may represent the cappings of burial pits rather than house floors, while the associated L-shaped walls may have served to demarcate burial locations or as retaining embankments to prevent slopewash.

Both primary and secondary human inhumations are found at the site and represent more than 60 individuals – of both sexes and all ages (Eshed 2001; Eshed *et al.* in press). Fifteen of the primary burials have undergone post-depositional head-removal. In two locations skull caches were found (of three and four individuals, respectively), while in three localities plastered skulls were recovered (Hershkovitz *et al.* 1995; Goren *et al.* 2001). Some of the human remains reflect purposeful secondary arrangements. In one instance, long bones were arranged in an oval around the edge of a pit in which numerous mandibles were piled on top of two articulated burials (MNI = 15); in another, human limb and cranial elements were arranged to depict an animal profile (for details see Goring-Morris *et al.* 1998; Goring-Morris 2000; 2005; Horwitz & Goring-Morris 2004; Eshed *et al.* in press). Many of the human burial contexts are notable for their close co-association with minute polished coloured pebbles, marine shells, flint artefact caches, ashly lime fills and, pertinent to this paper, animal remains, especially those of the red fox (*Vulpes vulpes*) (Goring-Morris *et al.* 1998; Goring-Morris 2000; Horwitz & Goring-Morris 2004).

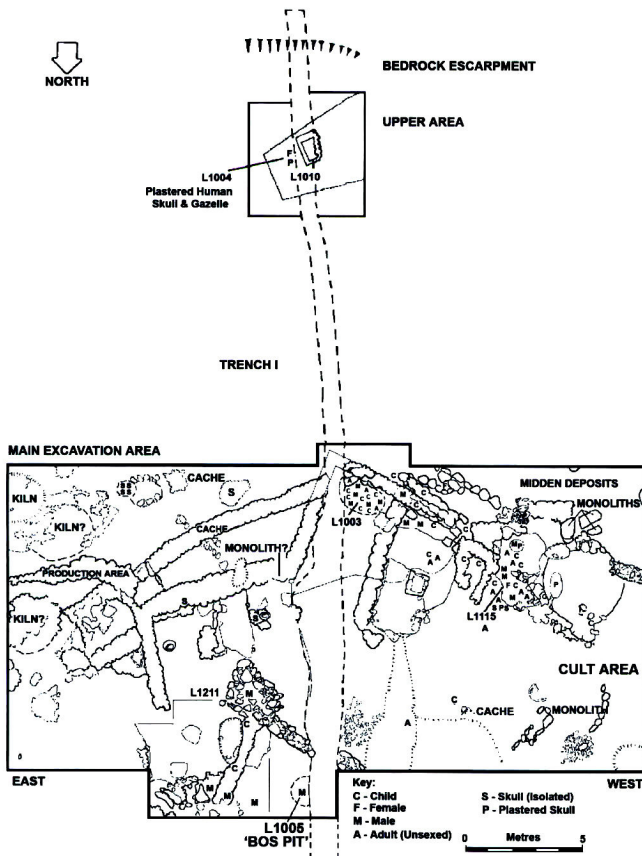


Figure 2. Plan of the excavations at Kfar HaHoresh showing the location of the four principal activity zones (note the location of the graves = funerary area) and other features mentioned in the text.

Another human/animal association was noted south of the main excavation area (Goring-Morris 1991; Goring-Morris *et al.* 1995; Hershkovitz *et al.* 1995; Goren *et al.* 2001). A small stone-lined installation was set into a 6×3.75 m quadrilateral plastered surface and included a single post-hole. Immediately beneath this was a lime-plastered pit (L1004) containing an

excellently preserved lime-plaster modeled skull of an adult male, aged 20-25 years (Homo #1). An intact Byblos point had been placed immediately adjacent to the back of the skull as a grave good. Some 15-20 cm lower in the same pit the remains of a headless but otherwise largely articulated mountain gazelle (*Gazella gazella*) had been placed. The faunal-human ensemble was intentionally placed within a plaster-lined pit that was then filled and sealed by a sandwich of plaster cappings. It is also likely that the precise location of this feature was marked on the surface by the single post-hole set in the basin-shaped feature.

The human/animal associations described above appear to represent grave goods or offerings, in the same manner as other artefacts. We can hypothesise that the midden deposit in the main excavation area may represent residues from protracted feasting over time. However, what we believe to represent the more obvious remains of a large-scale mortuary feasting event is the 'Bos pit' described below.

The 'Bos pit' (L1005)

During the 1991 season, remains of a pit were observed in the north-eastern section of Trench I, which had been cut mechanically across the site to ascertain the presence of *in situ* sediments (Figures 2 and 3). The u-shaped pit had been dug down into sterile deposits, and dates to the earliest occupation phase at the site, namely the E/MPPNB. The pit was approximately 1.5m in diameter at its top, contracting to 60 cm at its bottom, and some 50cm deep (Figures 3 and 4).

Reconstruction of the sequence of events indicates that the pit was first dug into the sterile sediments underlying the occupation. Following this, a few flat stones, a broken *muller* (grind-stone) and a large core roughout were placed in the bottom of the pit. Then joints, some of them still articulated, from a minimum of eight aurochs, were placed in the pit. The presence of tissue on the bones is deduced from the fact that anatomical attachment was maintained for many bones, even after burial and decomposition. The pit was then filled with soil and covered at its centre with a small, unworked limestone slab. Twelve angular stones were then piled over and around the slab and the mouth of the pit, presumably to seal it and/or to act as a weight.

On top of the slab and angular stones a flexed, primary human burial of a young adult male was placed (Eshed *et al.* in press). A thin layer of lime-plaster mixed with crushed chalk was scattered over the burial, which was then sealed with a lime-plaster capping. Presumably the location of the human skull was marked on this lime-plaster surface, since at a later point in time, a small hole was cut through the lime-capping and the underlying layer of lime-chalk, presumably in order to remove the skull. Following this, fill was intentionally placed or naturally accumulated on top of the plaster capping, and a second lime-plaster surface applied that sealed the small hole.

The aurochs assemblage

A total of 358 animal bones were found tightly packed within the pit, which was approximately 50cm deep. With the exception of a red fox proximal radius and a goat carpal, which may represent accidental inclusions in the fill, all bones (NISP = 356) belong

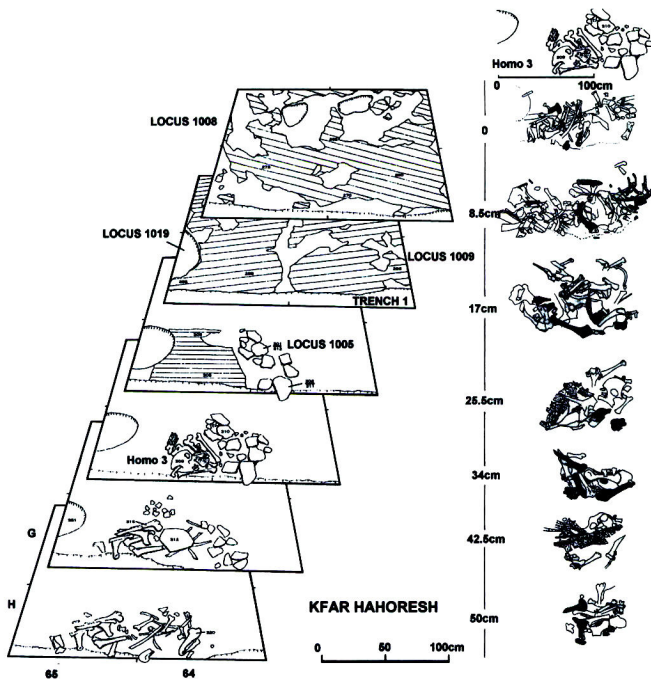


Figure 3. Isometric drawing of the 'Bos pit' showing the location of the human burial (Homo #3) and associated cappings and Bos bones at different depths in the pit (depths are relative to the top of the pit). Femora, on which the MNI count is based, are shown in black; articulated vertebrae with dark shading; stones are lightly shaded.

to *Bos*. The *Bos* bones in the pit were generally complete but were intertwined, compressed and highly fragmented due to compaction from the overlying soil and stones, and seasonal wetting and drying of the surrounding soil matrix. They were identified and measured *in situ* and their location and depth within the pit plotted on scaled drawings of successive levels. Confirmation of identifications and measurements were then carried out in the laboratory after the material had been cleaned and curated (Table 1).

The MNI count for *Bos* in the pit, based on the number of sided distal femora and state of fusion for this bone (Grigson 1982), was eight animals. Using age standards for unimproved breeds of domestic *Bos*, seven of the animals were identified as adults at least 4 years old, while the eighth, an immature animal, was aged less than 2.5 years. Eruption state and

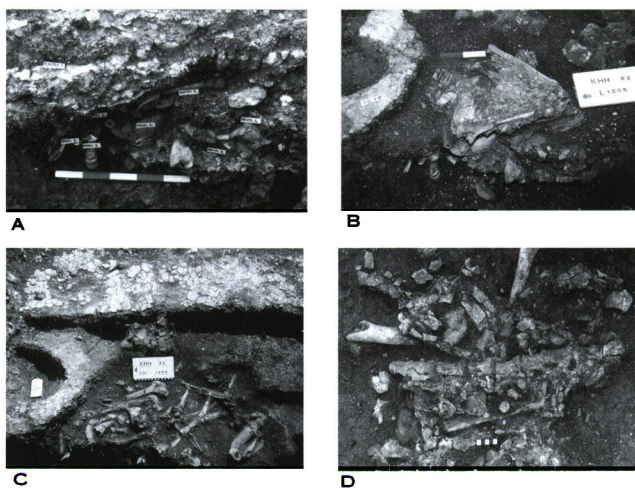


Figure 4. Photos showing: (A) the section of the 'Bos pit' (L1005); (B) the headless articulated human burial; (C) aurochs bones within L1005; (D) articulated vertebra of *Bos* towards the base of the pit.

attrition on the upper teeth corroborate that they too derive from adult animals. Based on their large size, as illustrated by size indices (Figure 5), as well as robusticity, all bones from the pit have been attributed to aurochs (*Bos primigenius*) rather than domestic cattle (*Bos taurus*). As Figure 5 shows, the aurochs in the Kfar HaHoresh sample are of similar size to Natufian animals, while the LPPNB through PN samples show a steady reduction in size – in both range and means – compared to the Kfar HaHoresh *Bos*.

Some authors have raised the possibility that local domestication of *Bos* was attempted in the Southern Levant during the MPPNB, but failed (von den Driesch in Horwitz *et al.* 1999). This would place the onset of domestication in the Southern Levant as coeval with that in the Northern Levant, where it is postulated that domestication began in the MPPNB and was fully developed by the LPPNB (Peters *et al.* 1999). Currently, the most convincing evidence for incipient domestic cattle in the Southern Levant dates to the LPPNB and FPPNB (PPNC) with unequivocally domestic animals evident by the PN (Grigson 1989; Horwitz *et al.* 1999; Becker 2002; Horwitz & Ducos 2005; Garfinkel *et al.* 2006).

The presence of fragmented bones and a complete calcaneum (greatest length = 161.0mm) of one extremely large animal in the pit suggests the presence of at least one bull, while the smaller size of three adult calcanea (greatest lengths = 151.0; 151.3 and 153.0mm) may indicate the presence of three females in this sample. Withers height of the *Bos* from the pit calculated from metapodials (van Wijngaarden-Bakker & Bergstrom 1988) offers some corroboration for the calcaneum data and indicates that at least three of the animals

Table 1. Skeletal element breakdown for the *Bos* pit.

Key: prox. = proximal; dist. = distal. Observed MNE is calculated as the minimum number of complete skeletal elements by side. Expected MNE is the number of each element expected if the skeleton of each taxon was complete (from Lyman 1994: Table 4.1) multiplied by the MNI for *Bos* = 8. Percentage Survival is calculated as: Observed MNE/Expected MNE. Percentage MAU: calculated after Binford (1978).

Skeletal Element	Left	Right	Indet.	Site Total	Observed MNE	Expected MNE	% Survival	% MAU
Horns			1	1	1	16	0.06	-
Skull			3	3	1	8	0.12	46.1
Maxillae		1	1	2	1	8	0.12	-
Mandibles				0	0	16	0	-
Lower Incisors				0	0	64	0	-
Lower Premolars				0	0	32	0	-
Upper Premolars	3	1		4	4	32	0.12	-
Upper Molars	4	2		6	6	24	0.25	-
Atlas				0	0	8	0	-
Axis				0	0	8	0	-
Vertebrae			10	10	-	-	-	-
Cervical vertebrae				0	0	40	0	-
Thoracic vertebrae			12	12	12	104	0.11	13.8
Lumbar vertebrae			31	31	31	48	0.64	78.4
Rib frags			23	23	-	-	-	-
Rib prox.			8	8	8	208	0.03	4.6
Sternum			1	1	1	8	0.12	15.3
Scapula dist.			3	3	3	16	0.18	23.0
Humerus prox.	6	4	1	11	10	16	0.62	84.6
Humerus shaft	2	1		3	3	16	0.18	-
Humerus dist.	7	6		13	13	16	0.81	100.0
Radius prox.	4	3		7	7	16	0.43	53.8
Radius shaft	4	3	1	8	7	16	0.43	-
Radius dist.	3	5		8	8	16	0.50	61.5
Ulna prox.	1	3		4	4	16	0.25	30.7
Ulna shaft		1	1	2	2	16	0.12	15.3
Carpals			17	17	-	96	-	21.5
Metacarpal prox.	1	1		2	2	16	0.12	15.3
Metacarpal shaft	1	1		2	2	16	0.12	-
Metacarpal dist.	2	2		4	4	16	0.25	30.7
Pelvis-ischium	1	1		2	2	16	0.12	-
Pelvis-ilium	2	1		3	3	16	0.18	-
Pelvis-acetabulum	2	3	4	9	5	16	0.31	69.2
Pelvis-pubis	2	2		4	4	16	0.25	-
Sacrum			4	4	1	8	0.12	-
Femur prox.	1	5	2	8	8	16	0.50	61.5
Femur shaft	2	1	2	5	4	16	0.25	-
Femur dist.	3	7	1	11	10	16	0.62	84.6
Tibia prox.	3	7		10	10	16	0.62	76.9
Tibia shaft	1	3	3	7	5	16	0.31	-
Tibia dist.	3	4		7	7	16	0.43	53.8
Patella	1	1	1	3	3	16	0.18	-

Continued over

Table 1. (Contd.)

Skeletal Element	Left	Right	Indet.	Site Total	Observed MNE	Expected MNE	% Survival	% MAU
Calcaneum prox.	2	4	1	7	7	16	0.43	53.8
Astragalus	2			2	2	16	0.12	15.3
Naviculo-cuboid	2	2	5	9	9	16	0.56	69.2
Tarsals			21	21	-	48	-	-
Metatarsal prox.	1	4		5	5	16	0.31	38.4
Metatarsal shaft	1	3		4	4	16	0.25	-
Metatarsal dist.	2	4	1	7	7	16	0.43	53.8
Sesamoids			18	18	-	-	-	-
1st Phalanx			8	8	8	64	0.12	15.3
2nd Phalanx			7	7	7	64	0.10	10.7
3rd Phalanx			6	6	6	64	0.09	10.7
Metapodial shaft			1	1	-	-	-	-
Metapodial dist.			3	3	-	-	-	-
TOTAL	69	86	201	356	247	1432		

(? females) were of similar size: 136.7, 133.9 and 133.0cm respectively. These measurements correspond more closely to shoulder heights given for aurochs cows from Palaeolithic and Neolithic Europe (Boessneck 1957), ranging from 155-64cm, than for coeval bulls (168 to 177cm). However, as pointed out by several authors (Grigson 1969; 1989; Helmer 1989; Chaix & Arbogast 1999; Becker 2002) there is great variability in the size of aurochs from different geographic regions relating to differences in latitude (Bergman's & Allen's Rules). This means that the sex attribution of cattle from the pit at Kfar HaHoresh based on size, remains an open issue.

As shown in Table 1, the bones are mainly post-cranial. The few cranial remains comprised 10 upper teeth and fragmentary maxillary and skull portions but no mandibles, mandibular teeth or horn cores. Careful visual examination of the large bones with a magnifying glass, and for the smaller bones with a microscope ($\times 10$ magnification) revealed no signs of modification such as cut marks, percussion fractures or burning.

The majority of the post-cranial bones were oriented with their long axes pointing down to the north-west, which indicates that they were intentionally placed together in the pit from the east as a single event. In several instances bones were found in anatomical association: two instances of thoracic vertebrae and two instances of lumbar vertebrae (Figures 3 and 4d); two instances of groups of carpals; four instances of groups of tarsals; at least one instance each of a calcaneum and astragalus, one of a femur head and pelvis acetabulum, and one of a first and second phalanx. These examples attest to the placement of whole joints within the pit, and to the fact that the contents had undergone little, if any, subsequent disturbance.

Body weights and resultant carcass weights were calculated from 'reconstituted' aurochs (Guillard 1994); an adult aurochs cow weighing 525kg yields a carcass weight of 280kg, while an adult bull weighing 630kg yields a carcass weight of c. 337kg. Thus, a *minimum* meat estimate for one juvenile, six adult cows and one adult bull (the age/sex structure as proposed here for the Kfar HaHoresh 'Bos pit'), would yield over 2000kg of meat. Even if domestic cattle meat weights are used (for example Dahl & Hjort 1976: Table 7.3), eight

animals with cold dressed carcass weights of 220kg (i.e. after removal of skin and offal) would have provided over 500kg of meat and marrow without the internal organs and fat.

Discussion

The 'Bos pit' and its associated human interment at Kfar HaHoresh may be inferred to signify the remains of a mortuary feast, and as such it may be amongst the earliest evidence for such an event in the Near East. Feasting is a socially sanctioned, celebratory, single-episode, public event during which food and drink (*economic capital*) are transformed into *symbolic capital* (Bourdieu quoted in Dietler 1996). Feasts may serve a wide variety of goals such as personal aggrandisement, the forging of links between individuals, communities, deities or ancestors, the creation of ties between exchange partners and an occasion for exchanging durable goods, or as a mechanism for the mobilisation of labour (Dietler 1996; 2001; Hayden 1996; 2001). Feasts are effective means of establishing and maintaining social, ideological and political relations within and between groups, and hence for maintaining social solidarity (Dietler 1996; 2001; Hayden 1996; 2001; Pauketat *et al.* 2002). Within the framework of the Southern Levant, feasts such as these would have clearly served the latter purpose, as well as alleviating scalar stresses associated with increased community size and density (Johnson 1982).

As pointed out by Dietler (1996), due to the limitations of maintaining large-scale surpluses for long periods of time, feasts in prehistoric communities would have necessitated planning, time and much labour for their execution. This is evident in the 'Bos pit' at Kfar HaHoresh. Given the attribution of the *Bos* remains in the pit to wild animals, and the fact that the bone remains were interred synchronously, it is postulated that these animals were hunted and killed within a circumscribed period of time. Only a communal hunt could carry out the killing and butchering of eight animals and transportation of the carcasses/meat back to the site, followed by their processing for feasting (in addition to preparation of the grave). Even if the animals were culturally managed rather than wild, their slaughter, cooking and interment would still have necessitated co-operation amongst a large group of people. Events such as this would have served as vehicles for mobilising labour both for the enactment of rituals as well as for communal tasks on-site or elsewhere. The latter activities may have included the manufacture and application of plaster surfaces, maintenance of walls, or even the erection of public edifices such as the LPPNB 'temple' at 'Ain Ghazal (Rollefson 2000), the ritual precinct at MPPNB Beidha (Kirkbride 1968) or, further afield, the massive pillared enclosures at LPPNA-EPPNB Göbekli Tepe (Schmidt 2001; Peters & Schmidt 2004; and see papers in Ozdogan & Basgelen 1999) in the Northern Levant. In addition, such occasions may have provided venues for the exchange of foods and other goods, including exotic items such as those found at Kfar HaHoresh – obsidian, turquoise, greenstone, cinnabar, sea-shells, as well as an opportunity to exchange information and perhaps even mates.

Hayden (1996; 2001: Table 2.1) has proposed guidelines for the recognition of communal feasts in the archaeological record. Concerning faunal items and their processing, he cites the presence of rare or labour-intensive taxa, evidence for abundance such as large quantities of food, and evidence of food waste (such as articulated and unprocessed bones). In addition,

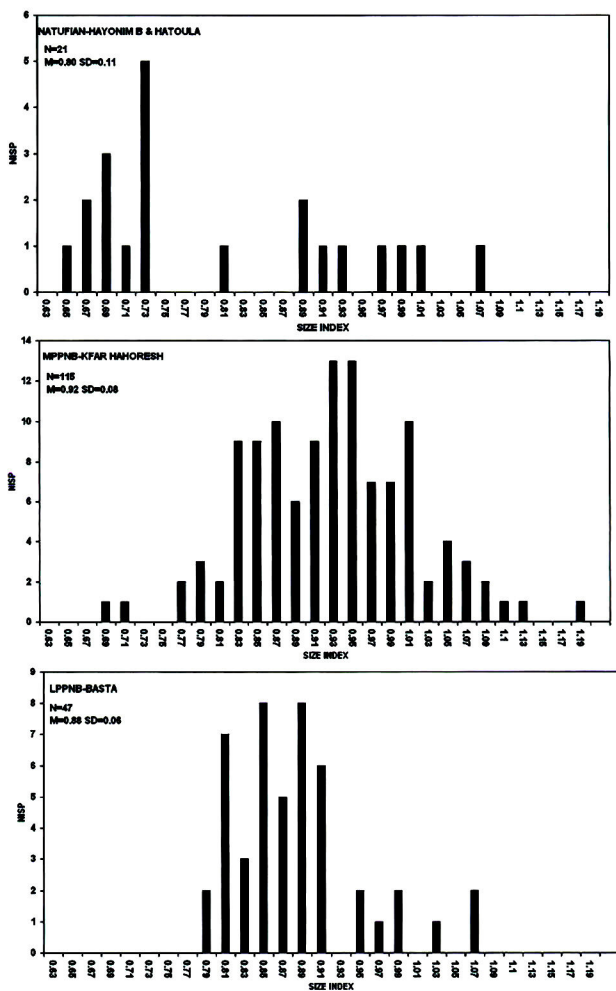


Figure 5. For caption see facing page.

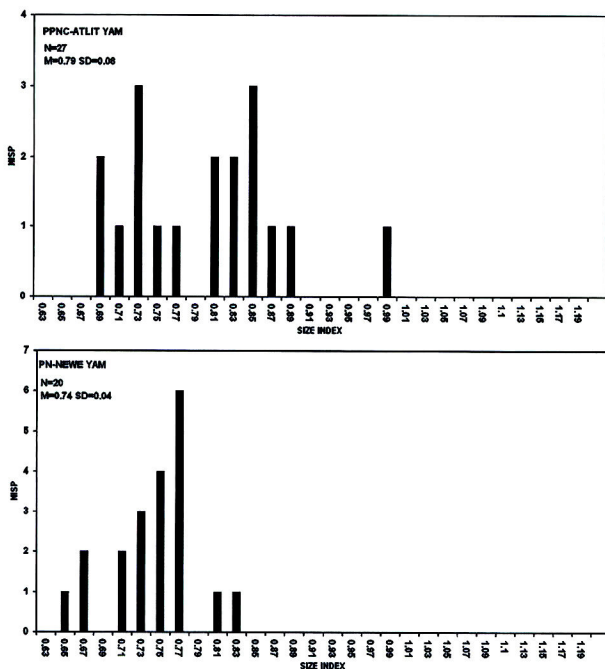


Figure 5. Histograms showing size index values for Bos from Natufian through to Pottery Neolithic sites in the Southern Levant. The Size Index was calculated as: $SI = x/Rf$; Where x = measurement of archaeological sample and Rf = reference specimen. The reference animal used here is a Holocene aurochs from Étival (Chaux & Arbogast 1999). The full size range of Bos in the Natufian sample – from Hayonim Cave B and Hatoula ($N = 21$; Range = 0.65–1.07; Mean = 0.80) is represented in the pit at Kfar HaHoresh ($N = 115$; Range = 0.69–1.18; Mean = 0.92) and in the LPPNB from Basta ($N = 47$; Range = 0.79–1.07; Mean = 0.88). Most animals in these periods are significantly larger than any represented in the PPNC ($N = 27$; Range = 0.69–0.99; Mean = 0.79) and PN ($N = 20$; Range 0.65–0.83; Mean 0.74), that probably represent domesticates.

the presence of bone dumps and middens as well as hearths, the latter often rich in bone refuse, are noted while mortuary sites or remote localities, rather than habitation sites, are listed as typical locations where feasts were held. Based on these criteria, it is likely that the 'Bos pit' at Kfar HaHoresh most plausibly reflects the remains of a funerary feast rather than a simple votive offering, as attested to by the isolated bones found at the site in association with human burials (Horwitz & Goring-Morris 2004; Goring-Morris 2005).

Only one other instance resembling the E/MPPNB 'Bos pit' at Kfar HaHoresh is known from the Southern Levant. This was reported from LPPNB Basta, where an association was found between an adult human male with the bones of eight sheep/goat and one gazelle as well as the relatively complete skeleton of a pregnant aurochs (including remains of the foetus) (Becker in Horwitz *et al.* 1999: 73; Becker 2002). The aurochs remains lay in a pit less than 1m from the grave. Unlike the 'Bos pit' at Kfar HaHoresh, the Basta animal had been butchered and defleshed as attested to by fine cut marks on several long bones, trunk elements and foot bones. However, the skeleton was interred in more or less anatomical position, which it retained. The caprines and gazelle are represented by skeletal elements that are rich in meat. However, it is not clear from the description whether they were found in the grave with the human skeleton or close by. The grave was covered with stones and the human bones had been sprinkled with ochre. Becker (2002) suggested that all the faunal components (aurochs, caprines and gazelle) represent remains of a ritual feast.

The inhumation of animal bones derived from mortuary feasts, as documented at Kfar HaHoresh, may represent yet another example of caching rites prevalent in the PPNB. There are numerous examples in this period of the intentional burial of caches of lithic artefacts, shells, plastered skulls, statues and statuettes in pits, under floors or in special structures (Bar-Yosef & Belfer-Cohen 1989; Ozdogan & Ozdogan 1989; Rollefson *et al.* 1992; Garfinkel 1994; Goring-Morris 2000; Kuijt 2000; Rollefson 2000; Kuijt & Goring-Morris 2002; Verhoeven 2002; Astruc *et al.* 2003; Barzilai & Goring-Morris in press; Davidzon & Goring-Morris in press), as well as the secreting of objects in remote localities such as caves (Bar-Yosef & Alon 1988).

In a similar vein, the paucity of cranial elements and horns in the 'Bos pit' and their absence from the gazelle carcass from Kfar HaHoresh, is reminiscent of post-depositional removal of human skulls for separate burial and/or further treatment – namely lime-plaster molding and decoration. This rite has commonly been interpreted as reflecting an ancestor cult (Kenyon 1953; Arensburg & HersHKovitz 1988). However, as plastered skulls of both sexes and a wide variety of ages have been documented, this interpretation is now open to debate (Bonogofsky 2002). Intentional skull removal in animals before burial is undoubtedly associated with the use of animal crania for ritual purposes. Such phenomena pre-date the PPNB and have been documented for PPNA sites such as Hallan Çemi on a tributary of the Tigris (Rosenberg 1999) and Jerf el-Ahmar and Mureybet on the mid-Euphrates (Cauvin 1994; Stordeur & Abbès 2002). Treatment of *Bos* skulls is attested to at the MPPNB site of Tel Halula, also on the middle Euphrates in northern Syria (Molist-Montaña 1996; Saña-Segui & Molist-Montaña 2002), while at Djâdê on the Euphrates, Coqueugniot (2000) described a *Bos* bucrania which was found under a bench and in close proximity to the 'Maison des Morts' which contained some 59 human skeletons. The richest corpus of modified aurochs skulls post-date these sites, and is documented from the early Late Neolithic site of Çatal Hüyük in central Turkey (Mellaart 1967). Here, several shrines (for example: Room 8 Stage VI.A; Room 9 Stage VII; Room 10 Stage VI.A; Structure 61 Stage VI; Structure 14 Stage VI), yielded bucrania that had been constructed from plastered-over skulls, while in others pairs of horns had been embedded in benches, platforms or walls. To date, no examples of modified bucrania are known from the Southern Levant, and it is feasible

that the 'Bos pit' at Kfar HaHoresh served as a local variant of mortuary rituals associated with aurochs. The possibility that other taxa underwent similar treatment is intimated by the headless gazelle at Kfar HaHoresh and the presence of sheep skulls and deer antlers on the floor of a subterranean structure at PPNA Hallan Çemi (Rosenberg & Redding 2000).

At a time when goat and gazelle served as the staple animal protein of PPNB communities, aurochs, which comprised a less significant portion of the diet (at least numerically although providing significant quantities of meat), appears to have been a favoured taxon for symbolic depictions in statuettes, murals, stone-carvings and bas-reliefs in sites throughout the Near Eastern world (Rollefson *et al.* 1992; Hauptmann 1993; Cauvin 1994; 2000; Garfinkel 1994; Molist-Montaña 1996; McAdam 1997; Schmandt-Besserat 1997; Schmidt 1999; Rollefson 2000; Helmer *et al.* 2004). PPNB clay statuettes depicting aurochs are often recovered from unusual and often ritual localities within settlements. Thus, at 'Ain Ghazal, 24 of the 84 figurines described by McAdam (1997) were recovered from a single cache in a house and form a remarkably consistent corpus in terms of size, shape and style. At 'Ain Ghazal (Rollefson *et al.* 1992: 466) and Çatal Hüyük (Mellaart 1967), bovid figurines were found which had been intentionally broken (maimed) or 'killed' by the insertion of flint or obsidian blades that were stuck in their torso. They were commonly located in groups and often in pits. These features have led researchers to suggest that they played a role in hunting rituals in which the animals acted as substitutes for prey that the hunters intended to kill (Rollefson *et al.* 1985). At 'Ain Ghazal, from the plaster floor of a circular storage bin, a small clay figurine depicting an aurochs was found underneath three *Bos* metapodials, one of which was incised and may have had a ritual significance (Kohler-Rollefson *et al.* 1988: 425; Rollefson 1990: Figure 6). Finally, although dating to the later Neolithic, it is obligatory to mention the fresco from Çatal Hüyük depicting a large red bull and human figures with *Bos*-like tails, i.e. with a tasseled end, attached around their waists (Mellaart 1967). Cauvin (1994; 2000) has discussed the central role played in Neolithic belief systems by aurochs, the ram and, less commonly, the wild boar as embodiments of the male deity.

Conclusion

Unique associations between human skeletal and faunal remains at Kfar HaHoresh indicate that it functioned as an Early through Late PPNB mortuary-cum-cult centre for villages in the region. Mortuary practice involved the placing of animal bones in graves, and evidence for feasting included their deposition in middens, as well as the exceptional deposit of the remains of eight aurochs, generally without their heads, in a ritual pit beneath the burial of a young man.

The 'Bos pit' found at Kfar HaHoresh attests to the special and important role played by the aurochs in Neolithic iconography and ritual practice from as early as the PPNA through to the terminal PPNB. Moreover, it serves as further evidence for the existence of a common symbolic world connecting the PPNB interaction sphere that stretched from Central Turkey through to the Southern Levant.

Acknowledgements

Excavations and research at Kfar HaHoresh have been funded by The Irene Levi-Sala CARE Foundation, the National Geographic Society, and the Israel Academy of Sciences. Special thanks to Ms. R. Burns who executed the illustrations of the 'Bos pit' during the excavation season.

References

- ARENSBURG, B. & I. HERSHKOVITZ. 1988. Nahal Hemar Cave: Neolithic human remains, in O. Bar-Yosef & D. Alon (ed.) *Nahal Hemar Cave. Atiqot* 18: 50-8. Jerusalem: Israel Department of Antiquities.
- ASTRUC, L., F. ABBÉS, J.J. IBANEZ ESTEVEZ & J. GONZALE URQUIJO. 2003. "Dépôts", "reserves" et "caches" de matériel lithique taillé au Néolithique précéramique au Proche-Orient: quelle gestion d'outillage? *Paléorient* 29: 59-78.
- BAR-YOSEF, O. & D. ALON (ed.) 1988. *Nahal Hemar Cave. Atiqot* 18. Jerusalem: Israel Department of Antiquities.
- BAR-YOSEF, O. & A. BELFER-COHEN. 1989. The origins of sedentism and farming communities in the Mediterranean Levant. *Journal of World Prehistory* 3: 447-98.
- BARZILAI, O. & A.N. GORING-MORRIS. In press. PPNB Blade Caches in the Southern Levant, in D. Binder, L. Astruc & F. Briois (ed.) *Proceedings of the 5th Neo-Lithics Workshop*. Fréjus.
- BECKER, C. 2002. Nothing to do with indigenous domestication? Cattle from Late PPNB Basta, in H. Buitenhuis, A.M. Choyke, M. Mashkour & A.H. Al-Shiyab (ed.) *Archaeozoology of the Near East vol. V*: 112-37. Groningen: ARC-Publicaties 62.
- BELFER-COHEN, A. & A.N. GORING-MORRIS. 2003. Recent developments in Near Eastern Neolithic research. *Paléorient* 28: 143-48.
- BINFORD, L.R. 1978. *Nunamiut Ethnoarchaeology*. New York: Academic Press.
- BOESSNECK, J. 1957. Funde des Ures (*Bos primigenius*) aus alluvialen Schichten Bayerns. *Säugetierkundliche Mitteilungen* 5: 55-69.
- BONOGOFKY, M. 2002. Reassessing "Dental evulsion" in Neolithic plastered skulls from the Levant through the use of computed tomography, direct observation and photographs. *Journal of Archaeological Science* 29: 959-64.
- CAUVIN, J. 1994. *Naissance des Divinités, Naissance de l'Agriculture*. Paris: CNRS.
- 2000. *The Birth of the Gods and the Origins of Agriculture*. Cambridge: Cambridge University Press.
- CHAIX, L. & R.-M. ARBOGAST. 1999. Holocene Aurochs from western Europe: Osteometrical data, in G.-C. Weniger (ed.) *Archäologie und Biologie des Aurochs* (Wissenschaftliche Schriften des Neanderthal Museums Bd. 1): 35-48. Mettmann: Neanderthal Museum.
- COQUEUGNIOT, E. 2000. Djâdê (Syrie) un village à la veille de la domestication (seconde moitié du IX^e millénaire av. J.-C.), in J. Guilaine (ed.) *Premiers paysans du monde: naissances des agricultures*: 61-80. Paris: Errance.
- DAHL, G. & A. HJORT. 1976. *Having Herds. Pastoral Herd Growth and Household Economy* (Stockholm Studies in Social Anthropology 2). Stockholm: Department of Social Anthropology, University of Stockholm.
- DAVIDZON, A. & A.N. GORING-MORRIS. In press. Knapping in the graveyard: a refitted naviform sequence from Kfar HaHoresh, Israel, in D. Binder, L. Astruc & F. Briois (ed.) *Proceedings of the 5th Neo-Lithics Workshop*. Fréjus.
- DAVIS, S.J. 1982. Climatic change and the advent of domestication: the succession of ruminant artiodactyls in the late Pleistocene-Holocene in the Israel region. *Paléorient* 8: 5-16.
- DIETLER, M. 1996. Feasts and commensal politics in the political economy, in P. Wiessner & W. Schiefelshofel (ed.) *Food and the Status Quest, An Interdisciplinary Perspective*: 87-125. Providence: Berghahn.
- 2001. Theorizing the feast. Rituals of consumption, commensal politics, and power in African contexts, in M. Dietler & B. Hayden (ed.) *Feasts, Archaeological and Ethnographic Perspectives on Food, Politics, and Power*: 65-114. Washington: Smithsonian Institution Press.
- ESHED, V. 2001. From Foraging to Farming in the Holocene (The Pre-Pottery Neolithic Period 8300-6000 BC) in the Southern Levant: The Skeletal Evidence. Unpublished PhD Thesis, Tel Aviv University (in Hebrew).
- ESHED, V., I. HERSHKOVITZ & A.N. GORING-MORRIS. In press. A re-evaluation of burial customs in the Pre-Pottery Neolithic B in light of Paleodemographic Analysis of the Human Remains from Kfar HaHoresh, Israel. *Paléorient*.

- GARFINKEL, Y. 1987. Yiftahel: A Neolithic village from the seventh millennium BC in Lower Galilee, Israel. *Journal of Field Archaeology* 14: 199-212.
- 1994. Ritual burial of cultic objects: the earliest evidence. *Cambridge Archaeological Journal* 4: 159-88.
- GARFINKEL, Y., D. DAG, B. HESSE, P. WAPNISH, D. ROOKIS, G. HARTMAN, D. BAR-YOSEF MAYER & O. LERNAU. 2006. Neolithic Ashkelon: meat processing and early pastoralism on the Mediterranean coast. *Eurasian Prehistory* 3(1): 43-72.
- GARRARD, A., S. COLLEDGE & L. MARTIN. 1996. The emergence of crop cultivation and caprine herding in the 'Marginal Zone' of the southern Levant, in D.R. Harris (ed.) *The Origins and Spread of Agriculture and Pastoralism in Eurasia*: 204-26. London: UCL Press.
- GOREN, Y., A.N. GORING-MORRIS & I. SEGAL. 2001. The technology of skull modeling in the Pre-Pottery Neolithic B (PPNB): Regional variability, the relation of technology and iconography and their archaeological implications. *Journal of Archaeological Science* 28: 671-90.
- GORING-MORRIS, A.N. 1991. A PPNB Settlement at Kfar HaHoresh in Lower Galilee: A Preliminary Report of the 1991 Season. *Journal of the Israel Prehistoric Society* 24: 77-101.
- 1994. Aspects of the PPNB lithic industry at Kfar HaHoresh, near Nazareth, Israel, in H.G. Gebel & S.K. Kozlowski (ed.) *Neolithic Chipped Lithic Industries of the Fertile Crescent* (SENEPSE 1): 427-44. Berlin: ex oriente.
- 2000. The quick and the dead: The social context of Aceramic Neolithic mortuary practices as seen from Kfar HaHoresh, in I. Kuijt (ed.) *Life in Neolithic Farming Communities. Social Organization, Identity and Differentiation*: 103-36. New York: Kluwer Academic.
- 2005. Life, death and the emergence of differential status in the Near Eastern Neolithic: evidence from Kfar HaHoresh, Lower Galilee, Israel, in J. Clark (ed.) *Archaeological Perspectives on the Transmission and Transformation of Culture in the Eastern Mediterranean*: 89-105. Oxford: Council for British Research in the Levant and Oxbow.
- GORING-MORRIS, A.N., Y. GOREN, L.K. HORWITZ, I. HERSHKOVITZ, R. LIEBERMAN, J. SAREL & D. BAR-YOSEF. 1994-5. The 1992 season of excavations at the Pre-Pottery Neolithic B site of Kfar HaHoresh. *Journal of the Israel Prehistoric Society* 26: 74-121.
- GORING-MORRIS, A.N., Y. GOREN, L.K. HORWITZ, D. BAR-YOSEF & I. HERSHKOVITZ. 1995. Investigations at an Early Neolithic settlement in the lower Galilee: Results of the 1991 season at Kfar HaHoresh. *Atiqot* 27: 37-62. Jerusalem: Israel Antiquities Authority.
- GORING-MORRIS, A.N., R. BURNS, A. DAVIDSON, V. ESHED, Y. GOREN, I. HERSHKOVITZ, S. KANGAS & J. KELECEVIC. 1998. The 1997 season of excavations at the mortuary site of Kfar HaHoresh, Galilee, Israel. *Neo-Lithics* 3: 1-4.
- GORING-MORRIS, A.N., E. BOARETTO & S. WEINER. 2001. Radiometric dating of the PPNB mortuary site of Kfar HaHoresh, Lower Galilee, Israel: Problems and preliminary results. *Journal of the Israel Prehistoric Society* 31: 213-17.
- GRIGSON, C. 1969. The uses and limitations of differences in absolute size in the distinction between the bones of aurochs (*Bos primigenius*) and domestic cattle (*Bos Taurus*), in P.J. Ucko & G.W. Dimbleby (ed.) *The Domestication and Exploitation of Plants and Animals*: 219-29. London: Duckworth.
- 1982. Sex and age determination of some bones and teeth of domestic cattle: review of the literature, in B. Wilson, S. Payne & C. Grigson (ed.) *Ageing and Sexing Animal Bones from Archaeological Sites* (BAR British Series 1090): 7-25. Oxford: British Archaeological Reports.
- 1989. Size and sex: evidence for the domestication of cattle in the Near East, in A. Milles, D. Williams & N. Gardner (ed.) *The Beginnings of Agriculture* (BAR International Series 496): 77-109. Oxford: British Archaeological Reports.
- GUINARD, C. 1994. L'aurochs reconstitué. Un descendant du *Bos primigenius*?, in *Aurochs, le retour. Aurochs, vaches et autres bovins de la préhistoire à nos jours*: 179-96. Lons-Le-Saunier: Musée d'Archéologie de Lons-Le-Saunier.
- HAUPTMANN, H. 1993. Ein Kultgebäude in Nevali Cori, in M. Frangipane, H. Hauptmann, M. Liverani, P. Matthiae & M. Mellink (ed.) *Between the Rivers and Over the Mountains: Archaeologia Anatolica et Mesopotamia Alba Palmieri Dedicata*: 37-69. Rome: Università Degli Studi Di Roma 'La Sapienza'.
- HAYDEN, B. 1996. Feasting in prehistoric and traditional societies, in P. Wiessner & W. Schiefelnhovel (ed.) *Food and the Status Quest, an Interdisciplinary Perspective*: 126-47. Providence: Bergahn.
- 2001. Fabulous feasts. A prolegomenon to the importance of feasting, in M. Dieter & B. Hayden (ed.) *Feasts, Archaeological and Ethnographic Perspectives on Food, Politics, and Power*: 23-64. Washington: Smithsonian Institution.

- HELMER, D. 1989. Le développement de la domestication au Proche-Orient de 9500 à 7500 BP: les nouvelles données d'El Kowm et de Ras Shamra. *Paleorient* 15/1: 111-21.
- HELMER, D., L. GOURICHSON & D. STORDEUR. 2004. A l'aube de la domestication animale. Imaginaire et symbolisme animal dans les premières sociétés néolithiques du nord du Proche-Orient. *Anthropozoologia* 39(1): 143-63.
- HERSHKOVITZ, I., Y. GARFINKEL & B. ARENSBURG. 1986. Neolithic skeletal remains at Yiftahel, Area C. *Paleorient* 12: 73-81.
- HERSHKOVITZ, I., I. ZOHAR, I. SEGAL, M.S. SPEIRS, O. MEIRAV, U. SHERTER, H. FELDMAN & A.N. GORING-MORRIS. 1995. Remedy for an 8500 year-old plastered human skull from Kfar HaHoresh. *Journal of Archaeological Science* 22: 779-88.
- HORWITZ, L.K. 2003. Temporal and spatial variation in Neolithic caprine exploitation strategies: A case study of Neolithic fauna from the site of Yiftah'el (Israel). *Paleorient* 29: 19-58.
- HORWITZ, L.K. & A.N. GORING-MORRIS. 2004. Animals and ritual during the Levantine PPNB: A case study from the site of Kfar HaHoresh, Israel. *Anthropozoologia* 39(1): 165-78.
- HORWITZ, L.K. & P. DUCOS. 2005. Counting Cattle: Trends in Neolithic *Bos* Frequencies from the Southern Levant. *Revue de Paléobiologie* 10: 209-24. Geneva: Muséum d'histoire naturelle de la Ville de Genève.
- HORWITZ, L.K., E. TCHERNOV, P. DUCOS, C. BECKER, A. VON DEN DRIESCH, L. MARTIN & A. GARRARD. 1999. Animal domestication in the Southern Levant. *Paleorient* 25: 63-80.
- JOHNSON, G.A. 1982. Organizational Structure and Scalar Stress, in C.A. Renfrew, M.J. Rowlands & B.A. Segraves (ed.) *Theory and Explanation in Archaeology*. 389-421. London: Academic Press.
- KENYON, K.M. 1953. Excavations at Jericho, 1953. *Palestine Exploration Quarterly* 85: 81-96.
- KIRKBRIDE, D. 1968. Beidha 1967: an interim report. *Palestine Exploration Quarterly* 100: 90-96.
- KÖHLER-ROLLEFSON, I., W. GILLESPIE & M. METZGER. 1988. The fauna from Neolithic 'Ain Ghazal, in A.N. Garrard & H.G. Gebel (ed.) *The Prehistory of Jordan. The State of Research in 1986* (BAR International Series 396 (i): 423-30. Oxford: British Archaeological Reports.
- KUIJT, I. 2000. Keeping the peace: Ritual, skull caching, and the community integration in the Levantine Neolithic, in I. Kuijt (ed.) *Life in Neolithic Farming Communities. Social Organization, Identity and Differentiation*: 137-62. New York: Kluwer Academic.
- KUIJT, I. & A.N. GORING-MORRIS. 2002. Foraging, farming and social complexity in the Pre-Pottery Neolithic of the Southern Levant: A review and synthesis. *Journal of World Prehistory* 16: 361-440.
- LYMAN, L. 1994. *Vertebrate Taphonomy*. Cambridge: Cambridge University Press.
- MCADAM, E. 1997. The figurines from the 1982-5 seasons of excavations at 'Ain Ghazal. *Levant* 29: 115-45.
- MELLAART, J. 1967. *Çatal Hüyük, A Neolithic Town in Anatolia*. London: Thames & Hudson.
- MOLIST-MONTAÑA, M. 1996. *Tell Halula (Syria). Un Yacimiento Neolítico del Valle Medio del Eufrates. Campanas de 1991 y 1992*. Madrid: Ministerio de Educación y Cultura.
- OZDOGAN, M. & A. OZDOGAN. 1989. Çayönü. *Paleorient* 15: 65-74.
- OZDOGAN, M. & N. BASGELEN (ed.) 1999. *Neolithic in Turkey. The Cradle of Civilization/New Discoveries* (Ancient Anatolian Civilizations Series, Vol. 3). Istanbul: Arkeologie ve Sanat Yayinlari.
- PAUKETAT, T.R., L.S. KELLY, G.J. FRITZ, N.H. LOPINOT, S. ELIAS & E. HARGRAVE. 2002. The residues of feasting and public ritual at early Cahokia. *American Antiquity* 67: 257-79.
- PETERS, J. & K. SCHMIDT. 2004. Animals in the symbolic world of Pre-Pottery Neolithic Göbekli Tepe, south-eastern Turkey: A Preliminary assessment. *Anthropozoologia* 39(1): 179-218.
- PETERS, J., D. HELMER, A. VON DEN DREISCH & M. SAÑA SEGUI. 1999. Early animal husbandry in the Northern Levant. *Paleorient* 25/2: 27-47.
- ROLLEFSON, G.O. 1990. The uses of plaster at Neolithic 'Ain Ghazal. *Archaeomaterials* 4: 33-54.
- 2000. Ritual and social structure at Neolithic 'Ain Ghazal, in I. Kuijt (ed.) *Life in Neolithic Farming Communities. Social organization, Identity and Differentiation*: 163-90. New York: Kluwer Academic.
- ROLLEFSON, G.O., A. SIMMONS, M.L. DONALDSON, W. GILLESPIE, Z. KAFABI, I. KOHLER-ROLLEFSON, E. MCADAM, S.L. ROLSTON & M.K. TUBBS. 1985. Excavations at the Pre-Pottery Neolithic B village of 'Ain Ghazal (Jordan), 1983. *Mitteilungen der Deutschen Orient Gesellschaft* 117: 69-115.
- ROLLEFSON, G.O., A.H. SIMMONS & Z. KAFABI. 1992. Neolithic cultures at 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 19: 443-70.
- ROSENBERG, M. 1999. Hallan Cemi, in M. Ozdogan & N. Basgelen (ed.) *Neolithic in Turkey. The Cradle of Civilization/New Discoveries*: 25-33. Istanbul: Arkeologie ve Sanat Yayinlari.

- ROSENBERG, M. & R. REDDING. 2000. Hallan Çemi and early village organization in eastern Anatolia, in I. Kuijt (ed.) *Life in Neolithic Farming Communities. Social Organization, Identity and Differentiation*: 39-61. New York: Kluwer Academic.
- SAÑA-SEGUI, M. & M. MOLIST-MONTAÑA. 2002. Caractère symbolique et usage social des animaux dans le contexte des premières sociétés agricoles du Proche-Orient: l'exemple de Tell Halula (Syrie), du PPNB moyen au Pre-Halaf. Paper presented at the conference *Domestications animales: dimensions sociales et symboliques. Hommage à Jacques Cauvin, Lyon 21-23 Novembre*. Lyon: Maison de l'Orient et de la Méditerranée.
- SCHMANDT-BESSERAT, D. 1997. Animal symbols at 'Ain Ghazal. *Expedition* 39: 48-58.
- SCHMIDT, K. 1999. Boars, ducks and foxes. The Urfa-Project 99. *Neo-Lithics* 3: 12-5.
- 2001. Göbekli Tepe, southeastern Turkey. A preliminary report on the 1995-1999 excavations. *Paleorient* 26(1): 45-54.
- STORDEUR, D. & F. ABBES. 2002. Du PPNA au PPNB: Mise en lumière d'une phase de transition à Jerf el-Ahmar (Syrie). *Bulletin de la Société Préhistorique Française* 99: 563-95.
- VAN WIJNGAARDEN-BAKKER, L.H. & P.L. BERGSTROM. 1988. Estimation of the shoulder height of cattle. *ArchaeoZoologia* 2: 67-82.
- VERHOEVEN, M. 2002. Ritual and ideology in the Pre-Pottery Neolithic B of the Levant and southeast Anatolia. *Cambridge Archaeology Journal* 12: 233-58.