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Animals in the symbolic world of Pre-Pottery Neolithic Göbekli Tepe, south-eastern Turkey: a preliminary assessment

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ABSTRACT
The recently discovered Pre-Pottery Neolithic site of Göbekli Tepe (SE-Turkey) is unparalleled in its architecture and art. The latter is particularly rich in animal depictions — stone figurines, sculptures and megalithic pillars decorated with bas-reliefs — and illustrates the prominent role animals played in the spiritual world of PPN human groups frequenting the site. Up to now, ten vertebrate taxa could be identified, nine of which also appeared in the archaeofaunal record of the site. Discussion focussed upon the possible role of the animal species figured at Göbekli Tepe, in particular whether the space demarcated by the pillars could have witnessed the performance of hunting rituals, initiation and passage rites, spiritual encounters or funeral practices. In view of our limited knowledge about the role animals played in the symbolic world of the PPN, in particular with respect to the logic and metaphysics governing the choice of species, the question of what purpose the enclosures served will take much more time to be properly answered.

KEY WORDS
Turkey,
SE Anatolia,
megalithic art,
PPNA,
animal symbolism,
archaeofauna.

RÉSUMÉ
Les animaux dans le monde symbolique du PPNB de Göbekli Tepe, Turquie du Sud-Est : première évaluation.
Le site néolithique PPNB de Göbekli Tepe (Sud-Est de la Turquie), récemment mis au jour, présente une architecture et un art sans pareils. L'art est particulièrement riche en représentations animales — figurines en pierre, sculptures et piliers mégalithiques décorées en bas-relief — et montre le rôle important joué par les animaux dans le monde spirituel de groupes humains PPN fréquentant le site. Jusqu'ici dix taxons de vertébrés ont été identifiés, dont neuf sont aussi présents dans l'archéofaune du site. Le débat porte sur le rôle éventuel des espèces animales figurées à Göbekli Tepe, en particulier à savoir si l'espace démarqué par les piliers a pu être témoin de rituels de chasse, d'initiation et rites de passage, de rencontres spirituelles ou de pratiques funèbres. Étant donné notre connaissance limitée concernant le rôle joué par les animaux dans le monde symbolique du PPN, en particulier par rapport à la logique et à la métaphysique gouvernant le choix des espèces, il faudra du temps pour résoudre la question relative à la fonction des enclos.

MOTS CLÉS
Turquie,
Anatolie du Sud-Est,
art mégalithique,
PPNA,
symbolisme animal,
archéofaune.

INTRODUCTION

The transformation from a (semi-)mobile hunter-forager way of life into the highly productive and successful system of crop-livestock farming was a lengthy and complex process, triggered, among other things, by the establishment of (semi-)sedentary communities, a move that reflects the degree of control exerted by a human group over a particular territory and its resources (Cauvin 1979, 1997; Bar-Yosef 2000). In the northern Fertile Crescent, the appearance of such communities dates to the 11th millennium cal. BC. Based on the work at Tell Mureybet (Fig. 1) and related sites by the late Jacques Cauvin — to whom this contribution is dedicated —, it could be demonstrated that in the following millennia, the Euphrates drainage area witnessed not only considerable demographic growth but also an increase in socio-cultural complexity, as reflected by settlement size and architecture. Sites dating to the (second half of the) 10th and the 9th millennium cal. BC, *e.g.*, Jerf el Ahmar, Dja'de, Tell Cheikh Hassan, Çayönü Tepesi, Nevalı Çori, are characterised by spatial division of residential and specialised workshop areas as well as by the growing importance given to open courtyards as communal space (Cauvin 1977, 1997; Hauptmann 1993; Rosenberg *et al.* 1995; Özdoğan and Özdoğan 1998; Schmidt 1998a, b, 2000; Stordeur 1999, 2000).

Since 1995, members of the Museum of Şanlıurfa and the German Archaeological Institute (DAI) have been carrying out archaeological research at the PPN site of Göbekli Tepe. Located on top of a hill (*c.* 800 m asl), the site is unique because of its impressive architecture and highly diverse yet unparalleled set of objects depicting animals, ranging from small stone figurines through sculptures and statues of animals to representations on megaliths (Beile-Bohn *et al.* 1998; Hauptmann 1999, 2002; Hauptmann and Schmidt 2001; Schmidt 1995, 1999, 2001, 2003; Schmidt and Hauptmann 2003). Although the site is only partly excavated, it is not unlikely that the finds from Göbekli Tepe may contribute to our understanding of the transition from a subsistence pattern based upon hunting and foraging at the end of the Pleistocene to the appearance of agriculture and

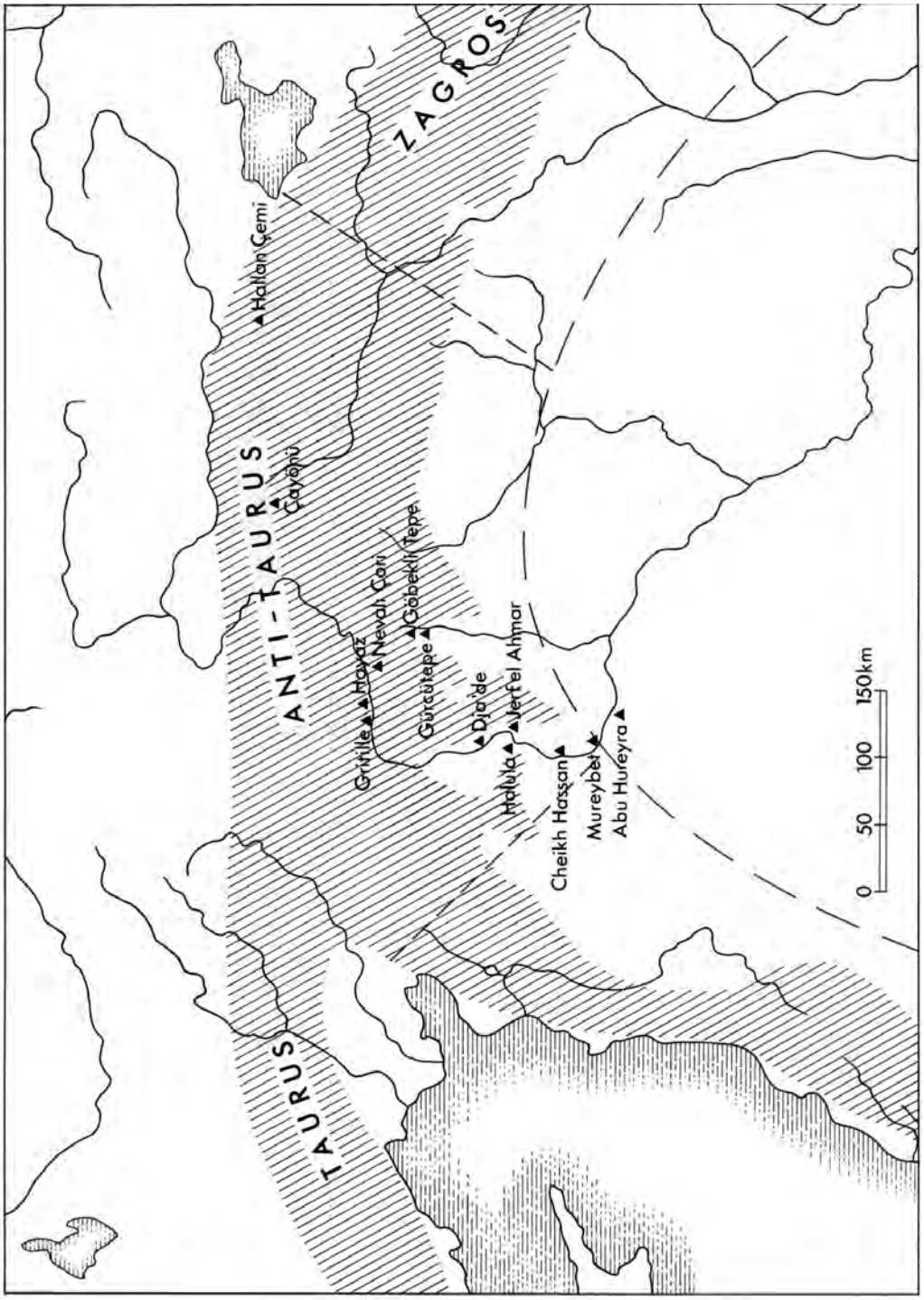

FIG. 1. – Map with location of major sites mentioned in the text.

animal husbandry in the course of the Early Holocene (Peters *et al.* in press).

In this contribution, we will focus on the site's animal iconography associated with the megalithic architecture. An overview of the taxa depicted will be presented and the information compared with our present knowledge about the PPN faunal record of the region. Discussion will centre on the possible meaning(s) of the site's diverse but enigmatic iconography.

THE PPN ENCLOSURES AND THEIR ARCHAEOLOGICAL CONTENTS

Architecture at Göbekli Tepe is distinctive (Fig. 2), consisting of larger curvilinear (probably PPNA) and smaller rectangular (late Early/early Middle PPNB) structures with megaliths in the form of T-shaped stone pillars (Beile-Bohn *et al.* 1998; Schmidt 1999, 2001). The monoliths from the curvilinear structures stand 3 to 5 m high, weigh up to 10 tons and have been positioned in a symmetrical arrangement (Figs 3-5). The pillars from the overlying PPNB levels (= Layer II) are decidedly smaller in size, averaging about 1.5 m. Similar-sized monoliths were first discovered at Early-Middle PPNB Nevalı Çori (Fig. 6; Hauptmann 1993, 1999; Schmidt 1998a, b). However, whereas the outline of some pillars at Nevalı Çori resembles the Greek letter Γ, typical Γ-shaped pillars have not been found at Göbekli Tepe, though the horizontal part of a pillar may occasionally exhibit a strong asymmetry (Fig. 7). Of particular interest is the fact that on pillars at both sites, the vertical element sometimes shows a pair of arms and hands in bas-relief (Figs 4; 6). The T-shaped pillars thus seem to represent stylised anthropomorphic beings, the horizontal and vertical parts respectively being the head and body. On the same monoliths, parallel grooves have occasionally been noted, and this decoration probably refers to human clothing.

As already mentioned, the T-shaped pillars discovered in Layer III have been purposely arranged to form round or oval enclosures. Excavations revealed the presence of four such structures, each of them being delineated by a number of monoliths positioned symmetrically. The latter, which may number up to twelve (enclosure D), are interconnected by stone benches or walls (Figs 3-5). Two huge monoliths, the so-called twin pillars, dominate the centre of each enclosure (Figs 4; 5). They are, as a rule, larger than the surrounding pillars and of superior fabrication, *i.e.* their surface is extremely well prepared and they are always decorated. By the end of the 2002 excavation season, 37 pillars had been found *in situ* in Layer III, 22 of which have animal decorations in relief.

During the Neolithic and for reasons unknown to us, PPN settlement refuse was deliberately dumped onto Göbekli Tepe's megalithic architecture which, as a result, was sealed and protected until its discovery in the mid-1990s. This refuse (= Layer III) yielded an impressive amount of stone material, in particular flint tools reflecting a broad typological spectrum and waste products. Animal remains are also abundant (Table 1), whereas remains of plants, *e.g.*, carbonised cereals, pulses or wood, are extremely scarce. Based on the nature of the deposits excavated and the typology of the lithic industry present, the "allochthonous" filling material probably came from a late/final PPNA refuse dump. This is in accordance with two ^{14}C-dates obtained on cereal remains from these deposits, *i.e.* 9559 ± 53 BP (or 9163-8744 cal. BC – 2σ; Hd 20036) and 9452 ± 73 BP (or 9136-8986 cal BC – 2σ; Hd 20025) (Kromer and Schmidt 1998).

An approximate date for the burying of the megaliths comes from a PPNB soil (Layer II) overlying the filling (Layer III) of enclosure D. This soil has been dated to 8880 ± 60 BP (or 8240-7780 cal. BC 2σ; Pustovoytov pers. comm. 2003). Pedogenic carbonate coatings on wall stones of enclosures B and C produced somewhat younger dates, *i.e.* 8960 ± 85 BP (c. 8300-7800 cal. BC 2σ; Ua 19562) and 8430 ± 80 BP (c. 7600-7200 cal. BC 2σ; Ua 19561; Pustovoytov 2002, 2003), but this is not contradictory because carbonate coatings will only develop after soil formation has taken place. All in all these ^{14}C

TABLE 1. – Göbekli Tepe, Central area. Mammalian fauna. Excavations 1996-2001.

MAMMALS	NISP*
Long-eared hedgehog, *Hemiechinus auritus*	5
Wolf, *Canis lupus*	5
Fox, mainly red fox, *Vulpes vulpes*	971
Weasel, *Mustela nivalis*	2
Marbled polecat, *Vormela peregusna*	1
Eurasian badger, *Meles meles*	1
Wild cat, *Felis silvestris*	21
Leopard, *Panthera pardus*	1
Equid(s), mainly Asiatic wild ass, *Equus hemionus*	1177
Wild boar, *Sus scrofa*	863
Red deer, *Cervus elaphus*	170
Mesopotamian fallow deer, *Cervus dama mesopotamica*	3
Aurochs, *Bos primigenius*	2574
Goitred gazelle, *Gazella subgutturosa*	7949
Mouflon, *Ovis orientalis*	293
Ovis/Capra, mainly (if not exclusively) mouflon	944
European souslik, *Spermophilus citellus*	1
Grey hamster, *Cricetulus migratorius*	1
Indian gerbil, *Tatera indica*	69
Short-tailed bandicoot-rat, *Nesokia indica*	33
Jird, *Meriones* sp.	1
Cape hare, *Lepus capensis*	386
TOTAL IDENTIFIED MAMMALS	15471
UNIDENTIFIED MAMMALS	23233
TOTAL MAMMALIAN REMAINS	38704

*NISP = Number of identified specimens.

dates suggest that the filling of the megalithic architecture took place in the 8th millennium cal. BC at the latest.

Many important questions, however, cannot be answered for the moment, *e.g.*, why people decided to abandon this architectural complex, or from where exactly within the site catchment the refuse covering the structures originated. No doubt, given the enormous amount of "recycled" debris, the primary dump cannot have been too far away. Since the curvilinear architecture at Göbekli Tepe suggests a PPNA age for the enclosures A to D, it is even possible that the PPNA filling material comes from the sites where the Göbekli people once used to live.

As said, the pillars found in Layer II are decidedly smaller than those found in Layer III. Based on similar standing stones found at other sites, these monoliths likely date to the PPNB. Until now, 18 pillars have been found. Only two of them exhibit animal representations, while one represents the Nevalı Çori type with human arms and hands.

The post-Neolithic Layer I consists of accumulations resulting from natural erosion and sedimentation processes due to agricultural practices in post-medieval times.

SYNOPSIS OF THE ANIMALS REPRESENTED

Apart from some enigmatic symbols which recall the pictograms found at Jerf el Ahmar (Helmer *et al.* this vol.), representations on the T-shaped pillars essentially show animals in relief. They are generally shown *in toto* in a (semi-)naturalistic style. Occasionally we are dealing with bucrania or even more abstract depictions.

At Göbekli Tepe, *snakes* are the most common motif (Table 2). These reptiles generally appear either single (Fig. 8, top), in small groups of three, four or five individuals (P1, P30) or in groups of 12 and more animals moving parallel to each other so as to form a kind of wave pattern (Fig. 9, below the cranes). On one occasion, an individual with two heads, one at each end of the body and looking in opposite directions, has been found (P30). The snakes depicted are thick, short animals with flattened triangular heads (Fig. 10). Their shape corresponds to that observed in vipers. Several highly venomous vipers are known to occur in the Urfa region, the most common being the Levantine viper, *Vipera lebetina*. Representations of snakes are mainly located on the small, frontal face of the pillars (Figs 10; 11). Only in two cases do we find snake representations on the back side of a pillar (P6 and P14,

both enclosure B), but it is possible that these monoliths have been re-positioned. With few exceptions (P1, P33), the snakes move in a downward direction.

To the depictions of snakes may be added an enigmatic relief found at the eastern (broad) face of P1. Based on the triangular form of its endings, the object depicted seem to represent a kind of "net" made up of 17 snakes, 8 animals oriented upwards and 9 downwards (Fig. 12).

Interestingly, depictions of snakes are found in three enclosures (A, B, D) but are absent until now in enclosure C, where these reptiles seem to be replaced by *wild boar*. Six of seven reliefs of wild boars have been discovered here, including a most beautiful specimen on P12 (Fig. 13). This naturalistic representation shows a male individual signalling its readiness to attack, its mouth opened in order to display its impressive tusks. The omnipresence of wild boar on the T-shaped pillars of enclosure C (Figs 13; 14) is paralleled by other findings : Of the four wild boar sculptures hitherto found, three have been discovered in enclosure C, namely A25 (Fig. 15), A29 and A34 (Fig. 16), and one in enclosure A (A15).

One limestone slab (C29) shows a wild boar in an upside down position (Fig. 17). The slab had been positioned upright in an area south of enclosure C and probably formed part of a door frame. Interestingly, the alignment of the limestone slabs recalls door frame constructions known from megalithic burrows of later periods. It is not clear whether the upside-down position of the animal resulted from the secondary use of the slab or whether this was done deliberately. If the latter applies, the animal's position might indicate a dead individual.

On P12 just below the wild boar is the head of a *fox* flashing its teeth (Fig. 13). Foxes are another common motif at Göbekli Tepe (Table 2). These canids are depicted either single or in combination with other species, for example with aurochs and crane (P2) or aurochs and snake (P1, P20), with a second fox (P20), or with another carnivore, probably a feline (P22). The presence of this species on the twin pillars P9 and P10 in enclosure B (Fig. 18) and on the eastern anthropomorphic twin pillar of enclosure D clearly indicates its important role in PPN symbolism.

Besides foxes, other carnivores are represented at Göbekli Tepe. The carnivore muzzle visible on P22 (enclosure D) suggests that the iconography of layer III included large *felines*. A number of statues of large carnivores tentatively identified as felines may lend support to this assumption. Some quadrupeds on limestone slabs possibly represent felines (Helmer *et al.* this vol.). Unequivocal evidence for the presence of felines (2 individuals) comes from Layer II pillars. While the body proportions of these animals might suggest that we are dealing with lions, the lack of a mane as well as a tuft at the tail makes an identification as leopard more likely. Leopards, moreover, are found in other Neolithic contexts of the northern Fertile Crescent, *e.g.*, at Çatal Hüyük (Mellaart 1967, 2003), Bouqras (Clason 1999) and Tell 'Abr (Helmer *et al.* this vol.).

Despite its incompleteness, the horizontal part of P11 probably suggests the presence of another large carnivore : From the proportions of the four extremities, which clearly characterize the animal as heavy, and the fact that the paws present five toes, it can be postulated that *brown bear* also figured among the taxa depicted.

On two occasions foxes occur together with *wild cattle*. While the triad aurochs, fox and crane on P2 (Fig. 19) may reflect a sequence of symbols, the scene on P20 (Fig. 8) probably illustrates a confrontation between a snake and an aurochs — the latter apparently "kneels down" as if to "surrender" —, whereas the role of the fox is unclear. On the small face of P2, a bas-relief of a stylised aurochs bucranium has been found (Fig. 12). P31 probably reflects a similar situation (Fig. 20). The "line" above the bucranium could imply that in reality, these items may have been fixed onto a ceiling or a wall, a situation observed at Neolithic Çatal Hüyük (Mellaart 1967). Deposits of aurochs bucrania are described from different PPN sites, *e.g.*, Hallan Çemi Tepesi (Rosenberg *et al.* 1995), Tell Halula (Saña Segui 1999) and Jerf el Ahmar (Helmer *et al.* this vol.).

TABLE 2. – Göbekli Tepe. Animal depictions on the T-shaped pillars in enclosures A to D.
Caveat : enclosures A to D not completely excavated.

Taxon/Enclosure	A	B	C	D	Total	%
Snakes*	5	2	0	14+2 (25)	23	28.4
Fox	1	2	1	8	12	14.8
Boar	0	0	6	1	7	8.7
Crane	1	0	0	4	5	6.2
Aurochs	1	0	0	2	3	3.7
Wild sheep	1	0	0	1	2	2.5
Asiatic wild ass	0	0	0	1	1	1.2
Gazelle	0	0	0	1	1	1.2
Leopard/Lion	0	0	0	1	1	1.2
Brown bear	0	0	1 ?	0	1 ?	1.2
Quadruped	0	1	0	0	1	1.2
Pictogram**	2	0	1	12	15	18.6
Unidentified	0	1	5	3	9	11.1
TOTAL	11	6	14	48+2 (25)	81	100.0

* Sometimes a larger number of snakes (> 5) has been depicted in close association. This strong coherence suggests that we are dealing with a unity. For statistical reasons, we decided to count such associations only once, but added the real number of individuals depicted in brackets.
** Including the net-like object (snakes ?) and the three bucrania.

FIG. 2. – Göbekli Tepe. Excavation area. View from the south. Photograph I. Wagner. © Deutsches Archäologisches Institut (DAI), Berlin.

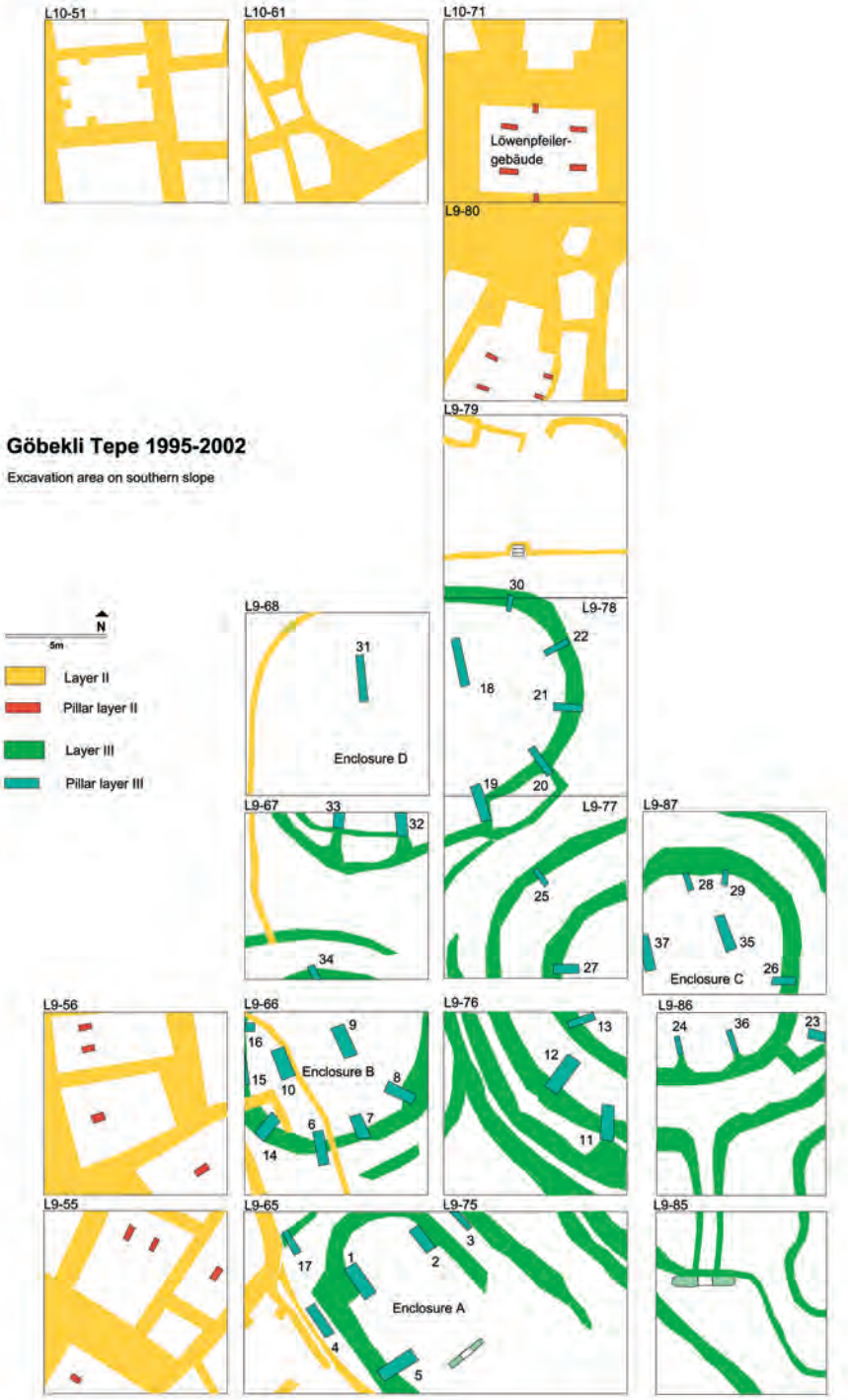

Fig. 3. – Göbekli Tepe. Schematic plan of excavated structures. © Deutsches Archäologisches Institut, Berlin.

Fig. 4. – Göbekli Tepe. Enclosure D. View from the north. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 5. – Göbekli Tepe. Enclosure B – Twin pillars. View from the north. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

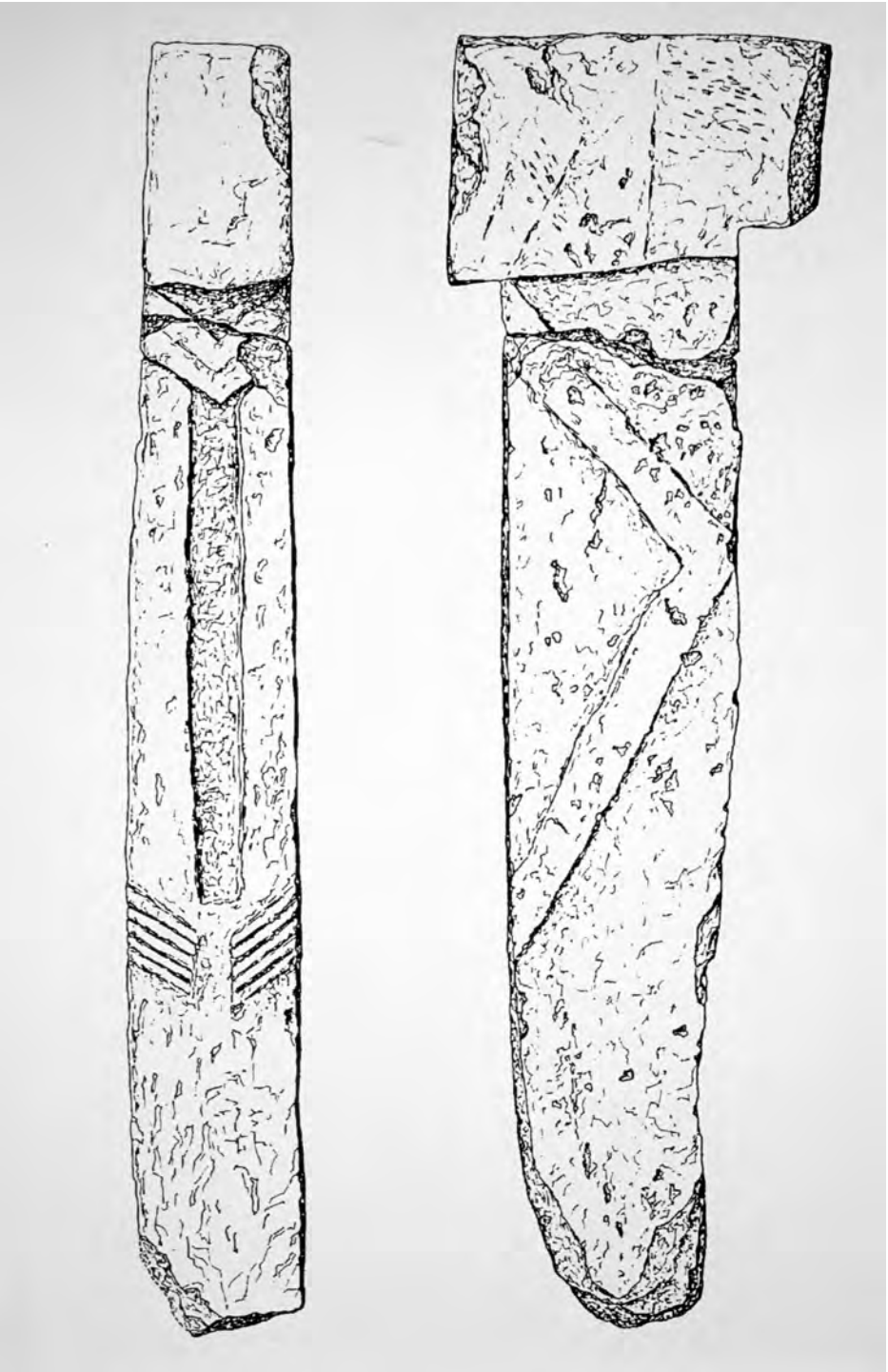

Fig. 6. – Nevalı Çori. Decorated pillar from the terrazzo building. Drawing courtesy H. Hauptmann.

Fig. 7. – Göbekli Tepe. Enclosure D – P30. View from the west. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 8. – Göbekli Tepe. Enclosure D – P20, with snake, aurochs and fox. View from the north. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 9. – Göbekli Tepe. Enclosure D – P33, with two cranes, pictograms and lines representing snakes. View from the east. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 10. – Göbekli Tepe. Enclosure D – P22, with snake. View from the west. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 11. – Göbekli Tepe. Enclosure D – P30, with snakes, a quadruped (aurochs, Asiatic wild ass ?) and a pictogram. View from the south. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 12. – Göbekli Tepe. Enclosure A – P1, with net of « snakes", and Wild sheep, and P2 with *Bos* (?) bucranium. View from the east. Photograph Ch. Gerber. © Deutsches Archäologisches Institut, Berlin.

Fig. 13. – Göbekli Tepe. Enclosure C – P12, with animals in landscape (?) (horizontal part), wild boar and fox (vertical part). View from the south. Photograph D. Johannes. © Deutsches Archäologisches Institut, Berlin.

Fig. 14. – Göbekli Tepe. Enclosure C – P28, with two wild boars. View from the southwest. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 15. – Göbekli Tepe. Enclosure C. Sculpture of a wild boar (A25), excavated near P12. Photograph K. Schmidt. © Deutsches Archäologisches Institut, Berlin.

Fig. 16. – Göbekli Tepe. Enclosure C. Incomplete sculpture of a wild boar (A34), excavated near P24. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 17. – Göbekli Tepe. Enclosure C – Entrance (?), with wild boar in an upside down position (C29). View from the south. Photograph K. Schmidt, © Deutsches Archäologisches Institut, Berlin.

Fig. 18. – Göbekli Tepe. Enclosure B–P10, with fox. View from the east. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 19. – Göbekli Tepe. Enclosure A – P2, with wild cattle, fox and crane. View from the west. Photograph Ch. Gerber. © Deutsches Archäologisches Institut, Berlin.

Fig. 20. – Göbekli Tepe. Enclosure D – P31, with *Bos* (?) bucranium. View from the south. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 21. – Göbekli Tepe. Enclosure D – P21, with goitred gazelle and Asiatic wild ass. View from the south. Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 22. – Göbekli Tepe. Sculpture of an unidentified short-legged quadruped (A35). Photograph I. Wagner. © Deutsches Archäologisches Institut, Berlin.

Fig. 23. – Göbekli Tepe. Figurine of a vulture, collected from filling debris of layer II. Photograph D. Johannes. © Deutsches Archäologisches Institut, Berlin.

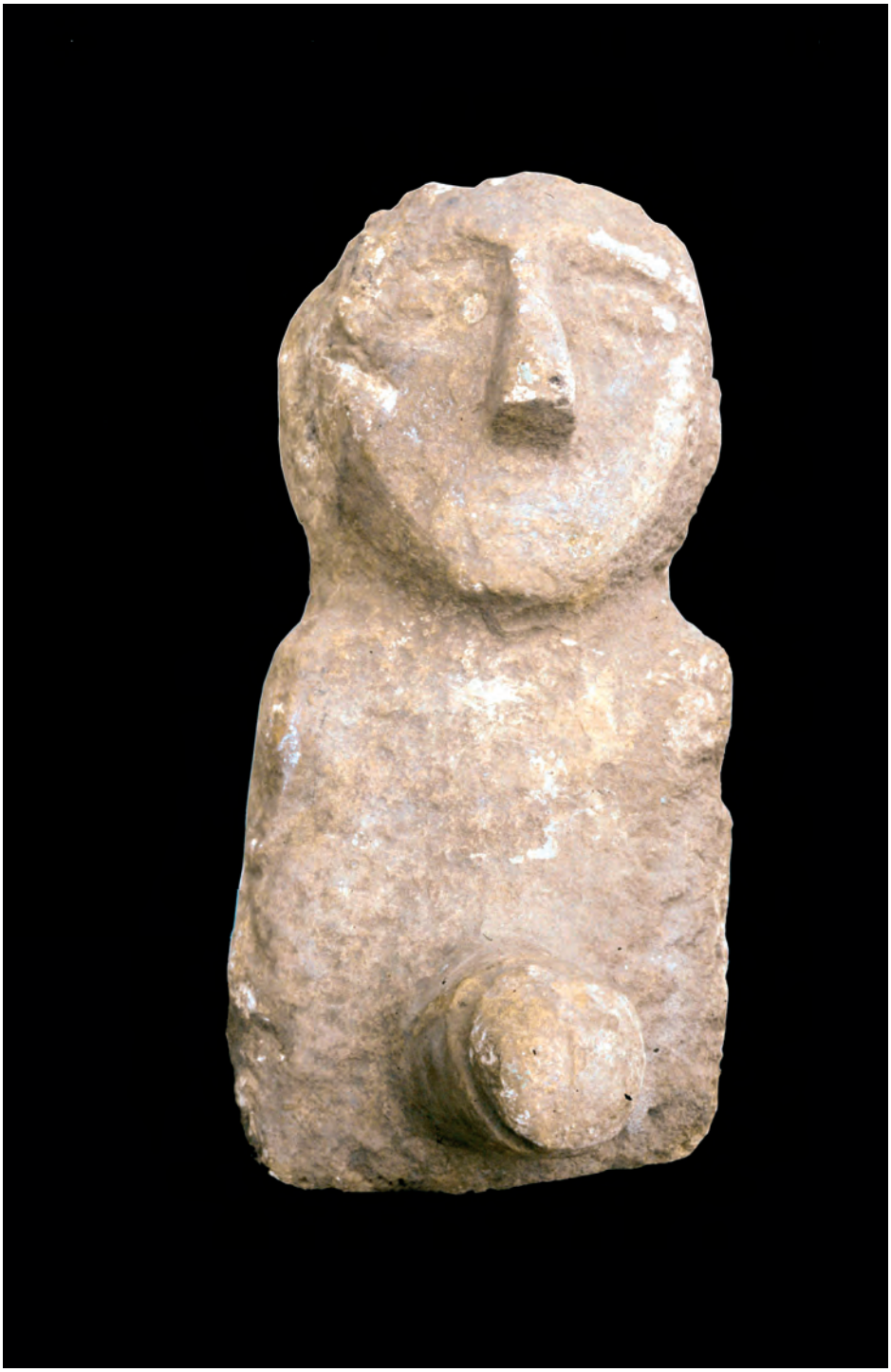

FIG. 24. – **A, B.** Göbekli Tepe. Ithyphallic protome (A2). Surface find.

Photograph M. Morsch. © Deutsches Archäologisches Institut, Berlin.

Besides aurochs and wild boar, three other ungulate species have been depicted. *Goitred gazelle* is figured on P21 (Fig. 21). *Asiatic wild ass* can be recognised on P21 (Fig. 21) and probably also on P30. *Wild sheep* or *mouflon* may be depicted on P1 (Fig. 12) and P33.

Representations of *cranes* are known in the Neolithic iconography from Bouqras (Clason, 1989/90) and Çatal Hüyük (Mellaart 2003; for a recent overview and interpretation see Russell & McGowan 2003). So far, three scenes involving five large birds which most probably represent cranes have been discovered at Göbekli Tepe (P2, P33, P38) (Figs 9; 19).

From the foregoing, it can be concluded that at least ten vertebrate taxa played a role in the symbolic world of PPNA Göbekli Tepe. Unfortunately, many representations, although relatively well preserved, are difficult to interpret taxonomically (Fig. 22).

TABLE 3. – Göbekli Tepe, central area. Avi- and ichthyofauna. Excavations 1996-1998.

BIRDS	NISP*
Greylag goose, *Anser anser*	1
Ruddy shelduck, *Tadorna ferruginea*	1
Mallard, *Anas platyrhynchos*	1
Griffon vulture, *Gyps fulvus*	1
Long-legged buzzard, *Buteo rufinus*	1
Eagle, *Aquila* sp.	3
Chukar, *Alectoris chukar*	2
Quail, *Coturnix coturnix*	1
Common crane, *Grus grus*	6
Demoiselle crane, *Anthropoides virgo*	2
Great bustard, *Otis tarda*	7
Sandgrouse, *Pterocles* sp.	1
Tawny owl, *Strix aluco*	1
Song thrush, *Turdus philomelos*	2
Thrush, *Turdus* sp.	5
Magpie, *Pica pica*	2
Rook, *Corvus frugilegus*	4
Carrion crow, *Corvus corone*	10
Jackdaw, *Corvus monedula*	8
Reed bunting, *Emberiza schoeniclus*	1
Total identified birds	60
Unidentified birds	5
Total bird remains	65
FISH	
Silurus triostegus	1
Unident. Cyprinid	1

*NISP = Number of identified specimens.

THE ARCHAEOFAUNA ASSOCIATED WITH THE ENCLOSURES

One interpretation of the above list of species is that the space defined by the T-shaped pillars was intended for the performance of hunting rituals. The question arises whether the bone material in the fill between the monoliths originated from activities taking place within the boundaries of the enclosure itself, in other words whether the bones are leftovers from ritual activities, or whether they come from other contexts. To answer this question, a closer look at the bone material is of crucial importance.

In a second step, a comparison of the faunal spectrum presented by the bone refuse and the species list taken from the depictions will be highlighted (see *Animal symbolism and hunting rituals*).

The Layer III excavations at Göbekli Tepe produced a rich faunal assemblage (von den Driesch & Peters 2001; Peters *et al.* in press). Dating of the animal remains follows the lithic industry, *i.e.* late/final PPNA. Up to now, 42 vertebrate taxa — 20 mammals, 20 birds and 2 fish — could be recognised (Tables 1; 3). Because of the secondary nature of the deposits, it was decided to sieve only part of the cultural debris. Within the randomly selected archaeological units that have been sieved systematically (1 mm mesh), taxonomic composition did not differ much from that observed in neighbouring units from which animal remains had been collected essentially by hand-picking, except for a higher relative frequency of unidentified remains and an increased percentage of bones of (very) small vertebrates, *e.g.*, Cape hare, rodents and Passeriforme birds. Conceivably, not all of the latter resulted from anthropogenic activities, as some finds may represent commensal species that lived and per-

ished near the site. Thus, hand-picking of bone specimens from screens with a mesh of 5 mm certainly caused a bias against small(er) vertebrates, which therefore will be underrepresented in the non-sieved samples. However, species composition does not seem to have been affected significantly by this procedure.

In all Level III units, mammalian bone fragments form the bulk of the material. Remains of ungulates predominate with over 80 % of the total sample. This is also the case with other PPN archaeofaunas collected along the Upper and Middle Euphrates (Helmer *et al.* 1998; Peters *et al.* 1999). At Göbekli Tepe, goitred gazelle must have been very common (41.8 %). Other important herbivores are wild cattle, Asiatic wild ass, wild boar, red deer and Cape hare. Caprine remains account for about 11 % of the sample, but among the specimens that could be identified to the species level, not a single find could be attributed to the wild goat, *Capra aegagrus*. The absence of wild goat at Göbekli Tepe is almost certainly not an artefact of sample size (Table 1), but relates to the 9th millennium cal. BC ecogeography of the site catchment : A landscape consisting of low, undulating grassy hills with isolated stands of trees on the plateaus and mixed gallery forests along the water courses certainly better suited the ecological demands of *Ovis* than of *Capra*.

A typical feature of most PPNA and Early PPNB archaeofaunas from the Euphrates drainage area and the southern Levant is the high relative frequency of fox bones (Helmer *et al.* 1998; Horwitz *et al.* 1999), which is also observed at Göbekli Tepe (Table 1). The majority of the fox remains can be attributed to the red fox, *Vulpes vulpes*. Based on the overall size range of the fox bones, however, the presence of a second, smaller species (*Vulpes ? cana*) seems possible, but unequivocal morphological evidence is lacking. Occasional cut marks on bones of meat-bearing parts indicates that from time to time people prepared the meat of foxes. Also of interest is the fact that at Göbekli Tepe, post-cranial elements, in particular autopodial elements (phalanges, (meta)carpals, (meta)tarsals), are proportionately far more abundant than cranial elements. This skeletal bias can be interpreted as evidence for the exploitation of *Vulpes* for its pelt. Presumably not all of the fox remains recovered from Layer III come from the refuse dump recycled to seal the site's PPNA architecture : fox pelts (as well as gazelle hides) with the foot bones still attached — a common practice when preparing skins of game — may also have been used at the site itself, for example to cover and/or decorate floors, walls and stone benches.

Though bone remains of birds are far less common than those of mammals, taxonomic diversity is similarly high. Bone fragments of members of the family Corvidae (crows) form the bulk of the material. The presence of migratory species, *e.g.*, common crane *(Grus grus)* and demoiselle crane *(Anthropoides virgo)*, implies seasonal hunting activities at Göbekli Tepe. Diurnal birds of prey, such as falcons, eagles, buzzards and kites, may not have been hunted solely for their meat, feathers and claws, but also or even exclusively because of their role in ritual contexts. As will be outlined below, some Accipitriforme birds in fact played a role in the symbolic world of the Near Eastern PPN.

So far, few fish remains have been found. They pertain to freshwater species, probably caught in one of the tributaries of the Balikh, and brought up to the site for consumption.

To answer the question propounded at the beginning of this chapter, it is beyond doubt that the bone material described above can be characterised as refuse derived from hunting and food preparation and consumption activities rather than from ritual procedures. This then leads to the next question, concerning the provenience of this material — a question which hardly can be answered at the moment. What we know at this preliminary stage of research is that the people responsible for the Level III faunal assemblage were still hunter-foragers.

To evaluate the approximate contribution of each mammalian taxon to the human diet, two parameters can be considered, *i.e.* number of identified specimens (NISP) and bone weight. The second parameter is of particular interest, because

in cattle, bone weight correlates well with body weight; an intra-species comparison of bone weights thus might inform us about the relative importance of a particular species as a source of animal protein. Following this approach, it can be concluded that aurochs provided about 50 % of the total meat consumed, whereas gazelle, the most frequently hunted animal, only contributed some 15 %. No doubt, subsistence activities also included (seasonal) fowling and some occasional fishing (Tables 1; 3). As mentioned earlier, sieving could not be practised with all of the filling debris, hence birds and fishes (as well as small(er) mammals) will be underrepresented in the archaeofaunal assemblage. While it will be impossible to gauge the dietary importance of birds and fishes at PPNA Göbekli Tepe, the altogether low frequency of remains from these vertebrate groups — even in samples that have been sieved — indicates their rather modest contribution as food animals. On the present evidence it seems unlikely that animal husbandry was already practised, given 1) the large average size of the founder herd species (wild sheep, pig and cattle), implying that we still are dealing with (morphologically) wild ungulates, 2) the respective demographic profiles of these taxa, which show populations dominated by adult rather than by sub-adult animals, and 3) the fact that remains of males rather than of females dominate in the samples (Peters *et al.* 1999, in press).

DISCUSSION

From its location and its megalithic architecture, it can be safely assumed that Göbekli Tepe served as a place for the accomplishment of (different kinds of) ritual activities. Its unique architecture and the unexpected richness and complexity of animal symbolism at this early stage of the Pre-Pottery Neolithic period necessitates a more elaborate discussion of the possible function(s) of the areas defined by the decorated monoliths. Due to the lack of comparable sites in the Anti-Taurus, however, it is necessary to draw upon related phenomena recorded from (pre)historic contexts in other parts of the Near East and beyond.

Animals as attributes and/or guards

As explained above, it can be safely assumed that the T-shaped pillars represent anthropomorphic beings. The animals depicted therefore could have served as attributes and or (imaginary) guards in order to protect their "owners". Admittedly, carnivores, snakes, wild boar and aurochs are potentially dangerous species, so their presence in megalithic art at PPN Göbekli Tepe could be interpreted this way. On the other hand, if the animals depicted refer to supra-natural beings, they all possess power and are therefore (virtually) able to protect the megaliths.

In many instances, however, people deliberately depicted sets of species rather than single animals, for instance the triad aurochs, fox and crane (Fig. 19), or animals together with pictograms (Fig. 9). Considering this particularity, it is difficult to believe that animal symbolism at Göbekli Tepe did not go beyond the level of just protecting the site's megaliths.

Animal symbolism and hunting rituals

As has already been mentioned, one approach to understanding animal symbolism at Göbekli Tepe may lie in the assumption that a specific relationship between the hunter-gatherers frequenting Göbekli Tepe and the animals depicted did exist. These animals could have attracted a great deal of attention either because they were principal food species on which people depend upon for their survival or because people gave them a specific value or status beyond their purely dietary contribution for reasons we can hardly understand or prove. This has for example been the case during the Magdalenian in south-western Europe, where reindeer dominated the food spectrum of Late Palaeolithic hunters, while at the same period horses dominated cave art and stood in the centre of ritual activities (Clottes & Lewis-Williams 1997; Brun 2001).

In the case of Göbekli Tepe one could compare the number and range of animals depicted and those represented in the refuse of the filling. Admittedly, since the site inhabitants "recycled" ancient settlement debris to cover the megalithic architecture, a straightforward correlation of the

archaeo(zoo)logical data obtained from an enclosure with the faunal elements depicted on megaliths or the objects of art found in the same structure is not necessarily given. On the other hand, three important prerequisites can be considered relevant in this connection : Firstly, archaeological evidence suggests that the bone refuse and the enclosures may have been broadly contemporaneous; secondly, we may assume that those people who used the enclosure and those who produced the refuse heaps and filled up the spaces between the pillars probably belonged to the same "clan" or at least related communities whatever these "communities" looked like; thirdly, from a statistical point of view, the amount of vertebrate material is sufficiently large for a reconstruction of eating habits. Therefore this comparison does make sense, keeping in mind a (minor) bias against smaller vertebrates because of partial recovery (see above).

From the archaeofaunal record it becomes obvious that the majority of the vertebrate species depicted in art are also present in the bone samples, although the inverse does not apply (Tables 1; 3). From a quantitative point of view, the following discrepancy can be observed : The taxa most frequently depicted are snake, fox and wild boar, whereas the bone remains from Göbekli Tepe reflect the overwhelming importance of aurochs, goitred gazelle, and Asiatic wild ass in terms of meat procurement. Wild boar has a rather limited economic importance in the human diet at Göbekli Tepe, whereas its frequency in megalithic art is remarkable. Bone fragments of snakes are (largely) absent in the faunal samples from Göbekli Tepe, while their prominent position on the pillars has been mentioned repeatedly. Only for fox, a certain similarity between bone refuse and artistic representation can be pointed out : In the refuse, fox remains are counted in a rather high frequency (n = 971, Table 1), even outnumbering remains of wild boar and reaching the amount of sheep/goats. This somewhat surprising result may be connected with the exploitation of its pelt and/or the utilisation of fox teeth for ornamental purposes. Additionally, a specific worship of foxes may be reflected here, which in fact finds parallels in the number of depictions on the stone pillars.

However, in the case of Göbekli Tepe, dissimilarities between consumption waste and animal representations predominate. In the bone refuse, the placing of particular species in a prominent or less prominent position can easily be explained by dietary preferences, reflecting hunting activities which are dictated by the local palaeoenvironment. Taphonomic factors may also play a certain role, particularly in the lack of snake remains in the bone refuse. The artistic representations at Göbekli Tepe, however, seem to follow other conventions which have still to be revealed.

In conclusion, it is difficult to believe that architecture and iconography at Göbekli only served for hunting rituals, although animal representations indicating hunting rituals may be present in the Near Eastern Neolithic, for example, the PPNB gazelle figurines from Umm ez-Zuweitina cave in Israel (Neuville 1934 : pl. 21; thought originally to be Natufian, but probably PPNB), a gazelle figurine found at PPNB Basta (Hermansen 1997 : pl. 3A and fig. 1.1) and another figurine, from a gazelle hunting camp at Dhuweila (Betts 1998 : 136, fig. 6.2) in Jordan, where many gazelles engraved on basalt slabs have been found. The wall painting of Asiatic wild ass at the seasonal hunting site of Umm Dabaghiyah may be cited here, too (Kirkbride 1975 : pl. 6b, 7a). Thus, based on the taxonomic composition of the fauna from Göbekli Tepe (Tables 1; 3), only enclosure D would — in our 21st century view — be of relevance to the inhabitants of the site if hunting rituals were practised.

Animal symbolism and totemism

Ritual places on hills, mountains and high places have often been treated as cosmic projections, the origins of things being expressed through pillars, stelae, stone circles, etc. Therefore, a possible approach for the interpretation of the animal representations on the Göbekli Tepe megaliths is totemism. The rationale of totemism is that each social group appropriates animal or plant images as their exclusive emblems, while the significance

of each species derives from its place in the cognitive structure (*e.g.*, Layton 2000). According to Layton (1992), totemic art will tend to be concentrated at sites which mark significant points in a group's territory. Moreover, each animal species will be preferentially depicted at sites within the territory of the group for whom it is the totemic emblem.

Areas demarcated by standing stones or totem poles may serve the performance of initiation and rites of passage to adulthood. In this connection, the pillars at Göbekli Tepe could be interpreted as poles linking the underworld with the "living" world. Although it has been assumed that the T-shaped pillars may also connect the underworld with the sky or upper world (*e.g.*, Bischoff 2002), it is doubtful whether such a "vertical hierarchy" was already adopted by early PPN communities (*e.g.*, Cauvin 1997 : 100). Conceivably, proto-Neolithic societies still considered the world to be organised essentially horizontally, the concept of hierarchy emerging in the course of the Neolithic (Cauvin *ibid.*). Thus, the fact that on PPNA megaliths animals are depicted along a vertical axis (*e.g.*, Figs 8; 20) does not necessarily imply a true hierarchy, in that the more important and/or powerful an animal being, the higher its position on the vertical part of a monolith. If it can be hypothesized that the animal taxa depicted by the PPN inhabitants of Göbekli Tepe refer to forces of origination as well as to different ethnic distinctions, the criteria governing the choice of species as emblems will be difficult to ascertain with hindsight. The choice could have been based, for example, on particular physical, physiological and behavioural characteristics of species, *e.g.*, the venomousness of snakes, the impressive size and physical strength of the aurochs and the brown bear, the dangerousness of lions and leopards, the adaptability and opportunistic behaviour of foxes, the highly developed social organisation in carnivores, the swiftness and agility of gazelles, the vigour of equines, the migratory behaviour of cranes, etc.

If the pillars represent anthropomorphic gods, however, emblems may have been chosen according to non-profane criteria as well. Snakes, for example, can be interpreted to represent chthonic creatures and would therefore often be associated with deities of the underworld (*e.g.*, Maringer 1977). Cranes are migratory birds and will cross the Harran plain twice a year while migrating from their breeding grounds to their wintering areas (August-October) or *vice versa* (March-April). Together with other migratory birds, they announce the turn of the seasons, an important event for many societies of the world. While we can only guess the role *Vulpes* played in the symbolic world of the PPN, it is a fact that foxes are almost completely absent in the mythologies of post-Neolithic Mesopotamian cultures. Unlike species such as (wild) cattle, lion or dog (Black & Green 1992), the fox appears not to be associated with any deity, but its (dual) character resembles that of *Meister Reineke* in European fairy-tales. Conversely, *Vulpes* played an important role in Neolithic communities in Southwest Asia, in animal symbolism as well as in everyday life, *e.g.*, as a commensal species (Vigne 1988; Vigne & Guilaine this vol.), and this might explain why it was introduced onto Neolithic Cyprus and other Mediterranean islands (Vigne 1988; Helmer *et al.* 1998; Vigne & Buitenhuis 1999).

As pointed out above, in totemism the identity of a human group will be characterised by one (or a selection ?) of animals in the form of emblems. One possible way to depict emblems may be on totem poles, as has been done by Native American cultures inhabiting the Northwest Coast (*e.g.*, Halpin 1981). If this scenario applies to Göbekli Tepe, the presence of a series of broadly contemporaneous enclosures each with a unique iconography could imply that each space demarcated by pillars was frequented by one or more "clans" (at different times ?). Could it be, then, that the occurrence of Aswad, el-Khiam, Helwan, Nemrik and Nevalı Çori arrow heads in the PPN debris at Göbekli Tepe is not due to (long distance) trade but results from visits by "allochthonous" human groups to perform their rites in their "own" enclosure ? Provided this was the case and that emblems had been selected according to the landscape and environmental setting from which the human groups originated,

would it not be possible on the basis of the animal taxa represented at each enclosure to narrow down the geographic origin of (some of) these "clans" ?

At enclosure A, five taxa are depicted (Figs 12; 19), *i.e.* snake, aurochs, fox, crane and probably wild sheep. Interestingly, pictographs of snake and fox have been recorded on small, grooved stones from PPNA Jerf el Ahmar on the Syrian Euphrates (Stordeur 2000; Helmer *et al.* this vol.), while the analysis of the vertebrate remains has shown that aurochs, fox and crane were not unimportant in the economies of Jerf el Ahmar, Tell Mureybet and Tell Cheikh Hassan (Helmer 1994, Helmer *et al.* 1998; Gourichon 2002). Whereas these four taxa could suggest a connection with the Syrian Euphrates valley, the representation of wild sheep does not fit well into the picture, since *Ovis* were very rare or even absent in most of northern Syria prior to their introduction as a domesticate (Uerpmann 1987; Peters *et al.* 1999). From the beginning of the Holocene, however, wild sheep were relatively abundant in temperate regions such as the piedmont of the southern Taurus. Thus, while the iconography at enclosure A might point to a connection with the Syrian Euphrates valley, it is possible that a faunal element particular to the Anti-Taurus has been incorporated. One highly speculative explanation could be that at an early phase of site occupation, a group of humans originating from the Syrian Euphrates valley settled near Göbekli Tepe, to add, at a later stage, a faunal element of their "new" territory to their "traditional" spectrum of emblems. But, on the other hand, it is possible as well that enclosures were frequented by groups of different geographic origin, each having their own particular emblem(s).

Based on the bas-reliefs on the twin pillars, fox is the dominant emblem at enclosure B (Fig. 18). As stated, the high relative frequency of its remains compared to other carnivores at Göbekli Tepe and in most of the PPNA/Early PPNB faunal assemblages (*e.g.*, Vigne 1988; Helmer 1994; Helmer *et al.* 1998; Peters *et al.* 1999) underscores the significance of this taxon in the spiritual world of the PPN northern Fertile Crescent. The presence of fox at Middle PPNB Shillourokambos (Vigne & Buitenhuis 1999; Vigne 2000; Vigne & Guilaine this vol.) possibly relates to the symbolic role of the species on the mainland prior to the colonisation of Cyprus by PPN human groups. Be that as it may, from its archaeozoological and iconographical record, *Vulpes* may have been too widespread a symbol to locate its geographic origin.

At Enclosure C, representations of wild boar dominate the bestiary (Figs 13-17). This could suggest a ritual space for (a) human group(s) coming from the north, *e.g.*, the central (Anti)Taurus. The major argument in favour of this hypothesis is the low frequency of *Sus* at Göbekli Tepe (< 6 %) and at PPN sites located further to the south compared to the archaeofaunas from sites to the north(east) of Göbekli Tepe, where human groups depended much more on *Sus* for their survival. At Cafer Höyük, for example, *Sus* (25 %) ranks second behind goats (43 %; Helmer 1988), whereas at Çayönü, pigs are the most important taxon throughout the entire PPN sequence, with relative frequencies varying between 30 and 40 % (Hongo & Meadow 2000). Besides wild boar, brown bear may also have been depicted at enclosure C. Interestingly, evidence for this large quadruped in the PPN archaeofaunal record is rare, but its remains have been found at Çayönü (Hongo *et al.* 2002).

At Enclosure D, depictions of fox and snake are most common, but representations of crane, aurochs, wild boar, gazelle, hemione and a large carnivore, probably a felid (leopard, lion ?) complete the inventory. This spectrum shows similarities with the vertebrate fauna from Göbekli Tepe as well as with faunas from sites located further north, *e.g.*, Nevalı Çori (von den Driesch & Peters 2001), or along the Syrian Euphrates, *e.g.*, Jerf el Ahmar, Tell Mureybet, Tell Abu Hureyra and Tell Cheikh Hassan (Helmer 1994; Legge 1996; Helmer *et al.* 1998; Gourichon 2002). While the combination of gazelle and Asiatic wild ass on P21 (Fig. 21) is indicative for dry, open landscapes, other species such as aurochs, wild boar and cranes are partial to moist, riparian habitats. Such a mixture of biotopes is found at

the ecotone of steppe and river valley vegetation, and this must have been the case along most water courses in both the Euphrates and Tigris drainage regions.

Animal symbolism and shamanism

Based on a comparative survey of rock art, Layton (2000 : 179 ff.) hypothesized that totemic, shamanic and secular rock art offer different ways of using motifs drawn from the vocabulary of a cultural tradition. They therefore show different but characteristic distributions within and between sites. Intra- and inter-site comparison of the motifs, in particular their frequencies, would hence be useful to differentiate between the three categories. It should be stressed, however, that at a single location, totemic, shamanic and secular art are not necessarily mutually exclusive.

According to Layton, inter-site comparison suggests that the species favoured in shamanism will be depicted throughout the community's area because they are then available to people in many local groups. A similar distribution can be postulated for secular rock art : the species hunted and gathered during everyday foraging activities will be depicted with equal frequency at all sites. This distribution will be in contrast with that observed in the case of totemism, where (each) motif(s) will be concentrated at a few sites within the territory. Intra-site comparison, on the other hand, revealed that totemic art is characterised by the presence of a large number of species, each occurring with about the same frequency, because each motif serves as the emblem of one clan among many. A high species diversity and approximately equal frequencies will also characterise secular art, whereas in shamanic art, there should be a predominance of few animal taxa. The latter assumption is based on ethnographic evidence from shamanistic cultures, in which some species are often particularly charged with power, *e.g.*, giraffe among the ! Kung (Marshall 1969).

The shamanic explanation for Bushmen rock art in southern Africa was quite successfully applied to Palaeolithic cave paintings of the Franco-Cantabrian region (Clottes & Lewis-Williams 1997, 1998). And although Layton (2002 : 184, Note 2) admits that more samples are needed to explore consistency between different cases of totemic, shamanic and secular rock art, it is of course tempting to apply his preliminary conclusions to the corpus of animal representations found at Göbekli Tepe. Unfortunately, only intra-site evaluation was possible due to the lack of contemporaneous sites with comparable megalithic art. From Table 2, the high frequency of snake, wild boar and fox becomes obvious. These species may therefore have served as vehicles for spiritual encounters. If this applies, it can be concluded that the enclosures at Göbekli Tepe witnessed shamanic rituals.

In Late Palaeolithic rock art in Europe, theriokephalic beings have been considered to impersonate shamans. The same applies to anthropo(zoo)-morphic figurines in archaeological contexts, *e.g.*, the ivory sculpture "Der Löwenmensch" from Palaeolithic Hohlenstein-Stadel (Lone valley, southwest Germany; Hahn 1994). Interestingly, anthropozoomorphs, *i.e.* creatures with a human body and the head of an animal, *e.g.*, of a lion (Hohlenstein-Stadel), a bison (Trois Frères, Chauvet) or an ibex (Gabillou), are present at numerous sites, while the combination of an animal body with a human head, *e.g.*, a sphinx or a centaur, seems to be lacking almost completely in prehistoric art. Did humans have the ability to turn into animals (and back), while animals, as a rule, could not become humans ?

If the theriokephalic beings in Palaeolithic rock art impersonate shamans, it is probable that these paintings were made by the shamans themselves, simply because they would possess the cultural background necessary to produce this kind of art, the intention of which is not to show everyday life but some supra-natural sphere. The scenes depicted might arise from the shaman's own experiences during trance-induced spiritual encounters. In this state, he acts in a transcendental sphere and will be able to provide answers to questions of members of his community. Clottes and Louis-Williams (1997, 1998) argue that the experience of trance and its mental outcome are similar in all *Homo sapiens*. Differences exist only at the level of what can be expected. If related for

example to hunting, the animal species involved will differ according to the region, *e.g.*, a whale or a seal for an Eskimo, an antelope or a giraffe for a Bushman, etc. Conceivably, when colours, brushes etc. are prepared in advance, rock paintings can be made in a comparably short time, for example after trance dancing. The position of the drawing on the rock face, moreover, is not casual, but implies a situation resembling that in "Open sesame !"

Given the anthropomorphic nature of the T-shaped pillars at Göbekli Tepe and the fact that these abstract monoliths bear representations of particular (sets of) animal species, it is tempting to interpret these megaliths as three-dimensional representations of shamans. However, many of the T-shaped pillars hitherto excavated show no animal decorations at all, and this seems contradictory to the previous assumption. Moreover, compared to rock paintings, the fabrication of these huge monoliths did not take a few hours, but weeks, if not months. It is therefore hardly realistic to believe that this task was carried out by a few shamans who, together with their communities, visited the site occasionally to perform specific rituals. To carve, rub down, transport, decorate, and erect megaliths up to 7 m high (!) is hard work, so it is highly probable that, besides a person in charge (a shaman ?), a considerable number of skilled labourers participated to accomplish this task. These people would have depended on the (local) hunter-gatherer community for their basic requirements (food, clothing, shelter…). Seen from this perspective, (pre)conditions in the PPN Anti-Taurus must have differed entirely from those prevailing in Upper Palaeolithic Europe : the monumental art at Göbekli Tepe does not represent the outcome of an act of few individuals, but of activities involving an entire community, large enough and organised in an hierarchical way so as to be able to provide the necessary logistics for such a complex undertaking. In this connection, it is not improbable that the shamans at Göbekli Tepe (if present) were on the verge of becoming true priests, and that the ancient rituals had already undergone changes as a result of the dawn of a new world, a world characterised by a megalithic architecture (the preliminary stage of temples) and a stratified society with powerful rulers.

In conclusion, whether shamanic rituals were performed at the site or whether the decorated T-shaped pillars represented shamans with their attributes cannot be unequivocally answered for the moment. But the fact that the foundations of the central twin pillars did not insure good stability would possibly exclude mass gatherings, in particular large groups of humans moving or dancing.

Animal symbolism and funeral customs

There is one animal which in the recent and distant past has quite often been associated with funeral rites : the vulture (Solecki 1977; Solecki & McGovern 1980; Schüz & König 1983). In Central Asia, for example, people will bring the deceased to specific places in the mountains, where the bodies are laid out for the vultures (Hedin 1909; Schäfer 1938; Schüz & König 1983). To 20th century western visitors in Tibet, the vultures even seemed to be conditioned to approach in response to the swinging of a sling by the professional body dissectors *(ragyapas).* The birds (mainly Himalayan griffons) apparently waited in a "disciplined fashion" until "called" by the swinging sling or by some recognisable sound (Hedin 1909; Taring 1972).

At Neolithic Çatal Hüyük, vultures may have played a similar role, considering the wall paintings on which they are depicted encircling headless human bodies (Mellaart 1967). Contrary to Mellaart (1967), however, the figure swinging a whip on a Çatal Hüyük wall decoration (VIII 8) may well represent somebody attracting the birds rather then warding them off (Schüz & König 1983). The importance of vultures at Neolithic Çatal Hüyük is also illustrated by the fact that some relief decorations on the walls contained vulture skulls.

It is beyond doubt that vultures also played a role in the symbolic world of the Neolithic inhabitants of the upper Euphrates and Tigris basin in the millennia preceding site occupation at Çatal Hüyük. Illustrations of this can be found in the limestone sculptures of vulture-like birds at

Nevalı Çori (Hauptmann & Schmidt 2001 : figs 305-307), the pictographs on engraved stones from Jerf el Ahmar (Stordeur 2000; Helmer *et al.* this vol.) and the small stone figurines excavated at Nemrik (Aurenche & Kozlowski 2000) and Jerf el Ahmar (Gourichon 2002). It is debatable whether the bone remains of vultures which have been found in the archaeofaunas from Gürcütepe (von den Driesch & Peters 2001) and Jerf el-Ahmar (Gourichon 2002), should also be seen in such a context.

With respect to Göbekli Tepe, evidence for vultures is restricted to a few isolated bones (Table 3) and a beautifully carved stone figurine (Fig. 23). Since depictions of vultures are lacking in the megalithic art of Göbekli Tepe, one could tentatively conclude that the site did not serve funeral customs and practises, unless a plausible explanation can be offered as to why people decided not to represent these birds. Provided that the animal taxa depicted on the T-shaped pillars indeed had a totemic and/or shamanic meaning (at least in a broad sense), it would help to explain why vultures were excluded as emblems : their association with death (and the upper world ?) would have been in conflict with the very nature of the anthropomorphic beings, whose primary function could have been to support and guide members of the community in life (or from life to death?).

In Zoroastrian funeral rites, the deceased will be deposited in so-called "dakhmas". These buildings — named "towers of silence" by western visitors — are frequented by birds feeding on carrion (*e.g.*, Gabriel 1971; Huff 1988). In Iran, dakhmas were in use until the 20th century, and in some regions of India they still serve this purpose. From 20th century observations in these countries we know that dakhmas were not only frequented by vultures but also by other bird species, in particular corvine birds (crows and ravens). Interestingly, remains of corvine birds make up more than one third of the bird fauna at Göbekli Tepe, yet members of the crow family are lacking in the iconography of the site, as is the case with vultures.

Between the iconographies of Çatal Hüyük and Göbekli Tepe there is another difference : snakes are completely absent from the wall paintings at Çatal Hüyük, although a flint knife handle made of bone and carved in the shape of a snake has been found (Mellaart 2003 : 126, fig. 88; 167, fig. 54). The flint blade is bifacially pressure-flaked. Obviously this knife was not made for daily use. In the Pre-Pottery Neolithic of the Upper Euphrates basin, however, the snake motif appears to have been widespread. This is illustrated by findings from PPNA Jerf el Ahmar (Cauvin 1997; Stordeur 1999; Helmer *et al.* this vol.) and Tel Qaramel (Mazurowski & Jamous 2001 : fig. 8), Early-Middle PPNB Nevalı Çori (Hauptmann 1993, 1999) and Körtik Tepe. At Nevalı Çori, for example, a limestone sculpture of a human head decorated with a snake (Hauptmann 1999 : fig. 10) was found in the wall of a ritual building. At Körtik Tepe, several stone vessels decorated with snake motifs were present among the grave goods (Özkaya & San 2003 : fig. 3).

The foregoing observations thus reinforce the assumption of Göbekli Tepe being a place for rituals related to the cult of the deceased, a view which is strengthened by two additional arguments. Firstly, monumentality usually demonstrates power and monumental buildings for the deceased are a widespread phenomenon in (pre)history; secondly, the symbols recorded from the demarcated spaces at Göbekli Tepe appear exclusively masculine, the animals (Figs 13; 15; 19; 21) as well as the humans (Fig. 24A, B). Female representations are lacking, and especially the absence of small figurines known from almost any other Neolithic settlement in the Near East seems significant. If such female depictions are linked to fertility and life in the broadest sense, the fact that they are missing at Göbekli Tepe could imply that rituals related to the cult of the dead might present the key to our understanding of the site.

SUMMARY AND CONCLUSIONS

The excavations at Göbekli Tepe have revealed a hitherto unparalleled PPNA site with a rich

megalithic architecture. The manpower and craftsmanship necessary for its construction and maintenance implies division of labour and involved a considerable number of skilled people. It also implies a large, sedentary, well-organised hierarchical community, willing to invest in the materialization of its complex immaterial world over many generations and at a considerable cost in energy. It is therefore beyond doubt that the necessity to satisfy and secure the energy demands of the people living in the vicinity of Göbekli Tepe and similar large PPNA communities in the Anti-Taurus and in the upper Euphrates basin led to numerous innovations and adjustments to the existing subsistence patterns; these changes, in the course of the PPNB, led to the appearance of fully domesticated plants and animals and the emergence of agro-pastoralism (Peters *et al.* 1999, in press).

In this contribution, the focus has been on the megalithic art at PPNA Göbekli Tepe, in particular the numerous representations of animals on the T-shaped pillars. The latter measure on average 3.5 to 5 m and have been arranged in such a way as to form round or oval enclosures, with two freestanding pillars in the centre. The overall shape of the pillars appears standardized, and any indication of sex is lacking. Some of these monoliths exhibit arms and hands in bas-relief, suggesting that they represent anthropomorphic beings. It is not clear, however, what kind of beings these standing stones impersonate : do they represent anthropomorphic gods, shamans, ancestors, stone spirits or perhaps even demons ?

Obviously the animals on the T-shaped pillars must have been visible to the people that were allowed to enter the space. Up to now, at least ten vertebrate taxa have been recognised (Table 2). Because of the fact that only part of the site has so far been excavated, their number may increase. Therefore, the present view of a symbolic world dominated by few taxa, in particular snake, fox and wild boar, may be biased, all the more because numerous other representations, *e.g.*, animal sculptures and animal depictions on limestone slabs (> 40), have been excluded from the statistics. On the pillars, only male animals have been displayed. Representations of animals are sometimes accompanied by symbols and/or pictograms.

Because sites with similar finds are lacking, symbolism in Late Quaternary contexts in other parts of the world were drawn upon to evaluate the animal representations encountered at Göbekli Tepe. Discussion centred on the possible role of the faunal elements depicted, *i.e.* whether they would represent 1) guards and/or attributes of the anthropomorphic beings, 2) favourite game species, 3) totemic emblems, selected and/or combined according to patterns which are still far from being understood, 4) vehicles for spiritual encounters or 5) animals associated with mortuary practices. Correspondingly there is the issue of whether the areas demarcated by the decorated pillars were intended for hunting rituals, initiation and passage rites, spiritual encounters or funeral practices, or whether the enclosures witnessed a multitude of distinct rituals and gatherings involving different (sets of) species. For the moment, the possibilities mentioned above are hypothetical, although differences in taxonomic composition and relative frequencies between the archaeofaunal and iconographical record contradict the assumption that Göbekli Tepe principally served hunting rituals.

In this contribution, an attempt has been made to trace the rationale behind the animal depictions on the T-shaped pillars. But any interpretation of the function of these megaliths will encounter similar difficulties as is the case with explanations offered for menhirs, masseboth, obelisks and other standing stones found elsewhere in Asia and Europe (*cf.* compilation by Worschech 2002). A good illustration of this are the so-called Balbals, standing stones placed around medieval graves in Eurasia. Fortunately, historical sources provide an explanation for their meaning : “I killed their heroic warriors and made balbals of them […]” and “I turned the Kirghiz Khan into a balbal […]” (Orkun 1936-41; *fide* Belli 2003 : 126). Balbals thus impersonate warriors who were killed, then positioned around the grave and hence “chained” to their master to serve him eternally. However, in the

absence of any written evidence and in view of our limited knowledge of the role animals played in the symbolic world of the Pre-Pottery Neolithic, in particular the logic and metaphysics governing the choice and combination of animal taxa, the issue of what purpose the enclosures with their unique monumental art at PPNA Göbekli Tepe really served will take much more time to be properly answered.

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REFERENCES

AURENCHE O. & KOZLOWSKI S.K. 2000. — Continuité, convergences, influences et innovations dans la préhistoire récente de Mésopotamie, *in* GUILAINE J. (ed.), *Premiers paysans du monde. Naissances des agricultures*. Éditions Errance, Paris : 83-95.

BAR-YOSEF O. 2000. — The context of animal domestication in Southwestern Asia, *in* MASHKOUR M., CHOYKE A.M., BUITENHUIS H. & POPLIN F. (eds), *Archaeozoology of the Near East* 4A. ARC-Publicatie 32, Groningen : 185-195.

BEILE-BOHN M., GERBER C., MORSCH M. & SCHMIDT K. 1998. — Neolithische Forschungen in Obermesopotamien. Gürcütepe und Göbekli Tepe. *Istanbuler Mitteilungen* 48 : 5-78.

BELLI O. 2003. — *Kırgızistan'da ta_ balbal ve insan biçimli heykeler — Stone balbals and statues in human form in Kirghizistan*. Arkeoloji ve Sanat Yayınları, Istanbul.

BETTS A. 1998. — *The Harra and the Hamad. Excavations and surveys in Eastern Jordan 1*. Archaeological Monographs 9, Sheffield.

BISCHOFF D. 2002. — Symbolic worlds of Central and Southeast Anatolia in the Neolithic, *in* GÉRARD F. & L. THISSEN (eds), *The Neolithic of Central Anatolia. Internal developments and external relations during the 9th — 6th Millennia cal. BC*. Ege Yayınları, Istanbul : 237-251.

BLACK J. & GREEN A. 1992. — *Gods, demons and symbols of Ancient Mesopotamia*. British Museum Press : London.

BRUN P. 2001. — *Le cheval, symbole de pouvoir dans l'Europe préhistorique*. Catalogue d'exposition, exposition 31.1-12.11.2001. APRAIF, musée de Préhistoire d'Île de France, Nemours.

CAUVIN J. 1977. — Les fouilles de Mureybet (1971-1974) et leur signification pour les origines de la sédentarisation au Proche-Orient. *Annual of the American School of Oriental Research* 44 : 19-47.

CAUVIN J. 1997. — *Naissance des divinités. Naissance de l'agriculture*. Nouvelle édition. C.N.R.S., Paris.

CLASON A.T. 1989-90. — The Bouqras bird frieze. *Anatolica* 16 : 209-211.

CLASON A.T. 1999. — The Leopard (?) of Bouqras, south-east Syria, *in* BECKER C., MANHART H., PETERS J. & SCHIBLER J. (eds), *Historia animalium ex ossibus. Festschrift für Angela von den Driesch zum 65. Geburtstag*. Leidorf, Rahden/Westf. : 133-140.

CLOTTES J. & LEWIS-WILLIAMS D. 1997. — *Schamanen. Trance und Magie in der Höhlenkunst der Steinzeit*. Thorbecke Verlag, Sigmaringen.

CLOTTES J. & LEWIS-WILLIAMS D. 1998. — Shamanism and Upper Palaeolithic art : a response to Bahn. *Rock Art Research* 15 : 46-50.

DRIESCH A. VON DEN & PETERS J. 2001. — Früheste Haustierhaltung in der Südosttürkei, *in* BOEHMER R.M. & MARAN J. (eds), *Lux orientis. Archäologie zwischen Asien und Europa. Festschrift für Harald Hauptmann zum 65. Geburtstag*. Leidorf, Rahden/Westf. : 113-120.

GABRIEL A. 1971. — *Religionsgeographie von Persien*. Kommissionsverlag Brüder Hollinek, Wien.

GOURICHON L. 2002. — Bird remains from Jerf el Ahmar, a PPNA site in northern Syria, with special reference to the griffon vulture *(Gyps fulvus)*, *in* BUITENHUIS H., CHOYKE A.M., MASHKOUR M. & AL-SHYIAB A.H. (eds), *Archaeozoology of the Near East V*. ARC-Publicatie 62, Groningen : 138-152.

HAHN J. 1994. — Menschtier- und Phantasiewesen, *in* ULMER MUSEUM (ed.), *Der Löwenmensch. — Tier und Mensch in der Kunst der Eiszeit*. Thorbecke Verlag, Sigmaringen : 101-115.

HALPIN M. 1981. — Totem Poles : an Illustrated Guide. University of British Columbia Press, Vancouver.

HAUPTMANN H. 1993. — Ein Kultgebäude in Nevalı Çori, *in* FRANGIPANE M., HAUPTMANN H., LIVERANI M., MATTHIAE P. & MELLINK M. (eds), *Between the Rivers and over the Mountains. Archaeologica Anatolica et Mesopotamica Alba Palmieri Dedicata*. Università di Roma "La Sapienza", Roma : 37-69.

HAUPTMANN H. 1999. — The Urfa region, *in* ÖZDOĞAN M. & BASGELEN N. (eds), *Neolithic in Turkey*. 2 vols. Arkeoloji ve Sanat Yayınları, Istanbul : vol. 1 : 65-86; vol. 2 : 39-55.

HAUPTMANN H. 2002. — Upper Mesopotamia in its regional context during the Early Neolithic, *in* GÉRARD F. & THISSEN L. (eds), *The Neolithic of Central Anatolia. Internal developments and external*

relations during the 9th-6th Millennia cal. BC. Yayınları, Istanbul : 263-271.

HAUPTMANN H. & SCHMIDT K. 2001. — Frühe Tempel — frühe Götter?, *in* DEUTSCHES ARCHÄOLOGISCHES INSTITUT (ed.), *Archäologische Entdeckungen. Die Forschungen des Deutschen Archäologischen Instituts im 20. Jahrhundert.* Zaberns Bildbände zur Archäologie, Mainz : 258-266.

HEDIN S. 1909. — *Transhimalaya I.* Brockhaus, Leipzig.

HELMER D. 1988. — Les animaux de Çafer et des sites préceramiques du sud-est de la Turquie : essai de synthèse. *Anatolica* 15 : 37-48.

HELMER D. 1994. — La domestication des animaux d'embouche dans le Levant Nord (Syrie du Nord et Sinjar), du milieu du 9e millénaire BP à la fin du 7e millénaire BP. Nouvelles données d'après les fouilles récentes. *Anthropozoologica* 20 : 41-54.

HELMER D., ROITEL V., SAÑA SEGUI M. & WILLCOX G. 1998. — Interprétations environnementales des données archéozoologiques et archéobotaniques en Syrie du nord de 16000 BP à 7000 BP, et les débuts de la domestication des plantes et des animaux, *in :* FORTIN M. & AURENCHE O. (eds), *Espace naturel, espace habité en Syrie du Nord (10e-2e millénaires av J.-C.* Travaux de la Maison de l'Orient 28, Bulletin 33. Canadian Society for Mesopotamian Studies, Québec : 9-33.

HERMANSEN B.D. 1997. — Art and ritual behaviour in Neolithic Basta, *in* GEBEL H.G., KAFAFI Z. & ROLLEFSON G.O. (eds), *The Prehistory of Jordan II. Perspectives from 1997. Studies in early Near Eastern production, subsistence, and environment 4.* Ex oriente, Berlin : 333-343.

HONGO H. & MEADOW R.H. 2000. — Faunal remains from Prepottery Neolithic levels at Çayönü, Southeastern Turkey : a preliminary report focusing on pigs (*Sus* sp.), *in* MASHKOUR M., CHOYKE A.M., BUITENHUIS H. & POPLIN F. (eds), *Archaeozoology of the Near East* 4A. Groningen : ARC-Publicatie 32 : 121-139.

HONGO H., MEADOW R.H., ÖKSUZ B. & ILGEZDI G. 2002. — The process of ungulate domestication in Prepottery Neolithic Çayönü, southeastern Turkey, *in* BUITENHUIS H., CHOYKE A.M., MASHKOUR M. & AL-SHYIAB A.H. (eds), *Archaeozoology of the Near East V.* ARC-Publicatie 62, Groningen : 153-165.

HORWITZ L.K., TCHERNOV E., DUCOS P., BECKER C., DRIESCH A. VON DEN, MARTIN L. & GARRARD A. 1999. — Animal domestication in the Southern Levant. *Paléorient* 25 (2) : 63-80.

HUFF D. 1988. — Zum Problem zoroastrischer Grabanlagen in Fars. *Archäologische Mitteilungen aus Iran* 21 : 145-179.

KIRKBRIDE D. 1975 — Umm Dabaghiyah 1974 : A fourth preliminary report. *Iraq* 37 : 3-10.

KROMER B. & SCHMIDT K. 1998. — Two radiocarbon dates from Göbekli Tepe, South Eastern Turkey. *Neo-Lithics* 3 (98) : 8-9.

LAYTON R. 1992. — *Australian rock art : a new synthesis.* Cambridge University Press, Cambridge.

LAYTON R. 2000. — Shamanism, totemism and rock art : *Les Chamanes de la Préhistoire* in the context of rock art research. *Cambridge Archaeological Journal* 10 : 169-186.

LEGGE A.J. 1996. — The beginning of caprine domestication in Southwest Asia, *in* HARRIS D.R. (ed.), *The origins and spread of agriculture and pastoralism in Eurasia.* University College London, London : 238-262.

MARINGER J. 1977. — Die Schlange in Kunst und Kult der vorgeschichtlichen Menschen. *Anthropos* 72 : 881-920.

MARSHALL L. 1969. — The medicine dance of the ! Kung bushmen. *Africa* 39 : 347-381.

MAZUROWSKI R. & JAMOUS B. 2001. — Tel Qaramel. Excavations 2000. *Polish Archaeology in the Mediterranean.* Reports 2000 : 327-341.

MELLAART J. 1967. — *Çatal Hüyük. A Neolithic town in Anatolia.* Wheeler, London.

MELLAART J. 2003. — *Çatalhöyük. Anadolu'da bir neolitik kent.* Yapı Kredi yayınları, Istanbul.

NEUVILLE R. 1934. — La préhistoire de Palestine. *Revue biblique* 43 : 237-259.

ÖZDOĞAN M. & ÖZDOĞAN A. 1998. — Buildings of cult and the cult of buildings, *in* ARSEBÜK G., MELLINK M.J. & SCHIRMER W. (eds), *Light on top of the Black Hill. Studies presented to Halet Çambel.* Yayınları, Istanbul : 581-601.

ÖZKAYA V. & SAN O. 2003. — Körtik Tepe 2001 kazısı, Ankara. *Kazı sonuçları toplantısı* 24 (2) : 423-436.

PETERS J., HELMER D., DRIESCH A. VON DEN and SAÑA SEGUI M. 1999. — Early animal husbandry in the Northern Levant. *Paléorient* 25 (2) : 27-48.

PETERS J., DRIESCH A. VON DEN & HELMER D. in press. — The Upper Euphrates-Tigris Basin : Cradle of agro-pastoralism ?, *in* VIGNE J.-D., HELMER D. & PETERS J. (eds), New archaeozoological methods for the study of the first steps of domestication. Oxford : Oxbow Books.

PUSTOVOYTOV K. 2002. — 14C dating of pedogenic carbonate coatings on wall stones at Göbekli Tepe, Southeastern Turkey. *Neo-Lithics* 2 (02) : 3-4.

PUSTOVOYTOV K. 2003. — Erratum. *Neo-Lithics* 1 (03) : 37.

ROSENBERG M., NESBITT M.R., REDDING R.W. & STRASSER T.F. 1995. — Hallan Çemi Tepesi : Some preliminary observations concerning early Neolithic subsistence behaviors in Eastern Anatolia. *Anatolica* 21 : 1-12.

RUSSELL N. & MCGOWAN K.J. 2003. — Dance of the Cranes : Crane symbolism at Çatalhöyük and beyond. *Antiquity* 77 : 445-455.

SAÑA SEGUI M. 1999. — *Arqueología de la domesticaión animal. La gestión de los recursos animales en Tell Halula (Valle del Éufrates-Siria) del 8.800 al 7.000 BP.* Treballs d'Arqueologia del Pròxim

Orient 1. Universitat Autònoma de Barcelona, Barcelona.

SCHÄFER E. 1938. — Ornithologische Forschungsergebnisse zweier Forschungsreisen nach Tibet. *Journal für Ornithologie* 86 : 156-166.

SCHMIDT K. 1995. — Investigations in the Upper Mesopotamian Early Neolithic : Göbekli Tepe and Gürcütepe. *Neo-Lithics* 2 (95) : 9-10.

SCHMIDT K. 1998a. — Frühneolithische Tempel. Ein Forschungsbericht zum präkeramischen Neolithikum Obermesopotamiens. *Mitteilungen der Deutschen Orient-Gesellschaft* 130 : 17-46.

SCHMIDT K. 1998b. — *Das Nevalıçorien. Materielle Kultur und rituelle Welt einer obermesopotamischen Fazies des akeramischen Neolithikums*. Universität Heidelberg, Unpublished Habilitation thesis.

SCHMIDT K. 1999. — Frühe Tier- und Menschenbilder vom Göbekli Tepe. *Istanbuler Mitteilungen* 49 : 5-21.

SCHMIDT K. 2000. — "Zuerst kam der Tempel, dann die Stadt" . Vorläufiger Bericht zu den Grabungen am Göbekli Tepe und am Gürcütepe 1995-1999. *Istanbuler Mitteilungen* 50 : 5-41.

SCHMIDT K. 2001. — Göbekli Tepe, Southeastern Turkey. A preliminary report on the 1995-1999 excavations. *Paléorient* 26/1 : 45-54.

SCHMIDT K. 2003. — "Kraniche am See". Bilder und Zeichen vom frühneolithischen Göbekli Tepe (Südosttürkei), *in* SEIPEL W. (ed.), *Der Turmbau zu Babel. Ursprung und Vielfalt von Sprache und Schrift.* Eine Ausstellung des Kunsthistorischen Museums Wien für die Europäische Kulturhauptstadt Graz 2003, Band IIIA : 23-29.

SCHMIDT K. and HAUPTMANN H. 2003. — Göbekli Tepe et Nevali Cori. *Dossiers d'Archéologie* 281 : 60-67.

SCHÜZ E. & KÖNIG C. 1983. — Old vultures and man, *in* WILBUR S.R. & JACKSON J.A. (eds), *Vulture Biology and Management*. University of California Press, Berkeley : 461-469.

SOLECKI R.L. 1977. — Predatory bird rituals at Zawi Chemi Shanidar. *Sumer* 33 : 42-47.

SOLECKI R.L. & MCGOVERN T.H. 1980. — Predatory birds and prehistoric man, *in* DIAMOND S. (ed.), *Theory and practice : essays presented to Gene Weltfish*. Mouton, Paris : 79-95.

STORDEUR D. 1999. — Organisation de l'espace construit et organisation sociale dans le Néolithique de Jerf el Ahmar (Syrie, X^{e}-IXe millénaire av. J.-C.), *in* BRAEMER F., CLEUZIOU S. & COUDART A. (eds), *Habitat et société*. XIXe Rencontres Internationales d'Archéologie et d'Histoire d'Antibes. Éditions APDCA, Juan-les-Pins : 131-149.

STORDEUR D. 2000. — Jerf el Ahmar et l'émergence du Néolithique au Proche Orient, *in* GUILAINE J. (ed.), *Premiers paysans du monde. Naissances des agricultures*. Éditions Errance, Paris : 33-60.

TARING R.D. 1972. — *Eine Tochter Tibets. Leben im Land der vertriebenen Götter*. Marion von Schröder, Hamburg; Düsseldorf.

UERPMANN H.-P. 1987. — *The ancient distribution of ungulate mammals in the Middle East*. Beihefte zum Tübinger Atlas des Vorderen Orients, Reihe A (Naturwissenschaften) 27. Dr. Ludwig Reichert : Wiesbaden.

VIGNE J.-D. 1988. — Biogéographie insulaire et anthropozoologie des sociétés néolithiques méditerranéennes : hérisson, renard et micromammifères. *Anthropozoologica* 8 : 31-52.

VIGNE J.-D. 2000. — Les débuts néolithiques de l'élevage des ongulés au Proche-Orient et en Méditerranée : acquis récents et questions, *in* GUILAINE J. (ed.), *Premiers paysans du monde. Naissances des agricultures*. Éditions Errance, Paris : 143-168.

VIGNE J.-D. & BUITENHUIS H. 1999. — Les premiers pas de la domestication animale à l'Ouest de l'Euphrate : Chypre et l'Anatolie centrale. *Paléorient* 25/2 : 49-62.

WORSCHECH U. 2002. — *Cromlechs, Dolmen und Menhire. Vergleichende Studien zu vor- und frühgeschichtlichen Grabanlagen in Jordanien. Beiträge zur Erforschung der antiken Moabitis (Ard el-Kerak)* 2. Lang – Europäischer Verlag der Wissenschaften, Frankfurt am Main; Berlin; Bern; Bruxelles; New York; Oxford; Wien.

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