



KEYWORDS: *Palaeolithic 'Venus' – Music – Neanderthal symbolism – Eskimo – Pregnancy*

PALAEOLITHIC WHISTLES OR FIGURINES? A PRELIMINARY SURVEY OF PRE-HISTORIC PHALANGEAL FIGURINES

Duncan Caldwell

Abstract. Pre-Historic phalanges with anthropic holes through one side of their shafts have usually been interpreted as whistles. But identical bones are used by several peoples as human effigies – most commonly of women and babies. Distal limb bones with incised or sculpted heads, eyes, arms and vulvas prove that such bones were also interpreted anthropomorphically by Eurasian cultures in the past. The use of phalangeal figurines from central Siberia to Greenland also suggests that the practice spread around the Arctic from ancient sources. Ethnographic examples illustrate a few roles women have played in the region's cold weather economies and how female effigies reflect such roles, but are not offered as strict analogies with Palaeolithic counterparts. Instead a case is made from new internal readings of several pre-Historic objects incorporating feminine imagery – including the 'woman between reindeer hooves' from Laugerie-Basse and an engraving from Étioilles – that some ancient feminine images reflect a vision of women in keeping with the division of labour in northern hunter-gatherer subsistence models. Economic necessities may partly explain how pregnancy and compact feminine effigies have been viewed ideologically in cold Eurasian areas for millennia. Finally, the possible existence of perforated phalanges from the Middle Palaeolithic and even earlier is noted and a protocol of tests is suggested for determining whether their holes are anthropic or natural. If any of the holes in these older specimens turn out to be man-made, then the conclusion that pre-Historic perforated phalanges are likely to be figurines will have to be extended to those made by archaic humans like Neanderthals.

Introduction

The question of whether holes in short tubular bones found in pre-Historic sites are natural or anthropic has been much debated, since these bones may be punctured by carnivore gnawing and the combination of gastric enzymes and acids (Chase 1990; d'Errico 1991; d'Errico and Villa 1997), as well as compression under pebbles (Fig. 1) (Harrison 1978). The phalangeal holes whose anthropic origin is 'well-established' after scrutiny are all from the Aurignacian or later according to Iain Morley (2003), whose doctoral dissertation cross-references the analyses of earlier researchers. But some of the best candidates from before then still need to be studied, using the full list of criteria defined by this and previous writers.

Until such early candidates have been individually and microscopically studied using that check-list (compiled here to assist future research), this paper's hypothesis only covers clearly anthropic Upper Palaeolithic examples. But if a single, properly positioned hole in a phalange or similar bone from the Middle Palaeolithic, MSA or even earlier turns out to be man-made, the implications of this paper's demonstration that pierced phalanges have been used as human effigies will have to be considered for older specimens as well. Either way, the results are startling: on the one hand, this article will show that it is likely that the largest corpus

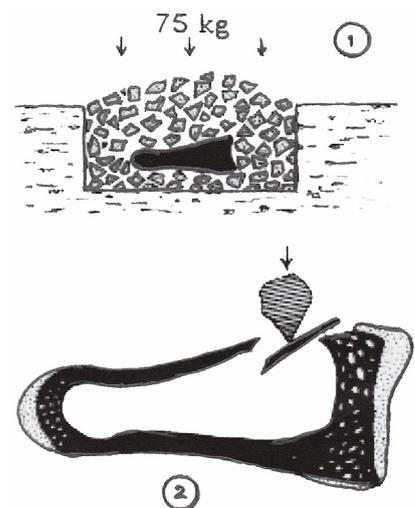


Figure 1. Harrison's compression experiment showing how a pebble can pierce the palmar surface at a phalange's proximal end (Harrison 1978).

of female figurines from the Upper Palaeolithic has been overlooked; and, on the other, it will hold out the possibility that this corpus extends further back and that such anthropomorphic effigies were first made by Neanderthals.

Presentation

Pre-Historic people often pierced phalanges, metacarpals and metatarsals – the short tubular bones in feet, paws, hooves and hands – with a single hole through one side of the shaft. The following table,

listing perforated phalanges that appeared to be clearly anthropic after comparison to experimentally produced samples, is digested from Iain Morley's doctoral dissertation, which itself distilled information from the sources listed in the right-hand column. Some of these examples should undergo further examination, but such specimens as the three from La Madeleine (W049-051 Ma) and two with regular holes with V-shaped profiles from Castel Merle prove the point that anthropically perforated phalanges were made during the Upper Palaeolithic.

Morley's Ref. No.	Details of Age	Origin	Type of phalange	Morley's Description	Status according to Morley	Location	References
W012 A	Aurignacian, 32–17 ka	St. Jean de Verges, Pyrenees	Reindeer (<i>Rangifer tarandus</i>)		Piercing appears man-made (cf. Dauvois 1989: Fig. 1, p. 6)		Dauvois 1989
W030 G/P	'from a "Perigordian" layer' (Harrison, 1978: 16). Listed by Scothern (1992) with W083 UP	Les Eyzies, France	Reindeer (<i>Rangifer tarandus</i>)	'[N]eatly made, circular hole in the distal end of anterior surface' (Harrison 1978). This is an unusual location for a hole and is not possible through natural damage.	Almost certainly an artefact (Harrison 1978); hole NOT natural damage	Musée Nationale de Préhistoire, Les Eyzies	Harrison 1978; Scothern 1992.
W032 S	'From a Solutrean level' (Harrison 1978)	Le Mazarat, Dordogne, France	Reindeer (<i>Rangifer tarandus</i>)	4.7 cm long, small hole in lateral aspect of shaft (Harrison 1978)	Almost certainly an artefact (Harrison 1978); hole NOT natural damage		Harrison 1978; Scothern 1992
W033-037 Ma	Magdalenian, 18–12 ka	Castel Merle, France	?	5 examples, perforated	3 are highly worn, holes ill-defined and irregular in shape (Scothern 1992: 61); 2 have regular circular holes with V-shaped profile resulting from burin-type tool (p. 61).	Musée du Périgord, Périgueux	Scothern 1992
W044 Ma & W045 Ma	Magdalenian, 18–12 ka	La Madeleine, France	Reindeer (<i>Rangifer tarandus</i>)	W044 MA has a large hole (38.5 sq. mm) in distal end of posterior surface. Audible with 100% reliability over 1.25 km (Harrison, 1978); W045 Ma has a small circular hole in mid-shaft position (Harrison 1978).	Feature 'regularly-shaped and definite blow-holes' (Scothern 1992: 61). At least one of these examples is considered to be 'undoubtedly man-made' (though damaged after deposition) by Scothern (1992: 60). Almost certainly artefacts (Harrison 1978).	British Museum, London	Harrison 1978; Scothern 1992

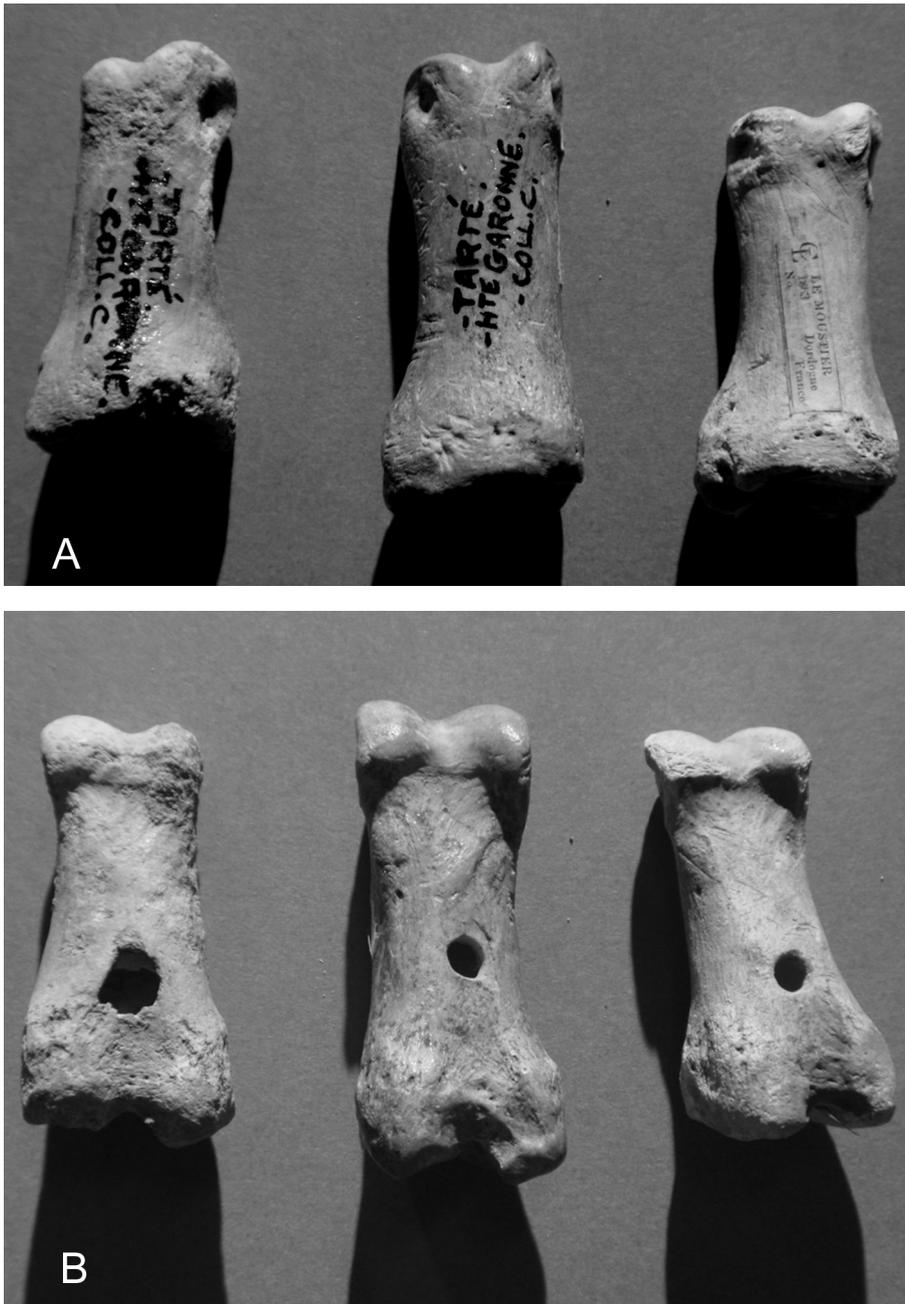
Table 1.

W046-048 Ma	Magdalenian, 18–12 ka	La Madeleine, France	Reindeer (<i>Rangifer tarandus</i>).	3 specimens	Feature 'regularly-shaped and definite blow-holes' (Scothern 1992: 61).		Harrison 1978; Scothern, 1992
W049-051 Ma	Magdalenian, 18–12 ka	La Madeleine, France	Reindeer (<i>Rangifer tarandus</i>)	3 specimens	Feature 'regularly-shaped and definite blow-holes' (Scothern 1992: 61). Artefact 1938.34.271 'has uneven, though obviously man-made' hole, with a tapered edge (Harrison 1978).	Pitt-Rivers Museum, Oxford (one is artefact 1938.34.271; Harrison 1978)	Harrison 1978; Megaw 1960 Scothern 1992.
W052-053 Ma	Magdalenian, 18–12 ka	Laugerie Basse, France	?	W052 Ma = Pitt Rivers Museum 1938.34.272 (Harrison 1978) W053 Ma = Pitt Rivers Mus. 1909.4.1 (Harrison 1978)	Both W052 Ma & W053 Ma have 'regularly-shaped and definite blow-holes' (Scothern 1992: 61). W052 Ma has an '[u]neven but obviously man-made hole' with tapered edge (Harrison 1978: 14) whereas W053 Ma has '[e]xtremely well-preserved', edges of hole cut at right-angles to bone surface (Harrison 1978: 14).	Pitt Rivers Museum, Oxford	Harrison 1978; Dauvois 1989; Scothern 1992
W054-055 Ma	Magdalenian, 18–12 ka	Laugerie Basse, France	?	2 specimens: 4.9 cm and 5.2 cm long	'[R]egularly-shaped and definite blow-holes' (Scothern 1992: 61).	Musée du Périgord, Périgueux	Dauvois 1989; Scothern 1992
W057 Ma	Magdalenian, 18–12 ka	Laugerie Haute, France	?	Phalanx fragment, 3.3 cm long	Clearly an intentionally produced hole (cf. Dauvois 1989: Fig. 2, p. 9).	Musée du Périgord, Périgueux	Dauvois 1989; Scothern 1992
W060 Ma	Magdalenian, 18–12 ka	Les Eyzies, France	?		Feature 'regularly-shaped and definite blow-holes' (Scothern 1992: 61)	British Museum, London	Scothern 1992
W093 UP	Upper Palaeolithic	Petersfels, Germany	?	Small circular hole in mid-shaft position	Almost certainly an artefact (Harrison 1978)		Coles and Higgs 1969; Harrison, 1978; also see Müller-Karpe 1966

Table 1. This table is drawn entirely from Table 2 of Iain Morley's doctoral dissertation, *The evolutionary origins and archaeology of music* (2003). The list of largely identical candidates, which still need to be examined closely, is many times longer.

Given the fact that phalanges with holes were found in several of the first Upper Palaeolithic sites to be excavated, it is hardly surprising that both anthropic and natural examples were immediately noticed by the earliest excavators in the Dordogne, Henry Christy and Edouard Lartet (see Figs 2A and B). What is more surprising is that their interpretation of pierced phalanges as whistles like ones made out of deer phalanges by the Iroquois has remained the only interpretation entertained by most prehistorians. The following quote summarising the late 19th century consensus could have been written today:

Lartet and Christy found prehistoric whistles in the cavern of Laugerie-Basse, in the Dordogne District, France. They also found whistles of the same kind in the cavern of Aurignac ... Fig. 166 represents the whistle from Laugerie-Basse, taken from Lartet and Christy's *Reliquiæ Aquitanicæ* ... It is described as the first digital phalange of the hind foot of a reindeer. A hole has been bored in its lower surface near the expanded upper articulation. On application of the lips to the hollow of this articulation, and blowing obliquely into the hole, they got a sharp sound analogous to that produced by a cat call or a key used as a whistle (Wilson 1898).



Figures 2A and B. Left and centre: perforated phalanges, Tarté, Haute Garonne, a site known for its Aurignacian assemblage. Right: a pierced phalange from Le Moustier bearing Christy and Lartet's original collection label and the date 1863. Whether it comes from the Mousterian or the superimposed Upper Palaeolithic levels is uncertain (Caldwell).

In writing about pre-Historic musical instruments, recent researchers have focused their efforts on differentiating between phalanges with artificial holes and natural ones (Harrison 1978; Chase 1990 and 2001; d'Errico and Villa 1997; Morley 2003) — a much needed analysis which this article is deeply indebted to, since any interpretation must be based on actual artefacts. But these and other writers on the topic of pierced phalanges have usually either taken it for granted that Lartet and Christy were correct in their assumption that artificially pierced phalanges were acoustical

devices, or else carried out experiments aimed at testing that hypothesis (Wetzel 1969; Dauvois 1989). Among the most interesting of these experiments is one by Michel Dauvois, who found that so-called phalangeal 'whistles' with large holes could produce tones that were (a) within the range of a Pyrenean shepherd's whistle-language and (b) clearly audible up to 1.25 km away.

But Dauvois also found that specimens with small holes were poor sound producers and must have had some other function (Dauvois 1989). As Iain Morley points out '[a]n explanation other than long-distance communication or hunting co-ordination must be sought for such artefacts' (Morley 2003).

Unfortunately, the alternative explanations that have been proposed so far can be easily dismissed: one is that phalanges were perforated to carry poison while the other is that the holes (which are often small) have something to do with extracting marrow, when it would have been so much easier to just fracture the bone.

Luckily, there is a second ethnographic parallel which provides a ready explanation for perforated phalanges with small holes, and perhaps even all anthropic examples: the use of tubular bones, and specifically of drilled phalanges, as anthropomorphic or therianthropic effigies. To users of such effigies, the bone's

proximal end looks like the pelvis while the narrower distal end with its articular knobs (the condyles) resembles shoulders, complete with breasts, or a neckless head with oblique, owl-like eye sockets. Until recently, circumpolar peoples ranging from Yenisey Province in central Siberia (Gorbacheva et al. 2008) to the Bering Straits (Jelínek 1979) and Greenland made drilled and undrilled phalangeal figurines that were used as birthing amulets and dolls. In Greenland, Inuits called such effigies either an *armangag* (imitated woman) or an *inugap* (little human) and dressed them

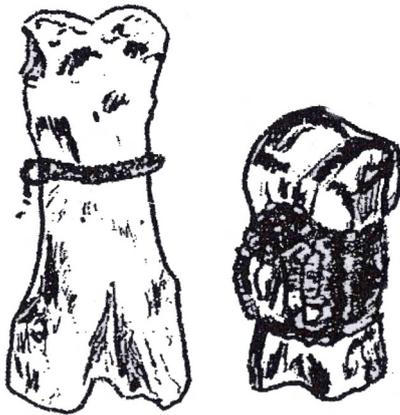


Figure 3. Two Inuit armangag (imitated woman) or inugap (little human) phalangeal 'dolls'.

with cord belts or skirts (Fig. 3). In Siberia, phalangeal figurines — like the Evene example illustrated here (Fig. 4) — were often more elaborately dressed, but, regardless of how much attire circumpolar phalangeal figurines wore, once it is gone they are identical to Palaeolithic pierced (or unpierced) phalanges.

Depending on the group, other connotations and roles — which can blend feminine and animal imagery — may be attached to these phalangeal figurines. For example, the Qikiqtaaluk Inuit at Nunavut on Baffin Island believe that ring seals were created from the second phalanges of a goddess's fingers. Upon reading the original version of this paper, one of the referees, James Harrod, pointed out that '[t]here is a good analogy [with] ... the Dactyls who arose from the imprint of Rhea's fingers as she was giving birth', to which I would like to add an aside.

The Dactyls or 'Fingers' were supernatural beings in the service of Rhea — an earth goddess who often appears enthroned between felines, exactly like the famous sculpture of an enthroned woman from Çatal Hüyük. The Dactyls were associated with the numbers five and ten (among others); served '... Rhea just as the fingers serve the hand ...' (Smith 1889); and were thought to dwell in mountains in Phrygia and Crete, both of which are called Mount Ida. But a third mountain was associated with the Rhea and Dactyl cult — Mount Pentadactylos in northern Cyprus, where statues of Rhea seated between felines were found in the foothills by the author in 1965. The name, Pentadactylos, meaning 'Five-fingered', refers to the mountain's five peaks, which seem to have served as gigantic geological effigies of Rhea's supernatural phalanges — reminding us of the range in size, refinement and form that a continuum of effigies can span.

If any of the Palaeolithic pierced phalanges are indeed effigies, they may have been part of equally extended continuums and mythologies.

Moving to another example, when showed pictures of Inuit 'dolls', Souleymane Baldé, the Peule author of several works on sub-Saharan sterility, fertility and

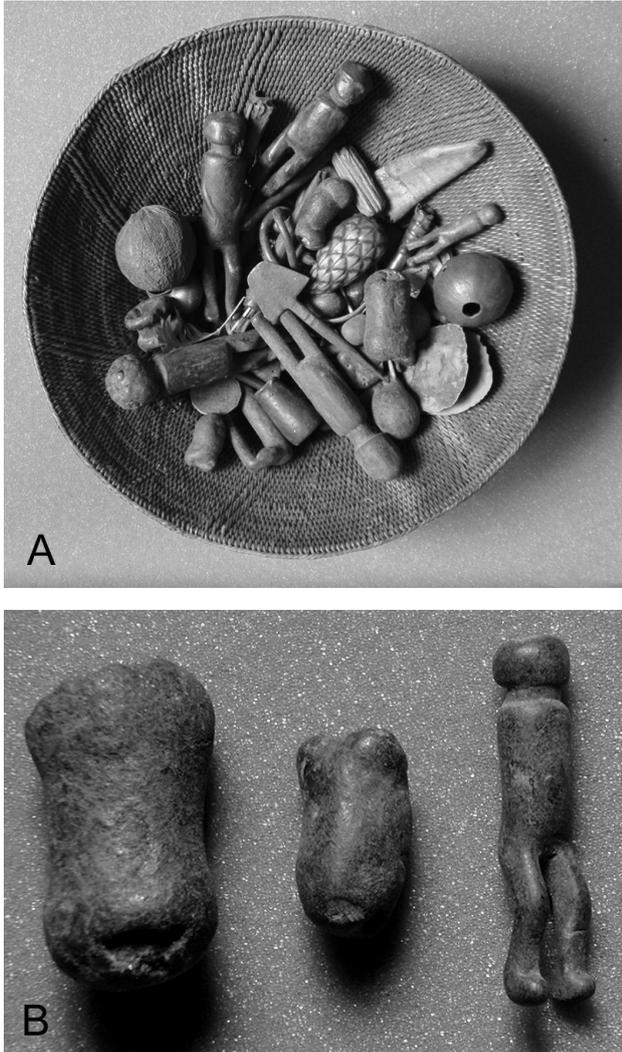


Figure 4. A phalangeal 'doll' from the Katonga River basin, Yenisey Uezd District, Yenisey Governatel Province in central Siberia, 11 cm. Beads, cloth and a reindeer phalange. Ethnographic Museum of the Russian Federation. From *L'Art de la Sibirie* pp. 122–123 (Gorbatcheva et al. 2008).

birthing practices, including *Stérilité au Fouladou* (Baldé 1986) reacted with astonishment. 'We have the same practice in southern Senegal', he said:

A Peule woman who wants to become a mother is given a leg bone from a goat which is variously called a *jilankonnde* or simply a *boobo* or *biddo* — which both mean 'baby'. The bone is drilled with holes for its sex and sometimes other orifices and perhaps the insertion of jewellery like earrings. The woman feeds and cares for the bone — which has a personal name — exactly as if it were her infant, and wears it under her clothes. During labour, she grips the protective figure to help her. Then, after the baby is born, the bone is called the child's elder sister or brother and is still imbued with power since it remains the interface between dimensions. First with animals, who sleep so lightly that we believe that they are never truly asleep, but are aware of the invisible in all directions; and, two, the dead, who return to the wilderness where they commune with animals and the invisible. For without the accord of the ancestors, we believe there can be no birth (S. Baldé, pers. comm. 2008).

The existence of phalangeal figurines from central Siberia (Gorbatcheva et al. 2008) to Greenland suggests that their use spread from ancient Eurasian sources and endured across the north because of the similarities and conservatism of Arctic economies. An example of such dispersal and persistence may be preserved in



Figures 5A and B. A Luba divination basket containing phalanges and simple statuettes (A). The phalanges (B) are covered in a mastic containing ingredients believed to have magical properties (Caldwell).

the huge range covered by sub-groups of the Evenks and closely related Evenes who are represented from the Yenisey (Yenisei) River to the Sea of Okhotsk and the Amur River to the Arctic. Given the evidence that Siberia and the Arctic were the last refuges for means of subsistence that existed in south-western Eurasia during the last Ice Age, the use of phalangeal figurines by so many northern peoples may be survivals of Palaeolithic practices, which are often associated with Europe and the mammoth steppes.

Specimens from Africa and the Arctic, on the other hand, are probably unrelated, since there is no cultural continuum in the use of phalangeal figurines between them. Instead, the figurines in such utterly different climates seem to represent independent inventions inspired by the resemblance of such bones to torsos. Even without holes, phalanges are so suggestive of bodies that they have been turned into anthropomorphs and zoomorphs around the world. Comanches used bison phalanges as 'bone horses'. The

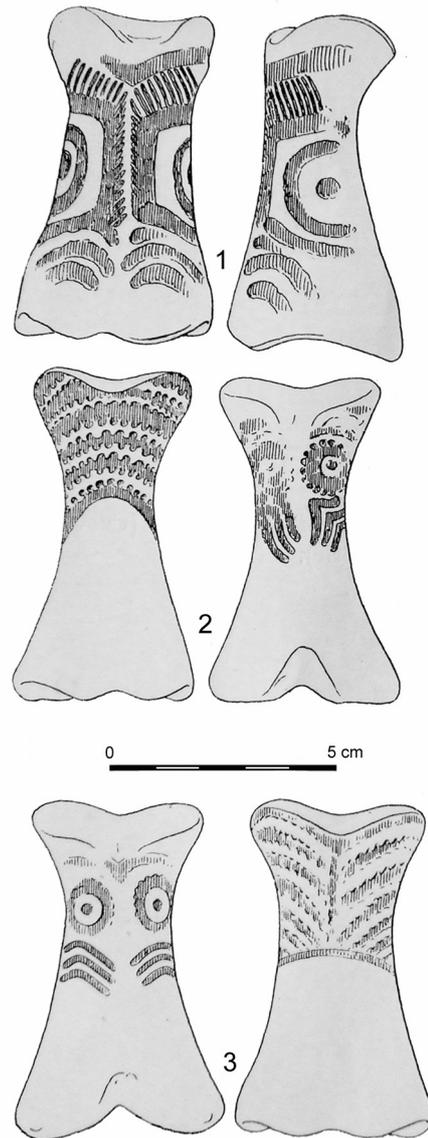


Figure 6. Three Spanish phalangeal 'idols', Chalcolithic. (1) Partly painted, partly engraved. Sepulture 7, Los Millares, Gador, Almería. (2) Engraved. Almizaraque, Cuevas, Almería. (3) Engraved. Sepulture 19, Hoya de los Castellones, Gorafe, Grenada (after Planche IV in *Religions Néolithiques de l'Iberie* by Louis Siret, 1908).

Lunda, Lwena, Ndembu, Ovimbundu and Chokwe peoples (to name but a few) use phalanges 'fleshed' with a hard crust, containing magical ingredients, in divination baskets which represent the 'world' and its living, dead, unborn and supernatural denizens (Figs 5A and B). The many ways in which phalanges have been turned into figurines in recent times make it almost certain that such bones — with or without perforations — were sometimes turned into effigies during the past.

But where is the proof?

It turns out that tubular bones and teeth with twinned bumps at an extremity were sometimes incised and sculpted with sufficiently clear features

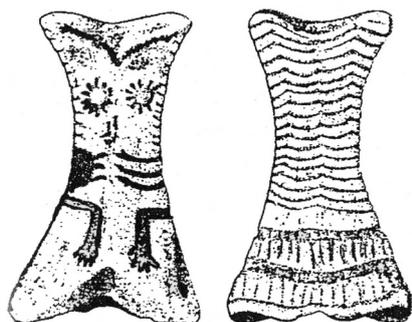


Figure 7. A phalangeal 'eye idol' with arms, Pijotilla Badajoz, Spain. From a circular, 3.5 m diameter, collective tomb composed of small vertical slate slabs. Along with the remains of 16 adults, 5 juveniles and 13 children, were 2 decorated phalangeal idols, other idols, a marble vessel, several beads, flint blades, arrowheads and several pieces of bell beaker pottery (Hurtado 1986, 1987, 1988, 1999; and pers. comm. 2009).

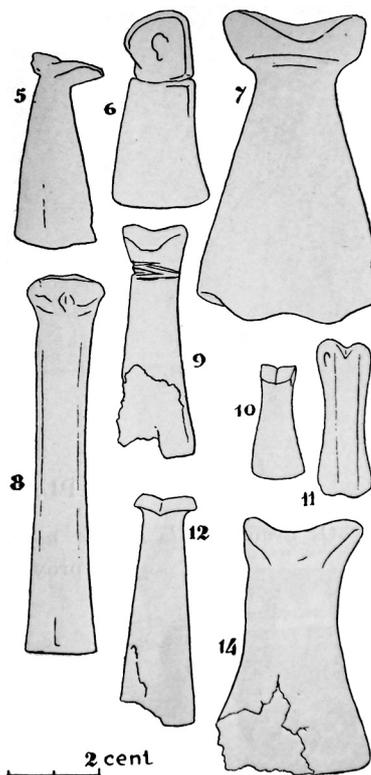


Figure 8. Rudimentary phalangeal idols. (5) Sepulture 7, Los Millares. (6) Almizaraque. (7) Sepulture 5, Los Millares. (8) Sepulture 2, Meseta del Mudo, Grenada. (9) Sepulture 10, Los Millares. (10) Sepulture 23, Cuesta de Almiel, Gor, Grenada. (11) Sepulture 75, Llano de la Gabiarrá, Gor. (12) Sepulture 57, Los Millares. (14) Terracotta imitation of a phalangeal idol. Sepulture 75, Llano de la Gabiarrá, Gor (after Planche IV in Religions Néolithiques de l'Iberie by Louis Siret, 1908).



Figure 9. A Neolithic(?) pierced phalange with four vertical incisions. French-Italian border area (Caldwell).



Figure 10. A colt's incisor with vulvas incised between bumps on either side of the crown — one composed of a simple V split by a vaginal slit, the other a triangle filled with oblique cross-hatching. Angles-sur-Anglin (Taborin 2004).

- Los Millares (Gador, Almería), Almizaraque (Cuevas, Almería), Hoya de los Castellones (Gorafe, Grenada) (see Fig. 6 for all three), Meseta del Mudo (Grenada), Cuesta de Almiel (Gor, Grenada), and Llano de la Gabiarrá (Gor, Grenada) in Spain (Siret 1908).
- The Pijotilla site in Badajoz, Spain (Hurtado 1986, 1987, 1988 and 1999) (Fig. 7).
- Tholos S. Martinho de Sintra (Sintra, Lisbon) in Portugal (Museu Nacional de Arqueologia 985.35.33).

in antiquity to demonstrate that such forms were occasionally interpreted anthropomorphically and even as female. During the Neolithic and Chalcolithic, for example, faces, arms, hands, skirts and occasional vulvas were incised or painted on phalanges and other tubular bones at:

These are but a few of the sites which have produced Neolithic and Chalcolithic phalangeal figurines in the Iberian Peninsula. Despite the attention received by the decorated phalangeal 'idols' from such sites, they only represent one end of a range of figurines — with numerous phalanges having nothing more than a groove cut below the distal knob to delineate a head (Fig. 8). The presence of still other phalanges — with no adulterations — among the grave goods begs the question as to whether they were figurines too.

The simpler figurines in such series raise the tantalising possibility, given the number of perforated and even incised phalanges from contemporary and slightly earlier cultures from elsewhere in Europe (see Fig. 9 and Voruz 1985), that the Iberian phalangeal 'eye idols' are a survival of a tradition extending back into the Palaeolithic. During the Magdalenian, vulvas were also incised between the twinned bumps on the crowns of another, identically sized tubular object — colt incisors — in a region encompassing the Dordogne, Charente and Vienne in France (Fig. 10) (Taborin 2004). Earlier still,



Figure 11. Feminised mammoth metacarpals or metatarsals. Pavlovian, Eastern Gravettian. Předmostí, Czech Republic (from Jelínek 1979: 400).

during the Gravettian at Předmostí, the distal ends of seven mammoth bones (Fig. 11) with a typical short tubular phalangeal structure (metacarpals according to Delporte but metatarsals according to Jelínek) (Delporte 1979; Jelínek 1979; Kozłowski 1992) were sculpted with the same simplicity as the simpler figurines made later in the Iberian Peninsula. As the abbé Breuil put it, '[t]he artist ...' of the Předmostí specimens 'was ordinarily content to make a neck by carving a furrow around the distal articulation, whose semi-globular form was already suggestive of a head' and, in a single case, added '... an incision meant to accentuate the waist' (Breuil 1924: 543). Most of the surface of the bones also seems to have been scraped away on purpose, causing Breuil (and, secondarily, Henri Delporte) to wonder whether the bones had been roughened to hold additional wax or clay features (Breuil 1924, 544; Delporte 1979, 151). Finally, Jan Jelínek felt that the natural widening of the bones towards their proximal ends, which form the statuettes' bases, was suggestive of pregnancy — even comparing these small feminised tubular bones to bone talismans used during births by the Chukchis during the 19th century (Jelínek 1979).

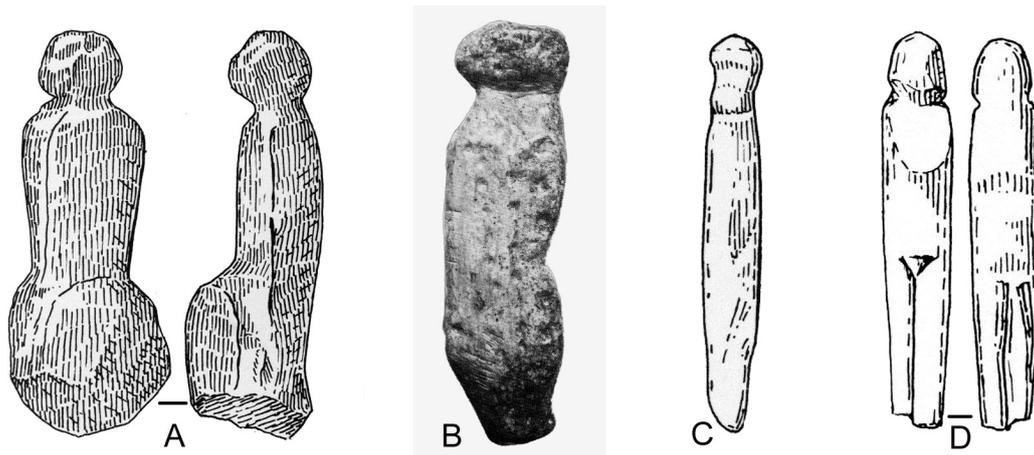
Furthermore, such phalangeal figurines were made over a vast range. Nearby, a similarly sculpted bone was reported at Chlum, Srbsko, in Bohemia (Delporte 1979) while much farther east, a sculpted mammoth metacarpal or metatarsal, depending on the author, was found at Avdeevo (Fig. 12) (Delporte 1979; Jelínek 1979; Gvozdover 1995; Abramova 1995). Delporte called this figurine 'identical' to the Předmostí specimens, but in addition to the groove forming the neck, it has the suggestion of a nose, eye sockets and one ear. In *Art of the mammoth hunters: the finds from Avdeevo*, Mariana Gvozdover reported the discovery of yet another mammoth bone phalangeal figurine with a



Figure 12. Sculpted mammoth metacarpal or metatarsal, 10.5 cm high. Avdeevo, Ukraine (from Jelínek 1979: 400).

delineated head and eyes (Gvozdover 1995: 186, Fig. 155), this time from New Avdeevo, as opposed to Old Avdeevo. Equally important, these two figurines were found with small incised or carved tubular bones — the phalanges and metapodia of wolves and hares — fifteen of which are illustrated in *L'Art paléolithique d'Europe orientale et de Sibirie* (Abramova 1995: Fig. 40, No. 5–6; Fig. 46, No. 1, 3–5, 8–9; Fig. 47, No. 1–7). At least seven illustrated wolf phalanges and nine wolf metapodia have incised 'necklaces' — instead of grooves — delineating the heads (Gvozdover 1995: 180, Fig. 148, 1–7 for phalanges; p. 181, Fig. 149 for metapodia; also see Abramova 1995: Fig. 47, No. 6–7) while three of the bones not only have sculpturally defined heads, but mid-sections that were carved to form 'bellies' which protrude in the axis of the facial sides of the heads, indicating that these are female figurines (Abramova 1995: Fig. 40, No. 5–6; Fig. 46, No. 9).

The existence of Chalcolithic imitations of phalangeal figurines — including an undecorated terracotta copy of a phalange from sepulture 75 at Llano de la Gabiarra (Siret 1908: Pl. IV, No. 14) (see No. 14 in Fig. 8 here) — raises the possibility that some of the simpler Palaeolithic statuettes made of ivory and stone were also influenced by the contemporaneous use of phalangeal effigies. This suspicion is spectacularly confirmed by two more 'phalangeal' figurines from New Avdeevo — first an artificial wolf metapodium (with its typical 'natural' head) perfectly reproduced in ivory (Gvozdover 1995: 182–183, Fig. 150 and 151: 4) and, secondly, 'a miniature subquadrangular wand' — which is so similar to a hare bone with a band



Figures 13A-D. Do such simplified ivory statuettes reflect the use of phalangeal figurines? From left to right: Trou Magrite, Belgium; Vogelherd, Germany (Delporte 1979: 123, 131); 'l'Ebauche de Poupée' and 'la Fillette,' Brassempouy, France (Delporte 1980: 48).

separating the head from the body that Gvozdover admits she 'mistakenly described it as a decorated hare metapodial ...' (Gvozdover 1995: 42, referring to Gvozdover 1953). Together, these ivory phalangeal figurines prove that true phalangeal anthropomorphs could inspire the manufacture of carved counterparts, which have been interpreted as statuettes. This has a bearing on the large number of seemingly 'rudimentary' statuettes from elsewhere.

The small ivory anthropomorphs from Trou Magrite and Vogelherd (Figs 13A and B), for example, are so simple that they resemble tubular bone figures. The range of refinement and variability in Palaeolithic feminine statuary even from the same site should be noted. On the one hand are masterpieces of sculptural conceits and choices like the 'Venus' of Willendorf. But the same site produced two more figurines — one of which, the Willendorf II statuette, is acephalic and relatively tall (23 cm), crude and thin while the third, Willendorf III, is simply an ovaloid barrel with faintly incised and sculpted features.

At Brassempouy, 'la dame à la capuche' ('woman in the hood') (M.A.N. [Musée des Antiquités Nationales in St Germain-en Laye, France] inventory No. 47.019) and a Rubenesque fragment known both as the 'Brassempouy Venus' and 'la Poire' (M.A.N., No. 47.333) are highly refined sculptures. But the same level also produced a nearly cylindrical statuette called 'la fillette' (Fig. 13D) (M.A.N., No. 47.335 A), which has a knobby head and triangular vulva, but is otherwise reminiscent of the Willendorf II figurine in its near lack of features and form. Brassempouy even produced a figurine called 'l'Ebauche de poupée' (Fig. 13C) (M.A.N., No. 47.335 B), which is as bone-like as Willendorf III, since it is just an ivory rod with a groove for a neck (Delporte 1980). Even though the more rudimentary sculptures in the Willendorf and Brassempouy series tend towards abstraction and are reminiscent of tubular bones, they probably either satisfied the same uses as the most refined sculptures

from the sites or were part of a continuum of related uses.

Given the range of feminised forms used at the same place and time, and the possibility that objects like Willendorf III and 'l'Ebauche de poupée' (Fig. 13C) served as symbolic representations without the addition of anything more than cursory visual clues, it is hardly surprising that figural forms at some sites could have extended to phalangeal figurines — and that the form and significance of such figurines may have influenced the carving of sculpted statuettes.

The extensive pre-Historic evidence that phalanges were commonly viewed anthropomorphically makes it plain that artificially perforated examples, which are identical to Inuit effigies, are likely to be figurines too. This will become doubly significant if any of the pre-Aurignacian candidates turn out to be artefacts, since such specimens would pose the possibility that Neanderthals were making hitherto unrecognised figurines before gracile humans appeared across northern Eurasia during the Upper Palaeolithic. Given the proven existence of perforated objects from such Middle Stone Age sites as Loiyangalani River Valley (Thompson et al. 2004), Blombos Cave (d'Errico et al. 2005), Oued Djebanna (Morel 1974), and Grotte Zouhra (Debénath 1994; McBrearty and Brooks 2000), it is quite possible that anthropically perforated phalanges or other distal bones will eventually be found in early African sites, making this paper's conclusions applicable to them as well.

Testing criteria

But what tests do all ancient candidates — including any paradigm-breaking phalanges perforated by humans before the Upper Palaeolithic — have to pass in order to be considered anthropic?

- (1) Harrison demonstrated that the cavity inside phalanges pierced by overburden tends to contain pieces of the compressed bone wall (Harrison

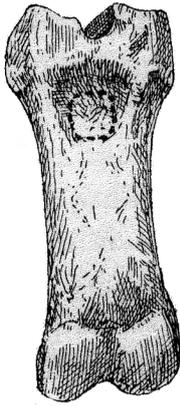


Figure 14. Henri Martin's diagram showing where natural compression can perforate a phalange (Martin 1907–10).

1978).

(2) The same author also showed that the rotation of a burin or perforating punch would usually smooth a hole's edges while giving them a slight bevel (Fig. 1) (Harrison 1978).

(3) Finally, Harrison and Henri Martin showed that the only part of a phalange's diaphysis that punctures easily is the proximal end of the palmar/plantar surface (Fig. 14); so smooth holes elsewhere are likely to be man-made (Martin 1907–1910; Harrison 1978). The position of naturally made holes on first phalanges from Combe Grenal largely confirms this implication

since ten are at the predicted point while only one is elsewhere, being at the proximal end too, but on the medial surface (Chase 2001). However, the ratio shifts for the second phalange, with five holes in the medial surface of the shaft and only one in its palmar/plantar surface, so each phalange seems to have specific weak points.

- (4) D'Errico and Villa showed that bones, which have been gnawed, partially digested and regurgitated by hyenas '... are generally corroded and pitted. At microscopic scale the surfaces show patches of bowl-shaped microcavities ...' up to 2 mm in diameter. 'Etching caused by the hyena's gastric acids [also] reveals the fibrous bone structure; microscopic fissure lines can be seen parallel to the bone fibers ...' (d'Errico and Villa 1997).
- (5) They also demonstrated that the holes on bones that had been gnawed and digested were cylindrical with angular edges where the straight sides of the cylinder met the bone surface at an acute (often 90°) angle. 'Many of the larger holes [also] appear to be enlargements of pre-existing foramina attacked by gastric acids' (d'Errico and Villa 1997) and may follow the oblique path of the original foramina.
- (6) Next, they determined that '... Upper Palaeolithic and experimental perforations produced by rotation of a flint point ... have conical or biconical sections ...' rather than cylindrical sections like holes made by carnivores (d'Errico and Villa 1997).
- (7) Finally, they note that anthropic perforations are associated with '... striations and scraping marks ...' made by stone tools (d'Errico and Villa 1997; citing Stordeur 1979; d'Errico et al. 1983).
- (8) Complicating the matter, though, is the fact that boring, which is currently unknown in the Mousterian (Turk et al. 1997), is just one way of making a hole in bone. Others are punching and

chipping. A punched hole forms an irregular cone, which expands towards the cavity inside a tubular bone (Turk et al. 1997). Carnivore punctures exhibit '... splintered and depressed bone lamellae' — which '... could also be the result of postdepositional exfoliation of a pre-existing hole...', according to d'Errico and Villa (1997). Unfortunately, they do not address the question of whether anthropic punctures could affect lamellae in a similar way. Turk also reports that he was unable to punch a hole in a young bear's fresh thighbone with anything other than an iron punch (Turk et al. 1997). This observation obviously does not apply to phalanges, since Harrison reported that a mere pebble under 75 kg of pressure could easily produce a hole at the proximal end. Come to think of it, there is no reason why a human could not use the same method as nature — the only problem being that it would be indistinguishable from a natural hole.

- (9) Holes produced by chipping are slightly conical on the outside and show vestiges of chipping (Turk et al. 1997; all eight of the above items distilled, with adjustments, from Morley 2003).
- (10) Finally, anthropically perforated phalanges that cannot be dated stratigraphically may have enough collagen to be candidates for AMS tests. For example, it would be useful to have an AMS date for the specimen, illustrated here for the first time, which bears Christy and Lartet's label indicating that it was found at Le Moustier in 1863 (Figs 2A and B). Its early excavation date suggests that it comes from the Upper Palaeolithic levels overlying the Mousterian strata, but a radiocarbon date would help dispel uncertainty.

Given the gauntlet of tests which phalangeal holes have to pass in order to be considered man-made, it is hardly surprising that a series of prehistorians have applied Occam's razor and decided that most and perhaps all perforated phalanges from the Middle Palaeolithic and earlier are natural — sometimes after careful examination, but all too often simply on the basis of their age or flawed analyses by others. Rejections based on empirical analyses range from Martin's concerning the majority of pierced phalanges from La Quina (Fig. 14) (Martin 1907–1910) to Chase's concerning all the legible holes in reindeer phalanges from the Mousterian levels of Combe Grenal, which Chase determined were 'due to natural causes' (Chase 1990 and 2001), and the dismissal by d'Errico and his colleagues of the perforated phalanges from both sites, plus ones from Bocksteinschmiede (d'Errico et al. 2003). But the same study also dismissed phalanges from Prolom II — an eastern Micoquian site with at least 111 perforated *Saiga tatarica* phalanges (7 from Layer IV plus 24 from Layer III, 39 from Layer II - 41 according to the text on the same page as the table — and 41 from Layer I) (Stepanchuk 1993) — although d'Errico has not actually inspected those specimens as

of this writing (d'Errico, pers. comm. 2008).

But it is precisely Prolom II (and sites like it) that must be confronted because:

- (a) The perforated phalanges there are so numerous. Despite the impressive total, though, it is not quantity that counts. Instead, one must examine each perforation separately. If even one is anthropic, it would add to our understanding of Neanderthals.
- (b) The holes are usually in places on the phalanges that are known for strength rather than weakness. Instead of being in either the palmar/plantar or medial surfaces of the proximal end, as one would expect from the work by Harrison and Chase, '[i]n most cases crudely pierced holes are connected with the dorsal surface near the distal epiphysis of the first or second phalange ... [or] ... are often located on the articular surface' (Stepanchuk 1993). Although saiga phalanges may have slightly different weak spots from reindeer specimens, it would be unwise to apply Occam's razor until this discrepancy is resolved. And, most importantly, the perforated phalanges are reportedly complemented by a set of engraved objects, one of which is a phalange as well (Fig. 15).

On the other hand, James Enloe, Francine David and Gennady Baryshnikov found far more evidence in the Prolom II faunal assemblage of hyena gnawing and digestive corrosion than of cut-marks from artefacts. 'The number of specimens bearing cutmarks', they noted, '... is tremendously low. We found only six such specimens out of over 1300 specimens examined, four tenths of a percent' (Enloe et al. 2000), which seems satisfyingly rigorous, but their report leaves one wondering why they failed to revisit the specific objects on which Stepanchuk based his case. In addition to their statistical analysis of the assemblage (an approach which is extremely useful, but tends to hide particularities under generalities) it would have been useful if they had also explained (or even explained away) such items as the putative engraved phalange and canine. Since these objects are not among those listed as having cut-marks and are not mentioned once in their paper, one assumes that they are lumped among the objects which turned out to have toothmarks and which were covered in this statement: 'We examined very closely all potential cutmarks under low and high magnification. The vast majority of these had rounded cross-sections, and were clearly tooth marks, rather than human modifications' (Enloe et al. 2000). One assumes, but the problem is, one cannot be sure. So the case is still open.

Especially since it does not depend entirely on Prolom II. Another promising phalange is a perforated reindeer specimen from La Quina (Fig. 16) first published by Martin (1907-10; Marshack 1976) whose hole goes clear through the articular swelling at the distal end — again one of the hardest parts of the bone. If it is indeed Mousterian and the hole is bored,

it will strengthen the case for other phalanges. However, in discussing a highly similar case — the opposing perforations in the articular end of a wolf metapodial from Bocksteinschmiede — Davidson (1990) and d'Errico and Villa (1997) suggest that the hole is '... clearly suggestive of carnivore punctures ...' and that '...the erosion of the bone's distal end ... is, at least in part, the effect of partial digestion ...', so one must remain circumspect about the specimen from Quina.

Finally, the acknowledged Neanderthal practice of making cupules may be relevant to their manner of perforating bones and teeth both for such attested cases as those found in Châtelperronian assemblages and, perhaps, when and if Middle Palaeolithic anthropically pierced phalanges are identified. Consequently, it would be hardly surprising to find the holes had been formed by a combination of pecking, chipping and punching.

Discussion

If some of the archaeological perforated phalanges are indeed anthropomorphic effigies, what role or roles could such simple figurines, lacking any breakable appendages, have played that they were used at least from the Aurignacian through the Neolithic? Jan Jelínek's comment that the knuckle effigies from Předmostí and Avdevo reminded him of Chukchi birthing amulets is reminiscent of Peter Ucko's study of figurines from Cretan trash pits. When Ucko analysed figurines from the middle-to-late-Neolithic (5500-3000 B.C.E.) middens, he discovered that thirty-three were clearly female, six were male, and another forty-two had no sexual features. Furthermore, most of the objects were crudely, even hastily made, and, given their presence in trash, were probably viewed as being expendable. Ucko thought that the use of some figurines as dolls could explain why highly breakable arms and other extremities had been left off. He also wondered whether some of the figurines might have been

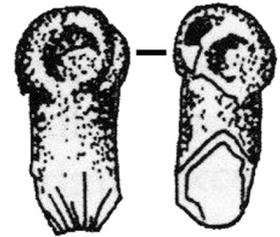


Figure 15. Prolom II. Saiga tatarica phalange with fan-like incisions (Stepanchuk 1993).



Figure 16. The 'Mousterian' reindeer phalange pendant from La Quina, France published by Martin (1907-1910) and Marshack (1976), 5 cm.

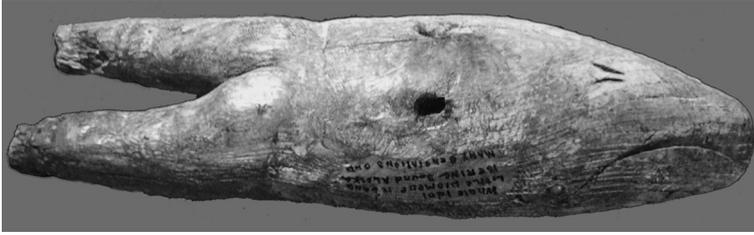


Figure 17. *A woman-whale transformation figure. Wood with a glass trade bead. Little Diomedede Island, 19th century, 35.25 cm.*

talismans for women who wanted or could not have children, or else amulets used during pregnancy and childbirth, basing his conjecture on such ethnographic examples as effigies 'nursed' by would-be Zuni mothers (Ucko 1968).

Ucko's hunch that some of the Cretan Neolithic figurines might have been pregnancy and birthing amulets finds a striking echo in a study of fifteen much older figurines — the Grimaldi statuettes from the mid-to-late Gravettian. The study by Randall White and Michael Bisson established that ten out of the eleven which were complete enough to interpret reliably were certainly female, with nine of the ten being pregnant and eight having dilated vulvas or an emerging baby's head. Furthermore, many were drilled for suspension and showed considerable wear from manipulation. The clear emphasis on the final stages of pregnancy, combined with wear patterns found under a microscope, suggested a link to similar female figurine-pendants (White and Bisson 1998) — extending to phalangeal figurines — used by several Arctic peoples to comfort women during childbirth. Since other Palaeolithic female figurines like the 'Venus' of Monpazier are both extremely gravid and have dilated vulvas, their analysis may have general bearing (Caldwell in press). Henri Delporte even wondered whether the odd projection from the bottom of the Tursac 'Venus' might be a schematised baby appearing during labour (Delporte 1979).

Although fertility, in the literal sense of giving birth frequently, would hardly have been a Palaeolithic woman's priority, the use of highly simplified effigies like phalangeal figurines as pregnancy amulets could still have fulfilled crucial economic and ideological functions in ancient hunter-gatherer societies. Modern hunter-gatherer women typically suckle their children

to the age of three — stopping menstruation by lactation-induced amenorrhea — because they usually cannot afford to feed more than one child at a time. But there is an exception: in studying the !Kung, Nancy Howell found that such women could have more frequent births if meat and fat were plentiful (Howell 1979). So prolonged lactation, which engorges breasts, and abundant game were more important to Ice Age women than simply being baby machines. When combined with a female

activity that is particularly crucial in colder climates — the transformation of animal products into protective clothing — these associations may have given pregnancy a significance that far transcended childbirth, making women the sex that reconciled humans with their prey.

In more recent times, Eskimo seamstresses hybridised the powers of various species by making garments out of different hides. The resulting 'creatures' blended different colours and fur lengths to become chimera. Furthermore, Eskimo women took pains to make their stitching as regular as possible to avoid offending either the animals that had 'given' their skins or future prey. Such wives participated in the hunt with every stitch while making it possible for men to assume the qualities associated with each animal that had contributed a piece of itself to their clothing (Chaussonnet 1988).

Even more striking examples of beliefs concerning women (and their pregnancies) which sustain many cold-weather hunter-gatherer economies come from the Northwest Coast Nootka and Bering Strait Eskimos (Serov 1988). When men went whaling, their wives lay in their husbands' sleeping places and remained immobile while fasting, since the women embodied the whale and any movement they or the whale made would be transmitted to each other (Fig. 17). If a wife jerked, the whale would too. Lying still, the whale-wife sought to draw her alter ego, the whale, calmly closer to her husband. As soon as the hunters returned with their catch, the whale-wives (who had united masculine and feminine roles while lying in their husbands' places) would break their fasts to commiserate with the dead whale, as if it too had grown thirsty. Pouring fresh water into its dead maw, they hailed the whale as a visiting guest whose spirit was free to return to the sea for rebirth through the intercession of the whale-wife-mothers.

The Maritime Koryak also offered fresh water to a whale spirit, but in a whale-shaped cup kept in a family shrine along with both animal and human figurines, again including armless 'dolls' reminiscent of the Palaeolithic 'Venuses'. When a whale was landed, both the dead whale and women bore grass masks. The grass over the whale's head

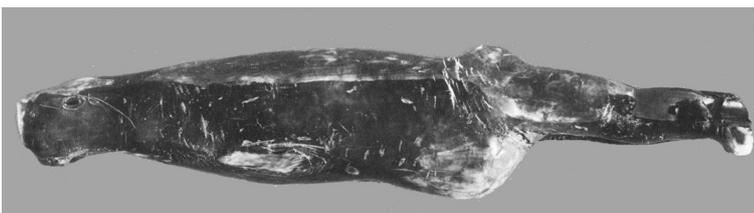


Figure 18. *A pregnant woman-walrus transformation figure. Ivory, Archaic Eskimo, Alaska. Menil Collection, cat. No. 255.*

served as a blindfold to prevent it from seeing that it was being bloodily flensed, while the carcass was simultaneously fed alder twigs. Then the same number of grass-hooded women danced as there were hunters, to ensure that the whale's spirit returned to the sea, giving birth to a new whale. Finally, the hunters themselves danced with the regenerative women who had intervened to bring the male and animal worlds into renewed balance (see Fig. 18 for an Eskimo figurine combining the torso of another prey species, the walrus, with the pregnant lower half of a woman).

The conclusion that pregnancy, and more precisely women's generative capacity, had strong religious and economic significance for some Upper Palaeolithic Eurasian cultures does not derive from such ethnographic examples though. Instead it derives from an internal analysis of a great many works of Palaeolithic art. Although the full exploration of this evidence is the subject of a separate article, 'Supernatural pregnancies: common features and new ideas concerning Upper Palaeolithic feminine imagery' (Caldwell in press), an examination of two works helps to situate even such possibly household examples of feminine imagery as phalangeal figurines. The first is an animal-headed personage with a breast and pregnant belly seen in profile that is 'following' a horse on a plaque from Étiolles (Figs 19A and B) (Taborin et al. 2000; Taborin et al. 2001; Olive et al. 2003). The forward line of the therianthrope's thigh does not start below the belly like a human's, but high above it, towards the spine, like the starting point of a quadruped's rear leg. The front of the thigh is also well back from the belly's bulge, emphasising the figure's gravid condition, which is further emphasised by the overlap of the thigh and belly incisions — allowing the extent of the pregnancy to be seen *behind* the masking leg (Fig. 19B, on the back cover of this issue).

Another salient feature is the barbed motif projecting from the therianthrope's legs to the belly of the horse. The motif seems directional as if it were linking the two figures. Finally, both the horse and pregnant therianthrope (who is similar to an animal-headed female on a pebble from La Madeleine) are emitting something from their mouths — lines that



Figure 19A. A pregnant therianthrope following a horse. Found in a hearth, Étiolles, Essonne. Incised limestone, 12 300 BP (Taborin et al. 2000; Taborin et al. 2001; Olive et al. 2003).

Figure 19B, on back cover. The Étiolles therianthrope with colour highlighting of mentioned features. RED: breast and gravid belly. BLUE: the forward line of the thigh starts well back and above of the protruding belly towards the figure's back, like the leg of a quadruped. GREEN: lines emanating from the muzzles of the therianthrope and horse. YELLOW: a barbed motif directed from the therianthrope's legs to the horse's belly.

have been interpreted as sounds, spit or vomited blood. But if the action suggests being wounded, then why is the animal-woman also doing it? Because she is in pain? The animal-woman is possibly undergoing the transformational pains of labour and may become her animal-double, the horse, still drooling or spitting in the throes of transformation, as the female achieves the ultimate feat of passage and regeneration. If women had taken any form of drug during childbirth — to help them through — the association with access to the supernatural might have become complete.

The supernatural pregnancy

Although the 'woman between reindeer hooves' (Figs 20A and B) has been interpreted again and again since it was discovered at Laugerie-Basse in 1867, the discovery of the Étiolles engraving suggests a new reading. The three key features for this re-interpretation are easy to miss. First, there is the woman's hairiness. While her back and upper body are unmarked and apparently hairless, the engraver has incised concentric hatched rows upon the woman's swollen abdomen and similarly marked her thighs. If the engraver had only incised the belly, its incisions could have been interpreted as stretch marks, but



Figure 20A. *The 'Woman under the reindeer' from the Laugerie-Basse rockshelter. Engraving on reindeer antler, 101 mm × 65 mm. Musée des Antiquités Nationales, Saint-Germain-en-Laye (M.A.N., No. 47 001).*

Figure 20B, on back cover. *The 'Woman under the reindeer' with colour highlighting of mentioned features. RED: ballooning curves echoing the pregnancy below. BLUE: hocks where the angle of the pregnant therianthrope's shins shift behind the reindeer's fetlock. PURPLE: hair on the therianthrope's belly and thighs.*

taken together with the hairy thighs, it looks like the lower part of the woman's body — the part carrying the foetus — is becoming as furry as an animal's.

Secondly, the woman's legs are not human, but are actually the legs of a reindeer! Her visible forward-facing knees have fooled observers for over 150 years into thinking her legs were human, even though the 'knees' are disconcertingly high anatomically. But each of the 'woman's' legs actually has two knees. First she has the visible forward 'knees' — which correspond to a horse's or reindeer's stifles — but she also has backward 'knees' hidden behind one of the reindeer's fetlocks, yet evidenced by the radically changed angle of her 'shins' from one side of the masking reindeer leg to the other (Fig. 20B, on the back cover of this issue). The 'woman' has hocks — and turns out to be nothing less than a feminine therianthrope like the figure from Étioilles.

The third clue is several lightly incised, ballooning curves above the belly, which echo the heavily engraved outer limit of the woman's realistic pregnancy. When these curves were pointed out to a referee, James Harrod, he suggested that they both looked '... like the "funnel-meanders" that Marshack wrote about' and that '... the funnel shape double arcs above the belly of the Laugerie-Basse pregnant female have analogy to the whirl, horn, crescent, spiral signs ...

— "energy" "unfolding life" symbols' — as interpreted by Harrod (1997) under the influence of Marija Gimbutas's works (1989, 1991), which were largely based on motifs found on eastern European Neolithic statuary — 'which may be generic to different goddesses, or as "whirl" especially of the Regeneratrix ...' (Harrod, pers. comm. 2009).

These comments are helpful in confirming my impression that the ballooning curves convey unfolding energy but leave me ill-at-ease because of their reach and specificity. Figurative forms often become so conventionalised that they become abstract symbols, but I am not sure these ballooning curves have reached that point. Nor do I discount the possibility that the truly abstract motifs that Gimbutas and Harrod have tried to sort out were laden with associations — I am just not sure that they can be pinned down and translated with precision. Even when I accept an association, such

as that of some meanders with water (Marshack 1977), I am uncomfortable including all 'meanders', macaronis or serpentines or extrapolating from serpentine meanders to simple hoops that faithfully reproduce the realistic curve of the belly below. After all, meanders and other finger flutings have also been interpreted as a notation system or mnemonics for myth-telling (Sharpe and Lacombe 1999), entopic shapes or phosphenes (Bednarik 1984a, 1984b), photisms associated with specific stages of trances (Clottes and Lewis-Williams 1998; also see Cytowic 1996), imitations of animal scratchings (Lorblanchet 2003), linear-phallic signage (Leroi-Gourhan 1958a, 1958b, 1968, 1992); snakes (Breuil 1952), snakes associated with death (Barrière 1982) and psycho-neurological archetypes (Gallus 1977) — among a host of interpretations. If these curves over the belly were really 'meanders' or water signs, Marshack himself might have pointed out the resemblance in his discussion of this piece — but did not (Marshack 1972).

I also admire Harrod's attempt (1997) '... to sort out the different female "deities" or "powers" that appear in Gravettian and Magdalenian "art" ...' but hesitate to link these curves on a Palaeolithic engraving to a deity — let alone a specific one — or to 'translations' based largely on Neolithic motifs. Most Palaeolithic feminine

images probably do represent females involved in the supernatural as participants or supernatural beings, but I have no idea whether they portray ancestral or family spirits, true divinities, idealised versions of living women, or other entities entirely.

All I see in the Laugerie-Basse depiction is two sets of lines echoing the contour of a belly (Fig. 20B). To me, these larger-than-life inflated contours suggest extra magnitudes to the swelling abdomen. In other words, supernaturally huge pregnancies or pulsations. One may interpret this to mean that the 'woman' is invisibly gestating something huge — perhaps the animal above her (one is reminded of the bison head enwombed above the vulva at Chauvet) — or that the pregnancy is viewed as simply having a transcendental dimension, taking the mother or her companions into communion with animals. Could the woman be another expectant mother turning into an animal — giving birth to herself as the animal, one might say — like the one on the Étioilles plaque? Is the fact that she is supine with slightly flexed legs suggestive of passiveness, or rather of a trance linked with generative and transformational powers associated with pregnancy?

Conclusion

I would like to conclude both by stipulating what this article is *not* about and by summarising its limited aims. First, my readings of Palaeolithic engravings should not be misconstrued as arguments for a 'Great Mother' goddess during the Palaeolithic. Nor is this article meant to be a re-habitation of Bachofen's theory of a primitive matriarchate. Also, the whale-wife-mothers and other female participants in Arctic rituals are not described as shamans — both because they are not shamans, in a literal sense, and to avoid getting bogged down in tangential discussions. The paper also avoids affirming the existence of a Palaeolithic 'goddess' or 'goddesses'. Given the range and degrees of supernatural beings — let alone the probable representations of non-supernaturals from time to time, such as in engravings from La Marche — and the fact that the names, stories and nuances of the anthropomorphs and therianthropes represented in Palaeolithic art are irretrievable, it is not always possible to determine whether specific figures are divine.

What one can do is describe their apparent physical conditions and activities. Some of the interactions between feminine figures and the animals around them appear to be in keeping with roles that women have played as virtual hunting partners to men in a zone which overlaps that of the western Eurasian Palaeolithic geographically, climatically and economically. But this list of activities and roles is not meant to be exhaustive or reductive. For example, it does not exclude a profusion of feminine supernaturals of various degrees and associations during the many cultures of the Eurasian Upper Palaeolithic, although differences between female statuary found within the

same site might simply reflect the kind of variety seen in many coherent but uneven artistic series.

Furthermore, any speculations offered about specific works from one period should not be pasted onto those of another. For example, there is no reason to apply my readings of the Laugerie-Basse and Étioilles engravings to later phalangeal figurines from the Iberian Peninsula. I only mentioned the later figurines as part of a demonstration that phalanges were often interpreted anthropomorphically in the past.

I have a similar reservation concerning linkages between more recent phalangeal figurines. On the one hand, there seems to be enough continuity of usage from the Katonga River basin in central Siberia, which, by the way, falls well within the range of the Eurasian Gravettian, and phalangeal figurines as far east as Greenland to suggest that such figurines are survivals of older practices. How much older is another question. I would even go so far as to say that the same could be said for similar circumpolar notions of women's roles vis-à-vis sewing and access to, reconciliation with and regeneration of socially or symbolically important prey species.

But I refuse to go further and suggest links between Arctic and African examples — even if it may be worthwhile for someone to try doing so someday — since, again, I cited Peule *jilankonndes* just to prove that phalanges had been repeatedly (and probably often independently) interpreted as effigies.

Also, I regret that I could not include a table of authenticated Middle Palaeolithic phalangeal artefacts. As stated at the beginning, this is simply the first chapter of a work-in-progress and the compilation of such a table will require getting access to collections in numerous countries.

In the meantime, the present paper has attempted to do three things:

- Prove that anthropically pierced phalanges from as far back as the Aurignacian could be phalangeal figurines.
- Show how the perforations in phalanges from any period can be tested.
- Show how simple figurines may relate both to other anthropomorphous and feminine imagery from the same periods and to a few of the Palaeolithic's varied and evolving beliefs.

Upper Palaeolithic bands in cold climates had economic incentives having to do with (a) women's crucial role in the making of protective clothing and camouflage, and (b) the strengthening of dependence between the two actors in hunts, men, but also, virtually, women, to focus ideologically on women's capacity to produce and fuse with other life. The other life probably would not have been just babies, but, like anoraks composed of the skins of many species, anthropo-zoomorphic. The resulting beliefs could have involved the idea that women had special access to a 'world' of animal spirits that climaxed during the final

stages of pregnancy and engendered the manufacture and use of appropriate imagery. Such imagery would have had many degrees and manifestations as it evolved and radiated. Phalangeal figurines and such objects as the incised, soft stone 'medallions' from Kostienki I that have been interpreted as vulvar plaques may be examples of one extreme of ritual and craftsmanship. Most of the twenty-six human representations that were found on the site's living surface were such plaques, suggesting that they may represent more quotidian manifestations of beliefs, which — at the opposite pole — required the careful deposition of statuettes and even statuette fragments in imported soils in artificial pits (Abramova 1995; White 2003).

Although this attempt to place potential phalangeal figurines in an economic and ideological context which could explain their continued use over such an extended range and period is open to question and elaboration, one thing is not: the fact that phalanges and similar distal limb bones have been used as human effigies means that anthropically perforated pre-Historic phalanges must be considered to be possible figurines — especially when their holes are too small for use as 'whistles'. Multiple lines of evidence suggest that feminine figurines served a long and central role in practices binding together and supporting Upper Palaeolithic Eurasian bands. If any of the perforated phalanges are indeed human effigies as well, they could just as easily have filled such roles as ones made of ivory, antler, ceramic or stone. And if any of the candidates from the Middle Palaeolithic or even earlier also turn out to be anthropic, the possibility that Neanderthals or other archaic humans made phalangeal figurines will be icing on the cake.

Acknowledgments

I am grateful to Souleymane Baldé for sharing his knowledge of sub-Saharan birthing rituals; Iain Morley for sending Table 2 of his dissertation; the librarians at the Institut de Paléontologie Humaine, Patrick Pollet, Olivier Thevenot and Salima Boukhris, for retrieving Louis Siret's seminal works; to Katina Lillios, Rui Boaventura and Victor Hurtado for help in identifying a phalangeal 'idol' from La Pijotilla; and to the two RAR referees for their advice. Finally, this project is dedicated to my parents, Ruth and Robert Caldwell, who took me to the foot of Mount Pentadactylos and encouraged me to climb all five peaks.

Duncan Caldwell
18, rue Rambuteau (B35)
75003 Paris
France
E-mail: caldwellnd@aol.com

Final MS received 3 March 2009.

REFERENCES

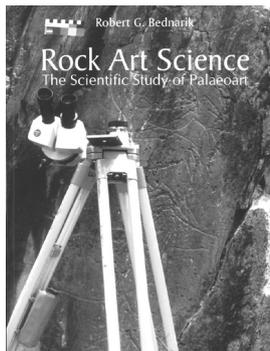
ABRAMOVA, Z. A. 1995. *L'art paléolithique d'Europe orientale et de Sibérie*. Jérôme Millon, Grenoble.
BALDÉ, S. 1986. Stérilité au Fouladou. *Le Journal du Jeune*

- Praticien — decadaire d'informations thérapeutiques et medico-professionnelles*, 10 Oct. Boulogne, France.
BARRIÈRE, C. 1982. *L'Art pariétal de Rouffignac: la Grotte aux Cent Mammouths*. Picard, Paris.
BEDNARIK, R. G. 1984a. On the nature of psychograms. *The Artefact* 8: 27–32.
BEDNARIK, R. G. 1984b. Parietal finger markings in Australia. *Bollettino del Centro Camuno di Studi Preistorici* 22: 83–88.
BREUIL, H. 1924. Notes de voyage paléolithique en Europe centrale II: Les industries paléolithiques du loess de moravie et bohême. *L'Anthropologie* 34: 515–552. Also published in: H. Breuil 1925. *Notes de voyage paléolithique en Europe centrale*, pp. 515–552. Masson & Cie. Éditeurs, Paris.
BREUIL, H. 1952. *Four hundred centuries of cave art*. Centre d'Études et Documentations Préhistoriques, Montignac.
CALDWELL, D. in press. Supernatural pregnancies: common features and new ideas concerning Upper Paleolithic feminine imagery. In *Arts & Cultures*. Barbier-Mueller Museums, Geneva and Barcelona.
CHASE, P. G. 1990. Sifflets du paléolithique moyen? Les implications d'un coprolithe de coyote actuel. *Bulletin de la Société Préhistorique Française* 87: 165–167.
CHASE, P. G. 2001. Punctured reindeer phalanges from the Mousterian of Combe Grenal (France) - Phalanges de renne perforées provenant du Moustérien de Combe Grenal (France). *Arheološki vestnik* 52: 17–23.
CHAUSSONNET, V. 1988. Needles and animals: women's magic. In W. W. Fitzhugh and A. Crowell (eds), *Crossroads of continents, cultures of Siberia and Alaska*. Smithsonian, Washington, D.C.
CLOTTIS, J. and D. LEWIS-WILLIAMS 1998. The shamans of prehistory: trance and magic in the painted caves. Harry N. Abrams, Inc., New York.
COLES, J. M. and E. S. HIGGS 1969. *The archaeology of early man*. Praeger, New York.
CYTOWIC, R. E. 1996. *The neurological side of neuropsychology*. MIT Press, Cambridge, MA.
DAUVOIS, M. 1989. Son et musique paléolithiques. *Les Dossiers D'Archéologie* 142: 2–11.
DAVIDSON, I. 1990. Bilzingsleben and early marking. *Rock Art Research* 7: 52–56.
DEBÉNATH, A. 1994. L'Aterien du nord de l'Afrique du Sahara. *Sahara* 6: 21–30
DELPORTE, H. 1979. *L'image de la femme dans l'art préhistorique*. Picard, Paris.
DELPORTE, H. 1980. *Brassempouy: La Grotte du Pape station préhistorique - Il y a 20.000 ans... art*. L'association culturelle de Contis, Landes.
D'ERRICO, F. 1991. Carnivore traces or Mousterian skiffle? *Rock Art Research* 8: 61–63.
D'ERRICO, F., G. GIACOBINI and P.-F. PUECH 1983. Varnish replicas: a new method for the study of worked bone surfaces. *Ossa* 9–11: 29–51
D'ERRICO, F., C. HENSHILWOOD, G. LAWSON, M. VANHAEREN, A.-M. TILLIER, M. SORESSI, F. BRESSON, B. MAUREILLE, A. NOWELL, J. LAKARRA, L. BACKWELL and M. JULIEN 2003. Archaeological evidence for the emergence of language, symbolism, and music: an alternative multidisciplinary perspective. *Journal of World Prehistory* 17(1): 1–70.
D'ERRICO, F., C. HENSHILWOOD, M. VANHAEREN and K. VAN NIEKERK 2005. *Nassarius kraussianus* shell beads from Blombos Cave: evidence for symbolic behaviour in the Middle Stone Age. *Journal of Human Evolution* 48(1):

- 3–24.
- d'ERRICO, F. and P. VILLA 1997. Holes and grooves: the contribution of microscopy and taphonomy to the problem of art origins. *Journal of Human Evolution* 33(1): 1–31.
- ENLOE, J. G., F. DAVID and G. BARYSHNIKOV 2000. Hyenas and hunters: zooarchaeological investigations at Prolom II Cave, Crimea. *International Journal of Osteoarchaeology, Special Issue: Hunting in the Middle Palaeolithic* 10(5): 310–324.
- GALLUS, A. 1977. Schematisation and symboling. In P. J. Ucko (ed.), *Form in indigenous art: schematisation in the art of Aboriginal Australia and prehistoric Europe*, pp. 370–386. Prehistory and Material Culture Series 13, Australian Institute of Aboriginal Studies, Canberra.
- GIMBUTAS, M. 1989. *The language of the goddess*. Thames and Hudson, New York.
- GIMBUTAS, M. 1991. *The civilization of the goddess: the world of old Europe*. Harper Collins, San Francisco.
- GORBATCHEVA, V., M. FEDEROVA and M. CZAPLICKA 2008. *L'art de la Sibirie*. Parkstone Press International, New York.
- GVOZDOVER, M. D. 1953. Obrabotka kosti i kostyanye izdelia Avdeevskoj stoyanky. *Materialy i issledovaniya po arkhologii SSSR* 39: 192–226.
- GVOZDOVER, M. D. 1995. *Art of the mammoth hunters: the finds from Avdeev*. Oxbow Books Ltd, Oxford.
- HARRISON, R. A. 1978. A pierced reindeer phalanx from Banwell bone cave and some experimental work on phalangeal whistles. *Proceedings of the University of Bristol Speleological Society* 15(1): 7–22.
- HARROD, J. 1997. The Upper Paleolithic 'double goddess': 'Venus' figurines as sacred female transformation processes in the light of a decipherment of European Upper Paleolithic language. In J. Marler (ed.), *From the realm of the ancestors: an anthology in honor of Marija Gimbutas*, pp. 481–497. Knowledge, Ideas and Trends, Manchester, CT.
- HOWELL, N. 1979. *Demography of the Dobe !Kung*. Academic Press, New York.
- HURTADO, V. 1986. El calcolítico en la cuenca media del Guadiana y la necrópolis de La Pijotilla. In *Actas de la Mesa Redonda sobre Megalitismo Peninsular*, pp. 51–77. Madrid.
- HURTADO, V. 1987. El calcolítico en la cuenca media del Guadiana y la necrópolis de La Pijotilla. *Arqueologia* 14. Homenagem a Jean Roche III., pp. 83–103. Porto (Portugal).
- HURTADO, V. 1988. Informe sobre las campañas de excavaciones arqueológicas en La Pijotilla (1980–85) (Badajoz). *Extremadura Arqueológica* 1: 35–54.
- HURTADO, V. 1999. Los inicios de la complejización social y el campaniforme en Extremadura. *Spal* 8: 47–85.
- JELÍNEK, J. 1979. *Encyclopédie illustrée de l'homme préhistorique*. Gründ, Prague.
- KOZŁOWSKI, J. K. 1992. *L'art de la préhistoire en Europe orientale*. CNRS Editions, Paris.
- LEROI-GOURHAN, A. 1958a. La fonction des signes dans les sanctuaires paléolithiques. *Bulletin de la Société Préhistorique Française* 5–6: 225–336.
- LEROI-GOURHAN, A. 1958b. Le symbolisme des grands signes dans l'art pariétal paléolithique. *Bulletin de la Société Préhistorique Française* 7–8: 336–448.
- LEROI-GOURHAN, A. 1968. Les signes pariétaux du Paléolithique supérieur franco-cantabrique. In E. Ripoll Perelló (ed.), *Simposio internacional de arte rupestre, Barcelona, 1966*. Diputació Provincial de Barcelona, Instituto de Prehistoria y Arqueología, Barcelona.
- LEROI-GOURHAN, A. 1992. *L'art pariétal: langage de la préhistoire*. Jérôme-Millon, Grenoble.
- LORBLANCHET M. 2003. Des griffades aux tracés pariétaux. *Préhistoire du Sud-Ouest* 10(2): 157–175.
- MCBREARY, S. and A. S. BROOKS. 2000. The revolution that wasn't: A new interpretation of the origin of modern human behavior. *Journal of Human Evolution* 39(5): 453–563.
- MARSHACK, A. 1972. *The roots of civilization: the cognitive beginnings of man's first art, symbol and notation*. McGraw-Hill Book Company, New York.
- MARSHACK, A. 1976. Some implications of the Paleolithic symbolic evidence for the origin of language. *Current Anthropology* 17(2): 274–282.
- MARSHACK, A. 1977. The meander as a system: the analysis and recognition of iconographic units in Upper Paleolithic compositions. In P. J. Ucko (ed.), *Form in indigenous art: schematisation in the art of Aboriginal Australia and prehistoric Europe*, pp. 286–317. Gerald Duckworth and Company Ltd., London.
- MARTIN, H. 1907–1910. *Recherches sur l'évolution du Moustérien dans le gisement de la Quina (Charente), industrie osseuse 1*. Schleicher Frères, Paris.
- MEGAW, J. V. S. 1960. Penny whistles and prehistory. *Antiquity* 34: 6–13.
- MOREL, J. 1974. La station éponyme de l'Oued Djebbana à Birel-Ater (Est algérien), contribution à la connaissance de son industrie et de sa faune. *L'Anthropologie* 78: 53–80.
- MORLEY, I. 2003. The evolutionary origins and archaeology of music. Darwin College Research Report DCRR-002, Cambridge University, Cambridge.
- MÜLLER-KARPE, H. 1966. *Handbuch der Vorgeschichte: Band I, Altsteinzeit*. C. H. Beck'sche Verlagbuchhandlung, Munich.
- OLIVE, M., N. PIGEOT, Y. TABORIN, G. TOSELLO and M. PHILIPPE 2003. Lorsque le galet gravé paraît. Les témoins symboliques à Etiolles (Essonne). In *Sens dessus dessous. La recherche du sens en Préhistoire. Recueil de textes offerts à Jean Leclerc & Claude Masset*. Revue archéologique de Picardie, Senlis.
- SCOTHERN, P. M. T. 1992. The music-archaeology of the Palaeolithic within its cultural setting. Unpubl. Ph.D. thesis, Cambridge University.
- SEROV, S. L. 1988. Guardians and spirit-masters of Siberia. In W. W. Fitzhugh and A. Crowell (eds), *Crossroads of continents, cultures of Siberia and Alaska*. Smithsonian, Washington, D.C.
- SHARPE, K. and M. LACOMBE 1999. Line markings as systems of notation? In *News 95: International Rock Art Congress – North, East, West, South, 1995 IRAC – 30 August-6 September 1995 – Proceedings*. IFRAO, Pinerolo, Italy.
- SIRET, L. 1908. Religions néolithiques de l'Iberie. Extrait de la *Revue Préhistorique*. 3e Année, No. 7 & 8. Vigot Frères Editeurs, Paris.
- SMITH, S. 1889. *A classical dictionary of biography, mythology and geography*. John Murray, London.
- STEPANCHUK, V. N. 1993. Prolom II, a middle Palaeolithic cave site in the eastern Crimea with non-utilitarian bone artefacts. *Proceedings of the Prehistoric Society* 59: 17–37.
- STORDEUR, D. 1979. *Les aiguilles à chas au paléolithique*. CNRS, Paris.
- TABORIN, Y. 2004. *Langage sans parole: la parure aux temps préhistoriques*. La Maison des Roches Editeur, Paris.
- TABORIN, Y., M. CHRISTENSEN, M. OLIVE, N. PIGEOT, C. FRITZ and G. TOSELLO 2001. De l'art magdalénien figuratif à

- Etiolles (Essonne, Bassin Parisien). *Bulletin de la Société Préhistorique Française* 98(1): 125–132.
- TABORIN, Y., M. OLIVE, N. PIGEOT and M. CHRISTENSEN 2000. Le site magdalénien d'Etiolles: bilan des fouilles de 1998–1999–2000. *Bulletin de la Société historique et archéologique de Corbeil, de l'Essonne et du Hurepoix* 70: 107–120.
- THOMPSON, J. C., J. R. F. BOWER, E. C. FISHER, A. Z. P. MABULLA, C. W. MAREAN, K. STEWART and C. F. VONDRA 2004. Loiyangalani: behavioral and taphonomic aspects of a Middle Stone Age site in the Serengeti Plain, Tanzania. Paper presented at the 2004 *Paleoanthropology Society Meetings*, Montreal, Canada.
- TURK, I., J. DIRJEC and B. KAVUR 1997. Description and explanation of the origin of the suspected bone flute. In I. Turk (ed.), *Mousterian 'bone flute'*, pp. 157–178. Znanstvenoraziskovalni Center Sazu, Ljubljana.
- UCKO, P. J. 1968. *Anthropomorphic figurines of predynastic Egypt and Neolithic Crete with comparative material from the prehistoric Near-East and mainland Greece*. Royal Anthropological Institute Occasional Paper 24. A. Szmidla, London.
- VORUZ, J.-L. 1985. Des pendeloques néolithiques particulières: les os longs perforés. In *Industrie de l'os néolithique et de l'âge des métaux 3*, pp. 124–162. Éditions du CNRS, Paris.
- WETZEL, R. 1969. Kulturknochen und Knochenkultur. In G. Bosinski (ed.), *Die Bocksteinschmiede im Lonetal (Markung Ramingen, Kreis Ulm)*, pp. 75–132. Müller & Gräff, Stuttgart.
- WHITE, R. 2003. *Prehistoric art: the symbolic journey of humankind*. Harry N. Abrams, Inc. New York.
- WHITE, R. and M. BISSON 1998. Imagerie féminine du paléolithique: l'apport des nouvelles statuettes de Grimaldi. *Gallia Préhistoire* 40: 95–132.
- WILSON, T. 1898. Prehistoric art; or, the origin of art as manifested in the works of prehistoric man. In *Smithsonian Institution Report of National Museum 1896*, pp. 325–664. Washington, D.C.

RAR 26-906



Rock art science: the scientific study of palaeoart

By Robert G. Bednarik, second edition, expanded and updated. 2007.
Aryan Books International, New Delhi, 220 pages, illustrated,
comprehensive bibliography, index.
Hardcover ISBN 81-7305-318-9, paperback ISBN 81-7305-319-7.

This volume is now used as academic course textbook in four continents.

'In the uncertain horizon of a discipline in desperate need for consensus, a man stands alone, raising high above personal feuds a warning flag on which the reader can read: "We cannot afford to get it wrong, the resource is not renewable!" ... Veiled behind a storm of reforms is Bednarik's genuine attempt, a timely effort, at bringing cohesion to a discipline in desperate need for consensus by shaking the dogmatic foundations of a parasitic and dominant discourse. As it stands, rock art plays a quasi-nonexistent role in the overall palaeosciences. Bednarik's reforms are good starting points to establish rock art as a fully fledged discipline.'

Dr Yann-Pierre Montelle

'Rock art researchers owe Bednarik a great debt for establishing AURA, the internationally refereed journal *Rock Art Research* and his efforts to establish IFRAO. He has tirelessly led campaigns to save rock art from development-related destruction in many parts of the world and has published hundreds of papers. In *Rock art science*, he offers his overall vision for the study of rock art.'

Professor Paul Taçon

For the introductory offer to members of the 43 rock art organisations affiliated with IFRAO (including AURA) please refer to the order form provided with this issue of *RAR* or log on at <http://mc2.vicnet.net.au/home/aura/web/books.html>.

Alternatively the book may be ordered from Aryan Books International, Pooja Apartments, 4B, Ansari Road, Darya Ganj, New Delhi-110 002, India, aryanbooks@vsnl.com