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## The global evidence of early human symboling behaviour

A model of art origins based on the author's first-hand studies is presented, which differs significantly from the dominant paradigm of these developments. The earliest known evidence for art, art-like or presumably non-utilitarian activities collectively provide the principal information about human symboling behaviour. These corpora are systematically considered from each continent, including rock art and various surviving forms of portable art. The immense age of some of this evidence is illuminated, and the record's poor resolution with increasing age is presented as an essentially taphonomic phenomenon. It is shown, nevertheless, that the available record provides a considerably broader basis for hypotheses about symbolism, language and cognitive evolution than is often assumed, and that the evidence favours a model of comparatively early origins of the human capacity of concept-mediated thought and culture. These beginnings may be found in the endeavours of Lower Palaeolithic hominids to create taxonomic systems of physical reality. The available record renders it likely that such capacities existed several hundred thousand years ago.

*Keywords:* Palaeolithic, symbolism, cognition, rock art, portable art, manuports, taphonomy.

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### Introduction

Previous reviews of pre-Upper Palaeolithic traces of symboling behaviour and their critiques have usually considered perceived evidence of several types: the cognitive aspects of lithic typology, human burials, intentional deposition of human and other animal remains, language ability, and 'art'. Past discussions have shown that, of all of these types of evidence, only the last mentioned can provide reasonably unambiguous information. The intentionality inferred from lithic characteristics (Robson Brown, 1993) can be readily questioned; burial and deposition claims are often subjective and have been refuted or challenged on various occasions; and all the debates of verbal language capacities, usually involving the hyoid bone or Wernicke's and Broca's areas, have led to little concrete knowledge about this topic. In this paper I shall therefore focus entirely on art-like evidence (concerning the use of the word 'art', see Note 1).

Claims for extremely old rock art (in excess of 30,000 years BP) have been made for almost all continents, the notable exception being North America, besides Antarctica where there is no rock art at all. In Piauí, Brazil, Guidon & Delibrias (1986) have proposed a minimum age of 32,000 years for pigment traces on a detached and archaeologically stratified rock spall at a painting site. From Africa, we have claims of ochre use and portable art in the Middle Stone Age of South Africa and Namibia respectively, and the latter has prompted Anati (1986) to speculate that some Tanzanian rock paintings may at around 40,000 years be the oldest rock art in the world. In Asia, a similar age has been proposed for central Indian

paintings by Wakankar (1983), and in Europe an antiquity of identical magnitude has long been claimed for some of the Franco-Cantabrian rock art (e.g. Breuil, 1952). Finally, in Australia it has been suggested in two separate claims that certain rock paintings of Arnhem Land and Cape York Peninsula might be the oldest art in the world, and around 40,000 years old, and others in the Kimberley even over 50,000 years.

Several points are immediately apparent when examining these hypotheses:

(1) They are all of a similar magnitude, which is roughly equal to that where the accuracy of the radiocarbon dating method begins to fade.

(2) In all of these competing claims it is either implied or stated that the 'oldest rock art' is being considered, or that it is possibly being considered.

(3) All claims, except that of Europe, refer exclusively to rock paintings rather than the usually more durable petroglyphs, although in all the general regions concerned, early petroglyphs also do occur.

(4) All seven regional claims (Franco-Cantabria, Tanzania, central India, Cape York, Arnhem Land, Kimberley, Piauí) were based on inference and could, in the absence of sound supporting evidence, not be sustained if subjected to rigorous testing. Most in fact lack supportive evidence altogether.

(5) Despite the existence of several claims for rock art antiquity roughly equal to that postulated for western European art, even recent general discussions of art origins all discuss the subject without any regard for the competing claims from other parts of the world.

Since Breuil, the claimed maximum age of western European rock art has been reduced by about a quarter, and an antiquity of 30,000 to 32,000 years has recently been determined by direct dating at one site, Chauvet Cave, France (Clottes et al. 1995). In most European cases, however, the claims are based partly on the stratigraphically inferred age of portable art objects of various types, combined with subjective stylistic considerations, and partly on inferred minimum ages of some rock art (see below). There is a tendency now to depreciate the importance of stylistically derived chronologies (Bednarik, 1988a; Lantaigne, 1989, 1991; Lorblanchet & Bahn, 1991, 1993), whose validity has been severely questioned by recent work (Bednarik, 1995a, 1995b, 1995c; Clottes et al., 1995; Watchman, 1995, 1996). Seen in this light, attempts to discuss the beginnings of art production purely in terms of the Franco-Cantabrian art body are highly biased. While no doubt presenting some ideas of relevance, in so far as the universal subject of early art development is concerned, such publications can only present a skewed picture.

On this basis, our received knowledge about certainly crucial developments in human history and cognitive evolution must be expected to be severely biased, and this is so before we consider the even graver issues of taphonomy in palaeoart (see below). This state of affairs is partly attributable to the endeavours of some scholars to preserve the myth of European cultural precedence (cf. Lorblanchet, 1993), but also to the quite inadequate global dissemination of the relevant data. Many of the writers addressing this subject seem to be genuinely unaware of most, if not all, of the claims made in respect of early art traditions outside of western Europe. Similar limitations apply to recent attempts to review the evidence of pre-Upper Palaeolithic non-utilitarian or 'symbolic' behaviour (cf. Bednarik, 1992a), which not only omitted the major part of the evidence they sought to cover, but which were presented by authors who had studied hardly any of the evidence themselves.

In this paper, then, I will critically discuss the evidence as it stands for each continent, of what has either been claimed to represent particularly early use of symbolism, or what in my view should be considered in such a context. This approach is preferred to presenting the

various arts as chronological entities: the age of most rock art remains unknown or, at the very best, speculative. I will in each case consider petroglyphs as well as rock paintings, engraved portable art, sculpted portable art (figurines), and evidence that has been suggested to be the result of non-utilitarian activities (see Note 1). A few points are emphasized from the outset:

a. A search for the world's 'oldest art' for its own sake is a vacuous pursuit; to be both scientifically and epistemologically meaningful, it should preferably be motivated by a research design involving the evolution of early art and cognitive faculties.

b. In the cases where I have not examined the evidence myself, my assessment is based on a critical examination of the published data in which I shall attempt to separate apparently factual evidence from that which can apparently be questioned.

c. There have been several important new finds in this area just in the last decade or so, and as our knowledge of the subject improves, we can expect many more important finds in the near future. In this report I can obviously consider only currently available and acceptable data.

### **North America**

Dorn & Whitley (1984) have obtained a series of cation-ratio (CR) minimum dates from Coso Range (California) petroglyphs ranging up to about 11,500 years BP. Earlier CR dates became available subsequently but the method remains experimental and its results can at best be considered tentative. Numerous writers have rejected its reliability (Bednarik, 1988a; Bierman & Gillespie, 1991; Bierman et al., 1991; Watchman, 1989, 1992), and Dorn's continual re-calibration of his earlier results means that even if the method were acceptable, his earlier interpretations of results may no longer be applicable (Dorn, 1993; Dorn et al., 1992). Similarly, the dating of two layers of tufa sandwiching some petroglyphs at Salton Sea (Lake Cahuilla), California (Turner & Reynolds, 1974), through the organic carbon in each layer of tufa, has been rejected subsequently. Other North American attempts to date rock art have not fared better. At Long Lake, Oregon, radiocarbon dating of a volcanic ash layer reportedly covering petroglyphs yielded an age of 6700 years BP (Ricks & Cannon, 1985), but Steinbring et al. (1987: 155) have questioned this result due to documented earlier disturbance of the site. Loendorf's (1986) attempt to date what he thought to be a rock painting at the petroglyph site Rochester Creek, Utah, has been refuted (there is no paint present at the site; Bednarik, 1987a). Thus the only solid minimum dating of early rock art in North America remains the very rough archaeological minimum dating at Mud Portage, Lake-of-the-Woods, Canada (Steinbring et al., 1987), where a substantial occupation deposit overlying a petroglyph pavement has been excavated. Radiocarbon dating of sedimentary charcoal and reasonable stratigraphical extrapolation suggest a minimum age of perhaps 5000 years, while the inundation of the site prior to 9000 BP provides a maximum age. Nevertheless, Pleistocene petroglyphs may well exist in North America (Parkman, 1992; Bednarik, 1994a).

North American rock art thus remains largely undated, particularly as the recent use of CR dating in several projects cannot be considered to provide reliable evidence. No conclusive evidence for a Pleistocene art tradition has thus been secured, which is only consistent with the belief of many American archaeologists that evidence of a pre-Clovis occupation of the continent remains equally elusive. These findings are, however, in conflict with the concept of a Pleistocene occupation of South America (Guidon & Delibrias, 1986; Bednarik, 1989).

There is no shortage of apparently Pleistocene portable art objects from North America, but most have been exposed as fakes. The only exception (apart from beads from the Jones-Miller site in Colorado) seems to be a mineralised sacrum from Tequixquiac, Mexico, which has been modified to look like an animal head (Bahn, 1991: Pl. 18a). It is from an extinct camelid and thought to date from the late Pleistocene. Other examples are less well authenticated, but a bone with an engraving of a rhinoceros from Jacob's Cave, Missouri, has been suggested to be of the Pleistocene (Bahn, 1991: 92). Several other finds, such as the Holly Oak pendant with an elephantine engraving, have been designated as fakes. Fakes of Pleistocene art have only been reported from the U.S.A. and from western and central Europe, and they are frequent in these regions (totalling many hundreds of images and objects).

### South America

The principal claims of Pleistocene antiquity for South American rock art refer to the important sandstone shelter Toca do Boqueirão do Sítio da Pedra Furada, Piauí, in northeastern Brazil, where apparent human occupation traces extend beyond 40,000 years BP (Guidon & Delibrias, 1986; Parenti, 1993). There is a large panel of rock paintings on the wall of this shelter which is subjected to laminar exfoliation. This process, caused by capillary moisture forming subcutaneous salt layers, is responsible for the formation of the shelter itself, which means that during the Pleistocene, the wall would have been closer to the drip line. It is thus quite unlikely that any of the extant paintings could be older than the final Holocene, particularly as there is ample evidence that the episodic waterlogging of the site existed also in the Pleistocene (as suggested by the stratigraphy of the cobble deposits; Bednarik, 1989: Fig. 2). At a level dated to about 17,000 BP, a rock spall bearing two lines of red pigment was excavated, and a second fragment with traces of some red deposit was found at the 32,000-year-old horizon. I have argued that there are several possible explanations for these finds (Bednarik, 1989), and while this is certainly not a refutation of the dating claim, much more convincing evidence (direct rather than archaeological dating) is required.

At Toca do Baixão do Perna I, another of Guidon's sites, the paintings are clearly at least 10,000 years old (Bednarik, 1989: 105). This is one of the very few rock art sites known to me where rock paintings have survived below ground level for any great length of time - in this case because the sediment consists almost entirely of very coarse-grained, well-aerated erosion sand. Almost immediately below the concealed panel of very faded figurative paintings is a substantial stratum that consists largely of charcoal and contains distinct hearth hollows with heating cobbles. Initial radiocarbon dates from this rich source of charcoal provided dates of about 9500 to 10,500 years, which remains the earliest reliable minimum dating for any rock art in the Americas. Recently, a fragment of a pigment ball that showed signs of having been worn as an ornament was found at the site, providing an AMS radiocarbon date of  $15,250 \pm 335$  years BP, which was unexpected as the site had been swept clean by a flood around 12,000 years ago (Chaffee et al., 1993).

'Archaic' petroglyph traditions occur also in South America, including in southern Piauí. The motifs are heavily patinated or weathered and often occur together with accumulations of extremely archaic-looking stone tools, for instance in Brazil (Bednarik, 1989) and Bolivia (Bednarik, 1988b). Their motif range, and that of early petroglyph sites in North America, is typically non-figurative and resembles that of archaic petroglyphs of other continents (Bednarik, 1987b). All of this may be pure coincidence (and my preferred explanation for it is in fact taphonomic, see below), but it should be noted that in most parts of the world then settled, the

'figurative' Holocene and final Pleistocene traditions are generally preceded by 'non-figurative' traditions (Bednarik, 1994b).

## Asia

This may well be the least known continent in respect of our subject, and it is the one from which we can most expect finds of major significance in the years ahead. At present, however, the evidence relevant to discussing the beginnings of art is restricted to a few regions. There have been several claims relating to Upper Palaeolithic rock paintings in central India, championed especially by Wakankar (1983); similar claims from Siberia (Okladnikov, 1977); and claims of portable engravings from the early Upper Palaeolithic of China (You, 1984) and South Korea (Sohn, 1981). An examination of many Asian claims of Palaeolithic art has invalidated the overwhelming majority of them (Bednarik, 1992b, 1993a, 1993b; Bednarik et al., 1991; Bednarik & You, 1991; Bednarik & Devlet, 1993). Thus, the number of possibly valid claims is minute, but they, nevertheless, constitute a most fascinating collection that encourages certain anticipations. I shall briefly review the evidence offered for Palaeolithic art in the various regions, beginning with Siberia.

The earliest known art objects of Siberia are thought to be part of some Eurasian tradition extending from central (if not western) Europe to the Irkutsk region. Finds of portable art have been reported from about twenty sites (Abramova, 1990; Bednarik, 1994c), but it is difficult to see how most of them would fit comfortably into a central European, or even a Russian Upper Palaeolithic assemblage. One only needs to consider the presumed female figurines of Mal'ta and Buret', most of which lack any indication of sex (Abramova, 1962; Bednarik, 1990a), and of which hardly any resemble those of Europe (Duhard, 1993). Probably more than 80% of all Siberian portable art of the Upper Palaeolithic was intended to be suspended on a string (Bednarik, 1990a: 35), and stylistically clear forms such as the bird sculptures have no equivalent in Europe. More importantly, there is no evidence from the Siberian Palaeolithic (or indeed the Asian Palaeolithic) of two-dimensional figurative depiction, except two mammoth figures (Figure 1), whereas that form of depiction is a hallmark of western European Palaeolithic art. I have argued that the mere depiction of a mammoth does not constitute proof of Pleistocene antiquity of the art in Siberia (Bednarik, 1993c), although the Mal'ta plaque (Bednarik, 1992b: Fig. 3) is likely to be around 14,000 years old. Nearly all Asian (as well as eastern European) graphic art of the Palaeolithic is non-figurative (Figure 2).

The interpretation and cultural affiliation of Siberian portable art aside, its Pleistocene age is in most cases widely accepted. It includes the probably oldest presently known iconic sculpture, an animal head from Tolbaga, thought to be possibly 35,000 years old (Figure 3). Siberian claims of Pleistocene rock art, however, have been seriously questioned. A few painted motifs among the thousands of rock paintings and petroglyphs on the upper Lena, Siberia, have been identified as being Palaeolithic by Okladnikov (1959: 22-41; cf. Okladnikov & Saporoshskaya, 1959), a finding that is frequently cited in the literature (e.g. Abramova, 1962; Ksica, 1973, 1984). Yet there is no objective reason for this dating, and most of the region's rock art seems attributable to Historic periods (Bednarik, 1992c). The only supposed depiction of an animal species that did not exist there during Historic times is that of a rhinoceros at Tal'ma, a remote site on a tributary of the Lena. The red figure at that site does not even resemble the recording of it in Okladnikov's work, and yet the published recording itself (Okladnikov, 1977: Figs 56, 57) does not remotely look like a rhinoceros, or in fact like any other animal (Bednarik, 1992c; Bednarik & Devlet, 1993).

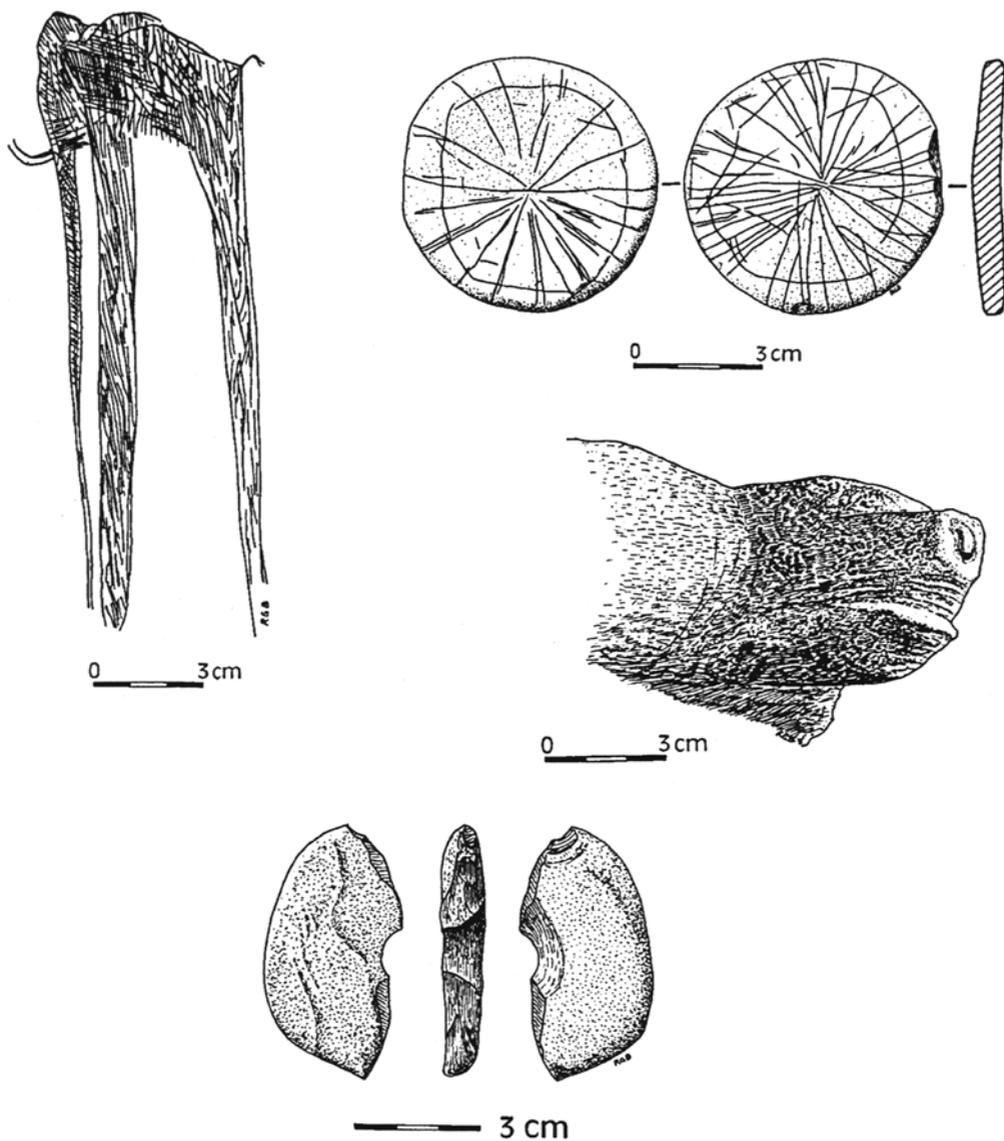


Figure 1. Engraving of a mammoth, on a mammoth tusk from Berelekh, Siberia, which is the northernmost example of supposedly Palaeolithic art in the world.

Figure 2. Both sides and section of engraved ivory disc from Afontova Gora 3, west-central Siberia, Upper Palaeolithic.

Figure 3. Sculpture of an animal head, probably of a bear, on a protruding part of a vertebra of the woolly rhinoceros. Presumed to be about 35,000 years old, from Tolbaga, Siberia.

Figure 4. Broken stone pendant from Shiyu wenhua, China, about 28,000 years old. From the Middle/Upper Palaeolithic interface.

Dating of rock art to the Ice Age on the basis of animal species supposedly depicted is not at all restricted to Siberia. In neighbouring China there are many examples of this. Gai (1986: 415-24) arbitrarily identifies forty species among the petroglyphs of Inner Mongolia, of which several are of the Pleistocene. Li (1992) uses two of his examples to imply Pleistocene antiquity of the art. Liu (1991) identifies five motifs as giraffes, which did not survive in China beyond the Tertiary. Chen (1991: 126) attributes an elephant motif to the Pleistocene, although elephants were introduced in China from the Wei Dynasty onwards (Tang, 1993), and occur in the paintings of the country's south of perhaps 2000 years ago (Wang, 1984). At the present time, no rock art in China has been shown to be of the Pleistocene, although it is quite possible that such art does exist. However, in my opinion it is much more likely to be non-figurative than figurative (Bednarik, 1993d).

Much the same applies to portable art from that country. None was known until a few years ago, except the material from the Upper Cave of Zhoukoudian: haematite lumps, perforated teeth, pebbles and shells, and five tubular bone sections with parallel cut marks. Some 600 bone fragments from Shiyu bear incised and other markings that have been interpreted as anthropic. For instance, several human and animal figures were discerned on a horse femur (You, 1984), but they are in fact natural marks of the same type as I have described from numerous ivory and ostrich eggshell finds (Bednarik, 1992b). Similarly, the various other types of marks on the Shiyu bones are without exception taphonomic marks, and of basically four categories.

In 1991, a beautifully engraved piece of antler was reported from a limestone cave northeast of Beijing, Longgu Cave (Bednarik & You, 1991; Bednarik, 1992d). It bore three intricate, geometric patterns that had been emphasized with red pigment. Being about 13,065 years old, the object remains the only known evidence of art from the Chinese Palaeolithic. The same report also relates the find of an artificially perforated stone pendant from a major Palaeolithic occupation site at Shiyu wenhua, which is about 28,000 years old and thus one of the earliest such objects in the world (Figure 4) (Bednarik & You, 1991: 122).

The only known evidence of Pleistocene art in Japan comes from the cave of Kamikuroiwa, where several engraved natural pebbles were found in a layer dated to about 12,000 BP. Some of the marks have been interpreted as depicting breasts and skirts (Aikens & Higuchi, 1982). In addition there are a few apparently non-utilitarian stone objects known from the Japanese Palaeolithic, including a perforated specimen (Bednarik, 1994c).

The Indian claims of Palaeolithic art concern engraved and other presumably non-utilitarian objects made of ostrich eggshell, pigment finds from archaeological deposits, rock art of specific styles and colours, and one bone sculpture. The marked ostrich eggshells have been reported from four central Indian sites (Kumar et al. 1988), which are among over forty published sites of ostrich eggshell in India. Again, some of the markings have been interpreted iconographically. Radiocarbon dating of the shells places them roughly between 25,000 and 40,000 years BP. I have examined forty-six such fragments with markings, which are probably all those that are known. I have also examined the sediments at three of the find sites, and determined beyond reasonable doubt that only one of these many finds bears anthropic engravings. The markings on the remaining forty-five specimens are attributable to mycorrhizal micro-organisms (Bednarik, 1992b), as are some of those just mentioned on bone from China. Similar markings occur on Siberian ivory and European bone finds (e.g. in Cueva Morin, Spain), and were also incorrectly described as anthropic in the latter case (corrected by Marshack, 1991).

The remaining specimen of Indian ostrich eggshell is from Patne and bears a non-figurative pattern that was clearly engraved with a stone tool (Bednarik, 1992b). It is thought

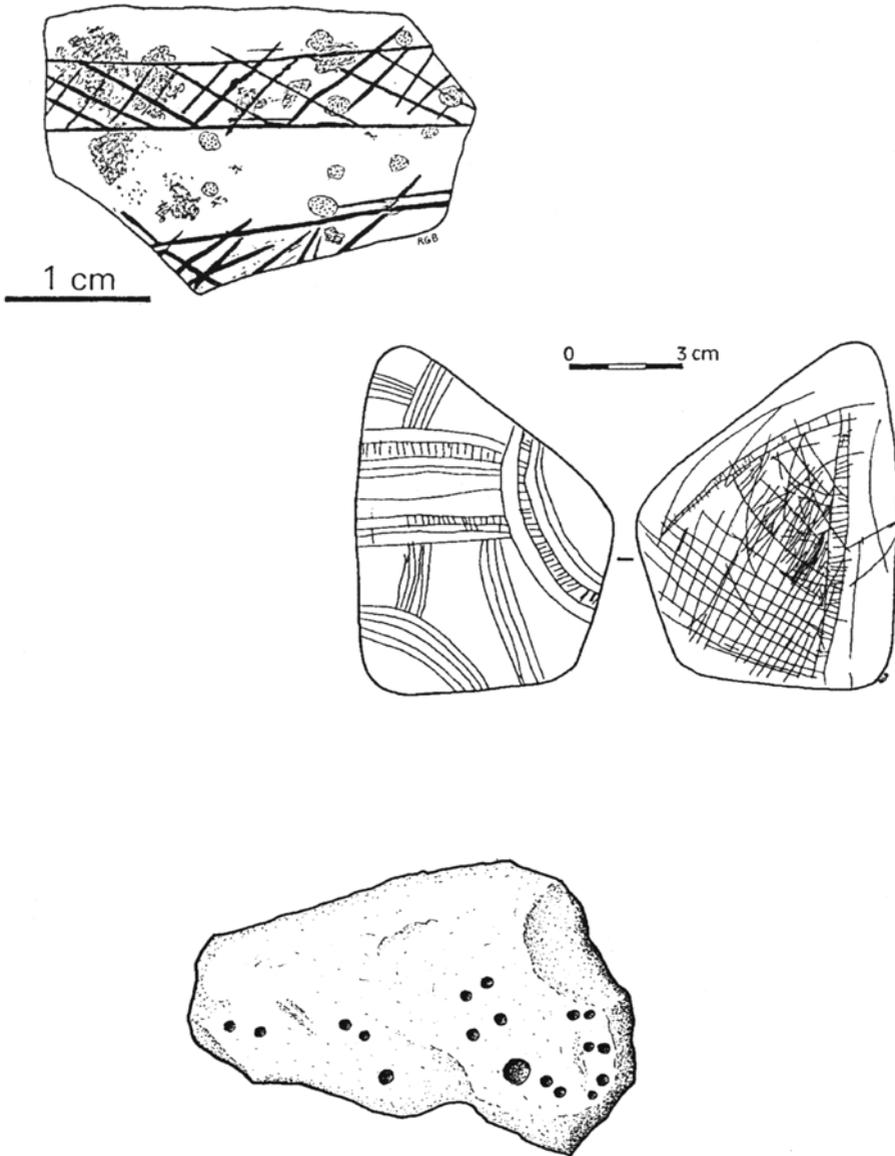


Figure 5. Engraved fragment of ostrich eggshell from Patne, western India. Early Upper Palaeolithic, about 25,000 years old.

Figure 6. Late Palaeolithic engravings on both faces of a limestone cobble from Urkan e-Rub, Israel.

Figure 7. Limestone slab covering Neanderthal burial 6 of La Ferrassie (France), a child's grave. It bears eighteen cupules, nearly all of which are arranged in pairs. Mousterian.

to be 25,000 years old (Figure 5). Four perforated discs or beads made from the eggshell are also authentic, showing conical perforations with rotation striations typical of drilling with stone points.

The carved and polished bone object found in the Belan valley, Uttar Pradesh, has been described as a 'mother goddess' (e.g. Misra, 1977: 49). It is from a distinctive stratigraphical unit that has been bracketed between two radiocarbon dates: about 19,000 and 26,000 years BP. The find is thus contemporary with the European Gravettian, which is thought to have produced most of the 'typical' female 'Venus figurines'. A critical examination of the object leaves no doubt, however, that it is not a female figurine, but in fact a well-shaped bone harpoon. The object bears seven areas of fracture, and these modifications have altered it significantly. The harpoon had four symmetrically arranged barbs, two of which have broken off. There are a few engraved notches on both sides of its base which may have been intended to hold the hafting thread in place that would have served to attach the harpoon to its shaft. The object is thus of no artistic significance, except that its aesthetically as well as functionally perfect form suggests the existence of a sophisticated technology of bone working. Indeed, this is one of the earliest harpoons known in the world, all of which are from Africa and Asia.

Turning next to the claims for a Palaeolithic antiquity of rock art in India, we find that Wakankar's claim for the precedence of the green dynamic paintings, which he considered to be of the Upper Palaeolithic, has been negated by Tyagi. Wakankar's (1975, 1983) reasoning was based on his belief that the green figures, painted in copper mineral pigments, were earlier than any other Indian rock art, and that he had excavated what he thought were green pigment traces in an apparently Upper Palaeolithic deposit at Bhimbetka, Madhya Pradesh. Tyagi (1988) has found many instances where the green paintings are superimposed over red motifs, generally of the geometric 'intricate pattern' style. Most contemporary researchers have great doubts that any Indian rock paintings are of Pleistocene age (e.g. Misra, 1977; Neumayer, 1983, 1993; Bednarik, 1993b). The engraving on the Chandravati chert artefact, a supposedly Mesolithic bipolar core (Sonawane, 1991), resembles the 'intricate patterns', but it has been suggested that the engraving may predate the Mesolithic use of the core. This matter remains unresolved, and much of the Holocene rock art chronology of India is based on comparatively tenuous evidence, if indeed on any evidence at all.

This does not exclude, however, the possibility that a Pleistocene art tradition may have survived. Until 1990, petroglyphs were only known from the north and south of the country. The Raisin petroglyphs (Bednarik et al., 1991) are of unknown age, but are totally repatinated and coated with a silica skin, resembling the archaic petroglyphs of other continents. Some of the Bhimbetka petroglyphs were covered by in situ Lower Palaeolithic occupation strata (Bednarik, 1992c, 1994d) and they are of the Acheulian, being therefore the oldest known rock art in the world (Bednarik, 1993b).

There are several other clues to very early 'non-utilitarian' activities in India. J. N. Pal (pers. comm.) excavated a circular disc with centripetal flaking in an Acheulian stratum which is too soft to be an effective tool. Wakankar had found a similar disc in one of the Acheulian layers at Bhimbetka. Very small quartz crystals were collected by Lower Acheulian people at Singi Talav (d'Errico et al., 1989), where six such prisms were found. Striations on a wear facet of a haematite pebble from the Acheulian of Hunsgi, Karnataka, were apparently the result of use of the pebble as a crayon, to mark a hard rock surface (Bednarik, 1990b). Similarly striated haematite or ochre crayons have been found in very early contexts in Europe, southern Africa and Australia (for list, see Bednarik, 1992b). The striated Hunsgi pebble suggests that Acheulian people engaged in colouring or marking rock surfaces.

Some of the most tantalising evidence in the form of traces suggesting early non-utilitarian activities comes from Israel. A limestone cobble from the late Palaeolithic site of Urkan e-Rub, between 14,500 and 19,000 years old (Figure 6), bears complex non-figurative engravings on both sides, consisting of grids, parallel lines, ladders and multiple arcs (Hovers, 1990). A somewhat older, small limestone slab from Hayonim Cave also bears engravings on both faces, and it is of the Aurignacian (Belfer-Cohen & Bar-Yosef, 1981). Non-figurative rock engravings in caves at Mount Carmel have been suggested to include Palaeolithic marks (Ronen & Barton, 1981). A scoria pebble of 35 mm excavated in an Acheulian occupation layer at Berekhat Ram, Golan Heights, is of particular interest (Goren-Inbar, 1986). It was sealed between two basalt flows, dated to 233,000 and 800,000 BP respectively by the potassium-argon method. The pebble has the natural shape of a female human torso, head and arms, and it has been suggested that the deep groove forming the neck and further grooves accentuating the arms were made artificially. This has been confirmed recently by A. Marshack's microscopic analysis. The Berekhat Ram proto-sculpture provides considerable support for Davis's (1986) model of the discovery of iconicity. The existence of such early capacities would also help in explaining the appearance of sophisticated sculpted art long before the known advent of two-dimensional figurative art (Marshack, 1985; Bednarik, 1994b). There are several other possibly relevant Acheulian finds from Israel, including a polished willow board (Belitzky et al., 1991), very small rock crystals, and some naturally perforated fossil crinoids (Goren-Inbar et al., 1991).

## Europe

In contrast to our information on early Asian art, which remains extremely sketchy in almost every region of that continent, the Palaeolithic art of Europe appears to be considerably better explored. To some extent, better preservation conditions may have contributed to a better record. In particular, the placement of a minute portion of the rock art in deep limestone caves and the preservation of bone, antler and ivory objects in high pH sediments have greatly enhanced its taphonomic selection. However, the main reason for the better record is clearly the far greater research effort in most parts of Europe. Nevertheless, the dating of rock art is not significantly more progressed than in other continents (*contra* Lorblanchet, 1993). For instance, it has been suggested that the two radiocarbon dates from a charcoal hand stencil in Cosquer Cave (Clottes et al. 1992) indicate that this is the 'world's oldest cave art'. What was dated in Cosquer Cave was not the art, but the charcoal pigment used in it, which may be much older than the art (Bednarik, 1993e). Or to cite another example: the occurrence of pigment in the sediment which looks similar to one in a rock painting (at Tête-du-Lion; Combier, 1984) provides no more secure dating of the art than do similar finds reported in nearly all other continents. Another problem in Europe (and also in Australia) is the definition of natural markings as rock art; for instance, another 'world's oldest example of art' (Glory, 1955), the prominently engraved hand in Bara Bahau, France, is in reality a set of claw marks made by a cave bear (Bednarik, 1993f). Finally, it is worth remembering that more fakes of pre-Historic art have been detected in Europe than anywhere else.

Despite the qualifications that apply to all claimed datings of the Upper Palaeolithic art of Europe, it is clear that this fascinating art corpus is between roughly 30,000 and 10,000 years old, with most belonging to the second half of that period. This parietal art, together with the portable art of the same time span, is arguably the most thoroughly studied palaeoart. The parietal Palaeolithic art of Europe has recently been claimed to occur at 293 sites across

Europe (Bouvier, 1993 lists 291, plus two sites in Germany; Hahn, 1991), and has been the subject of many thousands of publications (several more sites were reported between 1993 and 1996). By comparison, only two publications of pan-Asian Pleistocene art exist.

The earliest known rock art of Europe, however, is not of the Upper Palaeolithic, it consists of a set of eighteen cupules found on the underside of a limestone slab placed over the burial of a Neanderthal child (Peyrony, 1934). It is therefore thought to be of the Middle Palaeolithic (Figure 7). There is further apparently non-utilitarian evidence from that period, in the form of portable objects of various types and decoration, not only from the Middle Palaeolithic but even from the preceding Lower Palaeolithic period. Examples are engravings and apparently artificial notches on bone remains from such Mousterian sites as La Quina (Martin, 1907-10), Petit-Puymoyen, abri Lartet, abri Suard (Débenath & Dupont, 1971) and La Ferrassie in France (Capitan & Peyrony, 1921); Cueva Morín (Freeman & González Echegaray, 1983) and Lezetxiki (Baldeon, 1993: 25-6) in Spain; Bacho Kiro, Bulgaria (Marshack, 1976); Tagliente rockshelter, Italy (Leonardi, 1988); as well as from French Charentian sites (Bouvier, 1987). A serrated bone fragment has been reported from the Mousterian of Schülen, Belgium (Huyge, 1990), and recently the Crimean cave Prolom II yielded several marked Micoquian specimens (Stepanchuk, 1993). Non-figurative Mousterian engravings have also been found on stone, at several sites in Italy (Leonardi, 1988) and Hungary (Vértes, 1964, 1965). There are also over 150 perforated items from pre-Aurignacian sites which I have discussed in detail elsewhere, some of which suggest that body decoration has been practised for some hundreds of thousands of years. This conflicts severely with other claims about the advent of bead and pendant manufacture (e.g. White, 1992), placing it squarely in the Aurignacian.

Much older than the Middle Palaeolithic engravings are those from Bilzingsleben, Germany, which occur on fragments of bone, ivory and stone and are roughly 300,000 years old (Behm-Blancke, 1983; Mania & Mania, 1988; Bednarik, 1993g). They are from a major, biface-free occupation site comprising supposed *Homo erectus* remains (Figure 8), as is a similarly engraved elephant bone from Stránská skála, Czech Republic (Valoch, 1987). Leonardi (1988) reports some portable apparent engravings of the Acheulian in Italy. These examples may be isolated, and while they remain controversial it should be remembered that the earliest Indian petroglyphs may be of a similar antiquity, as are the two known specimens of striated haematite pebbles: one from India, listed above, and one from Bečov, Czech Republic (Marshack, 1981). There are several faceted pieces of limonite among the seventy-five found at Terra Amata, France (de Lumley, 1966), and an apparently shaped slab of ochre was reported from Ambrona, Spain (Howell, 1966). In both cases, the pigment is again from Acheulian strata. Still older evidence of ochre use can be demonstrated in southern Africa, as noted below.

## Africa

From the African Pleistocene, figurative portable art has been reported only from the Middle Stone Age (MSA) of Apollo 11 Cave, Namibia (Wendt, 1974), thought to be perhaps 26,000 years old). Older bone objects with serrations are also known, from the MSA of several sites: Klasies River Mouth, South Africa (Singer & Wymer, 1982), Border Cave, Swaziland (Beaumont et al., 1978) and again Apollo 11 Cave (Wendt, 1974). Border Cave has also yielded the earliest definite human burial, at least of Africa, which is in the order of 100,000 years old and contained one of the essentially modern *Homo sapiens* remains found at that site. A wooden fragment with engraved lines comes from the MSA of Florisbad,

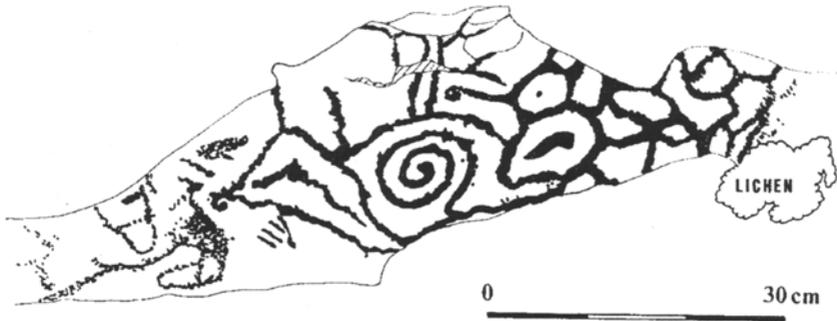
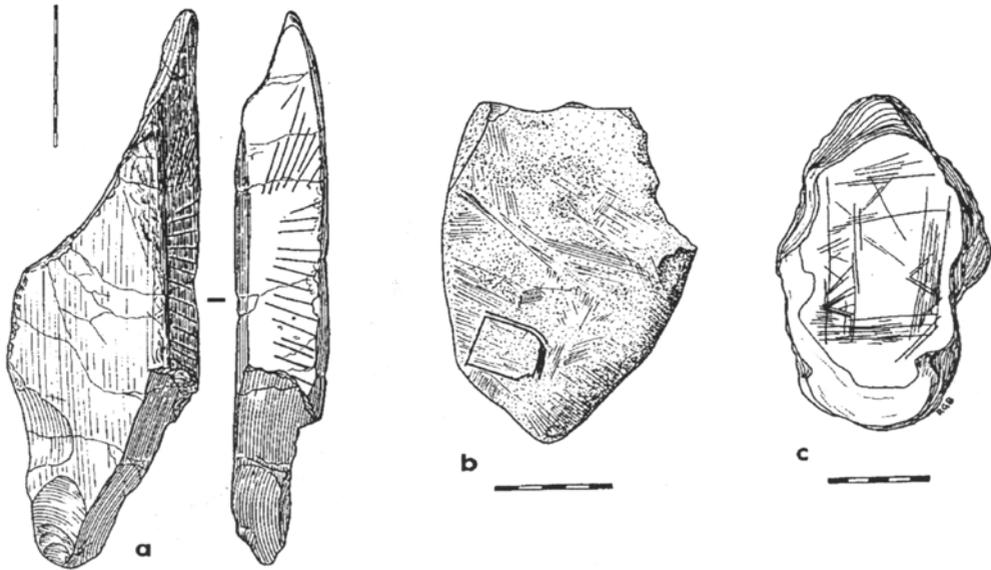


Figure 8. Engraved bone (a, c) and stone (b) artefacts from the Lower Palaeolithic of Bilzingsleben, Germany. Mindel/Riss interglacial, 350,000 - 250,000 years old.

Figure 9. Section of engraved pavement at Panaramitee North, South Australia. This complex petroglyph maze has been suggested to be in excess of 40,000 years old, on the basis of the cation-ratio of the rock varnish covering it. More securely minimum dated petroglyphs of similar age, determined by radiocarbon content of organics under the varnish, occur within metres of this motif.

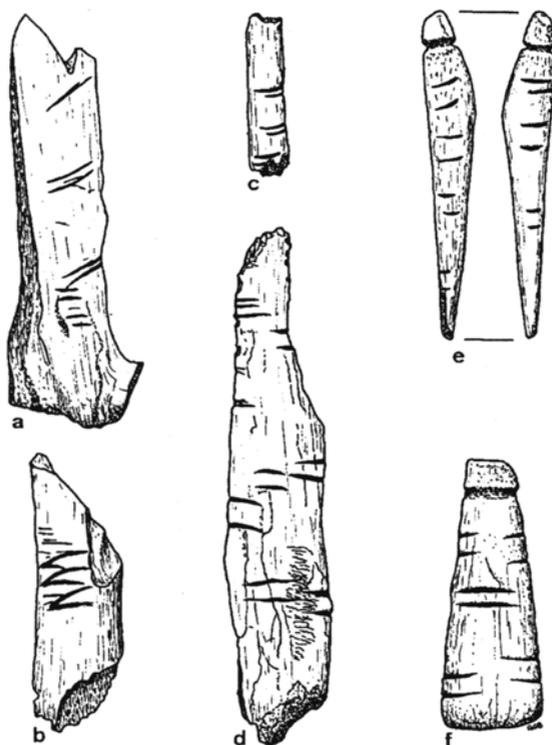


Figure 10. One of many types of evidence suggesting cultural continuity from the Mousterian to the Aurignacian: paired incisions on bone and ivory artefacts. Specimens a, b (bothabri Lartet, France) and c (Cueva Morín, Spain) are of the Mousterian, specimens d, e (abri Cellier, France) and f (abri Blanchard, France) are of the Aurignacian.

Orange Free State (Volman, 1984), and engraved ostrich eggshell fragments from two other MSA sites. Those of the Howieson's Poort phase of Apollo 11 Cave are perhaps 80,000 to 70,000 years old. Recently, about a dozen engraved ostrich eggshell fragments have been obtained from the MSA of Diepkloof Cave in the southwestern Cape (Beaumont, 1992; Bednarik, 1993h).

Anati's (1986) suggestion that Tanzanian rock paintings are the earliest dated artistic productions in the world is without basis: no Pleistocene rock art is safely dated in Tanzania, and the occurrence of ochre thought to be 29,000 years old at Kisesese is not adequate proof for rock art of such antiquity. Ochre use does not necessarily prove that art was produced, and much older evidence of it is known in various parts of southern Africa (and in Europe, Asia and Australia). That of Bambata and Pomongwe Caves in Zimbabwe (Klein, 1978) is thought to be four times as old, and the extensive mining evidence in Lion Cavern at Ngwenya, South Africa (Dart, 1969; Beaumont & Boshier, 1972), with its vast quantities of stone tools, includes a radiocarbon date of about 43,200 BP. Two lumps of red volcanic tuff (Oakley, 1981: 207) were recovered in the Developed Oldowan levels of Olduvai BK II, Tanzania

(Leakey, 1958). Apparent use of iron pigments has been widely recorded in the MSA (Klein, 1978; Beaumont et al., 1978; Singer & Wymer, 1982; Inskeep, 1962; Clark, 1988; Walker, 1987). The perhaps most extensive early evidence of haematite use comes from Wonderwork Cave, in the northern Cape region of South Africa. According to P. Beaumont, the continuous occupation sequence probably extends 800,000 to 900,000 years into the past, and is thus the longest such sequence known in the world. Every Acheulian level of the excavation has produced an abundance of ochre fragments, occurring together with bifaces and exotic quartz crystals (Bednarik, 1993i). The latter have been found also in the Acheulian of Austria (Bednarik, 1992a), India (d'Errico et al., 1989) and Israel (Goren-Inbar et al., 1991), as well as in the handaxe-free Lower Palaeolithic of Zhoukoudian I (Pei, 1931); they suggest that these hominids collected crystals, presumably for their aesthetic qualities (they are often far too small to be used as tool material), and we know that they also collected, or took note of, fossil casts on occasion, in the Lower as well as the Middle Palaeolithic (Oakley, 1981: 208; list in Bednarik, 1992a).

Finally, the water-worn jasperite pebble found in level 3 bone breccia at Makapansgat (northern Transvaal, South Africa) in 1925 was apparently brought to the cave from more than 30 km away by australopithecines (Dart, 1974). It bears several natural markings that give it the appearance of either a human or an australopithecine head, depending on the way it is viewed. As we lack any other suggestions that *Australopithecus* recognized the iconic qualities of such objects, the significance of this object remains highly tentative, but that does not warrant its consistent exclusion from all discussions of possible traces of early symbolism.

## Australia

The persistent claims of the precedence of western European art are particularly hard to understand when one considers the long-standing expectation that Australian rock art would be shown to be extremely old (e.g. Basedow, 1914, who correctly recognized that some South Australian rock art was produced during the time of the Pleistocene megafauna). One would have thought that the European (and other) claims would have been tempered appropriately, but even in 1993, the presentation of direct radiocarbon minimum dates for Australian petroglyphs elicited angry responses from a few western European commentators (Lorblanchet, 1993). Of the four earliest minimum dates then reported from South Australian sites, which ranged from about 36,000-45,000 BP, three were radiocarbon dates, secured from organic inclusions under rock varnish covering the petroglyphs (Dorn et al., 1992; Bednarik, 1992e). The varnish, which also preserved the carvings, is obviously younger than the rock art, so the dates should be seen as tentative minimum ages. The earliest dates, which are from the sites Wharton Hill and Panaramitee North (Figure 9), are not as outrageous as critics imply. After all, older rock art does exist in other continents, and particularly Lorblanchet's contention that this suggests the oldest rock art is in Australia is entirely unfounded. Researchers such as Noble & Davidson (1993) and Bednarik & You (1991) emphasize that the first colonists of the island continent already possessed symbolic capacities in all probability, and art-like markings were produced elsewhere long before Sahul (Ice Age Australia) was settled by Middle Palaeolithic seafarers (prior to 60,000 BP, on present indications; Roberts et al., 1993).

The South Australian series of sites is extensive, and the Australian Archaic Linear Petroglyph Tradition they belong to extends over much of the continent. There is some indication of great antiquity at a few other sites, but no solid dating evidence acceptable to

Australian researchers. For instance, at Sandy Creek 1, north Queensland, petroglyphs and cupules were covered by the sediment deposit, but they are increasingly corroded with depth and it is not clear how deep they reached. The deposit has yielded dates of up to 32,000 BP, and the site was occupied well beyond that time (Morwood, 1989). Cupules are regarded as being extremely old at some other Australian sites.

Despite the wealth of portable art in Australia, only one find has so far been dated to the Pleistocene, a fragment of a so-called cylcon from Cuddy Springs, western New South Wales. Striated haematite occurs in abundance from the continent's earliest known occupation levels onwards, and was certainly used (Jones, 1985; Roberts et al., 1990).

## Discussion

The extremely early evidence from Africa and Asia, of apparently non-utilitarian practices of various types, is of a very different magnitude of age than the claims of 40,000-year-old rock paintings for western Europe, central India, Tanzania, Arnhem Land, Cape York Peninsula and Kimberley, and for 32,000-year old paintings in Brazil - all of which are unsupported. The first six claims all refer to 'the oldest art in the world', in each case without considering any of the alternative claims. The claim for western Europe has in recent decades been reduced to 32,000 or so years, and rock art of an antiquity of such magnitude does occur in France, Spain, and a few other regions, although this remains to be demonstrated more securely in nearly all cases. I regard it as almost certain that many of the rock art sites currently included among the Pleistocene art traditions of Europe are in fact of the Holocene, or may at least include Holocene components; this may even be the case in Lascaux (Bahn, 1994). The claims relating to rock art corpora of other continents were presented without adequate substantiation, but recent evidence has provided minimum dates in excess of 40,000 years for some South Australian petroglyphs. It has been emphasized by Australian researchers that this is unlikely to be the oldest art in the world.

The overall picture emerging from the above global review of the currently available earliest evidence of art and art-like products is that of an excessively uneven and sporadic global record. Current popular models of the earliest symbolic evidence as it is perceived in 'art' are therefore not based on a valid and balanced consideration of the available evidence. This is not because of some fundamental problems in using art to infer cognitive faculties, but because the non-utilitarian data used in these constructs are hopelessly skewed, by several factors. To obtain a balanced model, one would need to compensate in its formulation for the obvious deficiencies in the record. For instance, as the amount of relevant research conducted in Asia is diminutive in comparison to western Europe, it is reasonable to assume that this is reflected in the quantity of available data. Hence one needs to place greater emphasis on the data from those regions that are under-represented. But *precisely the opposite* is what has happened: western Europe, with its rich information on Upper Palaeolithic parietal and portable art, has been given disproportionate or exclusive attention in the existing popular paradigm.

This must be expected to involve two forms of distortion. If one considers, for example, that there is almost certainly vastly more rock art in Australia that is over 30,000 years old than there is in Europe, one realizes at once that the Upper Palaeolithic art of Europe, the only one so far considered in the context of art beginnings, is not even relevant to the subject of art beginnings. And yet, Australia is generally recognized to be among the most recently settled continents. Hence the main role of the Australian data is to emphasize the very considerable

lacunae that must exist in our knowledge. It is quite incredible that students of palaeoart should have developed simplistic notions such as those that have in fact been predicated on a perfectly inadequate record. The discipline has every reason to ask itself how it could have been so far off the mark, and drawn so many conclusions that are possibly direct opposites of the truth.

The second form of distortion is even more fatal to existing models of art beginnings as taught around the world. Taphonomic logic (Bednarik, 1994e), which is far more powerful and rigorous than archaeological interpretation of palaeoart, posits many demands, and demands many qualifications, which archaeologists must learn to cope with. For instance, Upper Palaeolithic rock art in western Europe exists only because of an unusual concurrence of circumstances (Bednarik, 1986: 41), its existence is best ascribed to a preservational fluke. Had the Palaeolithic artists not developed a fashion of placing a tiny fraction of a per cent of their rock art in caves, we would not know today that such art was ever produced, because practically none would have survived. All known corpora of Pleistocene art in the world, without exception, are in fact attributable to unusual quirks of preservation. Taphonomic logic demands that the *distributional, compositional or statistical characteristics* of palaeoart must not be interpreted as having *any direct archaeological significance* (Bednarik, 1992f, 1994e). For instance, the absence of art in any one region or period is archaeologically meaningless, it proves or disproves nothing. Art-like products, or symbolic production, probably extend several hundred thousand years into the Pleistocene, in all parts of the world then settled by hominids. Taphonomic logic demands this (Bednarik, 1986, 1992f, 1994e), and it is quite adequately supported by empirical data, e.g. by the fact that we find corpora of art, even single occurrences, so widely separated in both time and space, and so profoundly unconnected. To translate this record into a naively quantified interpretation is the preserve of taphonomically illiterate archaeology, and it is not science. Practitioners must become aware that the models derived from these primitive modelling endeavours are almost certainly invalid. The probability of them being false is vastly greater than that of them being true.

The superseded form of palaeoart interpretation goes hand in hand with the archaeological practice of creating chronological and 'cultural' pigeonholes, which then influence research designs, research strategies and research results, becoming self-confirming realities. Where they are assisted by other factors, such as artificial plateaus caused by dating and other techniques, preservation conditions or research biases, it is easy to be convinced by an apparently overwhelming amount of evidence favouring some model or division. An example is the transition from the Middle to the Upper Palaeolithic. It coincides with the artificial plateau of the effectiveness of radiocarbon dating (as, conversely, does the claimed first settlement of South America and Australia), and it also coincides with a major plateau in the geological preservation conditions at many European sites. Nevertheless, there is no such clear cultural or ethnic division at all, anywhere, which renders all the arguments about an explosion-like Upper Palaeolithic 'revolution' (e.g. White, 1992) rather vacuous (see Lindly & Clark, 1990; Clark & Lindly, 1991; Duff et al., 1992; Hayden, 1993 for thoughtful reviews). The advent of that period can be placed anywhere from 45,000 to 30,000 BP, so there is clearly no sharp division, except perhaps in a few regions where there may have been displacement of resident populations. A period of 15,000 years surely does not amount to a sudden change, and the technological change during those 15,000 years may not exceed the amount of change during the subsequent 15,000 years. Moreover, there is considerable continuity between aspects of the Middle and the Upper Palaeolithic (Figure 10). Finally, even the biased definitions of what is Middle and what is Upper Palaeolithic are almost as dubious as those of what are Neolithic innovations. Some Neanderthals clearly had what is considered to

be an Upper Palaeolithic technology, the Châtelperronian, while the technology of the Middle Stone Age people of the Howieson's Poort phase, 80,000-70,000 years ago, was very clearly not that usually ascribed to the Middle Palaeolithic, with microlithic backed blades, trapezoids and crescents, and decorated ostrich eggshell fragments found at southern African sites. Indeed, the validity of many of these cultural hallmarks can be questioned, they are all too often simply manifestations of the archaeological obsession with materialistic expressions of cultures and their subjective taxonomies. Symbolism and art are not materialistic indices, they are poorly reflected in a material record even under the most favourable conditions, and the preservation conditions an object tens of thousands of years old has had to survive are an important factor to be examined in its evaluation. Hence the beginnings of art and symbolism should not be considered in an anecdotal or trivializing fashion, without due regard for the taphonomy of palaeoart.

Finally we arrive back at the proposition I began this paper with: that, of the various proposed evidences of early human symboling behaviour, art-like evidence is the most promising category. There are other useful categories, but their interpretation can be ambiguous. Consider, for instance, the suggestion that cognitive information might be detectable in the typological patterning of Lower Palaeolithic stone tools. Perhaps this is so, but we have yet to see refutable propositions addressing this lithocentric notion. Other types of technological information seem much more conducive to yielding valid deductions. We have noted above that Acheulians and possibly even earlier hominids collected a variety of small objects (haematite, quartz crystals, oddly shaped or coloured pebbles) and carried them for considerable distances. Did they carry these in their hands, in some sort of container, or attached in some way? They no doubt transported many more types of objects around (stone tools, ochre, wooden tools, gathered food), and it is not likely that these were all simply carried in the hands. Rather, pouches, bags or bundles were probably used, as well as cordage and knots. Perforation begins at 300,000 years ago at the latest (Bednarik, 1995d), and it suggests the use of strings quite strongly, which in turn would involve knots almost invariably (Warner and Bednarik, 1996). The evidence of the earliest ocean navigation is clearly of the Lower Palaeolithic, and demands not only an advanced level of technology but also language. Much the same applies to the earliest evidence of subterranean mining, of which we have evidence from the Middle Palaeolithic in three continents. These types of technological information are more relevant to the cognitive development of hominids than subjectively perceived characteristics of lithics, for instance. The use of equipment to carry objects in would involve considerable scope for cognitive development, including the possibilities of systematically distinguishing classes of objects and naming them. It is here that symboling behaviour, which includes naming, may take on systematic forms, but it is in the few traces of art-like, non-utilitarian products that we are likely to find the most consistent and reliable evidence of it (Bednarik, 1995d).

Note 1: The terms utilitarian/non-utilitarian are used purely as conventional descriptions, it is not claimed that we have sound means of discrimination. Similarly, the terms figurative/non-figurative only refer to iconicity as perceived by most modern Westerners, and are used as determined by convention. It is not suggested that Westerners can define iconicity objectively, or necessarily detect it. Concerning the old conundrum of what art is, I refer to my own definitions: it is the medium conveying the artist's awareness of perceived reality to human sensory perception; it externalizes human concepts of reality. In an epistemologically more satisfying definition, art is the phenomenon in human experience of which there can be no crucial common denominators for phenomenon categories that are inaccessible to humans; art thus consists of the collective phenomena about which we can argue objectively (Bednarik 1994f).

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