

Art Origins

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Abstract. – This paper attempts a global review of the presently available evidence of Palaeolithic art, art-like phenomena, non-utilitarian behaviour evidence, and indications of hominid cognitive development of the pre-Upper Palaeolithic periods. The various claims for such early evidence are considered, especially those of the most recent years, and some relevant hypotheses are discussed. General patterns are defined and lead to the formulation of a coherent hypothesis of how “artistic” activities of the Upper Palaeolithic appear to have developed from earlier beginnings. *{Palaeolithic art, non-utilitarian behaviour, cognitive evolution, symbolism, epistemology}*

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1. Introduction

Art origins are suggested to be closely related to the cognitive development of Middle Pleistocene hominids (Bednarik 1992a), to the beginnings of human consciousness, to the advent of language (Davidson and Noble 1989), to the earliest symbolic behaviour (Davis 1986; Halverson 1987), even to the beginnings of ritual and religion. The subject has often been addressed in a less than objective or informed fashion. For instance, any attempt to discuss art origins (or any related subject) by considering nothing else than the Upper Palaeolithic art of Europe needs to be banished into the realm of archaeological mythology. Most Pleistocene palaeoart is found outside of Europe (Bednarik 1992b, 1992c, 1993), and palaeoart predates the Upper Palaeolithic in several continents (Bednarik 1992d). Therefore the Franco-Cantabrian evidence dating from the Upper Palaeolithic neither marks the beginnings of art, nor is it of more than peripheral significance to the question of its origins.

The complete neglect of extra-European evidence in most publications on the subject is, however, not the only reason for having to ignore syntheses on the origins of art. The major stumbling block is of epistemological nature. Most authors on the subject seem to be unaware that their own cognition and their biological intelligence (Jerison 1973), the current result of human cognitive and intellectual evolution, are of limited relevance when one examines the processes that led to these faculties. A conceptual model of reality cannot be objectively contemplated by confirmationist recourse to the biological intellect that is its own product. Anthropocentric reality, the only reality accessible to humans, probably does not resemble the real world, and while it may suffice in the study of other aspects of our universe, to study the beginnings of human cognition within such a simplistic framework is futile. The reason for this is simple: in all probability, palaeoart played a major role, if not the key role, in deriving the conceptual artefact which we experience as reality. This is because it is art which externalizes human concepts of reality: since its beginnings, art communicated awareness of perceived reality between humans. It does not, however, define objective reality, nor does the conceptualization of the world based on art, i.e. our reality, do so. Nor does empiricist “science.”

This means, in essence, that an intelligent organism must base any study of its own cognition, if it is to be scientifically valid, on premises not derived from that cognition: palaeoart must be studied outside of human reactions to it. This will be extremely difficult to achieve for an organism that is normally unable to operate outside its own cognitive framework, and I would suggest it is the greatest scientific challenge humans have ever faced or will ever face. The present paper is not about how one might proceed in such an endeavour, I will simply survey the relevant phenomenological basis as it exists.

2. A Review of the Evidence

Having long maintained that the key to understanding the processes of cognitive evolution is to be found in non-iconic Pleistocene art or other "non-utilitarian behaviour traces" (Bednarik 1984, 1985, 1986, 1987), I have examined and reported such material from most continents. (In the present paper, "iconicity" refers to the visual quality of a motif which conveys to contemporary observers that a specific object is depicted; it is merely a subjective definitional tool; cf. Tangri 1989. Two-dimensional iconicity should be distinguished from three-dimensional.) It is proposed to base discussions of art origins on the evidence itself, not on preconceived models of what the evidence should confirm, and also, that in the evaluation of this evidence, the same standards be applied to all of it, irrespective of its age (Bednarik 1992b). Throughout the literature, there are biases evident in the treatment of "evidence" according to its age or perceived age. For instance, a set of parallel cut marks found in an Upper Palaeolithic context are inevitably seen as intentional, if not notational, while similar cut marks in a Lower Palaeolithic context are usually explained as incidental marks, attributable to some ultimately utilitarian process. A haematite pebble from an Upper Palaeolithic occupation stratum will always be accepted as evidence of pigment use, while its status will be questioned by many if it comes from a Lower Palaeolithic layer. Archaeologists apply these filters in a manner suggesting that they already know what the cognitive or intellectual capacities of hominids were. The truth is that no archaeologist possesses such insight (Bednarik 1992b: 32), therefore the application of different standards to the evidence according to its age is clearly an unscientific practice.

a) Evidence of the Lower and Middle Palaeolithic

In 1969, Bordes reported a rib fragment from the Acheulian of Pech de l'Azé as the earliest engraved object. It was thought to be in the order of 300,000 years old. More recently, several other Lower Palaeolithic engravings have been found: more than four on bone artefacts from Bilzingsleben, Germany (Mania and Mania 1988), one on a small quartzite slab from the same site (Bednarik 1992b: 38), and a set of engraved lines on an elephantine vertebra from Stránská skála, Czech Republic (Valoch 1987). At both these sites, the finds come from strata containing skeletal fragments of *Homo erectus*.

The apparently engraved scoria pebble from Berekhat Ram, Israel, is from an Acheulian occupation layer sandwiched between two basalt flows, the upper one being 233,000 years old (Goren-Inbar 1986). The grooves on it emphasize its natural form of a female torso and head, and it is interpreted as a "proto-sculpture." Since it comes from a sealed deposit, an intrusive origin seems impossible, and the unresolved question of the authenticity of the grooves is not as important as it seems. In view of the pebble's iconic properties it seems more important to confirm that it is extraneous to the site (Bednarik 1989b: 123). That would suggest the presence of the human capacity to recognize three-dimensional iconicity (Davis 1986). It has long intrigued me (as it has Marshack) why figurines that are reputed to be contemporary with, if not earlier than, the first known iconic rock art of Europe (Delluc and Delluc 1978) are so extraordinarily developed. The otherwise inexplicable sophistication of the central European tradition of iconic sculpture (Hahn 1971; Marshack 1976; Bednarik 1989b) is perhaps attributable to a long tradition reaching back to the Acheulian elsewhere. The Berekhat Ram figurine and the possibly Acheulian petroglyphs at Bhimbetka, India (Bednarik 1992e), would tend to support a model of very early symbolic development, as would purely taphonomic and logical dialectic (Bednarik 1992d). The Bhimbetka cupules and those from the circular Mousterian stone object of Axlor, Spain (Barandiarán 1980), may well be cited to support the authenticity of the eighteen cupules on the limestone slab over Mousterian burial 6 at La Ferrassie, France (Peyrony 1934). It has become fashionable among researchers to reject the La Ferrassie cupules, describing them as being "unique" and therefore not capable of being of "symbolic function." While Chase and Dibble (1992) now admit that "unique" phenomena can be "symbolic," the argument was tenuous from the beginning: the rarity of very early evidence is of no statistical significance, particularly once the logic of the taphonomic reduction of sample size in a continually increasing population of symbolic artefacts (Bednarik 1992d: Fig. 1) is taken into account. Moreover, it is obvious that sixteen of the eighteen cupules at La Ferrassie are paired, and paired-ness is a hallmark of Middle Palaeolithic markings, found on Mousterian portable objects as well as in very early Australian petroglyphs. Finally, cupules and similar markings occur at many early sites, they may constitute the earliest rock art form in the Americas (e.g., Parkman 1992, concerning one region), and they

occur in profusion in the oldest rock arts of Australia.

This raises the topic of other forms of very early evidence cited as non-utilitarian in the specialist literature. The literature on pre-Upper Palaeolithic objects that have been suggested to indicate forms of symbolic, or at least non-utilitarian, behaviour is considerably more substantial than some published accounts have suggested. For instance, a common argument is that perforation of small objects is indicative of personal decoration, therefore it proves self-awareness, and it begins with the advent of the Upper Palaeolithic cultures. The contents of the burials at Sungir, near Moscow, are cited as early examples. Yet perforation was practiced as early as the Acheulian, as indicated by microwear traces on Acheulian stone implements (Keeley 1977), and the lack, so far, of surviving Acheulian finds of artificially perforated objects only suggests that most of them were of materials that have not survived. Naturally perforated small objects have been found at both Acheulian (Goren-Inbar et al. 1991) and Mousterian (Marshack 1991: Fig. 5, 6) sites. The Acheulians were accomplished manufacturers of wooden artefacts (Belitzky et al. 1991), and in fact the number of surviving wooden Acheulian remains is considerably greater than the number of surviving Upper Palaeolithic wooden finds (Bednarik 1992b: 38). Moreover, the number of perforated objects of the Middle Palaeolithic is far too great to ignore. It includes the two objects from the Repolusthöhle in Austria (Bednarik 1992b: Fig. 3) which are at least Middle Palaeolithic, but would be 300,000 years old if the dating of the faunal remains is correct; the two perforated canines from the Middle Palaeolithic of Bacho Kiro, Bulgaria (Marshack 1991); thirteen perforated objects from the lower occupation layer of Kostenki 17, thought to be over 38,000 years old (Bednarik 1992b: 35); two perforated Micoquian items from the Bocksteinschmiede, Germany (Marshack 1991); two Mousterian artefacts from La Quina, France (Martin 1907–1910); one from Pech de l'Azé, France (Bordes 1969); and a perforated shell from the Middle Stone Age of Border Cave, Swaziland (Beaumont et al. 1978). In an attempt to offer a utilitarian explanation for perforated objects, Chase and Dibble (1992) mentioned the use of various types of objects with holes by recent Eskimos, as quanging and pulling handles. While this should be considered as a valid possibility, I must emphasize that if perforated teeth of the Middle Palaeolithic are considered to be quangings rather than items of personal decoration, then we should insist that perforated teeth of the Upper

Palaeolithic be so categorized too. The frequent archaeological practice of using different models or criteria to interpret similar phenomena, to reinforce preconceived and substantially unfounded hypotheses about the intellectual or cognitive faculties of early humans is a travesty of scholarship. Similarly, Davidson's (1990) suggestion that the punctured fox canine from the Mousterian levels of La Quina, France, is the result of animal chewing, though he admits that "why an animal would chew a tooth is less obvious!," shows to what lengths some researchers will go to discredit evidence that threatens their theories (cf. Bednarik 1990b: 68, 1992b: 27, on the subject of academic intransigence). Since it is highly improbable that a carnivore would be foolish enough to risk its own canines by chewing teeth, which are totally devoid of any nourishment, one could expect a researcher to present some rather strong observed evidence before offering such a futile explanation (see also Marshack's 1991 response to Davidson).

Another form of frequently cited evidence of possibly non-utilitarian connotations are the many circular, spherical, or discoid objects from pre-Upper Palaeolithic contexts. Some are of Lower Palaeolithic age, such as the finds from Bhimbetka and Maihar (India), Olduvai FLK (Tanzania), Zhoukoudian and Lantian (both China). Others are from Middle Palaeolithic contexts, such as those from La Quina (France), Tata (Hungary), Axlör (Spain), El Guettar (Tunisia), and Nagda (India); for details, see Bednarik 1992b, Bednarik and You Yuzhu 1991.

A number of Mousterian art objects, which are inevitably older than 30,000 years, have been available for many years, and more are found from time to time. Martin (1907–1910) reported a bovid scapula engraved with parallel lines from La Quina, France. At about the same time, Peyrony found a bone with over thirty, mostly parallel, engraved lines in a La Ferrassie Neanderthal burial (Capitan and Peyrony 1921), in addition to a small bone with several transverse notches (Capitan and Peyrony 1912). Kozłowski's Mousterian bone fragment from Bacho Kiro in Bulgaria bears deep zigzag engravings (Marshack 1976). There are the engraved bones from Kebara Cave, Israel (Davis 1974), six more from the Tagliente rockshelter in Italy (Leonardi 1988), and a rib fragment with paired line markings from Cueva Morín, Spain (Freeman and González Echegaray 1983). Engraved bones have also been described by Bouvier (1987) from French Charentian sites, and by Debénath and Duport (1971) from Mousterian sites: one specimen from Petit-Puymoyen,

three from the abri Lartet, Montgaudier, and two from abri Suard, La Chaise de Vouthon. Bone fragments with serrated or notched edges or surfaces which have been interpreted as possibly non-utilitarian have also been reported from various Middle Palaeolithic sites, such as one from Schuilen, Belgium (Huyge 1990), three specimens from Klasies River Mouth, South Africa (Singer and Wymer 1982), and one each from Border Cave, Swaziland (Beaumont et al. 1978) and Apollo 11 Cave, Namibia (Wendt 1974).

Materials other than bone have also been marked by Middle Palaeolithic people of the Mousterian or the African Middle Stone Age. They include the notched antler fragment from Grotte Vaufray, France (Vincent 1988), the engravings on about a dozen ostrich eggshell fragments from Diepkloof Cave, South Africa, and those from the c. 100,000 year-old Howieson's Poort phase in Apollo 11 Cave, Namibia (Beaumont 1992). Incised pebbles are known from several Mousterian sites, including the Solinas and Tagliente shelters and Grotta dell'Alto, Italy (Leonardi 1988), Quneitra, Israel (Goren-Inbar 1990), and from Hungary (Vértes 1965). The engraved lines on both faces of the silicified nummulite from Tata, Hungary (Vértes 1964), are clearly intentional, and this one object would suffice by itself to demonstrate a Mousterian cognition allowing the conscious reaction to natural markings. Finally, even a wooden fragment with engraved lines has been recovered, from the Middle Stone Age of Florisbad, Orange Free State (Volman 1984).

Numerous other Lower or Middle Palaeolithic specimens which I consider to be utilitarian or naturally marked objects are not included in this list, such as various types of marked bones from Cueva Morín, the mammoth scapula from Molodova, the Mousterian or Charentian markings from Tsonskaiia (both Ukraine), the several grooved bear teeth from Sclayn (Belgium), or the 600 marked bone objects from Shiyu (China).

b) The "Oldest" Art

Claims to have located or dated the oldest rock art in the world come from every continent except North America and, obviously, Antarctica. Admittedly, the notion that Brazilian paintings may date from before 32,000 years BP (Guidon and Delibrias 1986) has never been espoused with enthusiasm, and I have even viewed the lesser claim of 17,000 BP for Pedra Furada's rock paintings with some scepticism (Bednarik 1989a). Laminar

exfoliation processes in that shelter and the preservation conditions in the site's sediment strata render the postulated early art unlikely. At another site in Piauí, Toca do Baixão do Perna I, paintings are clearly around 10,000 years old. A fragment of a pigment ball from this site has provided an AMS radiocarbon date of about 15,250 BP recently (Chaffee et al. 1993).

Anati (1986) attributed the "earliest artistic productions in the world dated via the C14 method" to southern Africa, citing Wendt's (1974) finds of portable paintings in Apollo 11 Cave, Namibia, which are about 26,000 to 28,000 years old. However, his suggestion that Tanzanian rock art is more than 40,000 years old, and "is likely to have begun earlier than any other rock art ... the world over" seems to be without support. Much better documented evidence for early art traditions occurs in other continents, and even in Africa there is much older evidence that may be relevant. Ochre mining has a long history there, for example a radiocarbon date of 43,200 BP was obtained from the ochre mine of Lion Cavern in South Africa (Beaumont and Boshier 1972). Africa's earliest evidence of pigment use comes from the Charama levels of Bambata and Pomongwe Caves in Zimbabwe (Klein 1978), which are probably older than 125,000 years. Two lumps of ochre were also found in the Developed Oldowan levels at Olduvai BK II, Tanzania (Leakey 1958), although they lack utilization traces. The earliest finds of striated haematite pebbles, apparently used as crayons to mark rock surfaces, come from Bečov, Czech Republic (Marshack 1981), and Hunsgi, India (Bednarik 1990a), both being of the Acheulian. Ochre has apparently also been used in the Acheulian of Spain (Howell 1966: 129) and France (de Lumley 1966). Rich Acheulian ochre finds occur in the Wonderwerk Cave of South Africa down to the basal Acheulian level, which Beaumont estimates to be about 900,000 years old (Beaumont et al. 1992). In Australia, striated haematite is also found from the earliest known occupation levels onwards (Jones 1985; Roberts et al. 1990). This is not to say that the use of ochre provides conclusive proof of artistic or even "aesthetic" activity, it may have been simply utilitarian. Nevertheless, ochre pebbles with striated wear facets were probably not ground to powder, but rubbed against a rock surface, in the fashion of crayons. They indicate a practice of conscious mark production, and ochre use generally implies conscious colour discrimination and colour preference.

Claims that Indian rock paintings may be up to 40,000 years old (Wakankar 1983) remain without

substantiating evidence. Tyagi (1992) and others have shown that the supposedly Upper Palaeolithic paintings of often green, dynamic figures are preceded by non-iconic arrangements, the "intricate patterns." The anthropic origins of nearly all of the markings on Indian ostrich eggshell fragments of the Pleistocene (Kumar et al. 1988) have been refuted (Bednarik 1992e). Nevertheless, Pleistocene rock art probably does exist, but in the form of petroglyphs rather than paintings (Bednarik et al. 1991), and among them may well be the oldest known rock art in the world (Bednarik 1992e). The notion that Siberian rock art has been shown to be of the Pleistocene has been refuted (Bednarik and Devlet 1992), and the only Palaeolithic art known from China is of the final Pleistocene (Bednarik 1992c).

Until recently, the claims that Australian rock art would be the oldest in the world remained without supporting evidence. Recent direct dating has changed this, but the art concerned is not the painted art of Arnhem Land or Cape York, as had been proposed, it consists of deeply patinated petroglyphs in South Australia. Three sites have now produced direct dates in excess of 30,000 BP, and they are located within a few kilometres of each other. Some of these dates were derived through the controversial cation-ratio method (Nobbs and Dorn 1988), but these correspond reasonably well with AMS radiocarbon dates from the same sites. Three of the four oldest dates currently available,

which range from 36,400 (Dorn et al. 1992) to 45,100 years BP (Bednarik 1992f), are in fact radiocarbon dates, and they are conservative minimum dates: the underlying petroglyphs are apparently older still. The dates were obtained from organic matter concealed under the rock varnish covering the motifs, so they are considered to be minimum ages for the rock art (Fig. 1).

3. Presentation and Interpretation of the Evidence

Most publications on the subject of art origins have made inadequate use of the available evidence, and the cavalier approach of some authors has resulted in inadequately argued and supported hypotheses concerning the beginnings of art or symbolic production, of language, conscious cognition, and human self-awareness. This is particularly evident in the Anglo-American literature, and it is relevant to note Chase and Dibble's (1992) defense when confronted by a corpus of evidence that is significantly larger than they had argued to exist: firstly, they claim that most of the evidence I cited was published after 1987, when in fact nearly all of it had been published before 1986, but often in languages such as Italian, Russian, or German, or in internationally fairly obscure journals. As Jelínek (1993) has recently observed, the linguistic barrier is a frequent obstacle to English-speaking

Fig. 1: Section of engraved pavement at Panaramitee North, South Australia. Pains-takingly executed percussion petroglyph of complex curvilinear design, covered by rock varnish. The varnish within the grooves has been cation-ratio dated to $45,118 \pm 4705$ BP. The varnish covering another petroglyph a few metres away has been minimum-dated by radiocarbon to $43,140 \pm 3000$ years BP. Consequently, these petroglyphs are assumed to be considerably older than 40,000 years, and are currently the oldest dated rock art in the world. The conceptual complexity of the design contrasts with the simplicity of the much more recent Upper Palaeolithic art of Europe, which consists often merely of simple pictures of objects.



researchers. Other arguments of Chase and Dibble (1992) against pre-Upper Palaeolithic symbolism are even more specious: for instance, the argument that quantity of evidence is of any relevance in the area of Palaeolithic symbolism has no logical basis whatsoever. On the contrary, pure logic tells us that there must have been pre-Upper Palaeolithic art, even if not a single specimen were ever found (Bednarik 1992d: Fig. 1). Moreover, essentially Middle Palaeolithic rock art has been found in at least three, possibly four continents and dated in several cases, including by radiocarbon, thermoluminescence, and cation-ratio dating.

Besides the empirical evidence in hand, there are also less direct, but nevertheless forceful arguments against the archaeological myth that "symbolic behaviour," including language and art production, began essentially with the Aurignacian. One concerns the frequent archaeological fallacies about symbolism itself, what it is and how it can be perceived in the archaeological record. The frequently expressed view that the portable and parietal art of the Upper Palaeolithic provides the first evidence of symbolism is most tenuous. A symbol is defined as something that represents (or stands for) something else, and it is often a material representation of an immaterial concept. There is no visually obvious association between a symbol and the entity which it represents, therefore the meaning of any symbolic tradition is only accessible to participants of the culture in question. The outstanding feature of Franco-Cantabrian Upper Palaeolithic art is that, in contrast to all other Pleistocene arts, it displays a high level of iconicity in its graphic art (Bednarik 1993). A likeness of an object, be it two- or three-dimensional, is not associated with the referent through symbolism, but through iconicity. Thus a typically non-iconic art is far more likely to be symbolic than iconic art. The latter is only symbolic when the depiction of an object refers to an abstract concept, such as the name of a person, a deity, etc., rather than simply to the depicted object itself. By contrast, non-iconic objects, such as those "geometric" patterns which precede all figurative rock art in the world (Bednarik 1984, 1986, 1987, 1988a, 1990c, 1993), irrespective of the ultimately iconic origins of such motifs (Bednarik 1988a: 37), are very likely to be symbolic. In other words, the Franco-Cantabrian art body is not related to the origins of symbolism, and a large portion of it should not even be considered as symbolic without supporting evidence (such as semiological reasoning).

Previous discussions of the subjects considered here have usually included comments on funer-

ary practices, inferred rituals, inferred evidence of cannibalism, perceived aesthetics of implements and similarly vague and subjective ideas about the means of assessing hominid cognition, intellect, or perception of the world. More productive possibilities have remained unexplored or inadequately utilized. For instance, there is adequate information available to discuss pre-Upper Palaeolithic human faculties without taking refuge in futile speculations about language ability, religious beliefs, or apparent cultural practices. Even from the Lower Palaeolithic, such consistent information is available. The numerous Acheulian finds of ochre or haematite include striated pebbles, and such pigments were apparently widely used in the Old World. We can safely infer colour discrimination and colour preference from this evidence. There is also adequate proof that hominids of the Lower Palaeolithic possessed the capacity of differentiating between commonly occurring and unusual or exotic objects. They collected quartz crystals (Pei 1931: 120; Bednarik 1988b; d'Errico et al. 1989; Goren-Inbar et al. 1991; also at southern African sites) and they are credited with collecting fossil remains and unusually shaped pebbles at many sites (cf. Bednarik 1992b). The "taxonomizing" capacities demonstrated by these finds are of importance, because without taxonomization (the creation of taxonomies of the object world) it would not have been possible to construct anthropocentric reality – the reality consciously experienced by humans (Bednarik 1992a). Taxonomizing ability is also a precondition for symbolism, and evidence for it is perhaps the earliest proof we have for the emerging human qualities.

Considerably more relevant evidence than has been traditionally considered exists also from the subsequent Middle Palaeolithic. It includes rock art from various continents, and evidence of subterranean mining in Africa, Europe, and Australia (Bednarik 1990d, 1992g). The latter, involving iron minerals (ochres) and sedimentary silicas (cherts, flint), suggests that Palaeolithic (including Middle Palaeolithic) miners were capable of predicting the occurrence and spatial extent of concealed geological features, such as tabular chert seams or alluvial strata. It has been argued that such abilities were not genetically transmitted, that they were culturally acquired, and practically demand the existence of a sophisticated communication system (Bednarik 1994a).

The scenario created by pre-Upper Palaeolithic evidence, particularly that from central and eastern Europe, Israel, southern Africa, India, and Australia, discredits some long-standing and cherished