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ROBERT G. BEDNARIK

THE OLDEST KNOWN ROCK ART IN THE WORLD

ABSTRACT: The question of the earliest currently known rock art is considered from the empirical evidence available. The paper focuses on very early anthropogenic rock markings in central India and reviews these in a global context. The implications of taphonomic logic are considered to show that the most convenient interpretation of the available evidence is not necessarily the most parsimonious.

KEY WORDS: Petroglyphs – Acheulian – India – Cupules – Taphonomic logic

For about a century now – ever since de Sautuola's great discovery, the rock art of Altamira, was posthumously accepted by archaeology – we have been given the general impression that art essentially originated in south-western Europe, and in the Upper Palaeolithic period. Even though the unmasking of Piltdown Man half way through this century had moved the actual cradle of humanity some distance away from England, it was reassuring for Europeans to know that the grand cave art in up to 300 limestone caves of the Franco-Cantabrian region provided the implicit confirmation that human *culture*, at least, originated in their continent. This Eurocentric fantasy has long been a source of considerable national pride, if not a justification for neo-colonialist sentiments. Only in very recent years has it come under sustained critique.

Today it is known that the two main pillars supporting the idea of a European precedence in art origins are both essentially false claims: we have more rock art of the Middle Palaeolithic period than of the Upper, and almost none of it is from Europe. While this does not necessarily disproof the model that sees art as a European "invention", it certainly does shift the focus of attention to other continents. Moreover, some of the famous sites of the Upper Palaeolithic are now being reviewed. For instance, it has been suggested – and with good reason – that much of the famous rock art in Lascaux is not even of the Pleistocene (Bahn 1994).

There can be little doubt that the corpus of Ice Age rock art found in Australia is considerably greater than that of Europe, and yet technologically, Pleistocene Australia is of essentially Middle rather than Upper Palaeolithic technology. Indeed, in Tasmania a typologically Middle Palaeolithic tool industry continued right up to European colonization. This does not suggest, however, that the oldest rock art should be expected to occur in Australia. There is presently no credible evidence that the island continent was settled any earlier than about 60,000 years ago. Palaeoart, which may occur as rock art or as portable art, is older than that in other continents — even in Europe (Bednarik 1995).

By far the most promising continent concerning evidence of early cognitive development of humans is Asia, where seafaring capability was developed before 850,000 years ago, in Indonesia (Bednarik 1997a, 1999, Bednarik and Kuckenburg 1999), and where the most advanced stone tool technology of the Lower Palaeolithic period is found. Southern Asia, in particular, was certainly a hub of early cultural evolution, and yet this continent's Pleistocene pre-History remains severely neglected. For instance, it is obvious that we have literally thousands of publications, books and academic articles about the Ice Age art of Europe, yet there are only two publications addressing Asian Pleistocene art on a pan-continental basis (Bednarik 1994). This, surely, indicates an incredible imbalance, and

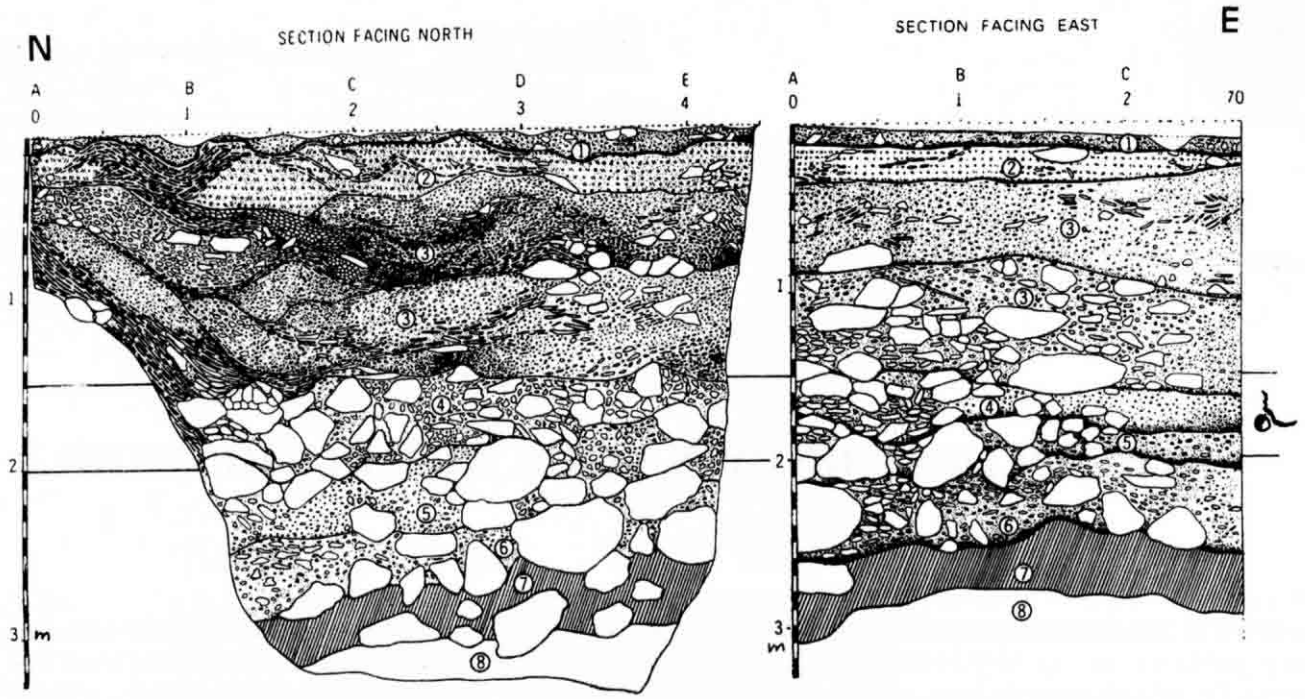


FIGURE 1. The stratigraphy of excavation in trench II N, Auditorium Cave, Bhimbetka, north and east sections. The stratigraphical sequence is recent periods (1), Chalcolithic (2), Mesolithic (3a), Middle Palaeolithic (3b), Upper Acheulian (4), Lower Acheulian (5), occupation hiatus (6), cobble tools (7), bedrock (8), and the stratigraphical location of the two petroglyphs is indicated on the right.

it is precisely one of the main reasons for the persistence of Eurocentric models in this field.

EARLY INDIAN PETROGLYPHS

The oldest currently known rock art in the world is, not surprisingly, in India. It was discovered in 1990 in an excavation in Auditorium Cave, the central site of Bhimbetka, forty kilometres south of Bhopal. Bhimbetka is a complex of 754 numbered quartzite rockshelters of which about 500 contain rock paintings, attributed to the Mesolithic and various later periods. It was first studied by the late Professor V. S. Wakankar in the 1970s, who began excavations in Auditorium Cave, the central main site (Wakankar 1973, 1975, 1978, 1983, 1987, 1988), while Professor V. N. Misra dug in the adjacent Misra's Shelter, as I named it (V. N. Misra 1977). Both sites yielded a Holocene uppermost layer comprising a sequence of cultures, followed by substantial Pleistocene deposits. The Upper Palaeolithic is poorly represented or altogether missing, but another nearby site contained a human burial of that period, with ostrich eggshell beads in its neck region. There are substantial Middle Palaeolithic occupation layers in Auditorium Cave, solidly cemented by calcite deposition, which means that the possibility of any post-depositional disturbance of the strata below can safely be excluded. Below this 60 cm thick Middle Palaeolithic breccia occur two distinct layers of Acheulian, then follows a sterile deposit containing pisoliths, and finally a basal sediment comprising a chopping tool industry (*Figure 1*). It is thus evident that this one site probably contains a sequence representing the entire history of human occupation of central India. In fact, Auditorium Cave was only the second Acheulian primary site excavated in India (Bose, Sen 1948).

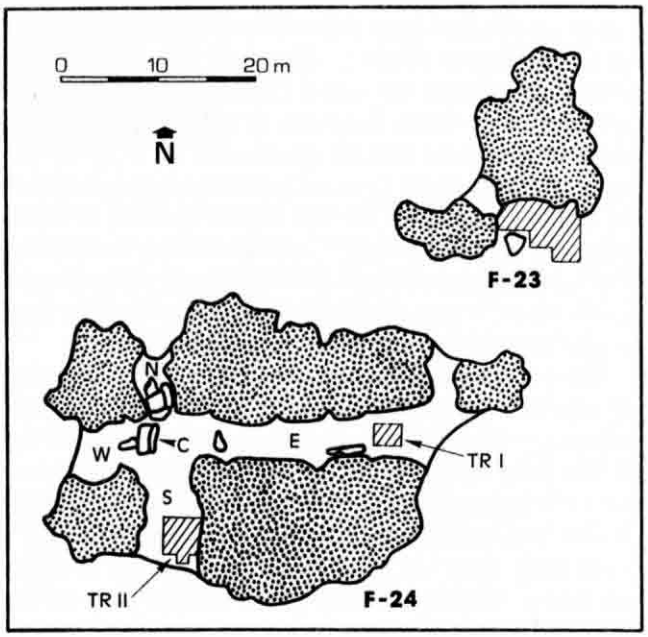


FIGURE 2. Sketch map of Auditorium Cave (F-24) and Misra's Shelter (F-23), Bhimbetka, showing the locations of the three excavation trenches and Chief's Rock (C). The petroglyphs occur on Chief's Rock and in Trench II.

FIGURE 3. East face of Chief's Rock, Auditorium Cave. The large western entrance of the cave is visible in the background.

In plan view, Auditorium Cave resembles a cross, its four passages coinciding with the cardinal points (*Figure 2*). In the very centre of this layout stands a three-metre-high rock slab weighing perhaps in the order of 40 tons. The flat panel of this vertical slab faces the main entrance squarely and has the appearance of a megalithic structure, entirely commanding the topography of the cave and accentuating its cathedral-like atmosphere (*Figure 3*). The rock's placement, however, is perfectly natural, it fell some twenty metres from the roof of the cave and came to rest in its conspicuous position through simple gravity (Bednarik 1996). It has been named Chief's Rock by Indian archaeologists, ostensibly a reference to its pulpit-like appearance. Its flat face bears some faint traces of red paint residues, and a total of nine randomly distributed cupules (*Figure 4*). These cup-shaped, hemispherical markings have been hammered into the extremely hard rock to depths ranging up to 13.4 mm (*Figure 5*). The cave was formed in a heavily metamorphosed quartzite that has been quarried extensively for stone tool manufacture, especially in Misra's Shelter. Indeed, most Acheulian handaxes and cleavers found at Bhimbetka are made from the local, pinkish-brown quartzite (*Figure 6*).

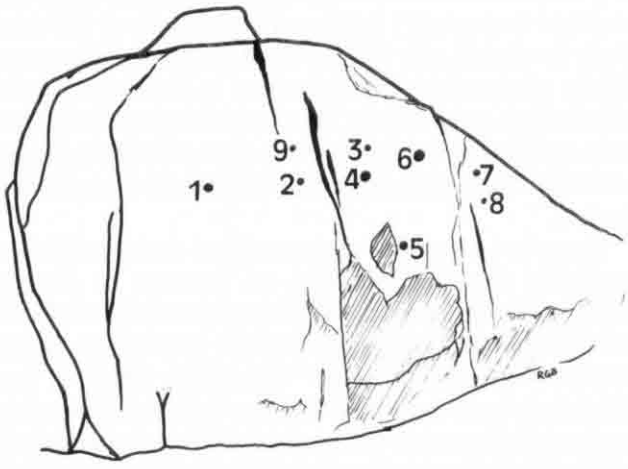


FIGURE 4. East face of Chief's Rock, showing the distribution of the cupules numbered 1–9.

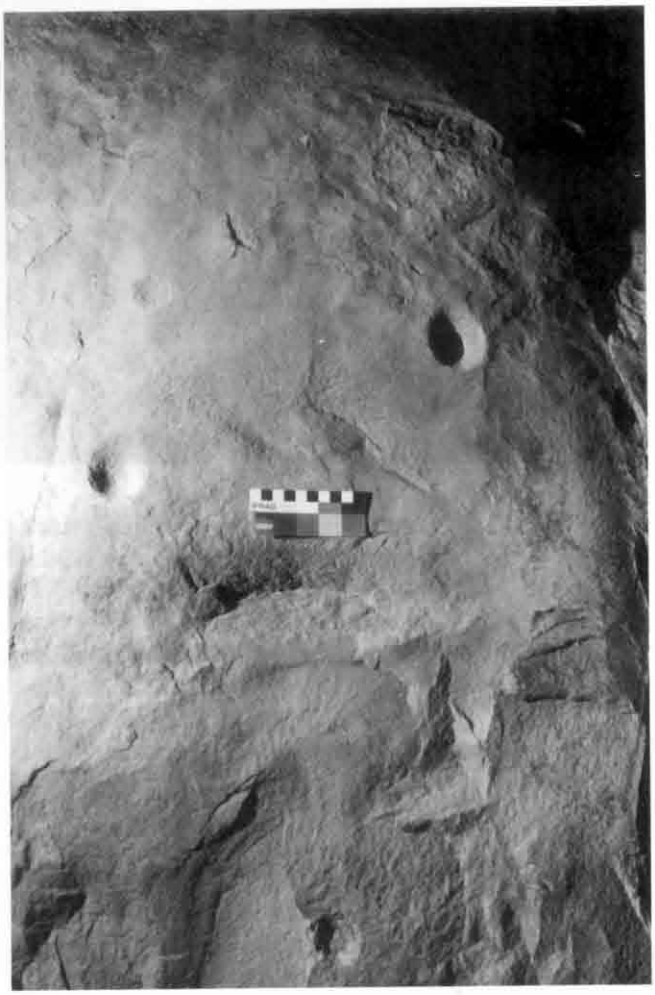


FIGURE 5. Four of the cupules on Chief's Rock (Nos. 3–6).

FIGURE 6. Acheulian handaxe found about 30 cm above the Acheulian petroglyphs in Auditorium Cave, Bhimbetka, India. The artefact was found so tightly wedged into the bedrock crevice that it has not been removed.

FIGURE 7. The two Acheulian petroglyphs in Trench II, Auditorium Cave, Bhimbetka.

A few metres to the south and below of Chief's Rock I discovered two further petroglyphs on a large boulder exposed by excavation, more than 1.5 metres below the floor of the cave (Bednarik 1993a). One is another cupule, the second a circuitous, hammered line that wraps around part of the cupule's periphery (*Figure 7*). Both markings occur about 30 cm below the Middle Palaeolithic breccia deposit, i.e. within the upper Acheulian stratum, and they were hammered deeply into the exceptionally hard rock. Their Acheulian age is demonstrated beyond any reasonable doubt by their location within the occupation deposit of that period, and by the highly compact, carbonate-cemented nature of the stratum above it. The cupule is almost perfectly circular and hemispherical, measuring between 78 and 80 mm diameter and it is 14.1 mm deep. The linear petroglyph associated with it spatially and contextually averages a width of about 9 mm, a depth of 4 mm and it measures 235 mm end to end, but when stretched to a straight line has a total length of 295 mm along its central axis (*Figure 8*). Both petroglyphs were clearly produced by impact and are as weathered as the surrounding rock surface. The Archaeological Survey of India has now re-buried them for their protection, in the course of developing part of the Bhimbetka complex for tourism.

There is no credible archaeometric dating evidence available from Bhimbetka, an attempt to secure microerosion data from one of the cupules on Chief's Rock merely suggested an age of "many tens of millennia, easily in excess of 100,000 years" (Bednarik 1996). It has sometimes been suggested that the Indian Acheulian is comparatively recent, but most of the latest attempts of radiometric dating suggest that it is largely beyond the limit of the thorium-uranium method (350,000 years).

Exceptions are one of the molars from Teggihalli (of Bos, 287,731 + 27,169/ – 18,180 $^{230}Th/^{234}U$ years BP) and one from Sadab (of Elaphus, 290,405 + 20,999/ – 18,186 BP) (Szabo *et al.* 1990). However, an Elaphus molar from the same deposit of the former site is over 350,000 years old. Other dates beyond the limit of $^{230}Th/^{234}U$ dating have been reported from Didwana, Yedurwadi and Nevasa (Raghvan *et al.* 1989, Mishra 1992).

On present indications, the Middle Palaeolithic seems to have begun in India prior to 170,000 years ago, and continued to about 30,000 or 35,000 years BP. At Didwana (V. N. Misra *et al.* 1982, V. N. Misra *et al.* 1988, Gaillard *et al.* 1986), thorium-uranium dates for calcrete associated with Middle Palaeolithic industries (V. N. Misra 1989) range from 144,000 years upwards, and their validity is reinforced by a thermoluminescence date of 163,000 ± 21,000 from just below the level dated by $^{230}Th/^{234}U$ to 144,000 ± 12,000. At the upper end, carbon isotope dates as young as 31,980 + 5715/ – 3340 (Mula Dam, Ma.) and 33,700 + 1820/ – 1625 (Ratikarar, M.P.) have been reported for Middle Palaeolithic horizons in Uttar Pradesh (V. D. Misra 1977: 62).

The only hominid fossil of Asia found between the Middle East and Java, the Narmada skull (*Figure 9*), was recovered at Hathnora, about sixty kilometres from Bhimbetka (de Lumley, Sonakia 1985). Having examined this partially preserved cranium I consider it to be of an archaic *Homo sapiens* with pronounced erectoid features. Its cranial capacity of 1200–1400 ccm is conspicuously high, especially considering that this is thought to be a female specimen. At perhaps 200 ka it is likely to relate to the late Acheulian, although it must be cautioned that dating of the specimen is not conclusive at this stage.

The markings in Auditorium Cave were discovered shortly after I also found the first petroglyphs ever reported from central India, at Raisen, north-east of Bhopal (Bednarik *et al.* 1991). Since then, my Indian colleagues

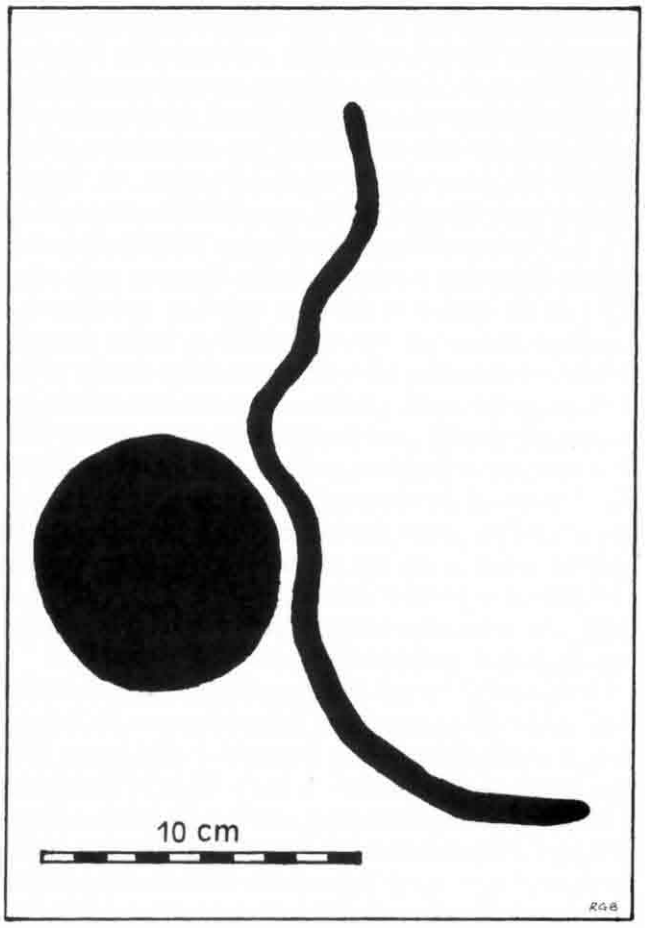
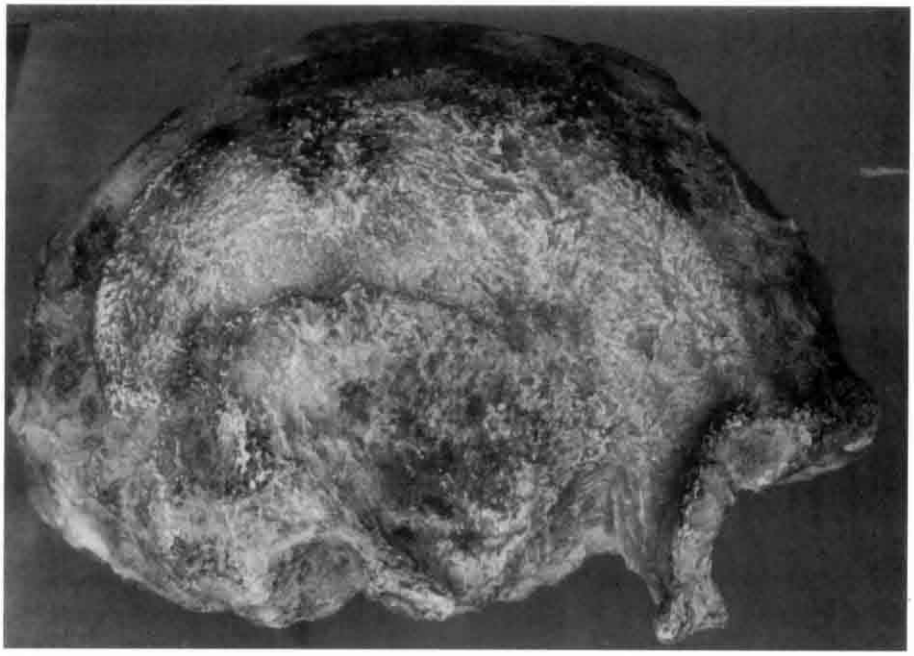


FIGURE 8. Recording of the two Acheulian petroglyphs in Auditorium Cave.

FIGURE 9. The Narmada hominid cranium.



have located several more sites of apparently Pleistocene petroglyphs in Madhya Pradesh and Rajasthan. These are in most cases also cupules, although groups of parallel lines and circles have been reported as well. More recently Dr Giriraj Kumar has announced the occurrence of 498 cupules on the two walls of another quartzite cave, Daraki-Chattan in the Chambal valley, some 250 kilometres almost due north-west of Bhimbetka (Kumar 1996). In this cave, Middle Palaeolithic and even Acheulian stone tools occur right on the surface of the floor sediment, and there is a complete absence of more recent lithics within the cave. While this obviously does not demonstrate the age of the rock art on the walls, a Lower or Middle Palaeolithic age is certainly possible, not least because it has already been demonstrated in Auditorium Cave. Dr K. K. Chakravarty, the Director of the National Museum of Man in Bhopal, and I have proposed that an international committee be formed to assess the age of the Daraki-Chattan cupules and those at other sites, and this may take place in 2001 or 2002. The committee will consist of about a dozen Indian and Australian archaeometrists and other specialists.

Some further central Indian petroglyph sites that have been attributed to unspecified Palaeolithic periods, besides Raisen and Bhimbetka, are Bajanabhat (Kalapahad Hill) and Bairat in the northern Aravalli Hills of Rajasthan, Kanyadeh in the Parvati valley, and Morajhari in the district of Ajmer, Rajasthan (Kumar, Sharma 1995, Kumar 1998). At some of these sites, Palaeolithic tools do occur, and in the granite shelter Bajanabhat 1, Acheulian and Middle Palaeolithic implements were again found at the surface. While these sites certainly require further investigation before the Pleistocene age of their petroglyphs can be accepted, the preliminary finding is that there exists an extremely early petroglyph tradition in India, dominated by cupules.

PLEISTOCENE CUPULE TRADITIONS

The perhaps most significant observation to be made is, however, that the earliest known rock arts of most if not all continents are also dominated by cupules. The oldest known rock art of Europe are the eighteen cupules that were found hammered into the underside of a large limestone slab placed over the grave of a Neanderthal juvenile in the cemetery of La Ferrassie, France (Peyrony 1934). Sixteen of them are arranged in pairs. Cupules have also been found at other sites of the late Mousterian (Leonardi 1988) and at sites of the period connecting the Mousterian with the Early Aurignacian of south-western Europe (Châtelperronian, Périgordian – de Beaune 1993, Lalanne, Bouyssonie 1946), as well as from more recent Palaeolithic sites, e.g. of the Magdalenian.

In Australia, cupules are well known to be the earliest form of rock art (Bednarik 1993b, Chaloupka 1993, McNickle 1993, Taçon *et al.* 1997, Welch 1993). While those of the Jinmium site in Northern Territory are certainly not of the age reported a few years ago (Fullagar *et al.* 1996), and in fact belong to the Holocene (Gibbons 1997, Roberts *et al.* 1998), it is nevertheless true that the oldest forms of rock art, especially across the north of the continent, are consistently arrangements of cupules. This is particularly clear in the Pilbara region of north-western Australia, where microerosion analysis has recently provided secure Pleistocene dating for this tradition (Bednarik in prep.). Cupules precede any other form of rock art, often by direct superimposition, and extreme forms of them occur in the Pleistocene cave art of southern Australia.

In Africa, the antiquity of rock art remains largely unresolved, but cupules occur commonly, from the Sahara to South Africa. Apart from an archaeologically derived minimum age of about 6,300 years for a panel in the Chifubwa Stream Shelter of Zimbabwe (Clark 1958: 21), their chronological position remains unknown. It must be emphasized that cupules as such are certainly not indicative of great age. On the contrary, they occur commonly in most petroglyph traditions of the world, and in many regions they are also among the more recent rock art forms known. This applies for instance in much of Europe, in India, Mexico, Australia and east Africa. Their ethnographic use has been observed and described from various regions, including in Kenya (Odak 1988) and northern Australia (Mountford 1976). Cupules are indeed the most numerous of all petroglyph motifs in the world.

But even in the Americas, where evidence of Ice Age rock art remains extremely sparse – and limited to the very end of the Pleistocene – it is widely accepted that cupules are among the first petroglyphs known. "Pit-and-groove" marks form the earliest petroglyphs in the Great Basin of North America (Heizer, Baumhoff 1962) and on the west coast (Parkman 1992). Cupules occur in much of North America, but they are especially common in the west (Baumhoff 1980, Nissen, Ritter 1986). They are found in Mexico (Mountjoy 1987), and a cup-and-groove boulder has been reported from Panama (Stone 1972: 101).

Corresponding patterns can also be observed among the most archaic petroglyphs in South America (Bednarik 1989). The oldest "dated" petroglyphs of that continent, simple lines, are apparently in excess of 10,000 years old, in Cueva Epullán Grande, western Argentina (Crivelli M., Fernández 1996), and cupules occur at the same site. The deeply hammered and heavily weathered dense cupules on the granite boulders at Lungumari Puntilla, southern Peru (Parkman 1994), may also be of considerable age. As in North America, cupules occur in many parts of the continent, but they are generally not dated. Occurrences include those in Guyana, Surinam, Chile and Argentina (Dubelaar 1986). Cupule sites of Bolivia have recently yielded the first "direct dating" results from any South American rock art. The first such information is being published from Inca Huasi, near Mizque (Bednarik 2000), to be followed by rock art age estimates acquired from four more central Bolivian cupule sites.

TAPHONOMIC LOGIC

In short, there appears to be a worldwide pattern in the occurrence of the earliest rock art. It seems to indicate a great uniformity not only in rock art evolution, but in the specific forms that occur in the earliest phase of rock art production. In addition to cupules and simple linear markings, other very early petroglyphs also show formal similarities: circles and multiple circles, "trident" designs (often called "bird tracks", but best described as convergent lines motifs), zigzags and wave lines, multiple arcs and maze designs are widespread, and often found with lithics of essentially Middle Palaeolithic technology (Bednarik 1994b). But perhaps the most pertinent uniformity is the consistent precedence of cupules, which satisfies the logic of those who look for evolutionary progress in motif designs: the earliest ought to be the simplest. We thus seem to arrive at the conclusion that very early petroglyph traditions were culturally very uniform across several continents.

This appearance is particularly reinforced when we consider how this pattern contrasts with that of more recent rock art traditions, those of the final Pleistocene and the Holocene. Wherever one looks, there is a proliferation of different genres, in terms of style, method and distributional characteristics. While the archaic petroglyphs are without exception deeply pounded or incised, simple designs of great uniformity, matching in many ways those of the other continents, more recent art traditions differ greatly from one region to the next. This is such a strong universal, almost global pattern that one is tempted to assume the existence of considerable cultural uniformity among the early cultures, followed by cultural divergence and diversity, particularly with the appearance of colourful painting traditions towards the end of the Pleistocene. Indeed, all rock painting traditions of the Pleistocene seem to occur in well protected places, such as deep limestone caves which experience almost no weathering, or under silica skins in stable sandstone shelters, and this has been interpreted as a preference for certain sites. Distribution is thus seen as a cultural factor: the art occurs in deep caves because it was religious, and if any evidence contrary to this popular belief is found, it is explained away. For instance, most of the Pleistocene human footprints found on the cave floors in Europe are from juveniles, and most of the finger flutings on cave walls in both Australia and Europe were made by children. To the believers this simply means that the youngsters attended initiation rituals. This is the accommodative way in which orthodox archaeology explains everything in accordance with preconceived dogmas.

It is easy to fall victim to a persuasive combination of empirical data and the consistent deductions drawn from them. Practically all archaeological interpretation is based on "recognition" of trends and patterns in the evidence, often reinforced by pigeonholing of the raw data or evidence, and their interpretation in accordance with intuitive logic. In my present example, this is probably a deceptive deduction. Far from advocating the view that cupules and simple linear markings represent the oldest rock art made, I emphasize that taphonomic logic implies the precise opposite. It is not necessary to rehearse here the concepts of *metamorphology* as they pertain to rock art (Bednarik 1994c, 1995), but I will briefly repeat some underlying rationales. Cupules are usually the deepest pounded petroglyphs we know of, so they are also among the most deterioration resistant. Taphonomic logic demands that any physical characteristic of rock art that may conceivably favour its longevity *must not be considered to be culturally significant*: it must not be seen as defining any artistic preference of technique, style, location or medium. In other words, if the oldest art being found in a region happens to be of a type that is most likely to survive the longest, then there is only a very slim chance that it is indeed the oldest art historically made in that region. It is simply the type of art that had the best prospects of surviving. Indeed, we have evidence that Acheulian people in both India and Europe used pigment pebbles to mark rocks hundreds of thousands of years ago (Bednarik 1994b), but we have not found any trace of such drawings, nor are we likely to ever find any of them. The probability that such markings could have survived is almost nil.

Moreover, the effort of producing deep petroglyphs is considerably greater than that of marking a rock surface with a crayon, and the earliest intentional, non-utilitarian rock markings were probably produced with *little* effort. If we see the occurrence of cupules in the oldest known art in this light it becomes obvious that they are *most unlikely* to have themselves been the oldest art ever produced. The longevity of various forms of rock art (in terms of pigment type, groove depth, location, even motif type) differs enormously, and even more so in differing environmental conditions (geology, moisture, pH, climate). Practically all the variables of such art affect its selective survival, and practically all surviving samples are thus distorted systematically. For instance, painted rock art rarely survives for many millennia, except haematite paintings in sandstone shelters, or paintings preserved by unusual conditions (under silica skins, or in deep limestone caves). Similarly selective deterioration processes apply to petroglyphs. In unsheltered positions, they can only survive from the Pleistocene if they are on exceptionally weathering-resistant rock, or are very deep, or are preserved under some form of case hardening (such as rock varnish). Clearly some types of rock art have vastly greater chances of survival than others, and they are the ones most likely occurring among the oldest surviving traditions. To then assume that they are *typical* of the tradition in question would be illogical, just as it would be to assume that the oldest rock art found in an area represents the oldest tradition that existed there. Almost universally, this should logically be expected to be false.

DISCUSSION

The global pattern I have described among the archaic petroglyph traditions of all continents is in all probability the result of both cultural and non-cultural factors. It must be cultural in the sense that rock art can only survive if it was made in the first place. But the most important interpretational factor is the taphonomic truncation which age imposes on any corpus of rock art. All "samples" of rock art are taphonomically skewed, and the extent of this distortion clearly increases with age. Therefore the archaeological practice of treating physical evidence as random samples of whatever activity it is thought to refer to is a fundamental error, and one whose distorting influence increases linearly with the age of the evidence.

Cupules were no doubt made very early, beginning with the upper Acheulian of India, on current indication perhaps some time between 400,000 and 200,000 years ago. But it would be very wrong to draw the simplistic conclusion from this evidence that this was a tradition that produced only, or primarily, cupules. What the cupules do demonstrate, firstly, is the existence of a developed tradition of symbolism, which is likely to have included many other forms of expression. But taphonomic logic, the most powerful theoretical tool ever developed in archaeology, is also capable of telling us that the probability of this artistic tradition having been one of only cupules and other deep petroglyphs is almost nil. This is because it would be an incredible coincidence if the first rock art made was also the most deterioration resistant. It is far more logical to assume that the oldest surviving rock art survived because it was the most deterioration resistant.

Moreover, there is ample other evidence of high cultural sophistication in the Lower Palaeolithic period, contemporary with and even preceding the earliest cupules we know about. We have known for decades that *Homo erectus* crossed the open sea to colonize several islands, and the early estimates that this occurred up to 830,000 years ago have now been confirmed by different research teams, using different dating methods (Sondaar *et al.* 1994, Bednarik 1997b, Morwood *et al.* 1998). Thus *H. erectus* clearly possessed language and technological sophistication. We know that 400,000 years ago, European hominids made aerodynamically designed hunting spears (Schöningen; cf. Lehringen, Bad Cannstatt, Kärlich, Torralba, Clacton-on-Sea), and subsequently they produced portable engravings (Bilzingsleben, Germany). I have shown that the beads and pendants we have from the Lower Palaeolithic involved not only very sophisticated technologies in their making, but even more sophisticated cognitive and social systems (Bednarik 1997c). They include ostrich eggshell beads of the Acheulian, so the cupules from the same period are not at all unusual or unexpected. They are perfectly consistent with what we know about these hominids, and have known so for some time. After all, with seafaring capability by 850,000 years ago we should assume that language is at least as old, and language certainly is a system of symbols. Whatever non-utilitarian cupules meant at any time in human history, they were an integral part of some symbolic system. They are the oldest artistic monuments of hominids that deterioration processes have left for us to see.

It is worth noting here that portable art objects of several hundred thousand years have been excavated at various sites, including even in Europe (Bednarik 1995, 1997b). Therefore it is quite likely that rock art was produced also in these early times, 300,000 or 350,000 years ago. Our record of Pleistocene art is simply far too fragmentary to be able to identify the oldest art tradition, or even just the oldest surviving art tradition. The developments that led to art remain shrouded in mystery, we do not know what these processes were or even how their products could be reliably detected in the archaeological record. There is no clear-cut differentiation between what we might call art, and earlier activity traces that may have led to such art. The latter might have led to an increasing consciousness of physical reality and to a cognitive feedback on the visual impact of mark production. All we can say at this stage is that the origins of art remain lost in the mists of time, but the Upper Palaeolithic cave art or movable art of Europe most certainly did not play any important role in this respect. The origins of art are to be found in the Lower Palaeolithic period, and most probably in one of the main theatres of hominid evolution – either in Asia or Africa.

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Robert G. Bednarik
International Federation of Rock Art Organizations (IFRAO)
P.O. Box 216
Caulfield South, Vic. 3162
Australia
E-mail: robertbednarik@hotmail.com