

The nature of Australian Pleistocene rock art

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Abstract: *The corpus of known Australian rock art of the Pleistocene is thought to be many times the size of that of any other continent. However, it has so far been inadequately defined or characterised, and its study as a specific phenomenon has been almost completely neglected. The historical reasons for this are explored and it is endeavoured to present a preliminary inventorial outline of the massive corpus of Australian Ice Age rock art. The lack of formal criteria for recognising such palaeoart as well as the lack of credible age estimates and some dating controversies have contributed to the general lack of knowledge about this corpus, as have archaeological misconceptions about perceived styles. The general characteristics of Australian Pleistocene rock art are explained and illustrated.*

Introduction

Some of the most popular assumptions about Pleistocene rock art are (a) that it defines the birth of art-like productions; (b) that it is largely a phenomenon found in limestone caves, and thus related to some cultic activities connected with such sites; (c) that it was of great cultural importance to its creators and is somehow connected with their religion; (d) that it is essentially a phenomenon of the Upper Palaeolithic period; and (e) that it is a phenomenon primarily of south-western Europe. The most interesting aspect of these characterisations is that all of them are apparently falsities:

(a) Art-like or symbolic productions/objects called palaeoart begin with the Lower Palaeolithic period in the form of portable engravings, petroglyphs, proto-figurines, beads and pendants, manuports and pigment use. Consequently such materials do not begin to appear 30 or 40 ka ago, but at least ten times as long ago (Bednarik 2003).

(b) The location of Pleistocene rock art in caves is of no interpretational consequence; it is a taphonomic phenomenon. Moreover, most surviving Ice Age rock art occurs out of caves.

(c) Much if not most of the Franco-Cantabrian cave art, by far the most thoroughly studied such corpus, was made by children or youths, and there is no credible evidence that any of it was made by adults. Most human tracks in these caves are by young people, as are all hand stencils and most finger tip markings and most finger flutings (Bednarik 2008a). Therefore there is empirical support that the art may express the concerns of adolescents, and there is no such support for seeing it as a primarily adult art.

(d) The body of Australian rock art attributed to the Pleistocene is many times the size of that of Europe, but in Australia it belongs entirely to Mode 3 technocomplexes (i.e. "Middle Palaeolithic" traditions); therefore globally the surviving Pleistocene rock art is mostly a Mode 3 phenomenon (*sensu* Foley and Lahr 1997).

(e) The known Pleistocene rock art of Europe comprises several thousand motifs. The presumed Pleistocene rock art in the rest of the world dwarfs this number significantly. In Australia alone, it may be in the order of a million motifs.

It follows that what we have been indoctrinated by for over more than a century is essentially a mythology that is in urgent need of correction before a balanced investigation of global Pleistocene rock art can even be commenced. This is greatly hampered by the incredible disparities in the available published record. Whilst we have many thousands of books and articles, both academic and non-academic, about the Franco-Cantabrian rock art, numbering well in excess of actual art motifs, the rest of the world remains largely unexplored in this respect. For instance in Asia, we have a single publication addressing the topic on a pan-continental basis (Bednarik 1994a); in Australia the situation is no better; and in Africa, the subject has not been considered at all in such a format. Thus the distortion is such that this subject cannot be regarded as having been addressed in any credible fashion until now, and this conference will be a failure if that state of affairs were to persist into the future. Such an imbalance would not be acceptable in any scientific field, and it should not be accepted here.

In a small contribution to improving this state of inadequate information, the continent of Australia will be considered here. Globally, taphonomy has ensured that only two forms of rock art are capable of surviving from the Pleistocene: paintings and petroglyphs in highly protective environments (i.e. in deep caves); and very deep petroglyphs on open sites of extremely weathering-resistant rock types, especially in arid and semi-arid regions. The oldest rock art so far found occurs in places meeting both these variables: deep petroglyphs in quartzite caves in India.

This simple rule renders it easy to spot false claims, but it also facilitates an initial appreciation of which rock art occurrences are likely to be of the earliest periods. Cave art that is thought to be of the Pleistocene remains at this stage limited to SW Europe and southern Australia; open-air rock art of such antiquity has been demonstrated from southern Africa, India and from Australia. In all cases the latter is limited to deeply pounded percussion petroglyphs on very resistant rock, such as well-metamorphosed quartzite, and to very dry climates. The forms these very early petroglyphs occur in are generally non-figurative, and they are limited to a fairly restricted range of motif forms that, interestingly, show significant global similarities. This palaeoart is dominated by cupules, linear grooves, circles, convergent lines motifs (the latter are prominent also in MSA mobiliary art) and, in Australia, a repertoire of circle mazes and variations.

Dating of early Australian rock art

Although the idea of Pleistocene rock art in Australia was first mooted within a few years of the general acceptance of such antiquity in Europe (Cartailhac 1902), very little progress has been made in this area during the subsequent century. Herbert Basedow developed these ideas in the first decade of the 20th century and eventually argued cohesively in their favour, presenting several scientific observations to support the proposition (Basedow 1914). The lack of subsequent progress was initially curtailed by the archaeological perception that indigenous Australians had only arrived there recently, within the last few millennia. By the 1960s this view was conclusively refuted when the first archaeological evidence of a Pleistocene occupation of Australia by humans became available in 1962. John Mulvaney secured a radiocarbon date of about 16 ka from an occupation layer in Kenniff Cave, southern Queensland (Mulvaney and Joyce 1965). Since then, many more dates for human presence ranging up to 50 or 60 ka have been reported from

various parts of the continent. The first attributions of rock art to the Pleistocene, however, took almost another two decades to appear, first reported simultaneously from a sandstone shelter (Rosenfeld 1981) and a limestone cave (Bednarik 1981). In both cases there are challenges to these results. The archaeological minimum dating at Early Man Shelter (Fig. 1) was queried by Cole and Watchman (2005), the direct dating at Malangine Cave (Fig. 2) by Bednarik (1999) himself. Nevertheless, there is a variety of circumstantial evidence requiring a Pleistocene age for several occurrences of Australian cave art (Bednarik 1990). For instance, the finger flutings and other petroglyphs in Koongine Cave precede the ceiling collapse about 10 ka ago; and the markings in Koonalda Cave (Fig. 3) must be in excess of 15 ka old as there is no more recent occupation evidence and the site may then have become inaccessible in the final Pleistocene due to subsidence of the sinkhole entrance. In Yaranda Cave, some of the rock art precedes megafaunal scratch marks, when the Australian megafauna is believed to have become extinct between 20 or 40 ka ago. The cave art of Orchestra Shell Cave, too, precedes a subsidence that occurred either in the early Holocene or earlier; and the rock art of New Guinea 2 Cave also may be related to a final Pleistocene occupation. Other evidence suggesting such age for cave petroglyphs is their sometimes close resemblance of Tasmanian petroglyphs, and if they derive from related traditions it must be remembered that Tasmania became sundered from the mainland around 12 ka ago.

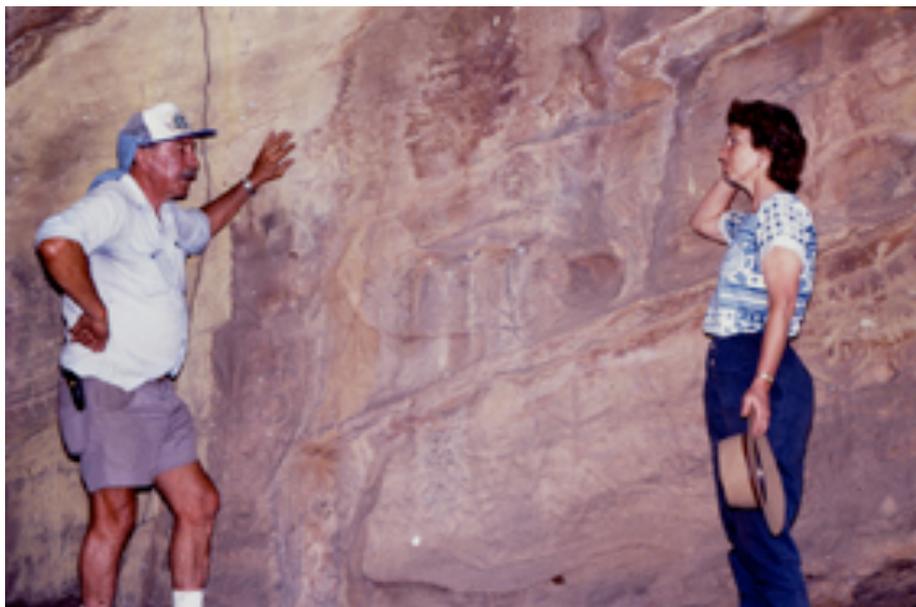


Fig. 1. Some of the first-dated rock art in Australia, Early Man Shelter, Cape York Peninsula, with re-discoverer Percy Trezise and archaeologist Andrée Rosenfeld in 1991.



Fig. 2. Pleistocene petroglyphs on the ceiling of Malagine Cave near Mt Gambier, at the re-discovery in 1980.

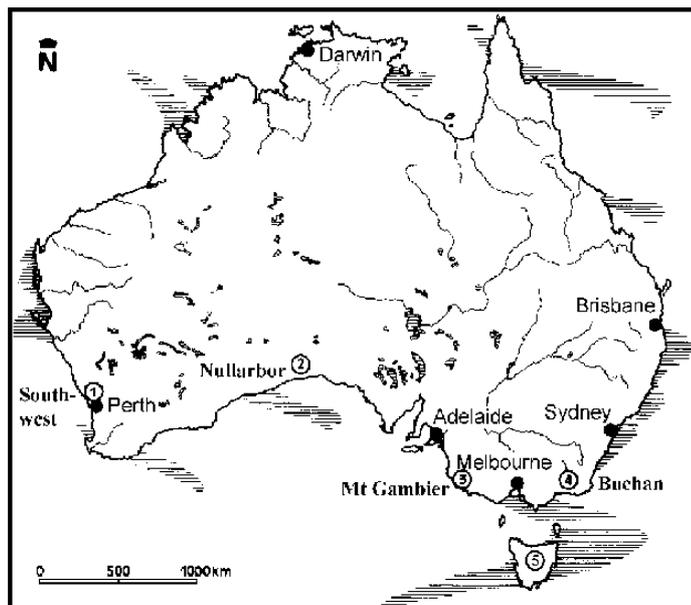


Fig. 3. Map of Australia showing the distribution of cave art concentrations along the south coast.

Better direct dating evidence has been reported from sites in the extensive Abydos and Spear Hill petroglyph complexes of the Pilbara region (Bednarik 2002). A large series of engraved dates at Spear Hill Site 7 made it possible to create a microerosion calibration curve for the region, which was then applied to a random selection of petroglyphs at the two complexes, which represent one of the largest concentrations known. The motifs were simply selected by their traditional custodians (Fig. 4), and it was clear that there were significantly older petroglyphs at some of the several dozen sites concerned, for instance cupule panels. The oldest age determination was in the order of 28 ka, and there is no doubt that greater ages were represented in some cases.

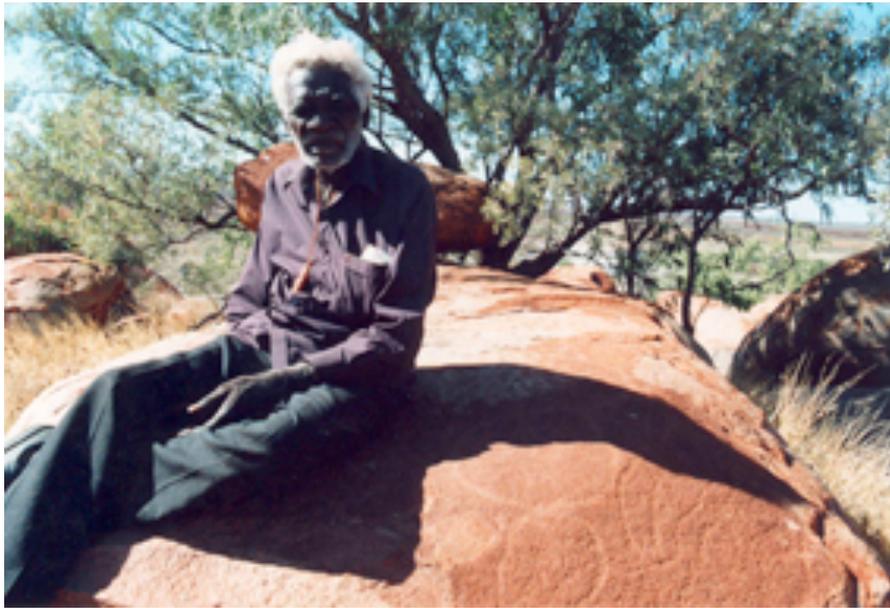


Fig. 4. Traditional custodian seated next to curvilinear maze petroglyph that is roughly 20,000 years old, and whose meaning he knows, eastern Pilbara.

Another tentative age estimation by direct means places the earliest petroglyph panels at the open-air site Sacred Canyon in the Flinders Ranges in the final Pleistocene (Bednarik 2010). Here, petroglyphs on two vertical cliffs extend up to 7 m above the present floor and co-occur with mid-Holocene motifs (Fig. 5). Their height demands that they were either made from scaffolding, or that there were major fluctuations in floor level (Fig. 6).



Fig. 5. Pleistocene and Holocene petroglyphs in Sacred Canyon, Flinders Ranges.



Fig. 6. Some of the Sacred Canyon petroglyphs, showing the Pleistocene component extending up to 7m above the floor.



Fig. 7. Silicified Pleistocene wasp nest over which white and red paint has been applied very recently, showing that spatially related dating evidence may be misleading, Cape York Peninsula, in 2010.

Previously, it has been recognised that paint residues protected by oxalate accretions can also survive from the Pleistocene (Watchman 1990, 1992a, 1992b, 1993, 2000), but on the whole there have been rather few attributions of Australian rock art to the Ice Ages. It has also been recognised that some of the direct dating methods have significant limitations, and many scientific age estimations can lead to errors in their interpretation. There are numerous examples of archaeological misinterpretation of analytical results, many of which are discussed in Bednarik (2010). A recent cautionary experience from the author's current work is the case of a site in northern Queensland, where a sheltered rock painting has been executed

partly covering a silicified wasp nest (Fig. 7). This spatially related feature has yielded a carbon isotope date of $15,720 \pm 90$ years bp (Beta-278167), which effectively is a conservative maximum age. However, the painting is clearly very young and thought to be about 120 years old, depicting a European human, and occurring in the context of a major "contact site" (this refers in Australia to the period after European colonisation). This shows how easy it is to draw false conclusions from direct dates: unless they refer to the actual target event (*sensu* Dunnell and Readhead 1988), they can be, and often are, severely misleading.

But it is also fair to say that Australian researchers have shown limited inclination to prematurely attribute Pleistocene ages to younger rock art. This restraint stands in stark contrast to the many hundreds of claims from across Eurasia, from Portugal to China, many of which are without basis. While the Australian moderation is no doubt commendable, to be realistic it is also likely to limit our perception of the extent of early traditions. Here it is perhaps relevant to examine the background for these reservations.

The Panaramitee conundrum

Since the 1970s and 1980s, there has been another retarding factor in the study of Australia's earliest rock art, the rise of Maynard's (1979) tripartite model of three sequential styles or phases. These were, in purported order of appearance, the "Panaramitee style", the "simple figurative style" and the "complex figurative style". Although it was later widely accepted that the two more recent "styles" could not be upheld as pan-continental, chronologically relevant designations, the Panaramitee concept was maintained and in effect contaminated the chronological framework of Australian rock art research for several decades. Although its basis was refuted (Bednarik 1995), it continued to be applied, taught and defended.

Essentially, the Panaramitee style is supposed to comprise 60% animal tracks, 20% circles, 10% lines and 10% other motifs (including both simple and complex figurative motifs, which renders it impossible to effectively separate from Maynard's simple and complex figurative styles). However, these hypothetical percentages apply at no site in the geographical core region of this "style", the area between the Flinders Ranges and Broken Hill. Percentages of these etic categories show no consistencies whatsoever, ranging from 0% to 100% in all groupings. What a careful examination of these many sites does show is that many of them present cumulative assemblages, produced over a long time span and comprising components of greatly differing ages. This is a common feature at major rock art sites around the world: people reacted to previous art production by adding their own work. Consequently it is incumbent upon the archaeologist to attempt separation of the contributing traditions rather than to treat such a composite corpus as a homogenous whole. Indeed, such treatment contradicts the most fundamental canons of archaeology: the separation into chronological components in order to detect changes through time. The "Panaramitee style" is a composite that certainly includes Pleistocene components but also covers the entire Holocene; in fact petroglyphs of this "style" were still produced in the 20th century (Mountford 1976) (Fig. 8).



Fig. 8. "Panaramitee style" petroglyphs being produced in 1937 (*photograph by C. P. Mountford*).



Fig. 9. Petroglyph at the Panaramitee North site, South Australia.

There are numerous other objections to the concept of a Panaramitee style. For instance, it is named after one of the sites on the Panaramitee property, south of Yunta, South Australia, called Panaramitee North. This site comprises very complex and figurative petroglyphs, and its apparent stylistic content does not mirror the construct of this style (Fig. 9). Nearly all of the sites in this region occur on metamorphic phases of fine-grained sedimentary rocks of the Precambrian Adelaide System (Ludbrook 1980), including dolomitic siltstones, mudstones and tillites, less often on slates, phyllites and facies reaching the schist phase. What these rocks all have in common is their high susceptibility to weathering and exfoliation. They tend to revert to their lower metamorphic states through hydration and eventually disintegrate. The advocates of the Panaramitee style place these sites in the

Pleistocene (e.g. Clegg 1987, 1992, 2009) although such great age can be safely excluded on purely geological grounds.

This insistence by most commenting Australian archaeologists to place petroglyphs they include in their Panaramitee style into the Pleistocene has for many years enforced a false chronological framework that rendered a realistic separation of Holocene from Pleistocene rock art difficult. In some cases this was facilitated by false datings, especially those of Dorn (Nobbs and Dorn 1988; Dorn *et al.* 1992), which he eventually all withdrew (Dorn 1996a, 1996b). Other factors included the incorrect identifications of objects depicted in the rock art, including giant animal tracks perceived as being of megafauna, of zoomorphs themselves depicting megafauna, or others depicting species long extinct in the area in question. All of these explanations have been refuted (e.g. Berndt 1987; Bednarik 2010).

Australian Pleistocene rock art

If, as demanded here, some of the various traditions of the "Panaramitee style" are of the Pleistocene, then it is crucial — if the objective is to consider chronologically discrete units — to separate these from the Holocene material. This has been resisted until now by the archaeological mainstream of Australia, on the basis of Maynard's tripartite sequence, which renders it difficult to readily identify the early component. In the absence of large-scale dating programs it may be premature to assess the frequency of Pleistocene rock art in Australia. The question of taphonomy is central to this issue: what kinds of rock art can be expected to survive from the Pleistocene, and under what ambient conditions? It is pertinent that there is no plausible evidence, anywhere in the world, of pictograms or rock paintings having survived from the Pleistocene, except in "fluke conditions": under mineral accretions or in deep limestone caves. Petroglyphs, on the other hand, can be much more resistant to weathering processes, and on specific rock types and under certain environmental conditions can easily survive longer at open sites. Taphonomy decrees that this applies especially on very hard rocks and in arid or semi-arid regions, and that deeply cut petroglyphs survive longest (Bednarik 1994b). The earliest period seems to be dominated by cupules and linear grooves, followed by circles and circular motifs, sets of parallel grooves, convergent lines motifs and other specific geometric patterns. This trend is not limited to Australia; it may well be universal. The earliest petroglyphs of Asia, Africa and Europe are also dominated by cupules, and those of the Americas by cupules and linear grooves (Bednarik 2008b). Indeed, the pattern is so uniform that these genres of petroglyphs seem to define a Mode 3 or Middle Palaeolithic/Middle Stone Age tradition. Australia was initially settled by Middle Palaeolithic seafarers from Asia (Fig. 10), who in view of the much earlier presence of this rock art tradition in India (Bednarik *et al.* 2005) can reasonably be assumed to have imported it with first landfall (Bednarik 1997a; Bednarik and Kuckenburger 1999). The Middle Palaeolithic stone tool technology continues to the mid-Holocene as the core and scraper tradition in Australia, and in Tasmania up to European destruction of traditional society just 200 years ago. Therefore all of Pleistocene rock art in Australia is necessarily of Mode 3 ("Middle Palaeolithic") provenance, as is all rock art in Tasmania. The latter might provide an initial template of what one could expect to find in Middle Palaeolithic rock art traditions. Tasmanian rock art is dominated by cupules, featuring also circular motifs, including the divided circles and circles with internal barring that are so prominent in the karake genre (Fig. 11) of the caves of Mt Gambier on the mainland (Sims 1977,

2008; Bednarik *et al.* 2007). It appears certain that convergent lines motifs, which may resemble bird tracks, are discrete features not intended to depict such tracks.



Fig. 10. Middle Palaeolithic seafarers on the way to Australia.



Fig. 11. Pleistocene cave petroglyphs of the karake genre, karlie-ngoipool Cave, South Australia.

It is then possible to speculate about the extent of Pleistocene rock art in Australia by resorting to the following reasonable assumptions. Deeply hammered, deeply weathered and deeply patinated non-iconic petroglyphs on particularly erosion-resistant rock are probably of the Pleistocene, as are perhaps most of those found in limestone caves. At open sites these petroglyphs occur usually in arid regions, typically on hard rock types such as various types of granites and other igneous facies that suffer little weathering, and on strongly metamorphosed quartzites. At a

rough estimate the proportion of motifs that should be expected to fall into this category is at least 10% of the total Australian petroglyph inventory. Since it is reasonably and conservatively estimated that there are at least ten million petroglyphs in Australia, it follows that over a million could be expected to have survived from the Pleistocene (Bednarik 1997b). To illustrate the point, one single site complex, that of the Dampier Archipelago, is universally thought to comprise one million or more motifs (although none are of the Pleistocene); elsewhere in the Pilbara, similarly major concentrations occur, and some of these may comprise a significant Pleistocene component. The grand total of Pleistocene petroglyphs in Australia may well be higher than the number of surviving Middle Palaeolithic petroglyphs from the rest of the world (few are known currently, a most notable concentration being that of the southern kalahari, dating from Fauresmith and MSA times; Beaumont and Bednarik this conference), and it is certainly significantly higher than the total number of motifs so far reported from presumed Upper Palaeolithic or Mode 4 traditions in the rest of the world (well below 50,000, of which only perhaps 5000 are figurative). The latter are almost exclusively a western European phenomenon according to present knowledge — although that proposition also needs to be tested.

However, two fundamental observations follow on from these considerations. Firstly, there is more surviving Middle Palaeolithic (or Mode 3) than Upper Palaeolithic rock art in the world. Secondly, whereas there are great variations among the latter traditions, the earlier ones seem to be defined by considerable uniformities across continents. However, it needs to be appreciated that this could well be a sampling issue, attributable to the taphonomy of rock art (Bednarik 1994b). All of the world's surviving Mode 3 rock art can be regarded as being of the greatest taphonomic longevity. It should therefore logically be seen as a taphonomically determined remnant population, from which the less deterioration-resistant forms have all been culled. In other words, the apparent uniformity of the Mode 3 petroglyphs is to some degree a sampling artefact, in the same sense as the perceived preference of cave locations for the production of Mode 4 rock art is almost certainly a taphonomic effect. All palaeoart samples of the Pleistocene, be they portable or not, must be regarded as remnant populations that have experienced massive taphonomic truncation, in several senses.

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