Pleistocene rock art: a colonizing repertoire for Australia’s earliest inhabitants

Jo McDONALD and Peter VETH

Abstract

A recent paper discussing the arrival of modern humans into Australia 50 ka argues that rock art was one of a suite of behaviours which would have facilitated the colonization of the most arid continent on earth. In this paper we discuss the social mechanisms and likely art correlates for that behaviour. The distribution of Australia’s earliest art throughout the arid zone –and its cultural continuity in that environmental context– are discussed.

We have recently argued that rock art played an integral role in the information exchange systems deployed by colonizers of the most arid continent on earth – Australia (McDonald & Veth 2011; Veth et al. 2011). We have also argued that there is good evidence for regional diversification in the use of material symbols in the pre-LGM record in Australia. The successful colonization of the arid and semi-arid core of Sahul in this time period has broader implications for the use of art as a social signifier. In this paper we re-analyze the earlier debates on the chronology for rock art use in Australia –recasting this not as an evolutionary trend (Maynard 1979) but rather as a necessary component in the colonization of a naive landscape and then successful adaptation to a range of environmental niches. By contextualizing this early rock art into other aspects of the Pleistocene archaeological record, we argue it is possible to theorize the use of rock art at this early period –despite the elusiveness of dated assemblages.

Previous models of Australian rock art

In the 1970’s Lesley Maynard provided a tri-partite schema for Australian rock art (building on the earlier work of e.g. Edwards 1971) and the widespread belief that there was an ancient engraved tradition across the arid zone (e.g. Basedow 1914). Maynard’s model saw an evolution from a pan-continental stylistically-homogenous (i.e. non-figurative) Panaramitee style assemblage of engravings/petroglyphs replaced by a set of regional Simple Figurative styles and regional Complex Figurative styles. The complex and simple figurative style(s) are either petroglyphs or pigment and in a few regions are dual media art bodies (e.g. Sydney: McDonald 2008). Complex figurative styles were seen as only occurring in the north and northwest of Australia. Maynard’s model was explicitly evolutionary:
Although she allows for the co-existence of different styles in different parts of the continent, the notion of a developmental sequence is implicit […], indeed it is quite explicit in her final analysis. (Rosenfeld 1991: 136)

In the 1990s serious critique of the Panaramitee set in –fuelled by the proliferation of regional studies around the continent (see debate on chronology in Rock Art Research 1988; and Rosenfeld 1991, 1993) and by the advent of AMS and other dating of the various components of rock art around the continent. These earlier criticisms have been compounded by more detailed analysis of “Panaramitee” sites (e.g. Franklin 2004) and the proliferation of regional research projects, which have further demonstrated regional stylistic difference in most parts of Australia. The main problems with the model are seen as (and see Bednarik 1995, 2010b and this CD; Franklin 2004; Rosenfeld 1991):

– the definition of the style was too wide (including material which was both structurally and formally diverse) and yet too narrow (in its insistence on restricted technology and likely age);

– that regionally diverse styles were demonstrably present in the Pleistocene (at that time, the dynamic figures from Arnhem Land, the non-figurative integrative systems from north-east Queensland, as well as track and circle systems in the arid zone);

– and there was evidence for continuity of the ancient track and circle (and other non-figurative) motifs up to the recent past/present in central Australia.

While the problems of the tri-partite model have been clearly explicated, increasingly complex patterning which continues to be identified across the continent has stymied the development of a better model –and this seems likely to be because the diachronic pattern present across the continent is not unidirectional; but more episodic and mosaic-like in its patterning.

What is clear is that there is an older –predominantly geometric– art form present across Australia, which is replaced in some areas by one or more figurative art vocabularies; while in other areas this iconography appears to endure. While the timing for the introduction of different elements into the art graphic through time is no doubt a continuing point of departure for many rock art researchers –and the dating of the earliest aspect of this is still wide-open for debate (and the development of suitable and replicable dating techniques), most researchers these days consider that there is a Pleistocene art signature in Australia, and the debate is more about what this can tell us about the earliest inhabitants of this most arid country on earth.

The colonization of Sahul

When people moved into the semi-arid and arid interior of Sahul circa 45,000 years ago, surface water was abundant and conditions were considerably more benign than they are now (Hiscock & Wallis 2005; Veth et al. 2009). Evidence relating to the economic, technological and social strategies employed by these colonizing populations is limited, but has been interpreted as indicating highly flexible territorial arrangements and subsistence activities (Veth 2005). It also suggests that a focus of people’s activities was on large, freshwater lake systems which would have provided an array of predictable aquatic resources.

The rapid dispersal of the colonizing populations into an array of different habitats, points to the existence of complex information exchange systems that enabled parent and daughter populations to maintain existing social networks and small colonizing
populations to establish new networks as well as pass on information about the location and distribution of resources (Balme et al. 2009; Veth et al. 2011). The establishment and maintenance of social networks would have been particularly important for the long-term survival of small, dispersed and highly mobile populations in semi-arid and arid habitats characterized by spatially and temporally patchy resources (cf. Smith & Hesse 2005; Veth 2005).

Part of Pleistocene Sahul now lies beneath the ocean, but perhaps of greater consequence in constraining the recovery of evidence for the earliest rock art is the nature of the art sites and the landscapes in which they are found—and the way that people have used these. Low energy geomorphic settings which allow continuous accumulation of sediment without major changes in temperature and moisture are needed to preserve organics over many thousands of millennia. The limestone caves of Palaeolithic Europe are of course perfect repositories for this type of evidence. In Australia, however, petroglyphs and paintings tend to occur—not in deep caves—but in shallow sandstone or quartzite rockshelters on surfaces that are open to the elements and where long-term preservation is less likely. The deep limestone caves in Australia occur across a southern arc (e.g. Devils Lair, Nullabor Plain and Mt Gambier): these are the exception to this: and indeed it is in these contexts that some of the earliest symbolic behaviour (rock art and mobiliary art) has been demonstrated (Bednarik 2010a). But these relatively few deep caves do not appear to have provided the same sort of loci for continuous social action over long periods of time, as is witnessed in Europe. And many have argued that finger fluting is more a visual manifestation of a gesture rather than a system of referential symbols (Rosenfeld 1993: 77).

The types of material markers employed, and the contexts in which they were used, have an obvious effect on the probability that they will enter the sedimentary record. Ornaments and complex tools imbued with high social value were undoubtedly curated, transported and/or recycled and consequently, entered the archaeological record infrequently. Judging from the frequency with which broken slabs of engraved or painted rock are recovered from dated stratigraphic contexts, they too had a low probability of entering the sedimentary record, albeit for different reasons. Direct dating of the mineral skins that cover rock paintings and petroglyphs has been attempted in Australia, but the number of reliable age determinations is still limited (Watchman 2001; Cole & Watchman 2005; Smith et al. 2009) and few of the oldest paintings contain organic materials that could be dated using radiocarbon. This affects our ability to effectively assess the extent of ancient symbolic systems.

Despite the factors affecting the survival and visibility of past information exchange systems, the early Pleistocene records of Australia and New Guinea preserve a variety of such evidence. We have discussed this substantial body of evidence in our recent papers (Balme et al. 2009; Veth et al. 2011) but we summarize the relevant data here, particularly as this is in contrast to other reviews of Upper Palaeolithic traits (Brumm & Moore 2005; Habgood & Franklin 2008).

**Identity markers**

Items of personal adornment that arguably functioned as identity markers and helped to mediate intra- and/or inter-group interactions have been recovered from widely dispersed pre-Last Glacial Maximum sites. Two of these sites are in the semi-arid zone of north-west Australia. At Mandu Mandu Creek, 22 cone shell beads older
than 32,000 BP were recovered, while at the Kimberley site of Riwi, 10 tusk shell beads were dated to c. 30,000 BP (Balme & Morse 2006). The Mandu Mandu beads have perforations and edge damage consistent with their having been strung. The Riwi beads also have evidence of suspension edge damage as well as the remains of fibre and ochre colouring. On New Ireland, a perforated shark’s tooth from Buang Merabak (Leavesley 2007), dated to between 40,000-28,000 BP was recovered, while bone beads from Devil’s Lair, in south-west Australia, have been dated to 19,000-17,000 BP (Dortch 1984).

Fig. 1. Locations of sites in Sahul that contain early evidence for symbolic behaviour (from Veth et al. 2011: Fig. 2).

Ochre processing

Ochre is preserved at many Australian pre-LGM sites, but we restrict our discussion here to those sites that contain facetted ochre, grindstones that were used to process ochre, or slabs smeared with pigment. A painted rock fragment recovered from Carpenter’s Gap in the Kimberley has been dated to 42 ka (O’Connor & Fankhauser 2001) and evidence for the grinding of ochre has been recovered from
Malakunja 2 and Nauwalabila 1 in Arnhem Land, the lower levels of which are dated by OSL to 53 and 59-53 ka (Roberts et al. 1994). Younger sites with evidence for the processing of ochre are scattered across the continent (Fig. 1).

**Long distance movement of material**

The extent of people’s social networks is documented at a number of pre-LGM sites by evidence for long-distance movement of materials (Fig. 2).

![Fig. 2. Map of Sahul showing the evidence for long distance movement of high social value materials dated to >25,000 years and the areas in which Pleistocene art is found (from Veth et al. 2011: Fig. 3).](image)

Ochre has been recovered from many Pleistocene sites, but only a few of these occurrences have been sourced. The oldest evidence for long-distance movement of ochre used in a ritual context is the ochre that decorated the Mungo III cremation, between 42,000-38,000 BP. The nearest source of ochre is in the Barrier Range, 250 km from Lake Mungo. In central Australia, ochre sourced at Karkurr was moved 125 km to Puritjara between 32-18,000 BP (Smith et al. 1998), while the closest source for the ochre recovered from the 25-22,000 year-old levels at Mandu Mandu was 300 km away.

Un-worked pearl and baler shell are present in the 28-19 ka levels at Widgingarri when the coast was 200 km away, and baler shell is present in the 30-19 ka levels at Carpenter's Gap, when the coast was more than 100 km away (O’Connor 1995).
nearest coastline was 500 km away from Riwi 30 ka when shell beads were transported to the site.

**Complex tools**

Complex tools including boomerangs appear in the earliest Kimberley pigment paintings and stencils (the irregular infill animal period) with subsequent phases of Bradshaw figures (or Gwion Gwion: Doring et al. 2000) demonstrating increasingly complex weaponry (Walsh 2000). Complex tools are also recorded amongst dynamic figure pigment art in northern Australia (Chaloupka 1993). Although dating of these art styles is not conclusive, an OSL date suggesting a minimum age of 17 ka for one Bradshaw/Gwion Gwion painting (Roberts et al. 1997) and studies of style, motif and environment (e.g. Lewis 1988; Chaloupka 1993; Chippendale & Taçon 1998) suggest that these could reasonably be expected to be Pleistocene (see below).

In those same paintings dilly bags are also depicted showing the presence of a fibre technology. Fibre is rarely preserved in early archaeological deposits but other evidence from the region suggests its critical importance in the development of complex technology. Fibre was almost certainly used as a fastening component in the colonization watercraft that had to cover long distances and strong currents. The presence of large deep-water fish in Timor at the site of Jerimilai and from the New Ireland site of Buang Merabak, both dating to about 40 ka, implies deep-sea fishing techniques. The use of nets has been invoked to explain the abundance of fish of uniform size within single use middens preserved in Pleistocene sand dunes bounding an inland lake in western New South Wales (Balme 1995). The Riwi and Mandu Mandu beads with evidence for stringing are further confirmation of the role of fibre in complex artefact design.

**Regional art traditions**

Much of the extant body of painted and engraved art in Sahul is of unknown age, and most of it is undoubtedly Holocene in age. However, the art from at least four areas includes likely Pleistocene components: the early paintings from Arnhem Land (Lewis 1988; Chaloupka 1993; Chippendale & Taçon 1998), the Kimberley (Roberts 2000; Roberts et al. 1997), the early paintings and petroglyphs from Cape York peninsula (Rosenfeld et al. 1981; Morwood 2002; Watchman 1993; Cole & Watchman 2005) and engraved arid zone assemblages some of which include “archaic faces” (Fig. 2). The art from each of these areas is quite distinct, and indicates that symbolic differentiation of populations from different parts of the arid zone likely took place before the LGM (McDonald 2005; see also Franklin 2004). These are not formal definitions of “art traditions” but refer to geographic location or well-known studies of the art (e.g. archaic faces (Dix 1977); Kimberley (Walsh 1994); Arnhem Land (Chaloupka 1993); Cape York (Rosenfeld et al. 1981).

In the Cape York Peninsula, age determinations for pigment minerals contained in the oxalate crusts show that paintings were likely being produced in this region 32.6-29 ka (Watchman 2001). This pigment may have been part of a stencil or a painting and no stylistic information exists for this “art”. Similarly, excavation at Sandy Creek 1 indicated that this site was first occupied 34 ka ago, and that painting was a feature of site use throughout the entire cultural sequence, while in Sandy Creek 2 a rock painting was direct dated to 27 ka (Morwood 2002: 270). Engraved art in this part of Queensland is also known to be late Pleistocene in age: at Early Man Shelter, buried
Engraved art on the back wall of the shelter (tracks and geometric designs) was dated to a minimum of 15.7 cal. BP (Rosenfeld et al. 1981), while a similar age was obtained at Sandy Creek 1. At Green Ant Shelter, a date of 10 ka was obtained for a buried slab with patinated petroglyphs (Flood & Horsfall 1986). The point to be made about the dated engraved art in this region is that it is all minimum ages, dependent upon subsequent sediment build up in rockshelter locations.

On the Arnhem Land plateau four phases of painting have been distinguished on the basis of content and stylistic conventions. Several phases pre-date the post-glacial rise in sea level, an inference based on the depiction of extinct animals in the earliest paintings and the fact that contemporary marine and swamp fauna are depicted only in the most recent paintings (Lewis 1988; Chaloupka 1993; Chippendale & Taçon 1998). There are marked discontinuities between the different phases of painting, reflecting changes in the environment as the sea flooded the Arfura Plain. A recent find in the Katharine area—a depiction of now extinct Genyornis, has provided further evidence of pigment art being depicted around 40 ka (Gunn, quoted in Australian Geographic, June 1, 2010). Archaeological and paleontological evidence for the extinction of Genyornis in Australia is between 40-50 ka (Field & Wroe 2007).

In the Kimberley region, an OSL age determination of 17.5 ka on a mud wasp nest that overlay a pigment figure (Roberts et al. 1997; Roberts 2000; Walsh 2000) suggests that this art tradition was well established (at a minimum) a few thousand years after the LGM. Several paintings in the Kimberley have now been interpreted as depicting the extinct carnivore Thylacoleo carnifex (Akerman 2009; Akerman & Willing 2009). One of these is consistent with the early large naturalistic phase (Akerman and Willing 2009), while the other is associated with an early Bradshaw figure, with the human and striped marsupial separated by a multi-barbed spear (Akerman 2009). If this depiction has been interpreted correctly as Thylacoleo carnifex then it suggests considerable antiquity for this art as there is no available evidence for Thylacoleo more recent than 44,000 and 42,000 years ago (Turney et al. 2001).

In many parts of the arid zone, a distinctive suite of petroglyphs has been documented. While being a broadly homogeneous style (Edwards 1971; Maynard 1979), variation in the proportions of motifs depicted suggests regional differentiation within this widespread graphic tradition (Franklin 2004; McDonald 2005). These petroglyphs are undated but most of them are heavily weathered, patinated and otherwise altered by geological processes. Thus, they are widely regarded as old (Edwards 1968; Dix 1977; Walsh 1994: 68-74; McDonald 2005), although none has been uncontroversially dated (Reneau et al. 1991; Watchman 1992, 2000). “Archaic faces” found amongst this art tradition have been interpreted as demonstrating the extent of a regional networks in this distinct graphic tradition (McDonald 2005).

This differentiation of art styles relatively early in the continent suggests that symbolism was used to mark identity over areas much wider than has been documented by the chance (firmly dated) occurrences of personal ornaments or fragments of ochre. While shell ornaments are likely to have demonstrated personal relationship role levels within the social groups, the marking of places through painting and/or petroglyph would have indicated the relationship of the artists to their country—both to members of the society and to outsiders. In both respects, symbols seem likely to have conveyed information important to the successful colonization of the arid and semi-arid regions.
The fact that an older –predominantly geometric– arid zone art form present across most of the continent, is replaced in some areas by one or more figurative art vocabularies should form the continuing focus for research. The fact that this iconography has endured in the arid zone should similarly provide a significant focus for continuing research. Many researchers –including Bednarik in this pre-conference publication– have expressed incredulity that a rock art style might persevere from the Pleistocene through the Holocene and indeed to the current day. The challenge to current research in Australia is not only to date the earliest art in Australia; but to continue to disentangle the ethnographic realities of a recursive rock art tradition; to understand how people use an iconographic style –to attempt to explore the patterning in this with a view to understanding the deep past.

Acknowledgments

This paper relies heavily on research and previous papers written by the authors with others. We thank Jane Balme, Iain Davidson and Nikki Stern for stimulating various aspects of this debate which have been developed here. Figures 1 and 2 were drawn by Rudy Frank, La Trobe University (Veth et al. 2011: Fig. 9.1 and 9.3).

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