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Millennium: the State of Australian Rock Art Research

Robert Bednarik

The most interesting aspect of Australian rock art research is that Australia's rock art scholars are significantly less inclined to attempt interpretation of rock art than those of any other world region. Bearing in mind that Australia is universally agreed to have the strongest ethnographic evidence for the original meanings of its rock art, this presents us with a strange paradox. It would seem that Australian rock art researchers are either excessively pessimistic in interpreting rock art, or other rock art researchers are excessively optimistic about their powers of interpretative discrimination.

However, this is not all we have learned from Australian rock art. Australian researchers, opting for scientific investigation in lieu of the creation of a modern mythology about rock art, have been very active in such fields as physical rock art analysis, age estimation, preservation techniques and methods of site management. Indeed, Australia is a leader in these fields, a position reinforced by the research work conducted especially since the formation of the Australian Rock Art Research Association (AURA). Since the early 1980s many excellent scholars in Australia have pursued these areas of study. This country, almost the size of Europe but with a population only a third of that of Italy or Britain, boasts not only the greatest concentration of rock art in the world, but also the highest number of rock art researchers relative to population size. The work of these researchers over the past ten or twenty years falls primarily into four areas: inventories and new discoveries, analytical studies and dating work, ethnographic studies, and conservation and site management projects.

Inventories

With such a large national corpus of rock art, the creation of inventories is a long-term process involving many individuals and research teams. Because the largest concentrations of rock art tend to be in the north of the country, this is where most of the survey work has been focused. In the far north of Queensland, especially on Cape York Peninsula, the pioneering work by Percy Trezise (1971) has found a continuation in projects by Andrée Rosenfeld (Rosenfeld *et al.* 1981), Josephine Flood (1987), Noelene Cole (Cole & David 1992), Mike Morwood (1992), Bruno David (David & Chant 1995) and John Campbell (2000). Similarly, the famous Arnhem Land rock art, initially explored by George Chaloupka (1984), has been the subject of several more recent studies, involving primarily Paul Taçon (1987, 1988), Christopher Chippindale (Chippindale & Taçon 1993) and Erle Nelson (Nelson 2000; Nelson *et al.* 1995). Howard McNickle (1991) opened up another major rock art region in the Victoria River District, which is geographically intermediate between Arnhem Land and Kimberley, while Grahame Walsh (1994) and David Welch (1990, 1995) have explored the massive rock art body of the remote Kimberley during the 1990s. Further to the west, in the Pilbara, the largest petroglyph concentration of the world, Robert Bednarik (1973, 2001) still continues the survey which began in the 1960s and his work has been augmented by that of Michel Lorblanchet (1992) and Patricia Vinnicombe (1987). Ben Gunn (1995), June Ross, Dick Kimber, Josephine Flood, Julie Drew and others have conducted surveys in the central part of the country, around Alice Springs. It needs to be emphasised that all of these studies have been conducted with the active involvement of local Aboriginal custodians whose collaboration with researchers has always proved to be highly productive.

The major northern concentrations of Australian rock art consist of thousands of sites, so it is understandable that progress in comprehensive inventorying is correspondingly slow. The often great remoteness and inaccessibility of sites also hamper it. While it is correct that the large number of sites in the north have attracted most interest, it should not be overlooked that inventories have also been attempted in some southern regions. For instance, Ben Gunn has worked in the Grampians mountains of Victoria, while Robert Bednarik (1990) explored the extraordinary deep cave art sites in four limestone regions along the continent's southern coast, so far locating with his team almost fifty sites of cave art. Margaret Nobbs (1984) surveyed the sites of the Olary region, Jo McDonald (1992), Hugh Cairns and Kelvin Officer (1992) surveyed those near Sydney and John Clegg (1992) focused on a single site, Stuarts Meadows, in

Figure 1. Rock paintings and petroglyphs (boulder on lower right) on sandstone in Victoria River District, Northern Territory. The section is about 4 m wide.

western New South Wales. While the rock art of southern Australia is visually not as spectacular as that of the north, the scientific issues it has presented are just as important and this research has been very productive overall.

It is impossible at this stage to provide reliable quantitative estimates of Australian rock art and in view of the size of the task this will remain so for many more years. However, in assembling the best estimates from leading specialists working in the main regions one would expect that there are in excess of 100,000 rock art sites in Australia. The largest of them comprise several tens of thousands of motifs, but as a very rough estimate of average numbers, a figure approaching perhaps 1,000 motifs per site seems reasonable.

Analytical studies

Scientific analytical work was pioneered in Australia with the introduction of direct dating and nanostratigraphy, both by Robert Bednarik, in the 1970s (1979). The tradition of rock art dating which Australian researchers have since developed remains unsurpassed. Nearly all analytical rock art dating methods currently in use were initially developed in Australia: carbon nuclide and uranium series analysis of carbonates as well as micro-erosion analysis by Robert Bednarik (1992, 1999a); radiocarbon analysis of oxalates and inclusions in accretive mineral crusts by Alan Watchman (1990, 1992, 1993a, 1996); carbon isotope dating of paint residues by Jo McDonald (McDonald *et al.* 1990) and colleagues (first used in South Africa, however; cf. Van der Merwe *et al.* 1987); and luminescence analysis of sand grains in wasp nests by Bert Roberts (Roberts *et al.* 1997, 2000). Methods introduced elsewhere, such as the determination of cation-ratios in rock varnishes or cosmogenic radiation products, were rejected in Australia as unsuitable. Nanostratigraphy, first introduced in 1977 (Bednarik 1979), has during the 1990s been developed into a stunningly sophisticated technique by Alan Watchman (2000; Watchman & Hatte 1996), who with John Campbell (2000), has recently produced outstanding analytical results from such sites as Walkunder Arch Cave in north Queensland. In one case, ten radiocarbon dates spanning 26,000 years were obtained from a sequence of mineral layers only 2.11 mm thick. This kind of work has been made possible by the introduction of innovative techniques such as Focused Laser Extraction of Carbon-bearing Substances, replacing manual excavation of microscopic stratigraphies (Watchman 1993b). The development of the Lucas Heights AMS facility by Claudio Tuniz has been a great help in these analytical projects. Another recent development is the reliable dating of Pleistocene petroglyphs in the Pilbara, for which Robert Bednarik (2001) has just obtained a calibration curve for microerosion dating from a series of inscriptions made during the last 200 years.

Analytical work with rock art is not limited to dating attempts, however. For instance, Noelene Cole and Alan Watchman (1998) have examined paint residues to locate evidence of binder substances as well as incidental inclusions, such as brush fibres, vegetable remains, pollen and airborne matter, all of which can provide useful information about the circumstances of the painting event. Other applications of analytical methods applied in Australia

Figure 2. Rock paintings in Victoria River District, Northern Territory. The macropod figure is 3.2 m long.

include: investigations of paint recipes by John Clarke (Clarke and North 1991) and Malcolm Ridges (Ridges *et al.* 2000); 'internal analysis' of engravings in deep limestone caves; and Robert Bednarik's (1998) study of petroglyph technology, which includes the analysis of the tools that were used in creating petroglyphs. All of these areas of research are now well developed in Australia.

Ethnographic studies

It is precisely *because* of Australia's superb access to indigenous ontology's and cosmologies that the continent's rock art researchers have learnt to exercise restraint in the invention of interpretative mythologies. If there is one thing Australian rock art researchers can teach Eurocentric or Western-centric colleagues in other parts of the world it is that if they have vibes about the meaning of rock art they are very likely deluding themselves, as well as the consumers of their self-delusions. To illustrate the point with an example: there are in Europe numerous petroglyph motifs of simple line figures resembling human forms with apparently raised arms. Nobody has ever demonstrated scientifically that these are indeed images of humans (perhaps they are stylised plan views of quadrupeds, or pictures of something entirely different). These figures are called 'adorants'; i.e. they are interpreted as worshippers or supplicants. They have variously been attributed to the Neolithic, the Bronze Age and the Iron Age, from the southern Alps to Scandinavia, but their true age remains unknown. Nor has anybody ever demonstrated in what body attitude the people of the Neolithic worshipped, or indeed, that they worshipped at all.

So-called researchers of an entirely alien culture have simply assumed that these motifs depict praying humans, by projecting their own iconographic perceptions and contemporary beliefs onto the mute and undated rock art. It is inappropriate to call the application of such a simplistic belief system 'research'. The most important message from Australian rock art studies is that, unless one is a participant in a culture, one has no scientific access to what the rock art means. To pose to the public as an expert on interpreting pre-Historic rock arts, secure in the knowledge that all such propositions lack falsifiability, is inappropriate. Much of rock art 'research' outside of Australia comprises such practices and it has to be resoundingly rejected by the serious scholar. Australian ethnographic rock art research, while still inadequate in many ways, is by far the most comprehensive in the world. This is the result of observations of the production and use of rock art being made throughout the twentieth century in some parts of the country and the continuation of the importance of this cultural element within an existing society. Such research has always shown that the valid interpretations of rock art are vastly more complex than a Eurocentric observer would be able to deduce; interpretations concocted by uninitiated outsiders are almost universally wrong. We know from various contemporary peoples that their perception of the world can differ significantly from that of, say, modern Europeans, so it would be hasty to assume that people of the distant past, such as the Upper Palaeolithic people of Europe, perceived the world as modern Europeans do. Hence it is to be expected that the intricate iconographic meanings of Palaeolithic art are not effectively accessible to us.

Ethnographic studies of Australian rock art have been conducted by many scholars, including George Chaloupka (1992), Percy Trezise, Robert Bednarik, Ken Mulvaney (1996), Josephine Flood (1995), Claire Smith (1993), Patricia Vinnicombe (1992), Paul Taçon (1992), Bruno David, Robert Layton (1992) and Graeme Ward (1992).

Figure 4. *(Above) Non-iconic petroglyphs on sandstone in Victoria River District, Northern Territory. Divisions on scale are 50 cm long.*

Figure 3. *(To the left) Petroglyphs on dolerite at Burrup Peninsula, Western Australia. The scale is 10 cm long.*

Site management

Another area for which Australian rock art students are renowned – is the field of rock art preservation and site management. Here, much credit is due to Colin Pearson (1978), Alan Watchman (1992), David Lambert (1995), Fay Gale (1985), Andrée Rosenfeld (1985) and Andrew Thorn (1991, 1993), who have been instrumental in establishing an Australian tradition of site care that is considered to be exemplary. The underlying strategy is that by selecting well-known and easily accessible sites for public viewing, attention is drawn to these localities, to the benefit of others whose locations remain confidential. Vast numbers of sites are on private land and with most landowners being quite co-operative. This offers considerable protection, particularly in remote regions. Sites selected for public visitation are intensively developed, usually with marked access paths, raised walkways and viewing platforms, 'psychological barriers' as well as physical barriers of various types, interpretation material and visitor books. Vandalism at Australian sites has decreased sharply as a result of subtle public education measures and is virtually approaching zero level. Active conservation measures include graffiti removal, stabilisation of deteriorating rock, artificial drip-lines and other changes to hydrology, modification of micro-climates, removal of fire hazards, dust suppression and installation of protective barriers.

Of particular importance is the involvement of local Aboriginal communities who in many cases now own the sites and manage them, who employ specialists in conservation and management techniques, and who with the assistance of relevant state agencies develop long-term management strategies. Funding of protection and site management programs is available from several sources. As a result of the policies developed over the last ten or fifteen years, even the few sites 'sacrificed' to tourism are usually in excellent condition, while the remainder are protected by restricting visitors access and by appropriate protective legislation. The Australian public now perceives the country's rock art as a very major cultural asset, and an integral part of the international image of Australia, as much so as furry marsupials or eucalypt trees.

This public attitude itself is perhaps the most important safeguard of rock art protection: it is more effective than laws, fences or signs. The change in public attitudes to rock art, from one of complete indifference and ignorance just twenty years ago, coincides with the establishment and progress of the Australian Rock Art Research Association, which since the mid-1980s has lobbied the media and public agencies. In this sense the Association has been spectacularly successful. Hardly a month passes in Australia now without rock art being featured in the national press or electronic media. Not only have these changes had profound effects on the prospects for Australian rock art's survival, they have had equally dramatic effects on the public's perception of Aboriginality, that is, of the value and significance of

traditional Australian culture. Not so very long ago, Aboriginal people were regarded as a public liability in Australia; now they are seen as the custodians of the longest continuous cultural tradition on Earth. Their rock art is regarded as the principal manifestation of that tradition.

This shows how far-reaching the effects of campaigns to raise the cultural status of rock art can be in some circumstances. In the Australian experience it needs to be emphasised that the public funds made available to this program are in fact quite unsubstantial, in many cases derived from small seeding grants or drawn from various public works programs and even from corporate funding. The Australian experience indicates that the actual level of funding is not necessarily a decisive factor in the success of a campaign to protect rock art. The most important factor is that such an endeavour needs to be supported by a genuinely altruistic, non-governmental body such as a scholarly society. Bureaucracies and the mass media can both be usefully enlisted in such efforts, but the impetus must come from dedicated and highly motivated individuals with a long-term commitment to the cause. No government agency has such attributes, and no international authority can conduct such a campaign effectively.

International work by Australians

Some Australian rock art researchers have also been conducting extensive studies abroad and some of the scholars most active in Australia are visiting from other countries. Indeed, recent rock art research projects illustrate a marked internationalisation; the separation of national research traditions is becoming increasingly blurred. Two Australian researchers especially, Alan Watchman and Robert Bednarik, are participating in overseas studies practically every year in virtually every continent. Watchman's work in Mexico, Canada, Egypt, Portugal and South Africa was mostly focused on issues of dating rock art as was Bednarik's work in Siberia, China, India, Indonesia, Bolivia, South Africa and various countries of Europe. A typical example of such an international project is the proposed commission to resolve the extremely early age claims concerning several Indian petroglyph sites. This is a collaborative project involving a dozen Indian and Australian researchers and several organisations in both countries.

In addition to specialist work conducted by Australian researchers throughout the world, they also conduct more traditional inventories closer to home. This has included, for instance, projects by Chris Ballard in Western Melanesia, by David Roe in the Solomon Islands, and by Matthew Spriggs in Vanuatu. This work is currently being continued on Vanuatu by Bruno David and Meredith Wilson, including archaeological investigation and dating.

Conferences and publications

Australian rock art research is well served by both conferences and academic as well as general publications. The AURA Congress is the world's largest rock art conference and the Third AURA Congress was held in July 2000 in Alice Springs. It was distinguished by a large contingent of indigenous participants, from Australia as well as from several other continents. The AURA Congress has established itself as a principal forum for the voicing and realisation of indigenous aspirations concerning rock art and in this sense alone has become an event of great significance. It now assists not only Australian indigenes but also those of New Zealand, South Africa, Asian countries and North America to realise their goal of reclaiming their traditional cultures. The rapport that has as a result developed between indigenes and researchers is in stark contrast to the traditional neo-colonialist ideology of Eurocentric rock art studies, and it will have significant effects on the direction of world rock art research in the new millennium. Nowhere is this more apparent than in the AURA Congress.

Smaller conferences are held by AURA in the years between the major congresses and occasionally rock art meetings are also conducted by government agencies. Of particular interest in this respect is the First Australian Rock Art Dating Workshop, held in February 1996 at Lucas Heights, the nuclear research facility near Sydney. The workshop was attended by Australia's foremost rock art dating specialists and two American colleagues, 36 scholars in all. It has resulted in the recent issue of a benchmark publication on rock art dating, *Advances in dating Australian rock-markings*, edited by Graeme Ward and Claudio Tuniz (2000). While the workshop costs were met by two government agencies, the scientific proceedings, summarising the current state of rock art dating, were published by AURA, a non-governmental organisation. This illustrates the role of AURA in setting agendas, direction and policies in the discipline.

Australian rock art researchers also publish *Rock Art Research*, the world's premier academic journal in rock art science, which is now in its eighteenth year of publication and which sets the scientific standards in the discipline. It serves as the official organ of both AURA and the International Federation of Rock Art Organisations (IFRAO), with its 39 affiliated member organisations. AURA also publishes a series of major monographs as

well as the *AURA Newsletter*, and will shortly expand its publishing program further. Finally, the publishing endeavours for the general public are well advanced, with excellent standard reference works such as Josephine Flood's (1997) widely read *Rock art of the Dreamtime*, recent books by Percy Trezise, George Chaloupka (1993) and Grahame Walsh, and several books currently in the making (e.g. by Mike Morwood, Bruno David and Robert Bednarik). The Australian public is also well served by the mass media, with rock art being one of the most popular scientific topics, and at least one leading journalist, Nicholas Rothwell, specialising specifically in rock art reports. This quality promotion 'network' has already served Australian rock art research superbly and is likely to continue to do so into the future.

The future

Much of what has been said above already provides a fair indication of what the future of Australian rock art research is likely to have in store. Major discoveries can still be expected in Australia because large tracts of land potentially containing rock art concentrations have simply not been examined so far. The ongoing exploration work is therefore very likely to yield more spectacular finds. In the last ten years, the largest rock art motifs in the world, up to 50 m in size, have been discovered by Howard McNickle (1991) and the number of as yet undiscovered sites is certainly expected to be in the tens of thousands. The current process of refinement in Australian analytical methods will continue and there is a strong expectation that a large component of Australian rock art, especially petroglyphs, will be shown to be of the Pleistocene period. It is already widely assumed that the initial colonists, who we now think arrived about 60,000 years ago on bamboo rafts from either Timor or Roti, first introduced rock art in Australia. The feasibility of this has been demonstrated by Bednarik's (1999b) epic journey on a stone-tool built raft at the end of 1998, which took two weeks from Timor to Australia, relying entirely on Middle Palaeolithic means and technology. We therefore need to expect that age estimates for Australian rock art, currently in the order of 30,000 years, will be pushed back progressively to about twice that age. On present indications, very similar rock art traditions existed in southern Asia well before the first colonisation of Australia. Much future research can be expected to focus on these issues.

Figure 5. *Petroglyphs on granite at Spear Hill, Western Australia. Anthropomorphs about 1 m high.*

It is also to be expected that the process of handing control of the country's rock art back to the Aboriginal communities will be continued and completed and that all rock art research in the country will be with the collaboration and approval of the traditional custodians. Methods of dating rock art, the development of which Australians have been so prominently involved with, will continue to be subjected to healthy criticisms and scientific testing; new methods will almost certainly be introduced progressively. Another future development one can reasonably predict is a growing interest in the rock art of nearby regions, particularly in the Indonesian archipelago.

Finally, the relatively new medium of electronic publishing, either on the World Wide Web or on compact disk, has hardly been taken advantage of until now and it is to be predicted that Australian researchers will embrace such opportunities eagerly as they enter the new millennium.

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