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Australian rock art research at the advent of a new millennium

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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 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 the rock art of the Great Southern Land. 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

Treize (1971) has found a continuation in projects by Andrée Rosenfeld (Rosenfeld et al. 1981), Josephine Flood (1987), Noelene Cole (Cole and David 1992), Mike Morwood (1992), Bruno David (David and Chant 1995) and John Campbell (2000; Campbell and Mardaga Campbell 1993). Similarly, the famous Arnhem Land rock art, initially explored by such researchers as George Chaloupka (1984), has been the subject of several more recent studies, involving those of Paul Taçon (1987, 1988), Christopher Chippindale (Chippindale and 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, 1993, 1995) have explored the massive rock art body of the remote Kimberley during the 1990s. Further to the west, in the Pilbara, Robert Bednarik (1973, 2001) still continues the survey he and Bruce Wright (1968) began in the 1960s. This study of the world's greatest petroglyph concentration has been augmented by the work of Patricia Vinnicombe (1987) and Michel Lorblanchet (1992). Ben Gunn (1995), June Ross, Dick Kimber, Josephine Flood, Andrée Rosenfeld, Julie Drew and others have conducted research in the central part of the country, around Alice Springs. It needs to be emphasised that all of these studies have been carried out 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 slow. The often great remoteness and inaccessibility of sites also hamper this work. While it is correct that the sites in the north have attracted the greater 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 and elsewhere in Victoria, while Robert Bednarik (1990), Elfriede Bednarik and Geoffrey Aslin explored the extraordinary cave

art sites in four limestone regions along the continent's southern coast. Margaret Nobbs (1984) surveyed the sites of the Olary region, Jo McDonald (1992), Hugh Cairns, David Moore and Kelvin Officer (1992) those near Sydney, and John Clegg (1992) focused on Sturts Meadows, a major site in 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 well 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 1000 motifs per site seems reasonable.

Analytical studies

Scientific analytical work began in Australia with the introduction of direct dating and nanostratigraphy by Robert Bednarik (1979) during the 1970s. 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 microerosion analysis by Robert Bednarik (1992, 1999, 2001); radiocarbon analysis of oxalates and inclusions in accretive mineral crusts by Alan Watchman (1990, 1992a, 1992b, 1993a, 1996); carbon isotope dating of paint residues by Jo McDonald and colleagues (1990; first used in South Africa, however; cf. Van der Merwe et al. 1987; Hedges et al. 1987); luminescence analysis of sand grains in wasp nests by Bert Roberts (Roberts et al. 1997, 2000); and carbon-dating of beeswax figures by Erle Nelson and colleagues (Taçon and Garde 2000; Nelson 2000). Methods introduced elsewhere, such as the determination of cation-ratios in rock varnishes or of cosmogenic radiation products, have been rejected 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 and Hatté 1996), who with John Campbell (2000) has recently presented outstanding analytical results from 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; Watchman and Lessard 1993). The development of the Lucas Heights AMS facility by Claudio Tuniz and Ewan Lawson (Lawson and Hotchkis 2000) has been a great help in analytical projects.

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 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 being developed in Australia.

Ethnographic studies

It is precisely *because* of Australia's superb access to indigenous ontologies and cosmologies that the continent's rock art researchers have learned to exercise restraint in the invention of interpretative mythologies. 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.

Researchers of an entirely alien culture have simply assumed that these motifs depict praying humans, by projecting their own iconographic perception and contemporary beliefs and mores 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. 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 having been 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 palaeoart are not effectively accessible to us.

Ethnographic studies of Australian rock art have been conducted by many scholars, including George Chaloupka (1992), Robert Bednarik (1973), Ken Mulvaney (1996), Josephine Flood (1995; Flood et al. 1992), Claire Smith (1993), Patricia Vinnicombe (1992; Utemara and Vinnicombe 1992), Paul Taçon (1992), Bruno David, Ian McNiven, Robert Layton (1992) and Graeme Ward (1992).

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 (1992a), David Lambert (1995), Fay Gale (1985; Gale and Jacobs 1987), Andrée Rosenfeld (1985) and Andrew Thorn (1991, 1993), who have been instrumental in establishing an Australian tradition of site care that is considered exemplary. The underlying strategy is that by selecting well-known and easily accessible sites for public viewing, attention is drawn to these localities, while the locations of others can remain confidential. Vast numbers of sites are on private land and as many land owners are 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. 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. They sometimes employ specialists in conservation and management techniques, and with the assistance of relevant state agencies they 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 is protected by restricting visitors' access and by protective legislation. The Australian public now tends to perceive the country's rock art as a major cultural asset, and as an integral part of the international image of Australia.

This public attitude itself is an important safeguard in rock art protection: it can be more effective than laws, fences or signs. The change in the public perception of rock art, from one of almost 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 of Australian rock art to survive, they have had equally dramatic effects on the public's perception of Aboriginality, that is, of the value and significance of traditional Australian culture.

This shows how far-reaching the results 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 conservation programs are in fact quite unsubstantial. In many cases they are derived from small seeding grants or drawn from various public works programs. 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 genuinely motivated individuals with a long-term commitment.

International work by Australians

Some Australian rock art researchers are also 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, working in virtually every continent. Their work is often focused on issues of dating rock art. 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 four Australian researchers and several organisations in both countries. Overseas scholars conducting key research in Australia include Erle Nelson, Marvin Rowe, Robert Layton and Christopher Chippindale.

In addition to specialist work undertaken 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. Such work is currently being continued on Vanuatu by Bruno David and Meredith Wilson, including archaeological investigation and dating, and by Mike Morwood in Java and Flores.

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 major 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 some 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, thirty-six 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).

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 thirty-nine affiliated member organisations. AURA also publishes a series of major monographs, with ten volumes so far produced, as well as the *AURA Newsletter*. 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 (1994), 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.

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 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 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 up to 30 000 years, will be pushed back progressively to perhaps up to 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.

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, and existing ones developed further. 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 not been utilised adequately until now. It is to be predicted that Australian researchers will embrace such opportunities eagerly as their discipline enters the new millennium.

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VISIT THE IFRAO HOMEPAGE ON <http://www.cesmap.it/ifrao/ifrao.html>

AURA Treasurer's financial statement 2000/2001
ELFRIEDE BEDNARIK

Balance in hand on 30 June 2000: \$28 795.10

INCOME:		EXPENDITURES:	
Sales of books	5029.50	Postage	1539.39
Bank interest	311.45	Printing	252.00
Congress registrations	11 662.00	Computer peripherals	644.28
Congress merchandise	2189.20	Bulk orders, IGRMS	548.65
Congress donations	5080.00	Business Affairs Registration	33.00
		Telephone and Faxes	119.30
		Congress refunds	768.00
		Congress merchandise	945.00
		Freight	155.10
		Stationery	194.14
		Grants to congress participants	18 242.60
		Congress expenses	8737.40
		Congress catering	9565.00
		Banking fees and card charges	607.06
		Account service charge	60.00
		Subscription	35.00
TOTAL	24 272.15	TOTAL	42 445.92

Balance in hand on 30 June 2001: \$10 621.33

This indicates that after the distortions attributable to the Third AURA Congress, AURA is effectively almost \$4000 worse off than two years ago. After adjusting for book sales it appears that the Congress has produced a net loss of \$5000-6000. This is in contrast to previous congresses and even smaller conferences, all of which yielded modest but welcome surpluses. The poor financial performance of the Alice Springs congress is attributable to two factors: attendance was below expectations, primarily because of problems with the venue; and we have taken the unprecedented step of having conference merchandise manufactured. Most of it remains unsold, and it will take years to recover its cost. In my estimate, about \$9000 worth of unsold stock remains in hand,

which includes sufficient high-quality conference satchels for an inter-congress conference. In considering the above balance at the end of the financial year it is therefore essential that the value of the stock in hand be added to this figure. It also needs to be borne in mind that AURA holds well over \$10 000 worth of stock in books, but the above balance considers purely cash reserves.

It is with pleasure that I can report that the Third AURA Congress has provided financial support to a total of thirty-three delegates under its congress grants program, at a total cost of \$23 822.40.

Elfriede Bednarik
Treasurer of AURA

**Statement by the President of IFRAO concerning the proposed destruction
of the Guadiana rock art in Portugal and Spain**

Having failed to appreciate the existence and importance of the Guadiana rock art in the many years the region's archaeology has been investigated (the environmental impact study for the Alqueva dam began in 1985), the Portuguese authorities are at last making an attempt to correct their oversight and to record the rock art before it is to be inundated by the Alqueva dam. IFRAO welcomes this belated, eleventh hour endeavour, but expresses concerns about the adequacy of this effort.

IFRAO opposes the destruction of this rock art completely. However, if the international community should be unable to avert the inundation of the Guadiana rock

art, the very minimal requirement would be that its recording be done in accordance with the best possible current practices of rock art recording. The results of the current work are only acceptable to the international community of rock art specialists if they meet the following minimum requirements:

1. In addition to traditional recording, all panels must be recorded by fully detailed geomorphic cartography of the type introduced by François Soleilhavoup or Guillermo Muñoz.
2. All archival colour photography must be calibrated

- with the IFRAO Standard Scale for future colour re-constitution.
3. All engraved figures must be characterised by multi-variate micro-topographical indices such as those used by Laila Kitzler or Franco Urbani.
 4. All motifs must be surveyed and recorded by digitised micro-topography with structured lighting according to the method by Duilio Bertani and colleagues.
 5. The rock art panels need to be surveyed by an appropriate geomatic method permitting full digitisation, preferably by traversing laser system or the Kirsch and Kirsch method of photogrammetry, corrected by bringing fiducial points in the stereo pairs into correspondence.
 6. Any well-preserved abrasion petroglyphs need to be surveyed by internal analysis as developed by Alexander Marshack, and the types of tool points used in their manufacture need to be determined.
 7. All lichen thalli in the immediate vicinity of rock art are to be measured lichenometrically, their relationship to the petroglyphs must be fully recorded, and the species need to be determined.
 8. A representative sample of the Guadiana rock art must be subjected to direct dating attempts, using any of the presently available methods.
 9. A representative sample of the rock art is to be subjected to detailed field microscopy to establish technological details, to study weathering processes, accretionary deposits, superimpositions, and any microscopic traces or residues assisting in the interpretation of the rock art.

The public of Portugal, which funds this work, is entitled to expect the use of best-practice methodology in the recording of a cultural heritage sentenced to destruction. If these requirements are not met by the recording program just commenced, the eventual results of the program will be rejected internationally as inadequate, as scientifically worthless and as amateurish.

Robert G. Bednarik
President of IFRAO

Please sign the petition for the preservation of the
spectacular Guadiana rock art in Portugal and western Spain at
<http://www.PetitionOnline.com/Alqueva/petition.html>

IFRAO expresses grave concerns not only about the continuing massive destruction of Portuguese rock art, sanctioned by the authorities charged with protecting this heritage, but also about the destruction and continuing threat to Libyan sites in the Fezzan. This concerns substantial rock art concentrations in the Murzuk basin, in areas covered by National Oil Company of Libya Licence Block NC 174, held by a consortium of British, Italian and South Korean companies. These companies have admitted culpability for damage to rock art, but safeguards need to be established to prevent further destruction.

The discovery of a major new site of cave art in France, in Cussac Cave, Dordogne, has just been reported in the press. The large cave contains about 200 very well preserved engravings of a Pleistocene fauna. They are thought to date from the Gravettian and to be in the order of 24-28 000 years old. Seven human burials have also been found in the cave, but it will be several more weeks before it is established whether they are of the same period. Dr Jean Clottes, the doyen of French rock art research, has inspected the site on 4 July 2001 and confirms the importance of the find. He emphasised that the presence of graves in a cave with Palaeolithic rock art is unprecedented.

AURA Newsletter

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