# BRIEF REPORTS

## *A newly discovered projectile point image at the Hensler Petroglyph Site*

By JACK STEINBRING

On 31 May 2015 an extremely faint, but well defined projectile point image was detected in the northern section of Face 3 at the Hensler Site (Figs. 1, 2). Light conditions were peculiarly favourable to its illumination. The specimen is deeply patinated and extremely eroded. It also lies within an area which is densely lichenated, as well as being highly susceptible to downwash laden with gritty particulates from quarry fallout.

The specimen itself is sub-triangular grading to lanceolate, and may offer dimensions reasonably close to lithic prototypes, at 8.8 cm long by 5.4 cm wide. The specimen is concave-based and has curved sides making it closer to a wide version of Plainview (Justice 1987: 31a; Nienow and Boszhardt 1996: 15) than to the later triangulars like Wadlow (Justice 1987: 144). Its size and mass exclude it from the Mississippian triangulars. Its symmetry also excludes it from the various categories of 'knife'.

The weathering and erosion of this image, when compared with those others at Hensler that are attributed to the early horizons, exceed all others in faintness. Even the superimposed lanceolate images on Face 1 (Steinbring 2013) have greater clarity. It may be interesting to note that all of the projectile point images at the site (n=3) lack stems or notches. This suggests that the imagery reflects a time when the notches and stems of the Archaic had not yet become of sufficient stylistic strength to be depicted in the rock art.

The degree of patination and weathering, along


***Figure 1.*** *Newly discovered projectile point image on Face 3 of the Hensler Petroglyph Site; photo J. Steinbring 2015.*

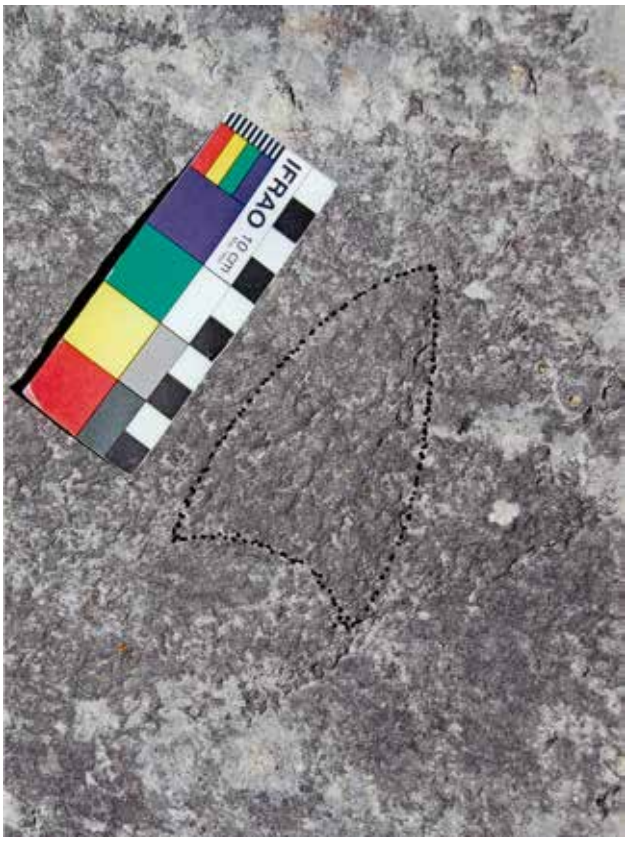


***Figure 2.*** *Lateral view of image in Fig. 1; photo J. Steinbring 2015.*

with the morphology suggest that this specimen reflects the Palaeoindian Tradition along with those in Face 1 (Steinbring 2014: 34). It would also be in accord with the proposed early occupations at Hensler occurring while aeolian depositions blanketed the site before 10 000 years BP. In fact, the image is virtually identical with the 'early triangular' noted by Anderson et al. (2015: 8) as dating to before 13 250 cal. yr BP. The other two projectile point images would closely match their Page-Ladson points, also dated to before 13 250 cal. yr BP.

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RAR 33-1189

# *Forgotten images: Charles Price Conigrave and the Kimberley Exploring Expedition of 1911*

By MICHAEL P. RAINSBURY

The Kimberley Exploring Expedition of 1911, led by Charles Price Conigrave, does not appear in histories of Kimberley exploration and is now forgotten. Yet at the time Conigrave wrote extensively for newspapers of the day and the party was feted on their return to Perth. Many of Conigrave's photographs were published in newspapers, both in Western Australia and interstate, including ones of rock art and the discovery of a new art form, ground figures. One article by him in 1913 brings his discoveries and photographs together into one account, and it is this I will discuss here.

The exploration of the Kimberley in the decades around the turn of the twentieth century includes names who are now little known, if at all, e.g. Burrowes, Salmond and Conigrave. Not having published in academic journals nor written books or monographs at the time, their names are known through the grey literature of newspaper accounts. One example of this is explorer Charles Price Conigrave and his Kimberley Exploring Expedition of 1911. Conigrave's expedition was a success in fulfilling its stated aims of zoological collecting and travelling through unknown country in the north-east Kimberley. He named two rivers, the Berkeley and the King George, and reported a new form of Aboriginal art, that of ground figures. On their return to Perth in March 1912, the expedition was awarded a civic reception attended by the great and good of Western Australia. Over one hundred newspaper articles were written on the expedition, plus numerous comments, often scurrilous, in the news gossip columns of the day. Photographs of their travels were published, including some of their rock art discoveries, as well as a distribution map of the art (1913), one of the first for the Kimberley (Fig. 1). Yet today the expedition is all but forgotten.

The Kimberley Exploring Expedition was conceived by Perth Museum zoologist Charles Price Conigrave for the purposes of zoological and botanical collecting. On presenting his plans to acting Chief Surveyor Frederick Brockman he was offered a government grant of £150 if he explored the unknown country between Cambridge Gulf and Napier Broome Bay. In March 1911 the expedition sailed for Wyndham. It comprised three members: Conigrave as leader, Lachlan McKinnon

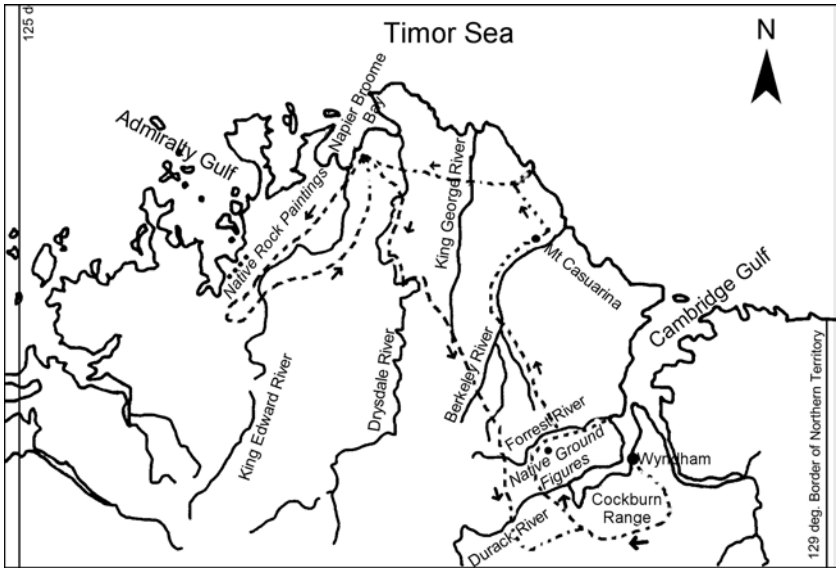


***Figure 1.*** *Map of the Kimberley showing the expedition's route and regional art type distribution (redrawn from Conigrave 1913).*

Burns as second in command, and Roy N. Collison. Conigrave and Burns were the zoologists and passionate ornithologists, Collison the botanist. In Wyndham four more people were recruited, J. Murray-Prior, Jack Wilson and native policemen Killy and Quart-Pot.

The expedition departed Wyndham in June 1911 and comprised seven men, seventeen horses and two dogs. They intended to make for three fixed points en route, the first being the mouth of the Forrest River to meet a resupply boat. The second point was Mount Casuarina, a geographical feature well known to Kimberley coastal navigators, and finally Drysdale River Mission at Pago on Napier Broome Bay for further resupply (Fig. 1). The expedition travelled in an arc from Cambridge Gulf in the east to Admiralty Gulf and Mt Connor, passing through the lands of the *Yiiji, Kwini, Miwa* and *Gamberre* people. Where possible, Conigrave sent news of the expedition back to Perth including photographs for publication. A full page of photographs was published in the *Western Mail* (1911), including an example of rock art (Fig. 2).

***Figure 2.*** *Photograph captioned by Conigrave as 'Native rock drawing from the King River (Anon. 1911).*

Between the Durack and Forrest rivers the expedition came to a lagoon they named Brolga Lagoon on account of the huge flocks of native companions found there. On the edge of the marsh the party came across what they described as a native art gallery (Figs. 3 & 4). Conigrave wrote

> Some ten acres of the neighbouring plain had been burned clear of the high grass, and, seeing that much of this growth commonly attains a height of 18ft or so, the resultant ashes were not inconsiderable. Here and there strange ground figures had been made by brushing back the ashes until the desired form was left clearly outlined on the ground; then the sweltering tropical sun baked the lower surface so hard that, judging by appearances, more than one wet season had left many of the figures practically unimpaired. These 'drawings' comprised all manner of objects, such as crocodiles, 30ft. in length; representations of the human being — truly grotesque and hideous; tortoises, and numbers of objects that the humorist of the party designated as being the result of an outback convivial 'late sitting' (1913: 7).

Twenty-five years later in his autobiographical book *Walkabout* (1938) Conigrave remembered it slightly differently:

> The marsh, for the most part, except where it had been submerged periodically by tidal waters, supported a thick growth of wire grass, three feet in height. The native artists, it could be seen, had prepared their 'salon' by pulling up the grass by the roots; then the ground had been burnt clean and the ashes brushed to one side. Furthermore, the bare surface had been hardened by the patting of hands and the stamping of feet. The man with the 'paint pot' had then commenced operations by outlining the forms of crocodiles, snakes, large horseshoe-shaped objects, and other things that looked like big-waisted women wearing harem skirts, and uncomfortably tight ones at that. In addition, many other things, apparently apropos of nothing, had been delineated, among the more prominent being significant figures whose motifs were unmistakable ... These 'ground' figures — a previously unrecorded expression of Aboriginal art for the Kimberley district — were of great tribal importance, judging by the innumerable tracks that surrounded them (1938: 74–75).

***Figure 3.*** *Roy Collison and Charles Price Conigrave with a ground figure of a crocodile (Conigrave 1913; photograph courtesy of Kim Akerman).*

Only two photographs of the ground figures have been published (1913: 7). However, ground paintings from central Australia are a well known ceremonial art form, being illustrated by Spencer and Gillen in

***Figure 4.*** *Ground figure of a crocodile (Conigrave 1913; photograph courtesy of Kim Akerman).*

***Figure 5.*** *The Bachsten Creek figure purported to be an example of Drysdale River art (Conigrave 1913).*

1904 (*The northern tribes of central Australia),* and more recently the painting prepared for the AURA 2000 Alice Springs conference. Also sand sculptures are still created in northern Arnhem Land (e.g. Keen 1977). Ground figures though are little known with their being no other accounts from the Kimberley, and only one from Arnhem Land (Carrington 1890).

From Drysdale River Mission the expedition followed the King Edward River to Admiralty Gulf and Mount Connor. The rich fauna of Admiralty Gulf added to their scientific collections. Conigrave saw examples of rock art which he described as being similar to paintings seen by Grey (1841) over seventy years earlier, i.e. human figures painted without mouths, what we would recognise today as being Wandjina art.

> We found large numbers of ghostly-looking figures at the entrances of huge caverns, where there were many indications that such places had been used as burial grounds for many years. Skulls and skeletons lay scattered about on rocky floor and ledge, and dominating the whole eerie scene were rows of quaintly-coloured figures, four feet or so in height, painted on the overhanging rock-faces. For the most part these represented the human form, but in each case the feature of the mouth was missing, and we speculated on the meaning of this (Conigrave 1938: 124).

The expedition's return journey to Wyndham took them along the Drysdale River, first meeting it at its junction with the Barton River and then following the escarpment south until meeting the river again and entering Drysdale River gorge. Conigrave again mentions encountering the white painted figures, the first published account of art on the Drysdale River. He says they are painted in 'red and white ochre, being occasionally relieved in charcoal' (1913: 7). Wandjina art is known on the Drysdale River from Joc Schmiechen's (1993) report and the river is near the eastern boundary of the cult's distribution. However, Conigrave's published photograph (Fig. 5) is misleading as it is a photo-enhanced mirror image of Dr House's photograph of the Wandjina *Nyandugadali* from Bachsten Creek, as found in Brockman's 1902 report (1902: Pl. 17). One can only assume Conigrave did not have a suitable photograph of Drysdale River art to publish, but even so he substituted one of the most spectacular images in Kimberley rock art.

Conigrave wrote of his regrets of not being able to learn the significance of the ground figures from the Aborigines themselves. This lack of knowledge did not prevent him from speculating on the origins of the ghostly white (Wandjina) figures found at Admiralty Gulf and on the Drysdale River. The lack of a mouth intrigued him and unfortunately led to a torrent of risible speculation. Writing in 1913 Conigrave repeats the old canard of initial foreign origins or influence for the art by Malays or other Asiatic people. The lack of a mouth is indicative of a 'loathsome disease' where the mouth is kept covered or, referring to the burial caves of Admiralty Gulf, the mouthless figures would not be able to break the silence of the caves (1913: 7). Curiously Conigrave refers to Grey's rock art discoveries of 1838 (1841) but not to Dr House's account and photographs in Brockman's report (1902: 12, 18, pls 4–6, 15–19).

The expedition made two visits to Drysdale River Mission on their outward and return journeys, visits that now lead to a feeling of an opportunity missed (through no fault of their own) as they did not meet Father Nicolas d'Emo. A founding member of the Mission, d'Emo, a Trappist monk, had left the previous year to return to Lombardina Mission in Dampierland. D'Emo was probably the most knowledgeable person on Kimberley rock art at the time. In 1909 he had assisted government entomologist Gerald Hill on the latter's visit to the Mission and the two men made time to record rock art, Hill painting in watercolours (Mountford 1937). D'Emo's passion for art led him to make exploratory trips to at least 182 rock art sites, many of which he recorded in a watercolour album (d'Emo n.d.; Perez 1977: 165). D'Emo recorded a horseshoe head with eyes, what is now recognised as a simplified form of Wandjina figure, but he did not recognise it as having any significance and did not name it (d'Emo n.d.: Fig. 64). The ill-founded speculation on the nature of Aboriginal rock art, especially the ghostly-

white mouthless figures ended with the arrival of Rev. James R. B. Love at Port George IV Mission in 1914. He was informed they were *Wonjuna*, important deities of the Aboriginal people, or as he described them, 'an invisible, benevolent and creating god' (1917: 37).

The Kimberley Exploring Expedition marks the end of the 'classical' age of Kimberley exploration. The blank territory between Cambridge Gulf and Napier Broome Bay on Brockman's 1902 map was filled in and two important new rivers found and named. Land between Wyndham and the Drysdale River was opened up for cattle grazing in 1914 and the Forrest River Mission was established in 1913, the founding party guided by Lachlan McKinnon Burns who tragically drowned there. Investigation into Aboriginal rock art was put on a firm footing with the work of Rev. Love. Unfortunately the practice of creating ground figures seems to have stopped with the establishment of the Forrest River Mission.

Over one hundred newspaper articles were published on the expedition but no definitive work was produced by Conigrave at the time. This was the case until the 1930s when the loss of the seaplane *Atlantis* on the Kimberley coast renewed interest in the area and Conigrave responded with a magazine article (1932) and then in 1938 an autobiographical book of his travels.

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RAR 33-1190

# *Free image-enhancement apps for iPad (LabStretch) and iPhone (LabStretch2)*

By ROBERT MARK and EVELYN BILLO

Tools for image enhancement are widely available for computers. These include Photoshop (Mark and Billo 2002) and DStretch (Harmon 2008). These techniques are fundamentally based upon histogram-stretching in various colour spaces. We recognised the need for image-enhancement in the field, with devices commonly available. As a step in this direction, we have developed iOS apps to do stretching in the Lab colour space. Lab separates the pixel luminosity from the colour information, which is encoded in two orthogonal colour channels. These are then separately stretched by adjusting sliders. Figure 1 is a screenshot of the iPad app showing the sliders and the before/after images. Figure 2 shows the process for using LabStretch.

The apps are available, for free, from Apple iTunes. Links for download, as well as instructions, are available at *http://www.rupestrian.com/labstretch.html*.

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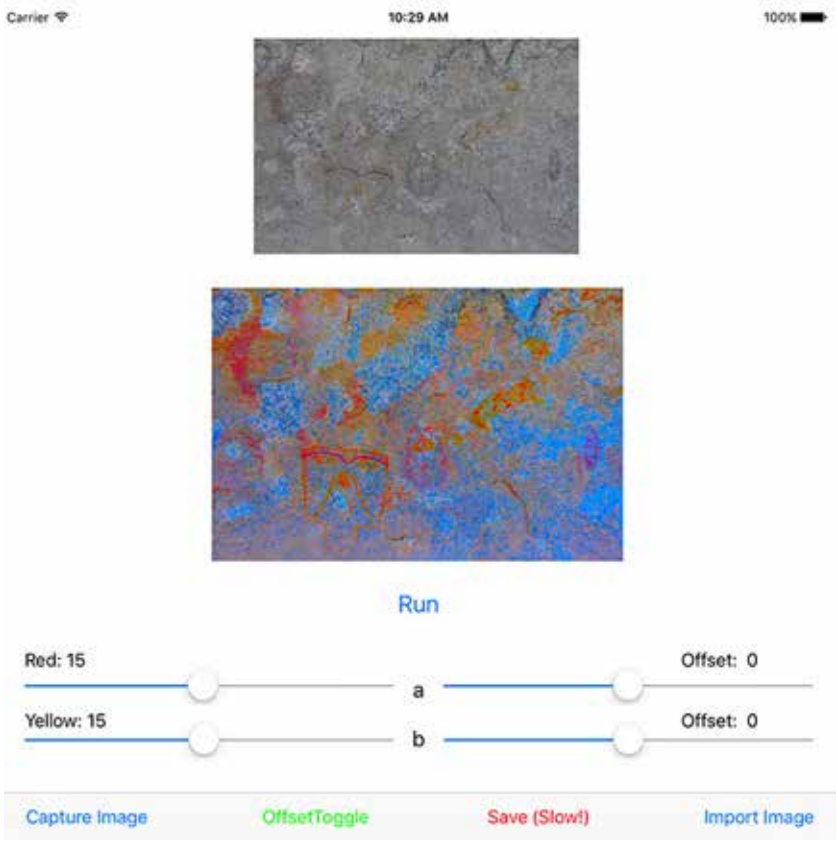


***Figure 1.*** *LabStretch iPad screenshot. LabStretch2 (iPhone) uses two screens (**Settings** and **Image**).*

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Mark, R. and E. Billo 2002. Application of digital image enhancement in rock art recording. *American Indian Rock Art* 28: 121–128; *http://www.rupestrian.com/Enhancement.pdf.*

### Instructions

1. Image acquisition: use either **Capture Image**, which takes a photo with the iPad/iPhone from within the app (this will not allow you to save the original image, but is useful for quick look to see basic initial spread enhancement), or **Import Image**, which selects a photo from the camera roll. If you know in advance that you will want to keep the image, use the camera app and import the image from the camera roll.
2. Click **Run**. The image is downsampled to a lower resolution and converted to Lab colour space. The initial spread is applied. Try **OffsetToggle** to apply an estimated centring of the histogram before the multiplier (spread) is applied. Select the best toggle and then adjust the sliders. Click **Run** after each change. If the enhanced image is almost all one colour, work with the offsets. In other words, you will probably want to experiment.
3. You can use the iPad screen capture to save results.
4. Use **Save** to capture the full resolution-enhanced image to the camera roll. This requires considerable calculations and, depending upon your CPU speed, can take a minute or more.

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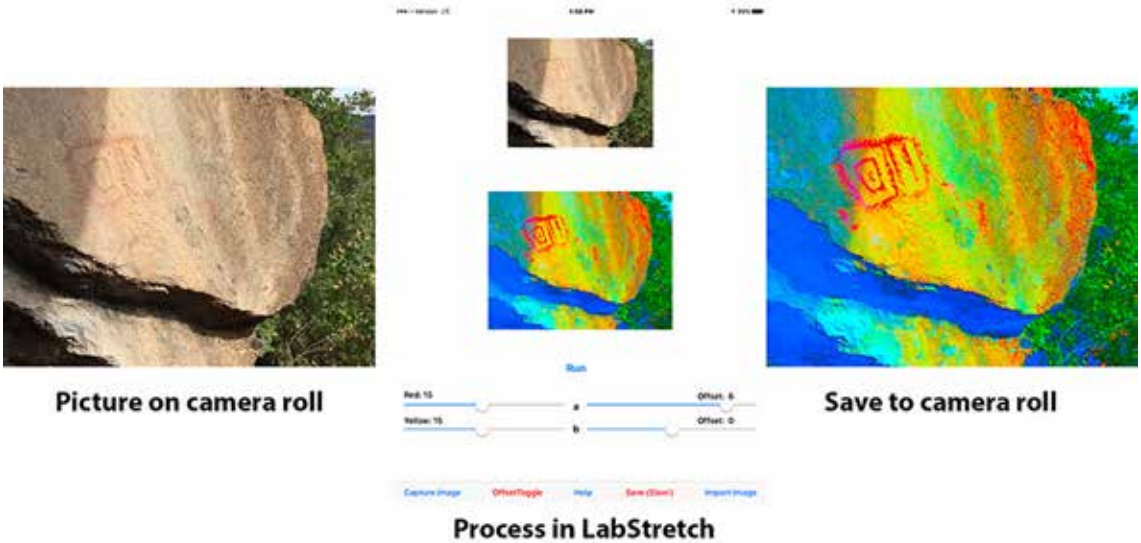


***Figure 2.*** *Process for using LabStretch: 1. import image from camera roll, or acquire it within the app. 2. Make adjustments in LabStretch. 3. Save adjusted image to camera roll.*

# *RAR* REVIEW

***The first mariners***, by ROBERT G. BEDNARIK. 2014. Research India Press, New Delhi, 335 pages, 190 illustrations, mostly colour; index, hardcover, large format, US$150, ISBN 978-93-5171-007-3. Academic edition 2015, Bentham Books, 334 pages, monochrome plates, extensive bibliography, index, hardcover, ISBN 978-1-60805-020-8, e-book version eISBN 978-1-60805-019-2.

**1. *The first mariners*: content and context**

*The first mariners* is a scientific book that provides a clearer epistemic pathway to Pleistocene archaeology, a discipline whose forensic paths to the past often go cold quickly, but whose research methods adhere to uniformitarianism — the assumption that past and present phenomena are the result of forces operating uniformly throughout time. This has led to theoretical deductions and taxonomic classifications that are based on an unfounded assumption; namely, that available archaeological evidence is a representative selection of variables defining a particular culture. Due to the anthropomorphic tendency that characterises it, uniformitarianism also suffers from a circularity that cannot be cured by such means as, for example, a distinction between the emic and the etic. For these and other reasons, Bednarik thinks, current practices in Pleistocene archaeology often fall short of the rigorous scientific method of putting claims based on theoretical taxonomies to the test of the null-hypothesis.

To dispel the impact of uniformitarianism and to accomplish his goal of restoring to Pleistocene archaeology its status of 'high science', Bednarik uses taphonomy, a law that posits that that which has survived is not a true reflection of what was once created. That is, there exists a gap between the reality of past events and their record as perceived by modern researchers. This taphonomic lag is further compounded by the ways data are collected, stored, disseminated and interpreted, to say nothing of dogmatic bias, financial influences, institutional allegiances and personal career concerns.

One of the implications of this paradigmatic shift in Pleistocene archaeology is that once taphonomic lags are accounted for, it becomes evident that cultural complexity and technological efficiency during the Pleistocene were far greater than current interpretations estimate.

That Palaeolithic cultures can be highly complex and sophisticated is clearly attested to in recorded history. For example, when the toolkit in Lewis and Clark's expedition to the west of the United States in 1804–1806 proved inadequate for making canoes, the Nez Perce showed them how to use fire to hollow out Ponderosa logs and make then into twenty- to twenty-five foot long dugouts.

The merit of the taphonomic approach, however, is that it extends scientific inquiry and its principle of verifiability deep into the human past, where no direct evidence is available. Hence the elaborate replicative experiments of sea crossing undertaken in The First Mariners Project.

**2. The First Mariners Project: a replicative experiment**

The First Mariners Project is an extraordinary scientific experiment designed to answer some crucial questions relating to humanity's past, and to bring a much needed correction to the debate surrounding our cognitive evolution. Specifically, it attempts to determine the level of communicative, technological and artistic development of Early and Middle Palaeolithic hominins.

Up until now, people have theorised about the cultural development of Palaeolithic hominins based mostly on cranial measurements from a scant fossil record and arbitrary lithic taxonomies, which inevitably lead to erroneous conclusions. This, for example, is the case in the replacement or Out-of-Africa theory, which assumes the cognitive inferiority of ancestral hominins, and asserts that cultural sophistication (referred to as 'modernity'), including technological capabilities, language and art, is the exclusive attribute of modern humans. In fact, according to the 'big bang' and 'creative explosion' variants of the replacement theory, the chronological limit on the appearance of art and language is set arbitrarily to the Upper Palaeolithic. In the First Mariners project, Bednarik sets out to experimentally demonstrate how unfounded these narratives are.

Though a collaborative undertaking, The First Mariners Project was conceived and initiated by Bednarik. He was also a primary contributor to the design, construction, testing and piloting of rafts.

Bednarik is well aware of the enormity of the challenge confronting him: (1) The entrenched dog-

matism and the unwillingness, often inability, of established archaeologists to recognise the value of available evidence; and (2) the biased tendency of established scientific circles to impede scientific progress, often denying recognition to brilliant, well-founded, uninterested scientific pursuits, such as those of Boucher de Perthes, Johann Carl Fuhlrott, Marcelino de Sautuola, Eugène Dubois, Raymond Dart, Kenneth Oakley and Alexander Marshack.

However, unlike those who have fallen victim to the established doctrines in evolutionary archaeology, Bednarik has more than what his opponents can handle: a superior and comprehensive grounding in a wide range of sciences, including archaeology, palaeoanthropology, genetics, neuroscience, evolutionary theory and anthropology, to name only few specialties. To this, he adds an expertise in field research that spans the globe, as well as originality, creativity and audacity of thinking, and vigour and tenacity in the defence of science.

What is remarkable about Bednarik's tour de force in *The first mariners* is the innovative move which the taphonomic approach allows him to effectuate: instead of simply arguing from available evidence, which evolutionary archaeologists often deliberately ignore, misinterpret or discount (e.g. the documented presence of early hominins in at least six islands), Bednarik now conjures evidence from a reality that we can neither see nor deny: the seafaring ability of our early hominin ancestors — their ability to harness the natural energies of buoyancy, current and wind.

The scientific weight of this piece of evidence is demonstrated in the form of a battery of replicative experiments designed to create the minimum level of Palaeolithic technological conditions required to achieve maritime navigation and island colonisation, which would naturally approximate the maximum achievements of Palaeolithic hominins.

**3. The First Mariners Project: experimental tests**

Primitive navigational materials being perishable, there is no direct archaeological evidence of the seafaring ability of *Homo erectus.* In fact, the earliest known evidence of water navigation dates back to about 9000 years ago. However, indirect evidence of Ice-Age seafaring is indicated in the archaeological finds (hominin skeletal remains as well as cultural artefacts) in several islands that have never been connected to a continental mainland during the Pleistocene, even at the lowest recorded sea level. This is particularly true of the Indonesian islands of Nusa Tenggara, Flores, Roti and Timor. In Flores, for example, securely dated stone tools indicate that hominins were present on the island at least 840 000 years ago. Yet these islands, as well as Australia, which humans colonised perhaps as early as 60 000 years ago, are all located east of the Wallace Line, a deep gorge in the sea forming a barrier running between Bali and Lombok. While Bali was connected to Asia though Sumatra and Java during the Pleistocene, Lombok, a short distance from it, was never connected to any land mass.

So severe is the sea divide created by the Wallace line that of all the mammalians that could have crossed this line eastward from the Asian side, only hominins succeeded in doing so. Yet '[N]o sea straight in the world can be crossed by mere drifting' (p. 280). And even if a crossing took place, as by way of swimming or drifting, successful colonisation of an island requires a minimum breeding population of genetic diversity.

Only one explanation is possible for the presence of hominins east of the Wallace Line, on an island such as Flores: the ability of early hominins to construct watercrafts.

To prove this hypothesis of early Palaeolithic seafaring, Bednarik undertook a vast replicative archaeology project involving the construction of rafts built with numerous types of technology belonging to local Lower or Middle Palaeolithic cultural traditions in Morocco, Indonesia and Australia. Eight prototype and full-scale primitive rafts were constructed, two of them built entirely with appropriate stone tools replicas, the remainder partly so.

The actual navigational use of rafts took place in Indonesia and Australia, starting with a multitude of replicative operations conducted under controlled conditions: (1) reproduction of Lower or Middle Palaeolithic stone tools; (2) construction of rafts using bamboo, wood, vines, hand-made ropes of palm fibre, and palm leaves; (3) provisions consisting of food (coconut, banana, mango, cassava and local sorghum), harpoons for fishing (replicas of Middle Palaeolithic types), and drinking water containers (mangrove logs, hollowed out by termites and sealed off with wood, beeswax, bark and tree resin).

These vessels were tested and six actual crossings were attempted. In the first attempt to sail from Roti (Indonesia) to Australia, *Nale Tasih 1* was launched in March 1998, but it failed due to material defects and also to unfavourable wind conditions and transverse currents. In a second attempt to navigate from Timor to Australia in December 1998, the redesigned *Nale Tasih 2* succeeded in crossing almost 1000 km to Darwin, Australia. The crossing was made without escort boat or radio contact (but with a satellite phone used twice a day). A third raft, the *Nale Tasih 3,* failed to cross Wallace's barrier between Bali and Lombok due to strong and unpredictable currents. The *Nale Tasih 4* succeeded in accomplishing this journey, but only barely. The *Rangki Papa* managed to cross from Sumbawa to Flores (actually Komodo, which is joined to Flores at lower sea level) after a valiant effort to resist being swept to the Indian Ocean by the currents. Finally, in 2004, the *Lombok,* the best designed raft, made from green (uncured) bamboo, crossed from Lombok to Sumbawa, a short distance (c. 18 km) through the treacherous currents of the Ales Strait, which made the landing much harder that the crossing.

Thus, the First Mariners Project demonstrated that:

- Hominin colonisation of some islands in the early Middle Pleistocene was possible with a minimum level of technological capabilities.
- Middle Palaeolithic hominins had advanced seafaring capability.

The Project also demonstrated that, in archaeology, the innovative taphonomic method of determining levels of technological competence offers a greater prospect for research than the traditional approach of theorising based on the contents of recovered but insufficiently representative archaeological finds. In fact, one of the most important achievements of Bednarik's works is that it represents a paradigmatic shift in the epistemology of archaeology and palaeoanthropology.

**4. Metamorphology: an epistemology of science**

Bednarik's scholarly aim is to take the study of Palaeolithic archaeology to a higher level, where taphonomy is the basis of a theoretical framework for testing the admissibility of hypotheses. This new epistemological model he calls metamorphology. Inspired, perhaps, by J. Goethe's pre-Darwin works on metamorphosis, metamorphology is presented as 'the science of how the variables of forms of archaeological evidence change with time, and how they are eventually perceived or understood by the individual archaeologist'. Or, to put it differently, metamorphology is the science of how archaeological evidence is 'altered to become reified constructs in time and space', leading to gaps between reality and its intellectual constructions (Bednarik 1994, 1995).

To provide metamorphology with a sound grounding, Bednarik delves deep into the debate surrounding the origin, nature and limits of human knowledge. A survey of the philosophical field, starting with Plato's idealism, through Kant's phenomenology, Wittgenstein's logical positivism, to Rorty's language turn, leads him to criticise the anthropomorphism of traditional epistemologies ('interpretation of reality purely in terms of human values or experience'), and reject the empiricism of logical positivism[1] as a basis for 'rational reconstruction and justification of our knowledge'. Many of the scientific endeavours, he says, are merely an 'exercise of systematically augmenting an anthropocentric framework, through the misapplication of empiricism' (1990).

Bednarik then turns to genetics, neurology, cognitive evolution and systems theory to shed new light on our understanding of the epistemology of knowledge.

Evolution endowed living organisms with intelligence, most of which is functional, limited to the ability of an organism to use the resources of the environment for sustainability and reproduction. Some species, such as apes, bottlenose dolphins and magpies, display a higher form of intelligence, including self-awareness, and even an elementary theory of the mind — the attribution to conspecifics of feelings, intents, desires, knowledge etc. Only in humans, however, has the development of a higher form of intelligence given rise to a consciousness in which the meaning of existence is an issue. Indeed, as Heidegger indicated, man is a 'world forming' (*weltbildend*) being who 'understands being and exists on the basis of this understanding' (Heidegger 1984: 136, 1962: 32/13). That is, humans are the only beings that ponder the question which Leibniz once asked: 'Why is there something, rather than nothing?' (Leibniz 1714/1973, sec. 7, p. 199; also Heidegger 1987: 1).

Indeed, humans do speculate about existence and their relationship to the world, but from an evolutionary perspective, our limited understanding of the epistemology of our knowledge base does not justify any claim to what we call truth or objective reality. The nervous system provides a link to the external world, and self-awareness is the result of the perception of changes in the physical world. While the abstract constructions of reality which the human intellect provides depend on a genetically determined sensory system, human intellectual faculties are not suitable for defining reality, for there was no survival value in that ability.

The human intellect has no privileged access to absolute truth or 'objective reality', and when it comes to self-awareness, introspection is a direct proof only of one's own 'mind', and even the process referred to as theory of mind is only an aspect of the brain functions, a virtual reality simulation created by, among other things, the firing of mirror neurons (p. 289).

With no direct correlation between constructed reality and objective reality, there is room only for anthropocentrism — the 'interpretation of reality purely in terms of human values or experience'. Compounding various anthropomorphic discrepancies between reality and perception is the tendency of human knowledge to be self-reinforcing, with a mental product being validated by other culturally produced systems of thought. There is simply no guarantee that humans are incapable of creating and promoting 'an entirely false, cultural cosmology or epistemological model'. Truth claims, therefore, should be discounted for various anthropocentric gaps; they include language, because knowledge is mediated by symbols which are constructed from perceptions that are species- and culture-specific (291).

Epistemologically, then, metamorphology is built on a systematic scepticism: there is no 'objective truth', especially in science. Indeed, the basic notion of science is not to know something to be true, for '[n]o real scientist has ever come across one finite absolute truth' (p. 291).

Since humans are incapable of knowing absolute truth, scientific claims can acquire their validity only to the extent they satisfy Karl Popper's principle of falsification or refutation: truth propositions must be stated so that they can be disproved by some

1 Assertion that language consists of statements of facts and nonsensical proposition, and that truth exists only to the extent that language corresponds to reality — empirically verifiable fact.

conceivable event presenting a possibility which the proposition would exclude.

Thus, metamorphology is a rejection of authority-based thinking and the naive empiricism of logical positivism. Instead of ad hoc model building, it promotes a realistic prognosis of probability.

To be sure, many of the interpretations and knowledge claims of archaeology and palaeoanthropology are valid, but they are not testable hypotheses, deriving their 'validity' solely from their conformity to established dogmas. Furthermore, not only are these hypotheses unscientific, but they are also 'amoral', presenting a breach of trust which the public reasonably expects of the scientific community (p. 293) (cf. Bednarik 1994).

Though still in progress, the First Mariners experiments yielded findings and materials that are important for further studies, evaluation and generation of testable propositions concerning Lower and Middle Pleistocene technological and cultural conditions. These findings include the choice of materials, construction design and micro-wear analysis of stone tools used in seafaring.

Even more important is that, true to its promise 'to re-write cognitive evolution' (p. 280), the First Mariners Project sheds light on one of the most important evolutionary developments: language. At what point of neurological development was the hominin brain capable of grammatically processing vocal signs?

Evolutionary scientists have looked for evidence of language ability in fossilised cranial casts, laryngeal structures and the role of the hyoid. They have also equated human language ability with relative brain size and hypothesised about the relationship between the brain and behavioural correlates of cognition such as tool making, group size and social learning. As to the beginnings of complex language, their estimates also vary, ranging from 35 000 years ago to millions of years ago. Some of the proponents of replacement theory think that human language faculties emerged suddenly around 100 000 years ago in Africa and has not evolved since (Berwick et al. 2013: 89).

For Bednarik, cognitive evolution was gradual, and its development is indicated in behaviours such as seafaring, the use of colouring material, ornaments, manuports and petroglyphs. All these activities are indicative of a high level of consciousness, intentionality, planning and communication skills. Because seafaring and maritime colonisation depend very highly on communication skills at every step of the enterprise, language ability must therefore have been mature before at least 850 000 years ago, the time of the presence of hominins in Flores. Early appearance of language is also supported by the presence of the language gene FOXP2 in both 'modern' humans and in Neanderthal (Bednarik 2011).

**5. Final remarks**

There are some minor problems in the book, two of which are addressed here. Bednarik assumes the sophistication of what he calls 'the sedentary coastal or low-land people of the Pleistocene' as compared to the more primitive 'mobile inland tribes'. For this to be true, there has to be shown at least a meaningful difference in 'sophistication' between the descendants of the sophisticated colonisers of Australia: the coastal Aborigines and inlanders. Otherwise, 'sophistication' is just another hierarchical concept not much different from the concept of 'modernity' which Bednarik has so strenuously decried.

Sometimes Bednarik engages in moralising against tendencies that block and hinder the process of knowledge, which is laudable. For example, he considers that '[t]he purpose of academia is not to create and preserve reputations; it is to foster human knowledge' (p. 281). Here, however, he seems to ignore or forget what he has been saying: that culture has taken over the function of genes and that niche construction has become a major force of evolution operating similar to natural selection (Bednarik 2011: 128). The difficulty is that not only is the human niche a natural environment for anthropomorphism, but it is precisely here that this nemesis of science is magnified in nationalistic, ethnic and cosmological expressions. But this is only to underscore the vigilance which metamorphology calls for in science.

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RAR 33-1192

***Working with rock art: recording, presenting and understanding rock art using indigenous knowledge***, edited by B. SMITH, K. HELSKOG and D. MORRIS. 2012. Wits University Press, Johannesburg, paperback, xv + 312 pages, ISBN 978-1-86814-545-4.

This volume, the proceeds of a conference held in South Africa in 2006 (but only published in 2012) is something of a novelty in the rock art literature, owing to its focus on questions of method facing rock art professionals, according to the editors by means of a 'theoretical, rather than technical' focus (back cover). The participants, and the rock art under study, were principally South African and Scandinavian, though the art of Kazakhstan, Australia and the U.S.A. get some mention. The result is a worthy volume, on balance, but one which is by no means a great read, even for rock art devotees. It will, nevertheless, no doubt be a useful reference guide for researchers wishing to compare their own practices with those of others.

The volume is divided into three sections covering the documentation of rock art, 'understanding' it using indigenous knowledge and 'presenting' rock art, with 22 chapters in all. It is rather sparsely illustrated, in black and white only, and some of the images are hardly illuminating in the sense of expanding on the text (most of us know what 'people tracing rock art' might look like, for example). Another reviewer of the same volume applauds this as a sign of a maturing of the discipline, to the point that it has gone past its 'ocular-centrism'.[1] In contrast, it is my sense that the volume is not ocular-centric enough, insofar as it sometimes seems to be less about rock art than about talking about it. Two of the three sections concern practices that deal primarily with seeing and visuality (recording, presentation), but much of the discussion swirls around these issues, rather than cutting to the chase. In a book entitled 'working with' rock art (and that should probably be rock arts, so as to acknowledge their differences), it is also slightly surprising that conservation issues are not more prominent, even though it is a specialist topic in itself, perhaps deserving of a discrete volume.

The strength of the collection lies in the surprising diversity of the approaches described. That diversity no doubt relates to Helskog's observation that 'It appears to be virtually impossible to collect a set of data that can provide a sound basis for solving all problems'. It is refreshing to see the 'scientific objectivity' of documentation techniques under scrutiny, the recognition of the way in which recording programs serve particular goals and their particular strengths and weaknesses. This opening section, which covers theory proper (e.g. Lenssen Erz), techniques and tools (e.g. Russell, Mokokwe) and more, is by far the strongest and most interesting in the volume.

If documentation is the 'data in' part of the process, the other end — 'information out' — is less well covered in the section on 'presenting' rock art. Indeed, perhaps these cannot and should be separated in the way that they are (as sections 1 and 3), since presentation depends in part on the documentation available, and may even be driven by it. The South African papers here make little reference to the debates about curation and display of Khoisan materials in museums, with which 'presenting rock art' interleaves. Rather, the theme of 'presenting' rock art is merely a device that groups together papers dealing with issues as diverse as tourism, education and conservation, with a heavy emphasis on southern African materials.

It is a pity too that the sections have no introductory pieces, or 'afterword'-style overviews, that draw out key issues in, connections between and areas of problem within the larger themes. The conference was apparently designed as an exchange of views between the Scandinavian and South African researchers. But if so, we are seeing the initial position statements from both quarters, but without seeing any of the effects — the learning curve that the exchange was designed to foster.

The middle section of the book, on 'using indigenous knowledge', might rather be titled 'using indigenous knowledge to promote the shamanistic hypothesis'. The one paper that is not concerned with this, but deals with south-central African art (by Zubieta), deals with 'metaphors of representation'. After reading, I am still no wiser about what this phrase means, if anything. Pearce's paper on 'social change' and using San ethnographies in rock art research is all but meaningless in the context of his position that the art is mostly and essentially shamanistic, irrespective of place and time. The book would have been greatly strengthened if it had excised these five chapters and stuck to the practical issues of documentation, conservation, education, display and the like.

Though the book is not without its problems, with imbalances and a certain muddiness around the theme of 'working with' rock art, it will no doubt be a potentially useful (but, at $60, pricey) addition to library shelves, as well as a snapshot of 'doing rock art' in South African and Scandinavia c. 2006.

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RAR 33-1193

# RECENT ROCK ART JOURNALS

***International Newsletter of Rock Art***. Newsletter of the Association pour Rayonnement de l'Art Pariétal Européen (ARAPE). Edited by JEAN CLOTTES. Bilingual newsletter (French and English). Recent issues include these research articles:

Number 71 (2015):
WELKER, W.: First Paleolithic rock art in Germany.

BERTHAUD, G., E. MENS, P. RAUX, S. JUPIN Y. LE JEUNE, B. BERSON, R. JOUSSAUME, D. PFOST and S. COUSSEAU: Discovery of an engraved stele on the La Bretelière Plateau, Saint-Macaire-en-Mauges (Maine-et-Loire, France).
EWAGUE, A., A. MOUMANE and A. LEMJIDI: Touf Agdif: a new Moroccan painted shelter.
LOENDORF, L., R. ABDULLAYEV and L. WHITE: Desert tobacco and abstract rock paintings in southern New Mexico, USA.
RODRÍGUEZ ASENSIO, J. A. and J. M. BARRERA LOGARES: The Candamo Cave and its centenary.
OTTE, M. and D. DELNOŸ: The petroglyphs of Huancor, Peru.

Number 72 (2015):
GROENEN, M. and M.-C. GROENEN: The black marks of El Castillo cave (Cantabria, Spain).
HERMANN, L.: A rock art site in the Akka Oasis, Morocco.
CLOTTES, J. and M. DUBEY-PATHAK: Pseudo aliens' representations in Chhattisgarh rock art (India).
WELCH, D M. and A. WELCH: Palorchestes or Bunyip?
HARMAN, J.: Using DStretch for rock art recording.

Number 73 (2015):
GARATE, D., C. GONZÁLEZ-SAINZ, J. C. LÓPEZ-QUINTANA, A. GUENAGA, A. GARCÍA-GAMERO, G. ARANZABAL and M. Á. MEDINA-ALCAIDE: Morgotako Koba: a new decorated cave in the Basque Country.
HERMANN, L.: Rock art of the Akkainar in Kazakhstan (Almaty Oblys).
KHANIPOOR, M., M. H. A. KHARANAGH, S. KHOSRAVI, H. EMADI and Z. GHASEMI: The petroglyphs of Naghsh-I Rustam, Iran.
HACHID, M.: The domestication of sheep, goats and domestic cattle in the Maghreb and a dating for north African rock art: 8000 cal. BP.

***Purakala***. Journal of the Rock Art Society of India (RASI). Edited by GIRIRAJ KUMAR. The most recent issues contain these research and review papers:

Volume 24 (2014):
CLOTTES, J.: World awareness of rock art as evidenced from UNESCO's World Heritage List.
TANG H., R. G. BEDNARIK and G. KUMAR: Preliminary report of the 2014 rock art dating expedition of China.
SUNDARA, A.: Some insights into rock art research in Karnataka.
CLOTTES, J. and M. DUBEY-PATHAK: Rock art and tribal art in Madhya Pradesh.
SHARMA, A.: Miniature figures and compositions in the rock art of early pastorals in Chaturbhujnath Nala in Chambal valley.
BEDNARIK, R. G.: The archaeological interpretation of rock art.
GUPTA, S. S.: Typical features of the rock art of north-east India.
DEHURI, R.: Preliminary study of Barrach Pandavan painted rock shelter in Panna District, Madhya Pradesh.

Volume 25 (2015):
BEDNARIK, R. G.: The kinetic energy metamorphosis of petroglyphs.
TANG H.: Direct dating of rock art in China.
KUMAR, G.: Some unique Stone Age compositions in the rock art of Chambal valley in India.
SHARMA, A.: Unusual forms in the rock paintings of early pastorals in Chaturbhujnath Nala: a preliminary study.
HUANG Y.: Environmental and spatial context of the rock art in Zuojiang River valley in Guangxi, China.
BEDNARIK, R. G.: The 2015 rock art expedition in Xinjiang Uygur Autonomous Region, China.
DAS, S.: Discovery of the cupule bearing megalithic sites in Hazaribagh region, Jharkhand.
OTA, S. B., S. TIWARI, R. KUMAR and T. PHUNCHOK: A unique boulder with petroglyphs from Kimi, Ladakh, Jammu and Kashmir.

***SIARB Boletín***. Journal of the Sociadad de Investigación del Arte Rupestre de Bolivia (SIARB). Edited by MATTHIAS STRECKER. The most recent issue includes the following papers:

Volume 29 (2015):
KAULICKE, P., E. TSURUMI and C. MORALES CASTRO. Arqueología y paisaje del arte rupestre Formativo en la costa norte del Perú.
PROUS, A. X Simposio Internacional de Arte Rupestre, Teresina, Brazil 2014.
ARENAS, M. A., M. DEL PILAR LIMA, C. TOCORNAL and L. ALVARADO. El arte rupestre de Q'urini, Oruro — Bolivia.
CRUZ, P. Tatala Purita o el influjo del rayo arte rupestre anicónico en las altas tierras surandinas (Potosí, Bolivia).
PASTOR, S., A. RECALDE, L. TISSERA, M. OCAMPO, G. TRUYOL and S. CHIAVASSA-ARIAS. Chamanes, guerreros, felinos: iconografía de transmutación en el Noroeste de Córdoba (Argentina).

***Arkeos***. Journal of the Centro Europeu de Investigação de Pré-História do Alto Ribatejo, Tomar, Portugal. Edited by LUIZ OOSTERBEEK. The most recent issue includes these rock art papers:

Volume 36 (2013):
BETTENCOURT, A. M. S. The prehistory of north-western Portugal.
BETTENCOURT, A. M. S. and A. RODRIGUES. Rock engravings of Fieiral, Castro Laboreiro, Melgaço.
BETTENCOURT, A. M. S. Megalithic complex of Vila Chã plateau, Esposende.
BACELAR ALVES, L. The prehistoric rock art sanctuary of Gião, Cabana Maior, Arcos de Valdevez.
BETTENCOURT, A. M. S. The rock engravings of Chã da Rapada, Britelo, Ponte da Barca.
BACELAR ALVES, L. Monta de Góis, Caminha. A rock art sanctuary on the banks of river Minho.
BETTENCOURT, A. M. S. Rock engravings of Senhora da Encarnação, Lovelhe, Vila Nova de Cerveira.
BACELAR ALVES, L. Rock engravings of Monte da Laje, Gandra, Valença.
SANTOS, A. C. Rock engravings of Laje da Churra, Carreço, Viana do Castelo.
BACELAR ALVES, L. Rock engravings of Bouça do Colado / Penedo do Envanto, Lindoso, Ponte da Barca.
BETTENCOURT, A. M. S. Rock engravings of Breia, Cardielos, Viana do Castelo.
VALDEZ, J. Rock engravings of Penedo dos Sinais, S. Salvador de Briteiros, Guimarães.
CARDOSO, D. Rock engravings of Quinta do Paço, S. Salvador de Briteiros, Guimarães.

## RECENT BOOKS OF INTEREST

***Rock art of India***, by GIRIRAJ KUMAR. 2015. Sharada Publishing House, Delhi, 228 pages, illustrated with 75 colour and 40 monochrome plates as well as 15 drawings, extensive bibliography, index, hardcover, ISBN 978-93-83221-06-6.

***Une vie d'art préhistorique***, edited by JEAN CLOTTES. 2015. Éditions Jérôme Millon, Grenoble, Collection l'homme des origins, directed by Marc Groenen, comprising 94 chapters authored or co-authored by the editor, 1193 pages, colour and monochrome illustrations, softcover, ISBN 978-2-84137-318-5.

***The first mariners***, by ROBERT G. BEDNARIK. 2014 (second edition). Lambert Academic Publishing, Saarbrücken, Germany, 286 pages, 190 monochrome illustrations, chapter bibliographies, softcover, ISBN 978-3-659-63097-2.

***The earliest instrument: ritual power and fertility magic of the flute in Upper Paleolithic culture***, by LANA NEAL. 2015. Pendragon Press, Hillsdale, NY, 208 pages, illustrated mostly with monochrome images, with a few in colour, bibliography, index, softcover, ISBN 978-1-57647-221-7.

***The hunter, the stag, and the mother of animals: image, monument, and landscape in ancient north Asia***, by ESTHER JACOBSON-TEPFER. 2015. Oxford University Press, New York, 413 pages, illustrated with colour and monochrome plates, bibliography, index, hardcover, ISBN 978-0-19-020236-1.

## RECENT PAPERS OF INTEREST

**Les productions à caractère symbolique du site moustérien de La Roche-Cotard à Langeais (Indre-et-Loire, France) dans leur context géologique**, by J.-C. MARQUET, M. LORBLANCHET, Y. EGELS, J. ESQUERRE-POURTÈRE and M.-S. HESSE. 2014. Paleo, Volume 25, pp. 169–194.

**Preserving the cultural treasures of Australia**, by ROBERT G. BEDNARIK. 2014. In Zhang Yasha (ed.), A monograph of rock art research and protection, pp. 106–118. Rock Art Research Association of China, Beijing.

**Canonical figures and the recognition of animals in life and art**, by LIVIO DOBREZ and PATRICIA DOBREZ. 2014. Boletín del Museo Chileno de Arte Precolombino, Volume 19, Number 1, pp. 9–22.

**Cosmological landscapes and exotic gods: American Indian rock art in Arkansas**, by GEORGE SABO III, JERRY E. HILLARD and LESLIE C. WALKER. 2014. Cambridge Archaeological Journal, Volume 25, Number 1, pp. 261–273.

**'Adio pastori!' Ethics and aesthetics of an alphabetized pastoral subculture. The case of Fiemme in the eastern Alps (1680–1940)**, by M. BAZZANELLA, G. KEZICH and L. PISONI. 2014. Boletín del Museo Chileno de Arte Precolombino, Volume 19, Number 1, pp. 23–35.

**About ethnoscientists**, by ROBERT G. BEDNARIK. 2014. Purakala, Volume 23, pp. 80–81.

**Doing with less: hominin brain atrophy**, by ROBERT G. BEDNARIK. 2014. HOMO — Journal of Comparative Human Biology, Volume 65, pp. 433–449.

**The usefulness of archaeology in rock art science**, by ROBERT G. BEDNARIK. 2014. In B. L. Malla (ed.), Rock art studies: II. Interpretation through multidisciplinary approaches, pp. 103–110. IGNCA Rock Art Series 11, Indira Gandhi National Centre for the Arts, Aryan Books International, New Delhi.

**Further possible discoveries of engravings within Cathole Cave, Gower, Swansea**, by G. H. NASH. 2015. Proceedings of the University of Bristol Spelæological Society, Volume 26, Number 3, pp. 229–238.

# ORIENTATION

## The International Centre of Rock Art Dating and Conservation (ICRAD)

By ROBERT G. BEDNARIK

The rock art dating expedition of June 2014, covering a series of sites in three provinces of China (Henan, Ningxia and Jiangsu Provinces), has resulted in an unprecedented increase in credible rock art age estimates in China (Tang et al. 2014, 2016). Within just three weeks it produced twenty-seven 'direct dating' results from eleven sites of over twenty investigated, thereby more than doubling the number of all rock art dating attempts ever undertaken in China for the previous thirty years (Wang 1984; Qin et al. 1987; cf. Li 1991; Bednarik and Li 1992). This successful project not only increased our understanding of the antiquity of Chinese rock art significantly, it also persuaded its leader, Tang Huisheng, to consider establishing a rock art dating facility in China. He announced this intention at the Business Meeting of the International Federation of Rock Art Organisations (IFRAO) on 18 July 2014 in Guiyang City, and then began acquiring the necessary approvals and funding. In selecting a site for this international centre he considered seve-ral potential candidates and then decided on the Archaeology Department of Hebei Normal University in Shijiazhuang, primarily because it is a venue with an emphasis on advanced technologies. This would be of obvious benefit to the proposed facility, because the required equipment is in many instances already available at Hebei. This includes facilities for AMS radiocarbon, uranium-thorium and OSL analyses.

The age estimation ('dating') of rock art is of particular importance to archaeology, because if its age is unknown, rock art cannot be effectively connected to archaeology: it cannot be slotted into an archaeological chronology derived from stratified sediments. Without a reliable indication of its age, rock art simply has no temporal depth and no archaeological relevance. Without knowing whether a particular corpus of rock art is 200 years or 20 000 years old, any archaeological speculations about its significance are obviously in vain. And there have been many cases where archaeologists have assumed that rock art that is in fact in the order of 200 or so years old is in excess of 20 000 years (e.g. Zilhão 1995; Bahn and Vertut 1997). Such consummate errors have been quite common in the discipline, including in China, confirming that without credible dating, rock art lacks any archaeological depth which can lead to significant misinterpretation. This emphasises the fundamental need for age estimation of rock art, a need that the newly created facility at Hebei Normal University will endeavour to address through a broadly based program.

In establishing ICRAD the initial emphasis will be on the creation of a fully comprehensive archive of all the direct rock art dating work that has been conducted up to the present time and in the entire world. So this new research centre will not only serve Chinese researchers; it will become a world repository of all relevant work. In this initial goal, ICRAD will have the full support and collaboration of IFRAO, through its fifty-four member organisations. The ICRAD Archive will hold these extensive records and will eventually make them available to the researchers of the world through the Internet, thus providing an invaluable resource to all rock art students of the world. ICRAD will also forge links with various institutes in various countries, particularly in those that have been most active in the specific field of rock art age estimation. At the same time, ICRAD intends to commence its own fieldwork and analytical program, essentially building on the work that has been conducted in China in recent years (Tang and Gao 2004; Tang and Mei 2008; Tang 2012; Tang et al. 2014, 2016).

Finally, ICRAD will also develop teaching capability. As an initial step, Professor Tang announced the appointment of four Visiting Professors at the very opening ceremony of the facility (Fig. 1), all of whom were present at this event. They are Maxime Aubert, Robert G. Bednarik and Paul S. C. Taçon from Australia, and Giriraj Kumar from India. Tang has secured funding for capital expenditures, which will largely comprise the acquisition of scientific equipment in addition to that already available to him at Hebei Normal University. On that basis the successful operation of ICRAD as an international research centre seems assured for years to come, and the establishment of this facility represents a major boost for global rock art research.

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RAR 33-1194

# *Huashan nominated for World Heritage listing*

By R. G. BEDNARIK

In January 2015, the government of the People's Republic of China nominated the Zuojiang Huashan Rock Art Cultural Landscape in Guangxi Zhuang Autonomous Region for UNESCO's World Heritage List. The nomination was preceded by listing Huashan as 'Important Unit of Cultural Relics' in 1988, listing of the entire Landscape as a candidate for nomination in 2003 and by its submission to the Tentative World Heritage List in 2007. This property stretches along the Zuojiang River, close to the Sino-Vietnamese border, over a total distance of more than 200 km in three separate sections, located respectively in Ningming, Longzhou and Fusui Counties. This area is part of the famous southern China karst region with its thousands of towers of Middle Cambrian to Late Triassic limestone, forming one of the most spectacular karsts in the world. As the Zuojiang River winds its way through the mountains, it has created numerous sheer cliffs along its course, many of which feature occurrences of rock art in the form of red pictograms. The three sections proposed to form the Cultural Landscape stretch over a total of 105 km, and they feature thirty-eight rock art sites (LGOWCH 2012). The greatest and most spectacular of them, Huashan, constitutes the world's largest single panel of rock art. It would make a most worthy addition to the World Heritage List, dwarfing all the rock art properties already listed.

The nominated serial listing derives much support from various factors besides the outstanding rock art, especially the uniqueness of the ethnic society occupying the region, the Zhuang. They are one of the descendants of the Luo Yue (Lac Viet in Vietnamese) and continue to proudly practise their distinctive cultural tradition. The Luo Yue are generally assumed to be the authors of the rock art of which a total of eighty-one sites have so far been discovered in the Zuojiang valley (GCRB 2011). The Zhuang call Huashan 'Pay Laiz', which means 'mountain with colourful paintings'. The deities of their animistic and ancestor worship can be divided into four groups, thunder, water, flower and frog related. They believe that as a people, they descend from Baeuqloegdoz, brother of the thunder and water gods, uncle of the frog god and husband of the flower goddess (Gao 2013). The iconic content of the Huashan rock art, and the Zuojiang rock art generally, is seen in the context of the Zhuang's cosmology.

The age of the region's rock art remains unresolved, as does its precise meaning. Huashan was one of the first sites in the world to be subjected to direct dating attempts after that method's introduction in 1980, when seven years later radiocarbon analysis was applied to reprecipitated calcium carbonate deposits physically related to paint residues (Qin et al. 1987).

Accordingly, it was suggested that the rock art dates from between 2370 and 2115 BP, being more recent than the Cangyuan rock paintings in nearby Yunnan Province (Bednarik and Li 1991). However, this method of dating is unreliable, as are the attributions of the Huashan pictograms to the Zhuo and Han Dynasties. Radiocarbon estimates need to be checked by uranium series analyses, and recent results of that method suggest that the Huashan rock art postdates the Han Dynasty (M. Aubert, pers. comm.). This finding is more realistic in view of the extensive exposure of the paintings to both precipitation and accretionary deposition.

One of the most outstanding attributes of the Zuojiang rock art is the height of the motifs on the generally vertical, sometimes even overhanging cliffs. They occur between 15 m and 100 m above the river's level, in one case 130 m. In all, the 38 painting sites feature more than 3300 anthropomorphs, accounting for 85.6% of the total motifs. Their heights range from 0.3 m to 2.41 m. The remaining motifs have been interpreted as various utensils; about 110 zoomorphs (mammals and birds); and circular forms, most of which are interpreted as images of bronze drums. It is not clear how the rock art was created at such great heights, but free climbing, abseiling and access during very high floods have been suggested, whereas scaffolding does not seem to be a

realistic explanation.

The jewel in the collection, the Huashan site, is a cliff of 270 m height and 350 m width. The highest painting is 90 m above the river, on a slightly overhanging wall; the lowest images are 30 m above the river, or 10 m above the berm at the foot of the cliff. There are over 1800 surviving motifs, and the originally painted part of the cliff is estimated to have covered 8000 $m^2$, part of which has been eroded by runoff so that about half that area remains intact (Liu 2006). In short, the Huashan cliff is the largest single panel of rock art in the world, and for that reason alone deserves a place among the most valued cultural remains on this planet.

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RAR 33-1195

# *Centenary of modern rock art research in China: Beijing 2015*

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To commemorate the centennial anniversary of contemporary research and protection of Chinese rock art, the China Rock Art Academy (CRAA) hosted 'The Primitive Language China Rock Art Exhibition 2015', the Second International Rock Art Forum in China and the Annual Meeting of China Rock Art Academy. The hundred years of Chinese rock art research recall the studies of Huang Zhongqin at the site of Taixixianzitan, Hua'an region, Fujian Province in 1915. As in other countries, Chinese rock art studies have a long tradition but they became scientific disciplines only in the 21st century.

Although each activity deserves to be commented on in order to understand the enormous encouragement that rock art research is enjoying today, what stands out immediately is the high level of organisation achieved in the creation of the first official state institution responsible for the research and preservation of Chinese rock art, the China Rock Academy directed by Chairman Wang Jianping and formally established in Beijing in June 2013. In 2014 CRAA conducted its first forum attended by international researchers, and this year Meenaskshi Pathak from India, Emmanuel Annati from Italy and the undersigned from Peru were part of the event. In 2015 CRAA joined IFRAO.

CRAA, however, is not an isolated institution in China. In 2014 the IFRAO World Congress was held in Guiyang, having been organised by the Rock Art Research Association of China (RARAC, a founding member of IFRAO formed in 1992), currently directed by Zhang Yasha; and we also know about the work of the North China Rock Art Research Institute, founded 2014 and directed by Zhou Yushu and Wu Jiacai (now also a member of IFRAO). All these institutions are developing recording and research programs and the boom in Chinese rock art studies is palpable. Members of the three institutions attended the Beijing conferences this year.

As it can be seen, the conditions of rock art research in China have changed radically in the last few years, introducing scientific standards and advanced organisational parameters. There is no doubt that these can afford great quantitative leaps at rock art research level. Proof of this is the founding in June 2015 of the International Centre of Rock Art Dating (ICRAD), which should become the main reference for rock art age estimation worldwide, and which also has the full support of IFRAO.

The Beijing conferences were held on 5 and 6 of July 2015 in the Round Hall of the Capital Museum, an impressive modernist building in the centre of Beijing. Ten symposia where conducted, dealing with different topics of the discipline, whether historiographical issues, current research opportunities, ethnographic evidences, recording issues, introduction of new technologies, discovery of new sites, problems of conservation, or reflections on the advancement of Chinese rock art studies and their dissemination, among others. It was very interesting to confirm that Chinese researchers seem to be less concerned about the interpretative aspects of their records than with strengthening of their technical and operating parameters, which, from my point of view, greatly favours rock art research, directing it towards more phenomenological aspects, the record of facts and scientific perspectives. Approximately one hundred researchers attended the conferences and the annual meeting of the CRAA.

It needs to be said also that despite the fact that Chinese presentations were varied, these partially focused on the Zoujiang Huashan landscape and its

rock art patrimony. This landscape covers several chains of mountains with spectacular sites, notably the site of Huashan, whose main panel of anthropomorphous figures is considered the largest in the world. Huashan is currently on the Tentative List of World Heritage by UNESCO and local researchers are emphasising its study, management and touristic potential, to promote its status as a world heritage, which is a highly coveted Chinese desire.

Aside from these events we were also invited to the theatrical exhibition called 'Song of Yishan mountains', which was specially created to support the nomination of Yishan rock art as a world heritage. It is quite relevant to note how the Chinese Academy is capable of mobilising the creation of a rather complex artistic manifestation — which has taken years of preparation and staging — that now is presented as an apotheosis work of art; clearly a tribute to the traditional perception of Chinese rock art. I cannot fail to mention the rock art site of Helanshan in Ningxia Province that completes the three sites that are currently applying for world heritage listing by UNESCO. In a positive sense, these applications are also forcing the development, at the highest level, of Chinese rock art research.

On the other hand, using as central argument the consideration of rock art as an explicit 'primitive' language, China also commemorated the centenary of its modern rock art research with an important exhibition, which combined the exposition of original petroglyphs and pictograms, with diagrams, photos, information about local rock art sites, and basic references about sites with rock art already included in the World Heritage List. Although the aim of this exhibition is laudable, as to 'illustrate the fragility of endangered rock art and especially [warn] against human intervention and deteriorating damage of rock art' (as it reads the exhibition brochure), I think it is a serious mistake to expose original material out of its primary context, because of the disarticulation of the artefact — now transformed into a mobile piece — and, above all, the misleading, and probably exclusive, valuation of the rock art from the motifs or graphic expressions they evoke.

It seems difficult to avoid that a museum exhibition has to ponder primarily the aesthetic quality of the rock art, and this fact alone can lead to a negative consideration of such a relic, whose support, environment, production area and landscape are just as crucial for its study and protection as preserving the motif in itself. Although the observation of different production techniques, the great variation of manufactured motifs and even the rich overlay of marks that can be verified in some examples does not have more parallels, in the very reality of these objects Chinese researchers shall consider the use of facsimiles when assembling their exhibitions; be it to prevent the devastation of the sites or promoting a most integral and comprehensive conservation. Beyond that, the China rock art exhibition shows a great political concern to put rock art in the eyes of the public, and that is also a big step in the development of the discipline.

As the Chinese Rock Art Academy has said since its founding, China is called upon to play a fundamental role in world rock art research in the near future and we are delighted to witness that.

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RAR 33-1196

## *IFRAO Congress 2015: Cáceres, Spain*

The 18th IFRAO Congress was conducted by two IFRAO members, the Asociación Cultural 'Colectivo Barbaón' (ACCB) and the Asociación Cultural Instituto de Estudios Prehistóricos (ACINEP), both operating in western Spain. It was held at the Cáceres campus of the University of Extremadura from 31 August to 4 September 2015 and attended by about 600 rock art researchers representing more than fifty countries. Named *Symbols in the landscape: rock art and its context*, the event was organised by Hipólito Collado Giraldo (ACCB) and José Julio García Arranz (ACINEP), who were assisted in their onerous task by a team of about forty in managing the complex logistics. The event comprised a record thirty-two thematic sessions, held in thirteen parallel symposia. These were convened in lecture rooms arranged along a single corridor, which made it easy for participant to move between sessions, but planning of the event must have been very demanding and Professors Collado and García deserve greatest praise for solving the many difficulties they must have had to contend with. To illustrate, the pre-congress proceedings of 2630 pages, published both as hard copy (Volume 37 of *Arkeos*) and on CD, form a massive tome. Yet it does not even contain many papers given but not submitted before the event. Compiling this volume must have been a daunting task, as must have been the planning and execution of the numerous field trips.

Cáceres was a magnificent choice of location; the town's ancient inner city is World Heritage listed. So is the 'archaeological ensemble' of the town of Mérida to its south, where field trips took some of the conference delegates. Besides the several field trips on the Wednesday half-way through the congress, tours were also available after the event, and many participants undertook their own self-guided excursions through the magnificent Spanish countryside to a great many rock art and archaeological sites.

The many symposia of the Cáceres congress included several generic topics that were of broader

interest, such as:

- Signs and symbols: rock art and archaeo-anthropological research
- Scientific study of rock art
- New discoveries and landscapes from archaeological rock art frontiers
- Contemporary reflections on the meaning and function of rock art representations: crisis and perspectives
- Rock art space, place and conservation
- Decisions and debates: rock art as a political device
- Rock art in the World Heritage List
- Conspicuous or hidden: the issue of visibility in the understanding of pre-Historic rock art
- Caves and shelters with rock art and human remains: a spiritual appropriation of the karstic space?
- Around art: the internal archaeological context of decorated caves
- Open-air rock art conservation and management: a further state of affairs
- From Paleolithic plaques, Chalcolithic idols and proto-Historic engraved slabs
- Pre-Historic narratives. Levantine rock art and narrative pictorial styles around the world

A number of symposia addressed regional issues:

- Palaeolithic rock and cave art in central Europe?
- Rock art of Africa — diversity, contexts, new approaches
- Rock art of the Arabian-central Asian steppes: new emerging data for a new geo-cultural pre-Historic perspective
- Relations between rock art, archaeological evidence and cultural landscape in the construction of social memory in the central Andes

A few symposia tried to address the interpretation of rock art:

- Animals in rock art
- Abstract and footprints engravings in South America
- Watch your step! Feet and sandals in rock art

The remaining sessions addressed rock art corpora in the Iberian Peninsula and in Mexico, and were essentially Spanish-language based. The congress ended with the Business Meeting of IFRAO (see *IFRAO Report*, this issue).

The international rock art congress held by ACCB and ACINET in Cáceres has added yet another great success to the series of IFRAO congresses that began in 1988 in Darwin, Australia. We thank Professors Collado and García and their secretariat team for their great efforts in staging this memorable event.

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## *The 26th Valcamonica Symposium*

The series of Valcamonica Symposia has been held since the 1970s in Capo di Ponte, a small town in the Camonica Valley of northern Italy. Nestled in its breathtaking alpine setting, Capo di Ponte has been host to over two dozen international meetings of rock art researchers from all over the world. The 2015 Symposium was held from 9 to 12 September 2015 under the title *Prospects on prehistoric art research: 50 years since the founding of the Centro Camuno*. Both the Centro Camuno di Studi Preistorici and the Valcamonica have been founded by Emmanuel Anati and operated for most of half a century under his guidance. Although now retired from these responsibilities, the great man still takes an active interest in both of his initiatives, which have contributed so much to the promotion of rock art and its preservation. The Centro Camuno is now operating under the direction of an international scientific committee, comprising Ulf Bertilsson from Sweden, Mila Simões de Abreu from Portugal and a group of Italian scholars.

The 2015 Symposium was attended by about sixty participants and comprised six well-chosen session topics:

- Recording and data management techniques in rock art
- Rock art management and relations with the territory
- Archaeological context and rock art
- Updates on world rock art
- Changes in rock art dating methods
- Understanding rock art in the environmental context and in relation to territory

Presentations were dominated by Italian lectures, but there were also several interesting papers given in English. Of particular appeal was a cleverly documented forensic SfM (Structure from Motion) study of a petroglyph depicting a Bronze Age spear point, by Bertilsson. Paola Medici and Guilia Rossi raised the subject of rock art documentation which is not already an interpretation, using the SfM software Agisoft Photoscanner Professional. Livio Dobrez presented a polished discussion of the potential of studying rock art motifs using perceptual constants in human evolution, and the undersigned offered updated chronologies of the rock art corpora of Saudi Arabia and China.

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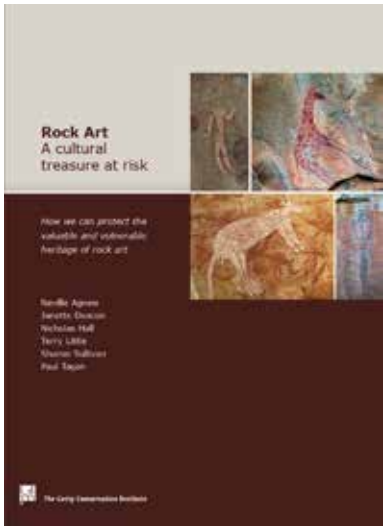


## *Rock art: a cultural treasure at risk*

Indigenous Australians have created a wealth of rock art, some of the most important and spectacular in the world, of great significance to them and their culture, and more generally, under their custodianship, a great Australian cultural treasure. Australian rock art is, however, in many cases under severe threat. In Australia there is no national strategy for the conservation of rock art.

The internationally renowned Getty Conservation Institute (GCI), based in Los Angeles, has a long history of work on conservation of rock art and, in Australia in 1988/89, sponsored the earliest international course on this subject. The GCI under the leadership of Dr Neville Agnew has continued its interest and work in rock art conservation and management. Recently the GCI has been working in southern Africa and in Australia, to run a series of rock art management courses and workshops, and an exchange program between Australian and southern African traditional owners and rock art experts.

This culminated in a forum hosted by the Traditional Owners and staff of Kakadu National Park, to bring together the learning and input from Australian and southern African participants. The forum aimed to identify the key threats to rock art and the needs for its conservation, in the process creating a vision for the future conservation of rock art.

On behalf of Neville Agnew and the Getty Conservation Institute, and the Traditional Owners and experts who work with the GCI, it is a great pleasure to let you know that a book entitled *Rock art: a cultural treasure at risk*, which is a reflection of this work, is now available as a free downloadable and lavishly illustrated PDF. To obtain a copy, please copy and paste the following link into your web browser:

*http://www.getty.edu/conservation/publications_resources/pdf_publications/rock_art_cultural.html*

The purpose of the work is to raise public awareness about the value of rock art and to encourage best practice in its conservation and management. We invite you to have a look at this document and to use it in any way that you see fit in the development of policy and practice in this area and to pass on the link and this information to anyone else who might be interested.

Feedback is invited on this document. You are very welcome to send comments and suggestions to Neville Agnew at nagnew@getty.edu, or to any of the following Australian representatives:

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## *Cave art facsimiles*

The Atelier des Fac-Similés du Périgord is a company specialising in reproductions of decorated pre-Historic cave walls. It is based in Montignac-Lascaux, in the Périgord region of France.

Its reproductions of cave walls are made with the utmost precision, mirroring the caves' real contours, surface finish and speleothem decoration. The producers combine the latest technologies, including laser scans, digital photos and data processing, using patented materials and the input of highly skilled artists, painters, sculptors, visual artists and specialist technicians (Fig. 1). The Atelier's work is both scientific and artistic and has now been exhibited in some of the world's best museums, garnering worldwide acclaim as part of the travelling International Exhibition Lascaux.

The Atelier boasts considerable production and development capacity, with a floor space of 4000 m² including painting, modelling, resin casting and mechanical construction studios, a 'colours and testing' laboratory, a photography space, a model room, a showroom measuring 100 m² and several storage

***Figure 1.*** *Skilled artist working on cave art facsimile at Atelier des Fac-Similés du Périgord, France.*

***Figure 2.*** *Production of facsimile of Lascaux.*

areas.

AFSP grew out of the reproductions of the Lascaux cave, a world-renowned cave art site located in the heart of the Périgord region. Today, the company aims to share its outstanding expertise with any kind of reproduction projects at other caves worldwide, for which reproducing their pre-Historic paintings would represent safeguarding valuable local heritage from the deterioration caused by public visitation. Facsimiles allow the public continued access to cave art produced by our distant ancestors, and thus fulfils the human desire to investigate the origins of our humanity.

The Atelier's most prestigious work in progress, which it began in 2012, is the Montignac Lascaux International Centre for Parietal Art. This involves producing in the workshop the world's most important decorated cave replica, with around 900 m² of reproductions, to be transported and then installed on the site of the new International Centre (Fig. 2).

Previously, the Atelier reproduced five walls (120 m²) displaying major murals from the Lascaux cave for the International Exhibition Lascaux. These replicas can be dismantled for transportation and have been designed to travel the globe: they have been to Bordeaux, Chicago's Field Museum, Houston, Montreal, Brussels, Paris and Geneva and will travel to Asia also. Seven panels of the Ekain cave in Spain, totalling 260 m², have also been produced, complete with murals, which were transported and installed at Zestoa in Spain. Some replicas of the cave of Niaux have also been created for a museum in Spain.

Finally, the Atelier has restored the replica cave currently open to the public in Montignac, Lascaux II, after it had withstood some thirty years of visits by millions of people. Most of the walls and vaults were cleaned, corrosion was removed from steel parts and anti-rust treatment applied, remodelling undertaken and the background and paintings on many murals were repaired.

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### *A resource*

A useful resource for rock art researchers looking for relevant organisations around the world is the Global Rock Art Database hosted by Griffith University, Australia. Located at *http://www.rockartdatabase.com/v2/*, it has been established and is being maintained by Robert Haubt, a PhD candidate at the Place, Evolution and Rock Art Heritage Unit at Griffith University.

## Abstracts of recent Australian rock art theses

**Sex & gender: an archaeological analysis of rock art of the northwest Kimberley**

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The study of rock art throughout the world has recently taken a retrospective view of the theoretical approaches traditionally adopted in its analysis and reporting. This has been triggered principally by feminist arguments that much of the ethnographical and anthropological scholarship was largely male centric. Reviewing existing data generated by both male and female researchers revealed that a Eurocentric and androcentric reporting was endemic and this stimulated new approaches. The cry was for 'women to be placed back in the picture' and the pendulum swing was impressive. Feminist advocates had their day with 'gender' taking front of stage. This was a healthy reaction to its absence and has resulted in analysis of feminist issues being absorbed into recent mainstream archaeological research. However, it is now time for a more considered approach to be taken where the male, female and other are given equivalent attention.

My recording of rock art sites focused on the Aboriginal lands of the far northwest section of the Kimberley in Western Australia. Analysis was designed

firstly to confirm the relative sequence developed by Walsh and to discover the gendered roles performed by the people living in this area over time. The analysis was focused on identifying the primary sexing keys to identify male/female/unsexed ratios and to isolate secondary keys that are gender specific. The secondary keys chosen for testing were those identified as explicitly masculine or feminine on sexed figures and included headdress type, weapon association and accoutrements type/level. These iconographic keys are considered to be features chosen by societies to be worn or used by male, female or other in the culture at a particular time. Iconography is used throughout the world as signage, especially in non-literate cultures; it informs society and is familiar to the participants of that society.

Superimposition analysis confirmed the relative stylistic sequence established by Walsh as accurate and analysis of the stylistic periods showed the culture was not static. Repetition of motifs specific to style and period was a dominant structural occurrence with motifs repeated across the study region, within rock art complexes and isolated shelters. Results showed that particular iconographic keys were used in combination or in isolation to convey the sex of an individual and at times the gendered role that was performed by them. The theoretical approach taken in this thesis has provided a means to discover the middle ground for sexing and assigning gender to anthromorphous motifs through iconography.

**Messages in paint: an archaeometric analysis of pigment used in Aboriginal Australia focusing on the production of rock art**

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Anthropogenically modified pigments are held to be some of the earliest, most unambiguous and persistent evidence for behavioural modernity, frequently (and often tenuously) invoked as material expression of symbolic thought and action. Recent finds, increases in the sophistication of analytic techniques and theoretical frameworks have renewed interest in ochre, reflected by a spike in actualistic studies, investigations of pigment morphology and geochemistry. Archaeological studies continue a bias towards Pleistocene pigments, while archaeometric research continues to focus on ochre from known source locations, and in Australia, ethnographically documented mines. Here I take a different tack, targeting Holocene ochres, focusing on pigments with at least one known, indisputably symbolic function — the production of rock art. Simultaneously part of the physical and metaphorical (cultural) landscape, tethered to the location it was created and in some instances maintained, rock art offers a unique pigment archive.

A decade since the first published application of portable x-ray fluorescence (pXRF) to rock art there has been an absence of critical scrutiny and methodological development. Aiming to redress this, I use conventional and synchrotron x-ray diffraction, micro computed tomography and scanning electron microscopy to explain and evaluate pXRF. I develop novel methods of using geochemical data to identifying paint mineralogy (including differentiating between paints of the same colour), recognise the chemical signatures of taphonomic processes and compare ochres from excavated contexts with rock art. Interpreting the resultant elemental profiles relies on understanding the complex taphonomy of pigments and the chemical expression of non-cultural phenomena, something not adequately addressed previously. This work therefore offers a non-invasive means by which large-scale studies of archaeological pigments can be undertaken.

By expressly separating characterisation from the assignment of provenance, I describe and interpret pigment geochemistry within the frameworks of object biography and intentionality. I demonstrate how pigment characterisations make available additional strands of chronological and behavioural evidence within regional pre-Histories. In the Sydney Basin, I report the first archaeological identification of calcite rock art paint at Yengo 1 shelter, where I show calcite pigments are present from 1500 BP. I provide the first archaeological description of a mulberry ochre quarry in northern Australia — showing these pigments are available locally within the King Leopold formation of the northwest Kimberley and that ochre quarries occur in sites with large rock art assemblages. Ultimately, this work demonstrates that it is not always the highest resolution scientific data that produces the most insightful archaeological findings.

**Continuity and change: exploring stylistic transitions in the anthropomorphous figures of the northwest Kimberley rock art assemblage and the varying contexts of rock art production**

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One of the largest concentrations of rock paintings in Australia is found in the rugged and remote Kimberley region in the northwest of the continent. A sequence of visually-distinctive figurative styles is likely to span periods of complex cultural change and major climatic events. However, the timing, nature and course of these

changes are poorly understood. In order to redress these deficiencies, I investigated the relationships between continuity and change in the form and context of production of anthropomorphous figures in the rock art assemblage. Specifically, I identified the core characteristics of anthropomorphous figures in each of the established stylistic periods. I analysed the evidence cited by previous researchers to support notions of an abrupt discontinuity in the art assemblage between the Wararrajai Gwion and painted hand periods. New chronological data was correlated with environmental evidence to establish the timing of cultural change and potential association of events with the Last Glacial Maximum. Factors that contributed to, or drove change were identified in order to develop an understanding of the social and economic lifeways in the northwest Kimberley through time.

Recording of rock art sites focused on the country of the Wunambal Gaambera Native Title group and included 15 site complexes and 204 rock art sites across two drainage basins. Data was processed using both normative and correspondence analyses. I used the concept of style and an understanding of stylistic behaviour as analytical tools to examine stylistic variation in anthropomorphous figures observed over time. The changing preference of particular attributes and varied spatial patterning, together with evidence from excavations, was examined in order to demonstrate that artists inscribed the land with rock art at different times for different purposes.

Results showed that there is no evidence to support notions of an abrupt discontinuity of art through time. Rather, attribute preferences changed gradually, existing as clines of variation rather than discrete units, with identifiable threads of continuity and periods when certain attributes (core characteristics) are preferentially selected. Current dating of the rock art is insufficient to anchor the sequence in any meaningful way beyond the late Holocene. As such, this thesis presents two scenarios for the temporal framework of the assemblage: a 'short' chronology of around 11 000 years, and a 'long' chronology of at least 25 000 years. In both scenarios changes in the cultural context of production occurred, driven by factors such as social and demographic change, technological introductions and environmental change including sea level rise. However, throughout the period of rock art production, strong evidence of continuity has been established demonstrating that some aspects of cultural life were linked over an extended period. This is a significant result as it counters notions of a non-Aboriginal origin for the development of the Gwion painting tradition and confirms the concept of gradual change.

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## Minutes of the 2015 IFRAO Business Meeting

Cáceres, Spain, 4 September 2015

*Organisations represented:* American Rock Art Research Association (ARARA), represented by Diane Hamann (U.S.A.); Asociación Cultural 'Colectivo Barbaón' (ACCB), represented by Hipólito Collado Giraldo (Spain); Asociación Cultural Instituto de Estudios Prehistóricos (ACINEP), represented by José Julio García Arranz (Spain); Associaçao Brasileira de Arte Rupestre (ABAR), represented by Maria Conceição Soares Meneses Lage (Brazil); Associaçao Portuguesa de Arte e Arqueologia Rupestre (APAAR), represented by Mila Simões de Abreu (Portugal); Associacion pour le Rayonnement de l'Art Pariétal Europeén (ARAPE), represented by Jean Clottes (France); Australian Rock Art Research Association, Inc. (AURA), represented by Robert G. Bednarik (Australia); Cave Art Research Association (CARA), represented by Robert G. Bednarik (Australia); Centro Europeu de Investigação da Pré-História do Alto Ribatejo (CEIPHAR), represented by Luiz Oosterbeek (Portugal); Centro Studi e Museo d'Arte Preistorica (CeSMAP), represented by Dario Seglie (Italy); Grupo de Investigación de Arte Rupestre Indigena (GIPRI), represented by Guillermo Muñoz C. (Colombia); Moscow Centre of Rock Art and Bioindication Research, represented by Arsen Faradjev (Russia); Sociedad de Investigación del Arte Rupestre de Bolivia (SIARB), represented by Matthias Strecker (Bolivia); Société Préhistorique Ariège-Pyrénées (SPAP), represented by Jean Clottes (France). The following member organisations were represented by proxies: Archivo Nacional de Arte Rupestre (ANAR, Venezuela), Asociación de Estudios del Arte Rupestre de Cochabamba (AEARC, Bolivia), Asociación Peruana de Arte Rupestre (APAR, Peru), Association Marocaine d'Art Rupestre (AMAR, Morocco), Mid-America Geographic Foundation, Inc. (MAGF, U.S.A.), Rock Art Society of India (RASI, India), Società Cooperativa Archeologica Le Orme dell'Uomo (Italy). Thus twenty-one member organisations were represented.

The meeting was held at the Faculty of Philosophy and Humanities, University of Extremadura, in Cáceres, Extremadura, Spain, on 4 September 2015, and it commenced at 6:00 p.m. In the absence of the IFRAO President it was chaired by Jean Clottes, a Past President of IFRAO. The minutes were recorded by the Convener of IFRAO.

1. *Apologies and declaration of proxies*. There was one apology from Tang Huisheng (China), and the six proxies were declared.

2. *Confirmation of previous minutes*. The minutes of the previous IFRAO Business Meeting (Guiyang, China, 18 July 2014) have been published in *Rock Art Research* 32: 126–127. ARAPE moved to accept them, seconded by CeSMAP, and they were accepted unanimously.

3. *Matters arising from these minutes*. No matters arising from the previous meeting were raised or discussed.

4. *Report of the IFRAO President*. No report had been received.

5. *Report by the IFRAO-UNESCO Liaison Officer*. The CeSMAP Representative reported that information about new members of IFRAO has been provided to UNESCO and other details have been given, with particular regard to the problems of preservation.

6. *Report by the IFRAO Convener*.

6a. The Convener reported on the ongoing issues of rock art protection globally. There have been great improvements over the past two decades, but further vigilance and action are required in several countries.

6b. Representatives of IFRAO have negotiated with the cultural heritage branch of UNESCO conditions of better acceptance of rock art properties on the World Heritage List. These interventions have led to greatly improved prospects for the listing of rock art sites. Several have since then been inscribed, are currently being submitted or are being considered for submission with the support of IFRAO.

6c. Current developments in the discipline: the Convener emphasises the phenomenal surge of rock art research and rock art appreciation in several regions, most especially in China, but also in South Korea, Saudi Arabia and some South American countries.

7. CeSMAP proposes to hold a thematic conference in Turin, Italy, in the first week of September 2016, on the possibility that rock art of Neanderthals exists. After discussion it is decided that the conference title would be 'Is there palaeoart before modern humans?', and that it would be held under the aegis of IFRAO, but not as an IFRAO Congress.

8. *Proposals for other future IFRAO conferences*.

8a. A rock art conference is to be held by ABAR on 16 and 17 September 2016 in Brazil.

8b. Società Cooperativa Archeologica Le Orme dell' Uomo proposes to hold an IFRAO Congress together with the Centro Camuno di Studi Preistorici (which has just applied for affiliation with IFRAO) in 2018 at Capo di Ponte, in the Valcamonica, Italy. The time of the event is to be advised.

9. *Reports of IFRAO Representatives wishing to outline their organisation's work*.

9a. Moscow Centre of Rock Art and Bioindication Research has held an exhibition on petroglyphs and conducted other public activities.

9b. CeSMAP has also held an exhibition, and conducted fieldwork in a joint mission 2014–2016 in the Loja Region of Ecuador, under the aegis of the Italian Ministry of Foreign Affairs and Ecuador Ministry of the Culture. CeSMAP undertook public education work, especially for children, in the Prehistoric Art Museum of Pinerolo, Italy.

9c. SIARB has produced a book on the rock art of the Lake Titicaca region, and another on the rock art of Santa Cruz Departamento. Fieldwork has been conducted as part of a project at Oruro in central Bolivia.

9d. APAAR has contributed to the preparations for the Cáceres IFRAO Congress of 2015.

9e. ARARA continues its tradition of annual meetings, usually held in May, the next of which will be held at Las Cruces, New Mexico, U.S.A., 27–30 May 2016. ARARA also continued its publishing program.

9f. Società Cooperativa Archeologica Le Orme dell' Uomo has conducted research in Oman.

9g. AEARC and APAR have held a thematic conference on the ethnography of rock art in Cochabamba, Bolivia.

9h. GIPRI is conducting rock art research in collaboration with state authorities in Colombia, and has held an annual meeting.

9i. ARAPE has continued its publishing program and it also manages the funding for the Chauvet Cave program and that for the study of Gargas Cave.

9j. ACCB and ACINEP have been engaged in the preparations for the 2015 IFRAO Congress in Cáceres.

9k. AURA has continued to produce its regular and occasional publications, as well as other books. AURA members have conducted research and fieldwork in all continents except Antarctica in the last two years.

10. *Any further matters raised by delegates*.

10a. CEIPHAR proposes that a letter of support be sent concerning the International Year of Global Understanding. The proposal is moved by AURA, seconded by ARAPE and approved by the meeting (see IFRAO resolution 1 below).

10b. ACCB reports that, in excavating a small cave in Extremadura (western Spain), rock art is being endangered by palaeontologists. It is requested that the need to prioritise the preservation of the site's rock art be presented to the relevant government authorities. In the discussion the Chair emphasises that any modification of a cave poses a great risk for any rock art present. CEIPHAR proposes that a media interview of J. Clottes be arranged. ACCB will write to the authorities with the support of IFRAO.

10c. AEARC and APAR present the *Cochabamba Manifest* (*Rock Art Research* 32: 251–252) for consideration. SIARB is critical of it, requesting that more consultation is required. In the discussion it is suggested that it needs to be more focused on rock art protection. The Chair requests that a shortened version be subjected to a postal ballot of all IFRAO members.

11. *General matters, discussion and resolutions*. No further matters are raised.

12. *Declaration of new IFRAO President*. Hipólito Collado Giraldo, one of the two Chairmen of the 2015 IFRAO Congress, is nominated and elected unanimously as the new IFRAO President.

13. *Adjournment*. The new President thanks the delegates and adjourns the meeting at 7:30 p.m.

## IFRAO resolution 1

In order to promote the awareness of how sciences do play a role in addressing people's concerns in the framework of global climatic, environmental and cultural changes, 2016 will be proclaimed as the International Year of Global Understanding (IYGU) by the International Council for Science, the International Social Science Council and the International Council for Philosophy and Human Sciences. IYGU seeks to promote better understanding of how the local and the global phenomena are deeply related.

IYGU (*http://global-understanding.info/)* builds from the awareness that to think, live and act in the global scale requires global understanding, and that this calls for research, education and communication. Societies and cultures interact with other natural realities, and they also guide our understanding of how humans' actions have a global effect in the planet. In this sense, IYGU builds from UN and UNESCO concerns, on previous International Years focused on specific issues, but engages all disciplines within an interdisci-plinary and transdisciplinary framework. In this respect, IYGU will focus on the concerns of daily life of people (eating, drinking, working, housing, entertaining, recycling, communicating etc.), within driving categories (surviving, urbanising, belonging, interacting, preserving, recovering) and with a threefold agenda: daily behaviour, millennium goals and specific actions. At its core sits the explanation of the importance of science for understanding, bringing together natural, social and human sciences.

Rock art is a field of studies that engages on a permanent basis scientific contributions from human, social and natural sciences, but also from the artistic and creative sectors. In this sense it is a highly complex and difficult area. But it also generates a strong interest from people and, unlike other past remains that allow for 'simple' (even if wrong) 'common sense' explanations, does impose itself as a driver to think (on its meaning, its function, its anthropological implications, its chronology etc.). Therefore, rock art sites and areas are among the best contexts to convey the message of IYGU. Projects on global understanding based on rock art clusters will beyond doubt contribute in a significant way for the success of the IYGU aims.

IFRAO has devoted a large part of its efforts to the study, protection and preservation of rock art, bringing together different sciences within a convergent framework that is rooted in a series of methodological standards and ethical principles. In doing this, it encompasses human, social and natural sciences, which is fully in line with the scope of IYGU.

In this context, IFRAO recognises the relevance of IYGU and calls upon all its members to interact with IYGU coordination and Reference Action Centres, allowing for rock art to sit at the heart of this major initiative for the promotion of an integrated understanding of scientific research for the benefit of daily life of people.

## IFRAO resolution 2

The condensed version of the Cochabamba Manifest has been supported via postal ballot by a near-unanimous vote (only one opposing vote) of IFRAO members.

## The Cochabamba Manifest

### Rock art protection and policies of development in South American countries

The recent economic growth in South American countries has accelerated the destruction of fragile ecosystems, through the construction of mega-dams, roads and industrial mining projects, among others. These developments affect not only natural systems adversely, but also several people's traditional lifestyles and indigenous ways of relating to finite natural resources. A cultural heritage that represents more than twelve thousand years of human occupation and accumulated knowledge includes rock art sites. Yet not a single legislative proposal has been made in South America to increase the legal protection of this heritage in the face of economic growth. A systematic decline has been observed in the protective legislation concerning the cultural and historical heritage, including rock art, in countries such as Brazil, Peru and Bolivia. Signed international treaties such as the Convention 169 of the *International Labour Organization of the United Nations*, demanding previous, freely consented and culturally adequate process of consultation of the communities that will be affected by projects such as mega-dams are not being implemented.

Rock art sites and sacred indigenous landscapes related to them have recently been destroyed by hydroelectric and mining projects in South America. These include the Sete Quedas Rapids on the Teles Pires River, in Brazilian Amazonia (this site has already been dynamited and subsequently flooded with the construction of the Teles Pires mega-dam); Toro Muerto in Peru; El Mauro in Chile; Ilha das Cobras on the Madeira River, Brazilian Amazon (also submerged by a mega-dam); Santa Luzia and Pedra do Ó on the Volta Grande of the Xingú River, also in Brazilian Amazonia (affected by a combination of the Belo Monte mega-dam and industrial gold mining), to state but a few. Unlike the Côa valley in Portugal and Dampier in Western Australia, where rock art was accorded a decisive role in the protection of the cultural heritage of humanity and of important socio-environmental landscapes, the aforementioned sites have been destroyed, or are threatened with annihilation.

AEARC (Association of Rock Art Investigation of Cochabamba, Bolivia), APAR (Rock Art Association of Peru) and rock art investigators from Brazil and other countries gathered for the First International Congress of Rock Art and Ethnography in Cochabamba, Bolivia, in 2014 decided to express through this manifest their alarm and discontentment regarding this state. The construction of mega-dams, industrial mining projects such as gas, oil and bauxite exploitation, agro-industrial expansion, opening of extensive roads across natural areas (as in the case of Tipnis in Bolivia), and other massive-scale extractive initiatives in Amazonia and elsewhere in South America are all of concern.

Furthermore, in reference to Article 3 of the *IFRAO Code of Ethics*, this document was produced in order to express support for the struggle of indigenous and traditional South American societies, such as the Munduruku ethnic group from the Tapajos River in Brazilian Amazonia, against the construction of mega-dams and industrial mining projects in their traditional territories and sacred landscapes. The heritage institutions and political representatives of these countries are requested to provide clear and responsible proposals and actions concerning the protection of cultural, historical and archaeological sites. We expressly emphasise rock art sites and the indigenous knowledge attached to them, both cultural expressions and finite cultural-environmental resources. These are severely threatened by what seems to be an uncontrolled, misconstrued and politically biased process of economic growth of South American countries.

Cochabamba, Bolivia, 4 October 2014
AEARC – Asociación de Estudios del Arte Rupestre de Cochabamba, Bolivia
APAR – Asociación Peruana de Arte Rupestre, Peru
ABAR – Associação Brasileira de Arte Rupestre,

Brazil
GIPRI – Grupo de Investigación de Arte Rupestre Indigena, Colombia
ANAR – Archivo Nacional de Arte Rupestre, Venezuela

## List of IFRAO Congresses

1. 1988 Darwin, Australia, held by AURA
2. 1992 Cairns, Australia, held by AURA
3. 1994 Flagstaff, U.S.A., held by ARARA
4. 1993 New Delhi, India, held by RASI
5. 1995 Turin, Italy, held by CeSMAP
6. 1996 Windhoek, Namibia, held by SARARA
7. 1997 Cochabamba, Bolivia, held by SIARB
8. 1998 Vila Real, Portugal, held by APAAR
9. 1999 Ripon, Wisconsin, U.S.A., held by ARARA
10. 2000 Alice Springs, Australia, held by AURA
11. 2004 Agra, India, held by RASI
12. 2006 Lisbon, Portugal, held by APAAR
13. 2009 Capivara National Park, Brazil, held by ABAR
14. 2010 Foix, France, held by ARAPE
15. 2012 La Paz, Bolivia, held by SIARB
16. 2013 Albuquerque, New Mexico, U.S.A., held by ARARA
17. 2014 Guyang City, China, held by RARAC
18. 2015 Cacères, Spain, held by CCB and ACINEP
19. 2018 Capo di Ponte, Italy, to be held by CCSP
20. 2019 Australia, to be held by AURA

# New members of IFRAO

The **Associatión de Amigos del Parque Cultural de la Valltorta y su Museo**, or in short **Amics Valltorta Gassulla** (Spain), has applied for and been granted affiliation with IFRAO. Valltorta and Gassulla are two gorges in the north of Castellón province, containing 90 sites of Levantine rock art. The AVG was formed in 2009 and currently has about 70 members. Its work includes an extensive education program for children in the region, workshops, guided visits to rock art sites, an education program for the ten villages in the region of the rock art, the production of a book, collaboration with Universitat Jaume I (UJI, Castellón), and a special course for tourism agents on the basics of rock art. The AVG seeks collaboration with other rock art organisations around the world; it has a constitution and an elected executive committee of eight, headed by President Carolina Allepuz. The website of AVG is at *www.amicsvalltorta.org.* Please contact the AVG via its IFRAO Representative, Carolina Allepuz, Avgda. Puig Roda, 34, 12179 Tírig, Spain; or at *amicsvalltorta@gmail.com.*

The **China Rock Art Academy** (CRAA) has also recently been admitted to IFRAO. This new organisation has a fully democratic constitution and is based in Hohhot City, Inner Mongolia. Its Council comprises 68 directors and its National Assembly numbers 22 directors. These elect a President, a Secretary-Gene-ral and nine Vice-Presidents. CRAA'a founding membership last year was 138 but is growing rapidly. Its establishment signals the determination of our Chinese colleagues to build up a strong rock art research community in their country, with another (RARAC) already existing there since the 1980s which hosted the IFRAO Congress of 2014. The website of CRAA is *http://zhongguoyanhuawang.com/*. Please establish contact with CRAA through its President and IFRAO Representative, Wang Jianping, The Secretariat of China Rock Art Academy, Hetao Liquor Building, Ke Er Qin North Road, Hohhot City, Inner Mongolia 010010, China; or at *zgyhxh111@126.com*.

The **North China Rock Art Research Institute** (NCRARI) at the Honder College of Inner Mongolia Normal University has also been admitted to IFRAO. Founded in March 2014, this organisation has a democratically elected executive committee and focuses on the rock art of China. It teaches courses of rock art appreciation and cultural relic appreciation. The research work of this institute is at the forefront of Chinese rock art studies and its research results are published in the Chinese mainstream journals and reported by Chinese and foreign media. NCRARI has a code of conduct concerning the investigation, research and protection of rock art. It is the third IFRAO member from China, a country with a large corpus of rock art and many researchers in the field. NCRARI can be contacted through its IFRAO Representative and Executive Director, Professor Wu Jiacai, 29 Airport Road Huhhot, Inner Mongolia, China; or at *wujiacai321@sina.com*.

The **Centro Camuno di Studi Preistorici** (CCSP) is among the two most recently affiliated members of IFRAO. Founded in 1964, this organisation now has a democratically elected executive committee/scientific committee of five members. It focuses on scientific research, promotion and dissemination of study results through its extensive publishing program, exhibitions, conferences and cultural events. The CCSP has its own substantial headquarters (with a large specialised library, scientific archive and documentation centre) and permanent staff to carry out its institutional objectives, and has been a major contributor to world rock art research for several decades. With its application to join IFRAO, the CCSP has provided in impressive activities report for 2013 and 2014, available from the Convener on request. The CCSP is one of the world's most active and influential rock art organisations. The Centro can be contacted through its IFRAO Representative, Professor Mila Simões de

Abreu. The contact details of the CCSP are 7 Via Marconi, 25044 Capo di Ponte (Bs), Italy; Tel. +39-0364 42091; Fax +39-0364 42572; e-mail *info@ccsp.it*.

Finally, the **Rock Art Centre of Juci Mountain** (RACJ) has also just been granted IFRAO membership. Founded in October 2008, this organisation has a democratically elected executive committee headed by President Dr Liu Wuyi and focuses on the study of the rock art of Henan Province, central China. The RACJ collaborates closely with the International Centre for Rock Art Dating at Hebei Normal University, and since 2014 has invited international rock art specialists several times to participate in its projects. These have resulted in the discovery of hundreds of petroglyph sites in various parts of Henan Province since 2008. The publishing program of the RACJ has produced eight books on Henan rock art, and RACJ conducts lecture series on rock art in Xinzheng. The RACJ has also organised rock art conferences in 2009 (Beijing), 2011 and 2015, as well as public lecture programs from 2009 to 2015. Please contact the IFRAO Representative of RACJ, Dr Liu Wuyi, 186 Renmin Road, Xinzheng, Henan, China; Tel. +0086-371-6269 2598; e-mail *huangdi 5000@126.com*.

IFRAO therefore has a total of fifty-six member organisations currently. The great surge of rock art research in China is reflected in the recent increase from one to four members from that country, exceeded only by U.S.A. (seven members) and France and Spain (five members each). Other countries that have more than one IFRAO member are Italy, Russia, Germany, Bolivia and Australia.

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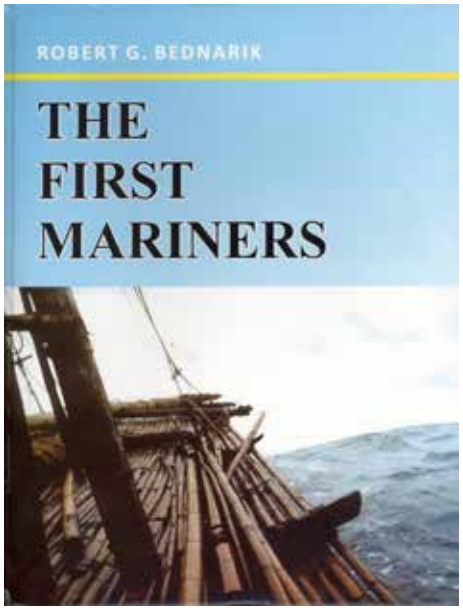


## *The first mariners*

ROBERT G. BEDNARIK

**Research India Press, 2014, 335 pages, 190 mostly colour plates, hardcover, ISSN 978-93-5171-007-3.**

This volume summarises the history and findings of the First Mariners Project, which the author commenced in 1996 and which is engaged in exploring the Ice Age origins of seafaring. This is the largest archaeological replication project ever undertaken. It has so far involved many hundreds of people, the construction of eight primitive vessels with stone tools under scientifically controlled conditions, and the sailing of six of them. Four bamboo rafts have succeeded in accomplishing the historically documented crossings they sought to replicate, the other efforts have failed. One of the successful experiments, a 1000-km journey to Australia in 1998, attempted to recreate the first human arrival in Australia, probably around 60000 years ago. Others addressed the much earlier sea crossings documented to have taken place in the islands of Indonesia, the earliest of which occurred up to a million years ago. Two of these experiments have featured in BBC productions, two others in National Geographic documentaries. This book describes the archaeological background and relevant issues comprehensively and it comprises an extensive pictorial record, of both the experiments and the archaeological basis of this research. It is unique in its approach, because in all such previous maritime adventures it has been tried to prove some point or other, usually that a certain crossing of the sea was possible. This project, by contrast, only deals with proven crossings for which archaeological information about their approximate timing is available. Its purpose therefore is not to prove any colonisation, but to establish what the minimum technological and cognitive conditions would have been to succeed in such maritime achievements of the very distant past. The book contains a detailed discussion of early palaeoart.

The publisher's recommended retail price of this volume is US$150.00 (c. $A214.00). AURA has acquired a number of copies at cost price and is making these available to members at $A40.00 each (81% discount), plus postage for 1.8 kg weight. Please order your copy at

AURA, P.O. Box 216, Caulfield South, VIC 3162, Australia, or *auraweb@hotmail.com*

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