BRIEF REPORTS

Representation of scarification on the Venus of Hohle Fels

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Following final scientific acceptance in 1902 that the abundance of spectacular paintings and engravings being discovered in French and Spanish caves were pre-Historic in age, the search for 'meaning' in European Upper Palaeolithic palaeoart has shown a diversity of approaches, but with little agreement amongst scholars (Bahn and Vertut 1997). Research since then has progressed from the views of 'art for art's sake' and sympathetic hunting magic to approaches that stress art as information exchange and the diversity and differing contexts of both cave and portable art (Bahn and Vertut 1997). Key questions are whether the figurative motifs in the Upper Palaeolithic caves are naturalistic representations of the world around the creators, such as the panel of 'swimming' deer at Lascaux, or whether, like the 'sorcerer' at Les Trois Frères, they are more religious and ritualistic, reflecting shamans and shamanism. The latter explanations have drawn upon ethnographic information from recent hunter gatherer societies, especially Australian Aborigines and the San/Bushmen from southern Africa; however, they remain contentious (Bahn and Vertut 1997). In this brief report, we suggest a new interpretation of incised markings on a remarkable female figurine recovered from archaeological deposits that are at least 35 000 years old at Hohle Fels Cave, south-western Germany (Conard 2009). This interpretation provides further insight into one of the earliest known examples of figurative art in the world, which has radically altered our understanding of the meaning and context of Upper Palaeolithic art in Europe.

Conard (2009) reported the recovery of a unique mammoth-ivory figurine from the basal Aurignacian deposit at Hohle Fels Cave in the Swabian region. The female figurine has many carefully depicted anatomical features, but also many other features that are not anatomically correct or in proportion, including the exaggeration of sexual characteristics such as large, forward projecting breasts, a greatly enlarged and explicit vulva and bloated belly and large thighs (Fig. 1).

The surface of the Venus of Hohle Fels has multiple, deeply incised lines (long, short, straight and curved) on the breasts, shoulders, across the abdomen and back, down the arms and on the legs (Fig. 1). These incised lines were apparently created by repeatedly cutting along the same lines with significant force (Conard 2009). They were deliberate and produced with significant effort and, one can assume, intent. It has been proposed that these lines may represent schematic depictions of skin clothing or a wrap of some kind (Conard 2009; Mellars 2009). However, clothing is rarely depicted on Upper Palaeolithic representations of humans, although the Venus of Lespugue (Haute-Garonne) does appear to have a skirt, depicted in the form of a group of vertical lines covering parts of the back of the legs below the buttocks (Bahn and Vertut 1997). If the incised lines on the Venus of Hohle Fels were a representation of animal skin clothing they would be very schematic depictions. However, there is a good case that the incised lines may be carefully rendered naturalistic details. Based on this assumption, an alternative explanation for the incised markings on the Venus of Hohle Fels is that they represent scarification. If correct, this would be one of the earliest recorded depictions of body scarification in the world. The extent, nature and position of the incised lines are consistent with being representations of scarification, especially the horizontal lines across the abdomen, thighs and lower back, the more oblique lines down the arms and the curved lines on the upper

Figure 1. *The Venus of Hohle Fels (copyright: University of Tübingen).*

Figure 2. *A 1927–1928 photograph of a man from the Kimberley, north-western Australia, with cicatrices on his back (Photograph courtesy of the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra Australia, Adolphus Elkin collection, image: 6536).*

chest/breasts.

Scarification, the deliberate marking of the skin with cuts or burns, was/is a commonly practiced cultural custom throughout the world. It has been practiced by Aboriginal people throughout Australia and is an integral component of their cosmology and ritual life (Lydon 2014). Cicatrices are decorative scars made on Aboriginal men and women for a range of reasons, and are found on the chest, abdomen, shoulders, arms and thighs (Fig. 2). In particular, cicatrices are marks of initiation and affiliation to a particular social group. Archaeologists working with traditional custodians have recorded that they were informed that abraded grooves at some rock art sites were the cicatrices of the totemic beings who visited the place in the Dreamtime, and that people copy the Dreaming by cicatrising themselves (Gould 1969; Flood 2006).

There are rare examples of possible representations of scarification in pre-Historic art (McCarthy 1964; Vinnicombe 1976; Huchet 1990). The representation of cicatrices on Ancestral Beings has been proposed for figurative Australian Aboriginal art (McCarthy 1964; Mountford 1964; Huchet 1990). Ancestral Beings are creative spirits in human or animal form that travelled across the country during the Dreamtime creating features of the landscape, establishing the social order and linking people to places (Gould 1969). For example, a large petroglyph of a male Ancestral Being at Maroota, near Sydney, has a series of pitted lines suggested to be cicatrices (McCarthy 1964). It has also been argued that cicatrices are depicted on paintings of male and female anthropomorphs near Laura, Cape York, Australia (Huchet 1990).

The Venus of Hohle Fels may be a naturalistic representation of a female member of the Hohle Fels community with scarification, or, we would argue, more likely the Upper Palaeolithic equivalent of a cicatrised Ancestral Being within Australian Aboriginal cosmology.

The markings on the Venus of Hohle Fels are also broadly reminiscent of the markings found on other Aurignacian figurines from the Swabian region of south-western Germany. Of particular interest is a statuette of a human with a feline head (therianthrope) from Hohlenstein-Stadel. On the left upper arm of the statuette is a series of regularly spaced incised parallel lines of similar lengths, which may be representations of cicatrices. A therianthropic figurine from Hohle Fels (Conard 2003) has single incised vertical lines on its left shoulder and left thigh which could also be representations of cicatrices, although they could be manufacturing marks. Two anthropomorphous figurines, one from Vogelherd and the other from Geißenklösterle, have multiple pitted lines that could possibly represent cicatrices. Some animal figurines, including mammoths, horses, bison, bears, cave lions and other felids have straight and wavy lines, dots and criss-cross designs incised on their surfaces (see Porr 2010: Figs 1, 2). As with the Venus of Hohle Fels and the therianthropes from Hohle Fels and Hohlenstein-Stadel, the positions of the markings on the bodies of the animal figurines (backs, shoulders), as well as their form (predominantly straight lines), are consistent with cicatrisation, reflecting equivalent locations on these animals to scarification marks on the human body (see also Huchet 1990).

We would concur with Porr (2010) that the Aurignacian figurines from the Swabian region of south-western Germany may reflect 'cultural memory' — a shared memory of the mythological past in which ancestors and mythical beings shaped the world — similar to the 'Dreaming' in Aboriginal Australia. Our proposal is that the therianthropic, anthropomorphous and animal figurines may be representations of Ancestral Beings, and that some of them are depicted with scarification-cicatrices.

It appears that the Aurignacian figurines from the Swabian region of south-western Germany belong to a distinct artistic (and potentially mythological) tradition, and confirm that the upper Danube was an area of cultural innovation during the early Upper Palaeolithic (Conard 2003, 2009).

Australian Aborigines use rock art to tell stories, often detailing the journeys across the landscape of Ancestral Beings. These Beings often bore the marks of cicatrices on their bodies, which look like the series of incised lines on the Venus of Hohle Fels, interpreted

here as cicatrices. The Venus of Hohle Fels, therefore, may be the earliest artistic representation of a figure with scarification-cicatrices.

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The use of natural features in the rock art of Ngaut Ngaut (Devon Downs), South Australia, and beyond

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This brief report provides some additional points of interest in relation to the rock art of Ngaut Ngaut (Devon Downs), South Australia — a mid to late Holocene heritage complex (see Roberts et al. 2014 in a previous edition of *Rock Art Research* for a more detailed background). In this paper we outline the use of natural features in petroglyph production at Ngaut Ngaut in order to provide additional baseline contexts for the rock art of the mid-Murray in South Australia as well as comparative examples for national and international case studies.

As we outline in Roberts et al. (2014), the Ngaut Ngaut heritage complex is significant for many reasons; however, in relation to rock art studies this place is important as it was arguably the first in Australia to reveal rock art in an excavation (conducted in 1929 by Hale and Tindale) (see Hale and Tindale 1930; Layton 1992: 213; Mulvaney and Kamminga 1999: 367; Roberts and MACAI 2012; Bednarik 2013). The site also provides one of the few instances where approximate 'dating of rock art by excavation' has been possible worldwide (Bednarik 2013). Additional future accelerator mass spectrometry (AMS) ^{14}C analysis may now also be possible to assist in further refining our understanding of the rock art chronology at Ngaut Ngaut, due to the recent investigation of the dark rock coating which covers some of the rockshelter surfaces (see Roberts et al. in press).

Although the focus of this paper is Ngaut Ngaut, we also illustrate the comparative use of natural features in rock art from around the world. Such global examples highlight an apparently universal human phenomenon and means of exploring the natural world which 'speaks of human relationships to places and spaces' (Taçon 1999: 34) — and perhaps relates even more broadly to the automatic responses in the visual systems of humans (e.g. see Bednarik 1998, 2008; Feliks 1998; Watson 2008: 43; Achrati 2013 for additional discussion) — although as Bradshaw (1998: 125) cautions we must always acknowledge that 'human image making may have had unrelated origins … that it may have occurred independently' and 'in many different places at different times'.

Natural features have been symbolically exploited not only on their own, but also in rock art and other artistic forms in the following ways:

- Ascribing mythological or other symbolic significance, although there need not be any signs of anthropic modification (or similarly making no

distinction between cultural and natural rock markings);
- Inspiring the production of rock markings in adjacent locations or on the body;
- Marking or accentuating natural boundaries; and
- Incorporation into particular artistic motifs or designs.

Below we will explore some of these aspects as they relate to the rock art at Ngaut Ngaut and consider related examples in a global context. Whilst it is beyond the scope of this paper to provide a thorough global analysis we do attempt to provide a range of relevant examples, albeit that they are separated in space and time. The inclusion of such a variety of examples is by no means intended to further the issue of the inappropriate use of Australian ethnography in other art contexts (e.g. Upper Palaeolithic Europe — see Whitley 2011: 319 for an overview) but rather to emphasise the use of natural features in rock art as being a universal phenomenon as noted above. Indeed, whilst the causes for the production of some rock art may be shared amongst human groups and in differing time periods, their meanings are likely to be 'much more cultural, complex and mediated' (Faulstich 2008: 48). As such, the inclusion of any ethnographic accounts is simply to illustrate the variety of cultural meanings attached to the examples thereby providing a more textured account.

Natural features as inspiration for rock markings

The use of natural features and other natural phenomena, such as animal tracks and scratch marks, as inspiration for rock art is well-established in Australia and elsewhere (e.g. Bednarik 1985, 1986; Bahn 1986, 1998; Flood 2006; Watson 2008). Such features are 'copied' on the rock, either directly adjacent or at sites nearby.

At Ngaut Ngaut, natural (solution) holes or hollows occur next to holes that Aboriginal people have drilled into the Mannum Limestone, which is of marine origin and Miocene in age (c. 20 million years old). At times it is difficult to distinguish the natural holes from the drilled holes, so care must be taken to inspect the rock surfaces closely (see also Bednarik [1994a, 1994b] and Soleilhavoup [1994], amongst others, for additional commentary on discriminating between natural and anthropic markings). Nevertheless, clearly the natural holes have provided a source of inspiration for artistic activities at Ngaut Ngaut and they have been copied into the soft limestone surfaces at the site. The existence, and other use of natural holes (i.e. in relation to incorporation into motif design), is explored further below.

In addition to the above example, other types of natural features that appear to have been inspirations for rock art include:

- Vertical fissures. These are common across Australia, especially in Wardaman country (Northern Territory), where there are many small natural vertical grooves in amongst anthropic abraded grooves (Flood 2006). For example, at Yiwarlarlay, a rain 'Dreaming' site, the natural and abraded grooves are said to be cicatrices or ritual scars made in the 'Dreaming', and 'people copy the Dreaming, and that is why they cicatrise themselves' (Flood 2006: 241). Similarly at Åmnes in Norway 'scythe-shaped cracks' or fissures are interpreted as the inspiration for zoomorphic rock art images (see Sognnes 2012: 54);
- Natural ripples or wavy parallel grooves. An example of the 'copying' of this type of feature occurs at a site in the Western Desert of Australia where such natural grooves provided the inspiration for serpentine finger marks inscribed in the black mud that was piled up on a white limestone shelf adjacent to a waterhole (Gould 1969; see also Flood 2006). This site is the focus of a totemic water-snake ceremony with the natural ripples understood by the Aboriginal community to be the chest scars of the water-snakes who transformed themselves into the waterhole during the 'Dreamtime' (Gould 1969). Prior to the ceremony observed by Gould (1969; see also Flood 2006), an Elder had inscribed across his chest a series of parallel lines in red ochre mixed with emu fat, and had explained that the lines represented the chest scars of the water-snake men, another example of 'copying the Dreaming';
- Colour patches in the natural rock surface — see for example commentary in Bednarik (1986: 44) regarding the 'prompting' of colour patches in the production of images in the Upper Palaeolithic art of western Europe; and

***Figure 1**. Drilled hole arrangement at Ngaut Ngaut conforming to the rockshelter's natural edge. All photographs by Tegan Burton, 2/10/2013.*

- Other markings that resemble something of significance to the artist — e.g. a natural arrow-shaped mark (resembling an emu track), also in Wardaman country, has a petroglyph of a similar-sized footprint next to it to make a pair (Flood 2006).

***Figure 2**. Close-up photograph of a drilled hole arrangement at Ngaut Ngaut conforming to the rockshelter's natural edge.*

Marking the boundaries of natural features

The use of natural features at Ngaut Ngaut reveals that the Aboriginal artists were sensitive to the Mannum Limestone into which they engraved in additional ways to the example of 'copying' the solution holes or hollows as noted above. For example, in some sections of the rockshelter complex, drilled hole arrangements clearly 'conform to' and/or 'accentuate' the rockshelter's natural edge (see Figs 1 and 2) (after Taçon 1999: 46). Similarly, a naturally occurring concave feature within the limestone has been vertically incised on its lower edge — again serving to accentuate the natural feature (see Fig. 3).

These observations clearly have parallels to other rock art forms such as cupules recorded in northern Australia. At the Djawumbu site complex in western Arnhem Land, for example, cupules inside an enclosed corridor serve to mark and accentuate an internal cave entrance running through one wall of the rockshelter (Wright et al. 2014). According to the authors, this use of natural features indicates a 'coming to terms with and marking of the landscape' (see also Taçon et al. 1997: 961), while 'the frequent link with geological features suggests cupules were visual markers for culturally significant sites, structuring human movement through country' (Wright et al. 2014: 98).

Natural ridges in rockshelters may also be marked by battering as occurs in the sandstone bedding of rockshelters in the Laura region of north Queensland, Australia, which can occur over considerable lengths (Rosenfeld 1999; see also Flood 1987: 98 in relation to the rock art of the nearby Koolburra Plateau). Hammered marks also occur on the edges of rockshelter walls in Wardaman country, where the practice is said to 'bring out the power in the rock', which may be impregnated with the presence of creation ancestors like Gordol, the owl, at Gordol-ya (Place of the Owl) (Flood 2006: 240).

David and David (1988: Pl. 5) note a feature similar to the image in Figure 3 in relation to the rock art of the Chillagoe-Mungana region in north Queensland, Australia. In their example they illustrate a large natural depression in a rock overhang surrounded by radiating lines of red ochre on the depression's edge. Such examples of 'boundary marking' could in some instances also be included in the category discussed below regarding the incorporating of natural features into designs (e.g. see section on the 'sun' motif).

International examples also include instances of rock art marking the boundaries of other natural features. For example, 'fish' petroglyphs at Baiheliang in south-western China have been recorded as marking the boundary of the low water mark on the Yangtse (see Coffman 2002: 43). No doubt many more examples exist in this regard.

Incorporating natural features into designs

At Ngaut Ngaut, another use of natural features is their incorporation within a motif's design. In some places, naturally occurring holes have had motifs incorporated around them, such as the circles with attached and radiating lines extending outwards as depicted in Figure 4 (this figure also demonstrates

***Figure 3**. Natural concave feature vertically incised on its lower edge.*

***Figure 4**. Example of a natural hole in the limestone which has been incorporated into motif design.*

***Figure 5**. Close-up of one of the natural hole features in Fig. 4, showing further accentuation of the feature by additional engraving/abrasion.*

the adjacency of natural holes with drilled holes as discussed above), as well as being further accentuated by additional abrasion around the natural form (Fig. 5) (see also section above on this point).

Naturally occurring concave features (depressions) within the limestone have also been used by the Aboriginal artists at Ngaut Ngaut to add the dimension of depth to figurative motifs. For example, a 'turtle' motif exploits a concavity in the limestone to depict its 'shell' (see Fig. 6). Such features of the petroglyphs are well-known to the Mannum Aboriginal Community and their cultural guides regularly point out the use of natural forms to members of the public during the tours they conduct.

The use of concave and convex natural forms to add depth and/or distinction to motifs has received some attention from previous Australian rock art researchers. In the nearby Mount Lofty Ranges of South Australia, for example, may be found a 'sun' motif (which also exists in engraved form at Ngaut Ngaut), which has been painted in red ochre around a natural depression at the Salt Creek site (see Coles and Hunter 2010: 187 and 212). Also of note is the painted motif following a fissure line at nearby Pyms Shelter (Coles and Hunter 2010: 186–187).

In Wardaman country natural hollows in the rock have had female figures painted or engraved around them, with the hollows representing 'vulvas' (Flood 2006). 'Vulva' motifs were also made by abrading natural depressions and surrounding them with engraved ovals or circles, some of which were then rubbed with red ochre (Flood 2006). Similarly Smith and Jennings (2011: 242–243) have written about the use of a natural depression/waterhole in the Bindook Highlands of New South Wales which has been modified by 'chipping' at one end 'as to create a three-dimensional intaglio impression of a macropod's 'head and shoulders' attached to the main part of the pool' which is viewed as representing its 'body'.

Examples of the incorporation of natural features into rock art motifs have also been observed by researchers in other countries. In southern Africa, for example, there are the depictions of 'rain-serpents' in the south-eastern mountains that relate to natural features (such as the depiction of a 'rain-serpent' neatly fitting into a circular concavity or the 'rain-serpent' that enters and emerges from 'steps or cracks in the rock face') (see Ouzman 1998: 79 for an overview) as well as examples like the image at the site of Gxalingenwa Rock 1 where the 'artist(s) painted the figure around pre-existing holes in the site wall' in order to 'represent the torso' (Solomon 1998: 281). There are also the well-known Peterborough petroglyphs of Ontario, Canada (said to be of late Holocene origin; Vastokas and Vastokas 1973: 27), that are 'often arranged around natural fissures, rendering them an inextricable part of the rock itself' (an example from Peterborough includes 'natural crevices used to portray what might be the womb and genitals of a large female figure' (see Zawadzka 2008). Another example from an international context includes observations from Nash (2006: 202) relating to the Garn Turne Neolithic chambered burial monument in south-west Wales where natural depressions have been enhanced to form a 'cup-and-ring' petroglyph (see also Steinbring and Lanteigne 1991: 23 for similar discussion in relation to the 'cup-and-ring' petroglyphs of west Yorkshire).

Upper Palaeolithic art in Chauvet Cave, France, where 'the natural relief of the cave's walls' were 'used to enhance dynamism' also of course provides perhaps one of the most famous illustrations of this

phenomenon (see Scarre 2009: 162). Other examples from the art of Upper Palaeolithic Europe include (Bahn and Vertut 1997):

- Painted bison curled around natural bosses on the rock ceiling at Altamira;
- The famous 'swimming deer' at Lascaux, whose drawn heads appear to be bobbing up and down out of a natural wavy contour and discolouration in the rock;
- The spotted horse panel in the cave of Pech Merle, where the depiction of the animals was probably dictated or inspired by a natural horse-head shape in the rock;
- A natural hollow at Niaux resembling a deer head viewed front on, which has had antlers drawn on either side of it; and
- A male figure drawn around a stalagmite that resembles a phallus protruding from the wall at Le Portel.

***Figure 6**. Natural concave feature used to depict a 'turtle's shell'.*

Conclusions

The various uses of natural features in the rock art at Ngaut Ngaut are arguably part of a universal phenomenon found in rock art across the world. All of the examples discussed in this paper, although separated in space and time, reveal human responses to places thereby 'converting them from physical to social landscapes' (Taçon 1999: 34). Indeed, rock art, as argued by Taçon (1999: 34), via its 'symbolic and aesthetic intent' is a unique form of human activity 'that is most directly linked to … perceptions of landscape' whose 'very location and organizational structure … speaks of human relationships to places and spaces'.

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RAR 32-1174

Natural features in rock art: a response to Roberts et al.

By ROBERT G. BEDNARIK

Roberts et al. have introduced an important and universal facet of rock art that deserves much further consideration. Of particular importance is their careful observation that this aspect of rock art 'perhaps relates even more broadly to the automatic responses in the visual systems of humans'. Bearing in mind the role of pareidolia in rock art perception this is certainly a valuable insight. Here this approach is further developed by presenting some poignant examples and their respective ethnographies, where available, and some generic comments.

My first example of how pre-existing geological features on rock often prompt the production of petroglyphs comes from Port Hedland, on the western coast of Australia. The Two Mile Ridge is a long bank of oolite limestone, projecting around 2 m above the coastal flats. In the past it was literally covered in petroglyph panels, over much of its length of more than 3 km. Crawford (1964: 56) estimated the number of petroglyphs on it to be 800, but his estimates deriving from 'short surveys' are notoriously inaccurate and McCarthy's (1962) earlier view has precedence. (It was Crawford's fateful blunder of estimating that there are only 200 petroglyphs in the Dampier Archipelago, where there are in fact around one million, which ushered in the massive rock art destruction of what is said to be the world's largest concentration of petroglyphs.) I surveyed the Two Mile Ridge over the course of three months in early 1968 and recorded dozens of the most prominent motifs with the precision facilitated by the use of a recording frame (Bednarik 1984: 4, 1985). I have not attempted to count the number of motifs of the large site, but there were certainly thousands of them. Today, only a pitiful remnant of less than one hundred survives inside a protective fence erected by Bruce Wright at my request. The only other surviving petroglyphs of the former mega-site are a few small motifs at the eastern end of the ridge. Over the intervening kilometres the rock art has been destroyed, by the railway tracks laid over most of the length of the ridge, by roads and by various other construction activities. The oolite pavement, unfortunately, offers little resistance to mechanical damage or to acidification of the atmosphere. Therefore,

apart from McCarthy's data, my recordings are the only surviving documentation of this major petroglyph complex.

One of the petroglyph motifs repeated a number of times along the Two Mile Ridge were those of a large female anthropomorph in frontal outline. They occurred in sizes approaching human adult size and tended to be executed with 'outstretched arms'. Interestingly, some of these figures had been created in response to natural vertical holes in the horizontal limestone pavement. These holes are round solution tubes of around 4–5 cm diameter, at least 10 or 20 cm deep. They appear to represent the vaginas of these figures (Fig. 1). This is confirmed by the account of an Ngarla elder provided to me in 1968, according to which young men or teenagers laid down on the anthropomorphous petroglyphs and copulated with the solution tubes. Other aspects of this explanation are understood to be restricted information and are therefore not provided. What is relevant here is that this is a striking example of how a natural feature on a rock surface can induce cultural reactions resulting in what is called rock art, but what is, in reality, just a permanent (or, in this case, not so permanent) facet of a much more complex phenomenon.

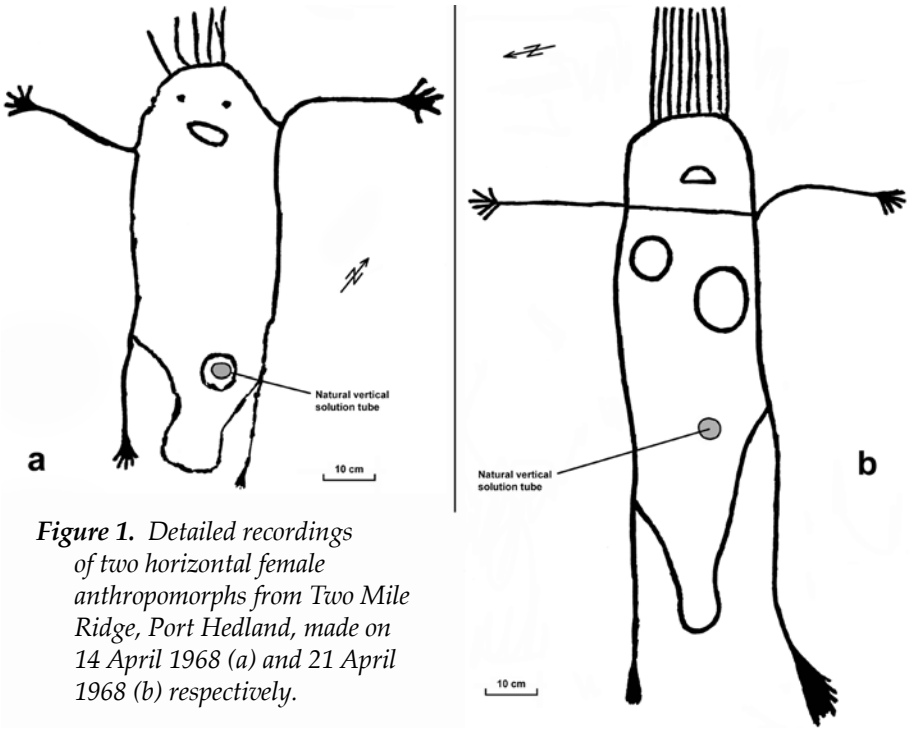

Figure 1. *Detailed recordings of two horizontal female anthropomorphs from Two Mile Ridge, Port Hedland, made on 14 April 1968 (a) and 21 April 1968 (b) respectively.*

Natural 'holes in rock' can have a variety of meanings to ethnoscientists (the traditional indigenous interpreters of natural phenomena applying cause and effect reasoning). The anthropogenic holes reported by Roberts et al. from Ngaut Ngaut, apparently prompted by the natural solution holes in that site, may also relate to intricate motivations that are totally inaccessible without guidance by a knowledgeable person. But what needs to be appreciated foremost is that for many indigenous Australians of traditional knowledge, there is no fundamental distinction between artificial and anthropogenic markings or features on rock. Therefore, if there is no historical knowledge of the human production of a petroglyph, the rock art is often assumed to date from 'when the rocks were soft'. The same applies to natural markings, such as xenoliths or karren and countless other features in nature.

Some archaeologists, too, cannot effectively distinguish between natural and artificial rock markings (Bednarik 2008), for instance between

Figure 2. *Potholes on quartzite of Potholes Hoek, southern Kalahari, South Africa, with some of the site's Fauresmith cupules visible to the right of the microscope. Note the MSA circle petroglyph below the scale.*

cupules and potholes. There are many examples of this from South America (ibid.: 64), yet I have recorded the account of an illiterate Quechua-speaker from Karakara, central Bolivia, who vehemently rejected the proposition that certain potholes near his village were made by humans (ibid.). Because these particular phenomena were located high above the nearby river bed, he was unable to link them to past water action, so he sought to explain them as having been caused by lightning. Thus traditional indigenous 'ethnoscientists' apply cause and effect reasoning, and the observation of Aboriginal ethnoscientists that all rocks must once have been soft is no doubt based on valid observations of nature (e.g. lava flows, fossil casts, fossil dune formations) and it is salutary to remember that Europeans who would have proposed such views only some centuries ago would have been excommunicated or burned at the stake.

Of interest here is that to the Karakara potholes, a number of cupules have been added (Bednarik 2008: Fig. 5), and similar responses have been recorded elsewhere and even from vastly earlier contexts. The many cupules next to the 300-million-years-old potholes of Potholes Hoek in the Kalahari Desert (Fig. 2) provide the currently earliest example of this (see Beaumont and Bednarik, this issue of *RAR*). It would be unreasonable to deny that cupules found next to or among concentrations of potholes were made in response to the pre-existing natural marks. Indeed, there is a vast range of natural markings that appear to have prompted the production of rock art, and this is perhaps most commonly observable in limestone caves. Natural rock markings are hundreds of times more common than rock art in caves, consisting of a considerable variety (Bednarik 1994) and there are numerous cases where the proximity of similar engravings implies that they are responses to the natural markings. Indeed, these similarities have sustained long debates among researchers (e.g. Sharpe 2004 and debate) about the discrimination between these two forms. That alone demonstrates the close parallels and the need for the distinction to be made, while at the same time the nexus justifies the indigenous perceptions that underlie the issue.

In short, Roberts et al. have broached a subject that is of considerable importance to understanding the neuroscience behind rock art production. It is to be hoped that others will take up this challenge and explore that subject further — much further.

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Editor

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RAR 32-1175

Preliminary study of rock art at Negaran valley in Baluchistan, Iran

By HOSSEIN SARHADDI-DADIAN, HOSSEIN MORADI and MOJTABA SOLTANI

Introduction

This article describes briefly a set of petroglyphs in Negaran valley. During the investigation conducted, more than fifty panels of petroglyphs have been identified that it are unique in Iran in terms of their pattern density. Given the wealth of archaeological and human settlement evidence, less attention has been paid to studying petroglyphs. Recent fieldwork showed that Negaran valley, which is dry today, and its petroglyphs are exposed to destruction. Because of the presence of springs, it was in past considered more suitable for human settlement. The number of rock art motifs in this valley implies the importance of this place in the social life of past peoples in this region. The petroglyphs of Negaran are presented here for the first time.

Saravan is located in the south-east of Iran, 400 km south of Zahedan. The region is bordered by Iranshahr in the east, by Pakistan in the south-west (Moradi et al. 2014), by Sarbaz in the south (Sarhaddi-Dadian and Moradi 2009), and by Khash in the north. Archaeological studies conducted within the Saravan region have shown the presence of ancient sites that date back from Palaeolithic to the late Islamic periods (Moradi and Sarhaddi-Dadian 2010).

In 1958, Dessau first identified some petroglyphs of human and animal motifs in the Khash area (Dessau1960). During the last decade, other petroglyphs have been reported from all around the Iranian Baluchistan (Moradi et al. 2013). In addition, some petroglyphs have been reported from Nik Shahr (Shirazi and Soltani 2011; Shirazi 2003, 2008), especially Kajou valley in Qasr-e-Qand (Solatani 2010), and from the Sarbaz region (Heydari 2010), that are similar to other parts of Baluchistan and western Iran (Lahafian 2004, 2010; Ghasimi et al. 2014).

Negaran valley

One of the areas of Baluchistan that has provided most exemplary and important petroglyphs is a narrow and shallow valley called Negaran, which is located

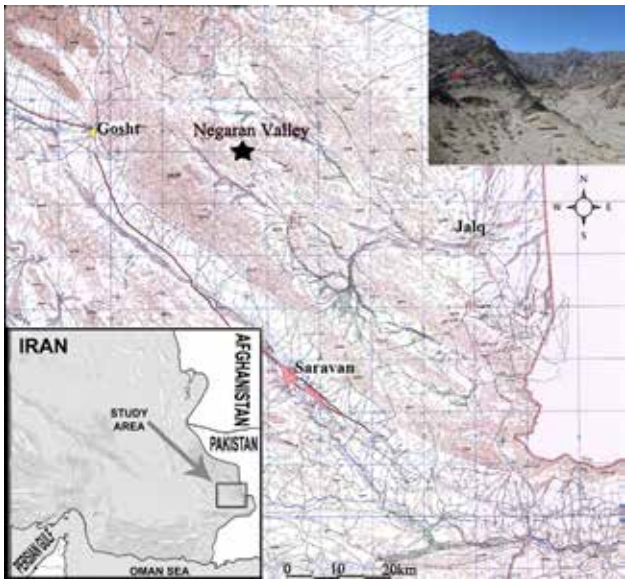

Figure 1. *Location of Negaran valley in south-eastern Iran.*

about 65 km north-east of Saravan, 40 km from Nahouk. Among its important features are petroglyphs that have so far not been published. The petroglyphs are distributed over about 1 km of the length of Negaran valley (Fig. 1) (Moradi and Sarhaddi-Dadian 2010).

According to surveys by the authors, at least fifty distinct petroglyph panels or sites were identified in Negaran valley. Introducing all of them will be tedious for readers, because of repeated patterns and the repetitive nature of the text. Therefore only twelve panels are introduced here.

Site 1: The panel is around 100 × 85 cm and was identified on low-height rocks before the valley's entrance. This panel consists of four 'horse riders', two zoomorphs and one unknown pattern on top of the panel (Fig. 2)

Site 2: This panel is full of patterns, which were created compactly, the dimensions of the panel being 150 × 120 cm. The arrangement is created from two 'combinations' of 'horse riders' and unknown motifs. 'Riders' account for 13 of the images and they are related to each other with linking lines. They are among 30 motifs on dark-patinated rock. At the lower part of panel on the left side, several superimpositions occur among zoomorphs (Fig. 3).

Site 3: This is located on the eastern rocks of the valley and includes 'riding' and apparent animal motifs. The panel dimensions are about 56 × 98 cm and there are about a dozen motifs on this panel (Fig. 4).

Site 4: The size of this panel is 40 × 90 cm. It includes what we think is an image of hunting an animal, and some part of this panel is destroyed by natural erosion. There are ten motifs on this panel.

Site 5: This site with six motifs in the centre of the valley is pounded on the lowest part of rock near the dry stream bed in the centre of the valley. Local people use the spring water for agriculture and this leads to deposition and burial of some parts of these reliefs, and a thick white deposit covers some parts of designs. The picture of one 'rider' and two zoomorphs

Figure 2. *Petroglyph site 1.*

Figure 3. *Petroglyph site 2.*

Figure 4. *Petroglyph site 3.*

Figure 5. *Petroglyph site 6.*

Figure 6. *Petroglyph sites 9 and 10.*

are present.

Site 6: The largest petroglyph of Nagaran valley is located in front of panel 5. This panel follows the common pattern and themes in Negaran. In the highest part of the assemblage, two geometric motifs are observed that can be seen among petroglyphs of other parts of Sistan and Baluchistan. Although we cannot say anything specific about their meaning, we feel that they resemble one of the designs that are used for decorating pottery in Iran during the third millennium BCE (Tosi 1976) (Fig. 5).

Site 7: The size of seventh panel 40 × 60 cm. Its composition is incomplete due to natural deterioration. The colour of this panel is totally black and there are eight motifs on it.

Sites 8, 9, 10: At the end of valley, three panels are located. The first one, of 1 × 2 m size, comprises 12 motifs. The motifs of 'riders' are repeated, similar to other motifs in Negaran valley. Sites 9 and 10 show numerous further 'riders' (Fig. 6).

Sites 11 and 12: Negaran valley ends with a 90 degree change in direction towards the south-west. In this part, two panels are located on two opposite sides of the rock. The first group is located at a height of 5 m above the bed of stream. We can see three 'riders' in the centre and three zoomorphs in the lowest part. Panel 12 is of exemplary quality and was also created high above the stream bed and on a darkly patinated surface (Fig. 7).

Conclusion

At least fifty petroglyph sites have been identified in Negaran valley. They feature the largest collection of motifs in the region of Sistan and Baluchistan. The number of petroglyph sites in this valley shows the importance of this place for human groups that lived in and around this region.

Another important issue concerns the damage that is caused to the rock art through natural erosion processes. The difference between day and night temperatures in the desert and arid regions such as Baluchistan over time causes cracks on stone surface and finally, with the development of deep fissures, some parts of

Figure 7. *Petroglyph sites 11 and 12.*

the rock will exfoliate. So, parts of petroglyphs will be incomplete and the probability of further damage increases. For this reason the authors propose that government organisations implementing strategies such as retrofitting fragmented rock could possibly arrest the ongoing damage and facilitate the transfer of the rock art to future generations.

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RAR 32-1176

First record of the Indonesian short-finned eel (Anguilla bicolour) *in Arnhem Land rock art*

By DARRELL LEWIS

In the rock art of many parts of Australia, identification of animal species by 'outsiders' — generally, rock art researchers — is known to be difficult (McIntosh 1977; Brandl 1980; Lewis 1986). In some rock art provinces the artists were not concerned to include details which would facilitate precise identification. The species portrayed were generalised, representing 'fish' as opposed to, say, 'barramundi', or 'macropod' or even 'mammal' as opposed to, say, 'kangaroo', or more specifically, a particular species of macropod. In at least some cases this generalisation was deliberate, as a means to control knowledge of the meaning of the image, and to allow for different meanings to be revealed by Aboriginal custodians depending on the social status of the observer (Lewis and Rose 1995: 50–52). In other cases details to facilitate identification were included, but depicted within particular artistic conventions. For example, 'twisted perspective' could lead an artist to place in the 'wrong' position on the animal physical features which otherwise would not be visible, thus (unintentionally) confusing those unfamiliar with such conventions. The best known example here is the experience of McIntosh (1977). In both situations accurate identification can only be accomplished if the observer has access to local cultural knowledge, i.e. has learnt from or can be advised by knowledgeable Aborigines (Lewis and Rose 1995: 50–52). In many areas such knowledge is no longer available.

An exception to this situation is the rock art of west Arnhem Land, where the artists were often (but not always) concerned to accurately portray the body shape and to include specific details which, singly or in combination, belong to a particular species (Lewis 1986). This is particularly the case with paintings in the dynamic style. Dynamic rock art, and related styles, is noted for its generally fine line work and attention to detail — material culture items such as boomerangs, spears and hafted stone axes, and also many animal species, are depicted more or less 'true to life'. Mammal species may be stylised to some degree, particularly with respect to the legs which on kangaroos are often elongated. While body shape may be close to realistic, examples are known where this is not the case, so body shape alone cannot be taken as a reliable guide to the species portrayed. More important are features such as the shape of the hind feet, facial vibrissae, pouch-line, angle of the tail, body markings, and the arrangement and positioning of the genitalia (Lewis 1986: 140; see Rosenfeld 1982: 209). Animals such as reptiles and fish were usually more 'naturalistic' in shape and, again, the inclusion of particular details — for example, the shape of the head on snakes, or body markings and the number and positioning of fins on fish — may allow the species to be identified (Brandl 1973: 181; Taçon 1988).

In 1973 Brandl published photographs and line drawing versions of a number of paintings from Cadell River in central Arnhem Land. Of concern here are his Figure 20 (also his Plate xliii), and his Figure 195. Brandl's Figure 20, reproduced here as Figure 1, is a complex composition which includes macropods, various types of fish, a turtle, a terrapin, a bird, kangaroo tracks and twenty-three human figures with spears or boomerangs. On the left side of the panel is a group of five long fish arranged side by side, and well to their right there is a single, very similar fish. Brandl's Aboriginal informants identified these fish as eel-tailed freshwater catfish, either *bareidjar* or *ngugwa*. There are four species of eel-tailed catfish in Arnhem

Figure 1. *A complex panel of rock art from Cadell River, including six fish of the type discussed in this paper, after Brandl (1973: Fig. 20). Width of panel: 188 cm.*

Land freshwater sources (*Neosilurus* sp.), each one physically similar to the other (Walden and Pigeon 1998: 34; Bishop et al. 2001: 83–132). Brandl's Aboriginal informants told him that the two (unidentified) species are identical except for their size and cannot be differentiated in rock paintings (1973: 72, and 193, documentation for Fig. 20). The other set of paintings is Brandl's Figure 195, reproduced here as Figure 2. As well as a small fish and a large snake, the panel includes a fish similar to those in his Figure 20. In this instance the fish was identified by his informants as the eel-tailed catfish, *bareidjar*.

In *The rock paintings of Arnhem Land, Australia* (Lewis 1988), Figure 29 is a line drawing of a painted 'scene' from the upland valley section of Baroalba Creek (Mt Brockman), a tributary of the South Alligator River in Kakadu National Park. The composition depicts a dynamic figure wearing an exceptionally long headdress and grasping the tail of a kangaroo (reproduced here as Fig. 3; one of the human figures in Brandl's Fig. 20 also appears to be grasping the tail of a kangaroo). Surrounding the man and the kangaroo, and judging by colour and stylistic attributes definitely part of the 'scene', are eight fish. Three of them are large and apparently represent the same species while the other five are relatively small and appear to represent two other species.

In 1993 Chaloupka published a photograph and line drawing of the same panel of paintings, though his line drawing omits a fish located below the end of the headdress (1993: 114, 115). He identified the three large fish as eel-tailed catfish, and because of different body markings, the small fish as spangled and banded grunters. Whether his identifications were informed by Aborigines is unclear.

Regardless of whether these fish were identified by Aborigines, or by Brandl or Chaloupka, it is unlikely that the species portrayed is eel-tailed catfish. Catfish of this type have a pair of pectoral fins, a pair of ventral fins, a dorsal fin just

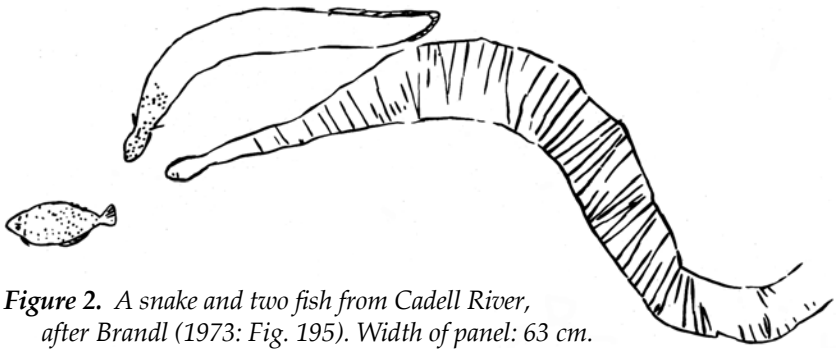

Figure 2. *A snake and two fish from Cadell River, after Brandl (1973: Fig. 195). Width of panel: 63 cm.*

Figure 3. *Dynamic-style human, kangaroo and fish. Mt Brockman, Kakadu. Length of headdress: 38 cm.*

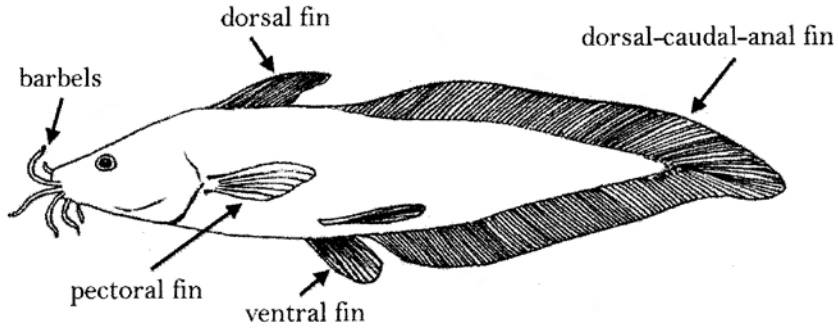

Figure 4. *Physical features of a freshwater eel-tailed catfish.*

behind the head, and a dorsal-caudal-anal fin which extends right around the body, beginning behind the anus and terminating close to the head. Their bodies taper markedly from head to tail and they have long barbels ('whiskers') on the upper and lower jaws (Fig. 4). They have relatively short bodies and cannot curve them more than about 30 degrees away from their long axis.

Rather than eel-tailed catfish, the most likely identification of these paintings is that they represent the Indonesian short-finned eel (*Anguilla bicolour*). This species has two pectoral fins, and a dorsal-caudal-anal fin which extends around the body but which begins and terminates about

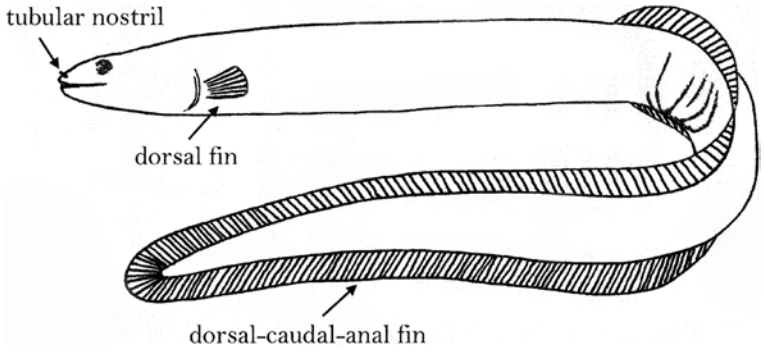

Figure 5. *The Indonesian short-finned eel,* Anguilla bicolour.

half way between the tail and the head. It has two short nostril tubes above the upper lip, but there are no barbels, no ventral fins and no dorsal fin behind the head (Fig. 5). Comparing width to length, the bodies of eels are long and narrow, and they are extremely flexible. Their bodies are in fact more snake-like than fish-like, and are easily capable of curving sufficiently to form a circle. The Indonesian short-finned eel has a distribution ranging from the east coast of Africa to Indonesia and north-west Australia. Like many eel species, it spends most of its life in freshwater habitats, particularly in rocky pools, before migrating to spawn in the ocean where it dies. Months later the juvenile eels congregate in estuaries before migrating upstream during the next flood event. Because of commercial harvesting, pollution and possibly changing ocean currents due to climate change, it is now regarded as 'near threatened' in much of its range (Gomon and Bray 2011; Jacoby et al. 2014).

In Arnhem Land rock art the bodies of eel-tailed catfish, usually with the dorsal-caudal-anal fin indicated, are depicted in side view, but the head, often with barbels, is typically shown in plan view. The pectoral fins are almost always shown at the base of head, either as a pair on one side of the body, or with one on each side. Depiction of the ventral fins appears to be 'optional', but if shown can be placed on each side of the body or together on one side. The dorsal fin is sometimes indicated on the side of the body near one of the pectoral fins (Fig. 6; see Taçon 1988: 6–7 and his Plate 11; for further examples of catfish in the art see Chaloupka 1993: 167, 177).

The fish in the three sets of paintings of concern here are very long and have pectoral fins depicted. The paintings at Mt Brockman and in Brandl's Figure 195 also have a dorsal-caudal-anal fin which terminates less than half way along the body. None of the paintings have ventral fins, a dorsal fin or barbels indicated. Two projections visible on the head of the left-hand example in the Mt Brockman panel are too short and too few in number to represent catfish barbels. Although shown on the wrong position on the head it is possible that they represent the tubular nostrils possessed by the Indonesian short-finned eel. Finally, two of the Mt Brockman fish are shown with their bodies extremely curved, in one instance with the head overlapping the tail. This is something eel-tailed catfish cannot do, but eels can do with ease. Because of these features, rather than an eel-tailed catfish, there can be little doubt that the paintings represent the Indonesian short-finned eel, *Anguilla bicolour*.

Catfish, both eel-tailed and fork-tailed, are frequently depicted in Arnhem Land rock paintings, particularly in the most recent 'freshwater' art period which is dominated by images of fish and which dates to within the last 1000–2000 years (Lewis 1988: 99–105). Taçon (1988, 1989) has carried out intensive research on the art of this period. In a paper dealing specifically with the identification of fish species in recent Arnhem Land rock art he found that fish were one of the most frequently depicted subjects and that barramundi, eel-tailed catfish, fork-tailed catfish, saratoga and mullet — all important food resources for the Aborigines — together constituted 69% of all fish portrayed (Taçon 1988). He mentions the existence of 'a possible example of a one-gilled eel (*bullugurri*; *Synbranchus bengalensis*)' (ibid.: 12), but offers no further information and provides no illustration. Whether he had actually seen the painting is unclear, but in any case, this species, not actually a true eel, is highly unlikely to be the one depicted in the paintings discussed here. According to Gomon and Bray (2011), while the body of the one-gilled eel is typically eel-like, the dorsal and anal fins are reduced to skin folds, and the pectoral and pelvic fins are absent. The body of this fish is proportionally much thinner than that of the short-finned eel and in rock art it would probably be difficult to differentiate between it and a snake.

Figure 6. *An example of an eel-tailed catfish in recent style, Ubirr.*

One of the major rock art sites in Kakadu National Park is Ubirr, the main art panel of which is dominated by large paintings of fish in x-ray style. On the rockshelter ceiling above the main panel are two small, polychrome

fish paintings. These fish are long and narrow, and have a dorsal-caudal-anal fin around the lower part of the body, but no barbels and no pectoral or other fins. The most convincing identification of these paintings is that they are Indonesian short-finned eels (Fig. 7).

Figure 7. *A pair of eels in recent-style rock art at Ubirr. The paintings are in red lines on a white base with some small areas in yellow. They exhibit features which suggest that an original version may have been repainted. Size of each approximately 30 cm.*

The Indonesian short-finned eel can grow to more than a metre in length. Two other species, the Australian long-finned eel (*Anguilla reinhardtii*) and the Southern short-finned eel (*Angulilla australis*), occur along the Australian east and south-eastern coast; both are very similar in size and shape to the Indonesian short-finned eel. The Southern short-finned eel was a major and highly prized food resource for Aborigines at Lake Condah and elsewhere in Victoria where major earthworks were sometimes constructed to assist in its capture (Mulvaney and Kamminga 1999: 34–35). Depictions of eels are common in the rock art of the Sydney region (McDonald 2008: 54, 57) which suggests that they were harvested there. They may also be depicted in south-east Cape York rock art (Cole 1998: 98) and in recent times, at least, they were an important food resource for Aborigines in the Cardwell-Innisfail region of north Queensland (McLean and Robinson 2011: 21–23).

Evidence suggests that the Indonesian short-finned eel is extremely rare in the Northern Territory, the first specimen being collected on the South Alligator River in Kakadu National Park as recently as 2001. The eel was caught by a woman who is one of the traditional owners of Kakadu, but she did not know what it was. It was later identified by experts at the Museum and Art Gallery of the Northern Territory (ABC Sci-Tech 07-02-02). Extreme rareness may explain why it apparently did not occur to Brandl's Aboriginal informants that the paintings in question could represent eels.

One distribution map for the species has its range extending as far as the Blyth River, more than 250 km east of the South Alligator River (Gomon and Bray 2011), but this range apparently is speculation based on the occurrence of what is believed to be suitable habitat in the Blyth and in the intervening rivers. The fact that Brandl recorded depictions of the eel at two sites on the Cadell River (a major tributary of the Blyth River) suggests that it was present there in the distant past, and adds weight to the suggestion that it occurs there today.

The Mt Brockman images are clearly in the dynamic style while Brandl's paintings are from 'phase two' of his Cadell River sequence, temporally equivalent to dynamic rock art (Brandl 1973: 183–184). The paintings from Ubirr belong to the art of the current 'freshwater period' where the presence of eels and depictions of it could be expected, but their presence in dynamic rock art is perhaps more surprising. The wide distribution of dynamic figures, the content of the art and other features have led a number of researchers to suggest that the rock art is the product a society adapted to a climate and ecology substantially drier than that which prevailed during the Holocene (Lewis 1988: 60, 81–86, 105; Chaloupka 1993: 89, 91; Chippindale and Taçon 1998: 107). On this basis these researchers suggested various ages ranging from at least 9000 years to 12 000 years or more. Direct dating of the art is now possible but has not yet been applied to dynamic paintings. Whatever age dynamic-style rock art eventually proves to be, the presence of the Indonesian short-finned eel indicates that at the time the paintings were made, flooding in the northern rivers was of sufficient volume to enable the eels to migrate back and forth between the freshwater and the saltwater. Given the long period the eels need to reach maturity (up to 20 years), the rivers did not need to flood every year to maintain an eel population, but there would need to be permanent bodies of fresh water inland where the eels could survive until the next flood occurred. The paintings of this eel not only add a new species to the list of food resources available to Arnhem Land Aborigines, but also provide evidence for its distribution in both recent times and at c. 10 000 BP, and provide a glimpse of the environmental conditions which prevailed during the Pleistocene-Holocene transition.

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RAR 32-1177

Creating the human past: an epistemology of Pleistocene archaeology

ROBERT G. BEDNARIK

Archaeopress, Oxford, ISBN 978-1-905739-63-9

2013, RRP £14.95

This book examines systematically both the theoretical and practical issues that have characterised the discipline over the past two centuries. Some of the historically most consequential mistakes in archaeology are dissected and explained, together with the effects of the related controversies. The theoretical basis of the discipline is deliberated in some detail, leading to the diagnosis that there are in fact numerous archaeologies, all with different notions of commensurability, ideologies and purposes. Their various perspectives of what archaeology is and does are considered and the range of views of the human past is illuminated in this book. How humans became what they are today is of profound importance to understanding ourselves, both as a species and individually. Our psychology, cognition, diseases, intellect, communication forms, physiology, predispositions, ideologies, culture, genetics, behaviour, and, perhaps most importantly, our reality constructs are all the result of our evolutionary history. Therefore the models archaeology—especially Pleistocene archaeology—creates of our past are not just narratives of what happened in human history; they are fundamental to every aspect of our existence.

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RAR REVIEW

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 70 (2014):
CLOTTES, J. and M. AZÉMA: Identical (Aurignacian?) signs in the Chauvet-Pont d'Arc and Candamo Caves.
HERMANN, L., B. ZHELEZNYAKOV and E. BEISATEVITCH ALIMKULOV. New finds at Tamgaly in Kazakhstan.
HERMANN, L., B. ZHELEZNYAKOV and A. ZHANKO. The rock art site of Degeres (Almaty Oblys), Kazakhstan.
SHAFIE, M. New petroglyphic complex in the west fringe of the Lut Desert, Shahdad, south east Iran.
UTRILLA, P., J. V. PICAZO, M. BEA and J. CALAF. New Levantine paintings in lower Aragón. The boomerang users of the Povuelo Shelter (Torrecilla d'Alcañiz, Teruel, Spain).
TAYLOR, M. A unique petroglyph/pedestrian tunnel re-connects a city to its waterfront.

RECENT BOOKS OF INTEREST

The signs of which times? Chronological and palaeoenvironmental issues in the rock art of northern Africa, edited by D. HUYGE, F. VAN NOTEN and D. SWINNE. 2012. Royal Academy for Overseas Sciences, Brussel, with contributions by 21 contributors, 377 pages, colour and monochrome illustrations, softcover, ISBN 978-90-756-5251-2.

Histories of the prehistory, edited by JOSE ANTONIO GONZALEZ ZARANDONA. 2015. Special Issue of ***ISTOR***, Volume 15, Number 60, with contributions by Robert G. Bednarik, Jean Clottes, David Lewis-Williams, John Onians, Nicholas Chare, Manuel R. Gonzalez Morales, Oscar Moro Abadia, Eduardo Palacio-Perez, Marc Groenen and Jose Antonio Antonio Gonzalez Zarandona. ISSN: 1665-1715.

Vingen – et Naturens Kolossalmuseum for Helleristninger, by TROND KLUNGSETH LØDØEN and GRO MANDT. 2012. Akademika forlag, Trondheim, Instituttet for sammenlignende kulturforskning Serie B: Skrifter Vol. CXLVI, 460 pages, richly illustrated, hardcover, ISBN 978-82-519-2906-6.

Érotisme et sexualité dans l'art rupestre du Sahara préhistorique, by FRANÇOIS SOLEILHAVOUP with the collaboration of JEAN-PIERRE DUHARD. 2013. L'Harmattan, Paris, 243 pages, monochrome images, bibliography, softcover, ISBN 978-2-336-00723-6.

Kekeewin ou Kekeenowin: les peintures rupestres de l'Est du Bouclier canadien, by SERGE LEMAITRE. 2013. Collection Paléo-Québec No. 33, Recherces amérindiennes au Québec, Montreal, 293 pages, some monochrome illustrations, comprehensive bibliography, softcover, ISBN 978-2- 920366-36-7.

Religion on the rocks: Hohokam rock art, ritual practice, and social transformation, by AARON M. WRIGHT. 2014. The University of Utah Press, Salt Lake City, 306 pages, monochrome illustrations, bibliography, hardcover, US$65.00, ISBN 978-1-60781-364-4.

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The first mariners, by ROBERT G. BEDNARIK. 2014 1st edn (2nd edn 2014, 3rd edn 2015). Research India Press, New Delhi, 335 pages, 190 plates, mostly colour, detailed index, hardcover with dust jacket, US$150.00 (substantial discount by AURA), ISBN 978-93-5171-007-3.

RECENT PAPERS OF INTEREST

Die Felsbilder von Ughtasar, Provinz Sjunik, by HARALD MELLER, FRANZISKA KNOLL and VEIT DRESELY. 2011. In Harald Meller and Pavel Avetisyan (eds), *Archäologie in Armenien, Veröffentlichungen des*

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IFRAO Report No. 54

The Cochabamba Manifesto

Rock art protection and policies of development in South American countries: concerns from the First International Congress of Rock Art and Ethnography held in Cochabamba, Bolivia, between 23 and 26 September 2014

In the past twenty years South American countries have speeded up considerably their process of economic growth. One of the outcomes of this process is the acceleration of the destruction of very specific, diverse and fragile ecosystems like Amazonian forests, rivers and savannahs in South American lowlands for the sake of massive constructions of mega-dams, roads and industrial mining projects, for example. But, all around South American countries several other areas of ecological importance and singularity have been destroyed, damaged or are still under considerably menace by the expansion of such intra-continental economies attached to global trends in political and economic development.

What concerns us here is the fact that this process is violently attacking not only faunal and floral contents of the biota, but also several people's traditional lifestyles and indigenous ways of relating society and finite natural resources in highly complex manners. A cultural heritage that represents more than twelve thousand years of human occupation and accumulated knowledge on how nature works and how people could take adaptive advantage on this, respecting its intrinsic limitations and possibilities, enhancing, indeed, those possibilities. Rock art sites are a fundamental part of these knowledge traditions and millennial processes of landscape domestication and, together with other archaeological sites and all sorts of sacred indigenous landscapes, are prime targets, due to their location, of the aggressive expansion of projects such those mentioned above.

Not a single legislative proposition has been made in South America to increase the legal protection of this heritage in the face of this considerably unequal and questionably planned process of economic growth. On the contrary, what have been observed over the major policies of development on countries such as Brazil, Peru and Bolivia, are the systematic disapplication of already extant protective legislation bodies concerning the cultural and historical heritage, including rock art, substituted by more flexible political dispositions taken by the governments of these countries violating and/or contradicting their own constitutional laws. They also fail to implement previously signed international treaties such as the Convention 169 of the *International Labour Organization of the United Nations* that, among other aspects, demands previous, freely consented and culturally adequate process of consultation to the human communities that will be affected by projects such as mega-dams.

This constitutes a very serious menace not only to indigenous South American history and present lifestyle of indigenes, but represents a menace to every living creature in this part of the planet and elsewhere, considering the climatological interconnections between the Amazonian biome and the rest of the world, still very poorly understood by the scientific community. In this regard, of utmost importance is obedience to the Precautionary Principle stated by the *Rio Declaration* in 1992 and *Kyoto Protocol* in 1997 and other previous international treaties, which constitute fundamental legal artefacts that seem not effective in those countries.

Rock art sites and Sacred Indigenous Landscapes related to them in South America have recently been destroyed by hydroelectric and mining projects. 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 massive combination of Belo Monte mega-dam and industrial gold mining), to state but a few. Unlike Foz Côa 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.

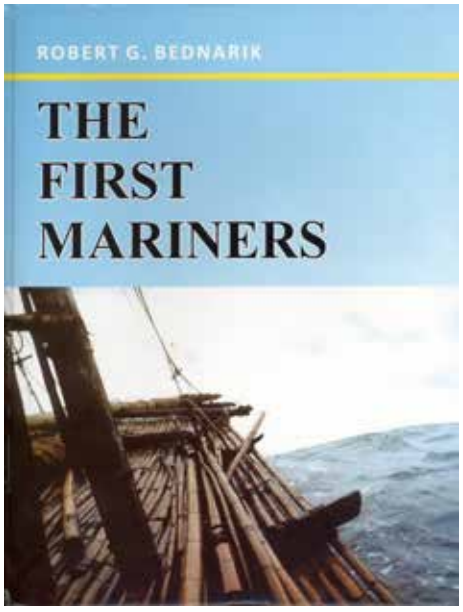
In view of these considerations, AEARC (Association of Rock Art Investigation of Cochabamba, Bolivia), APAR (Rock Art Association of Peru), IFRAO (International Federation of Rock Art Organisations) and rock art investigators from Brazil and other countries, gathered together in the First International Congress

of Rock Art and Ethnography, that took place in the city of Cochabamba, Bolivia, between 23rd and 26th September 2014, and decided to express through this letter their alarm and discontentment regarding 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 (like in the case of Tipnis in Bolivia), and all sorts of massive-scale extractive initiatives in Amazonia and elsewhere in South America.

Furthermore, we have produced this document in order to express our support to 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. By the same token, we recommend and demand from the heritage institutions and from the political representatives of these countries, clear and responsible propositions 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, 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
CIAR-SAA – Comite de Investigación del Arte Rupestre de la Sociedad Argentina de Antropología, Argentina
IFRAO – International Federation of Rock Art Organisations



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 60 000 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. $A190.00). AURA has acquired a number of copies at cost price and is making these available to members at $A40.00 each (79% discount), plus postage for 1.8 kg weight. Please order your copy at

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