



# AURA Newsletter

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## Towards a philosophy of rock art study: What, Why, and How?

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*There are many worthy ways to study rock art and equally many desirable aims. An understanding and acceptance can enrich everyone. Here I report anecdotal information about why people visited rock art sites, and what they report of their motivations.*

The study of rock art has long been a battleground between people with different predispositions, skills, attitudes, judgements and aims. Different specialist archaeologies, for example, have developed different theoretical bases. If rock art is studied for some purpose other than to continue the battle, it could be better to accept every contribution as valuable, perhaps for its aims or prejudices.

To consider the study of rock art we have two clear starting points: *what* is it that we are studying, and *why* — perhaps *what for* — do we study it. As an academic archaeologist (it is a pity that the vast majority of published work on rock art seems to be archaeological) I used to study rock art for its insights about past peoples' behaviours. But I, both then and now, can enjoy other things; the texture, colour, and fall of light on marks people made on rock, including the tool-marks left by working. I can enjoy these things for their look and for their implications (of skill, technology, teamwork, and so on) and for their intellectual challenges and stimulation (why does the lichen grow only in the grooves? Was the mason left-handed? How often was the tool sharpened?). I can enjoy, sometimes appreciate aspects of the rock it is on, of the place it is at, of the pertaining weather, sounds, smells, and so on. Many of these aspects of rock art attach to the physicality, or the *rock* part of rock art.

The *art* bit promises other things, and demands more analysis. Depending on one's background or dictionary, art can mean well-made, or emotionally stimulating, or encouraging of a light trance, or evidence of some totally new and unexpected discovery. Art and pictures are often naturally assumed to involve representation or depiction, and perhaps to encode further meaning. Writing also encodes meaning, which may become available through reading, or transla-

tion. But the meanings of art are not so easily accessible, for artists are often asked to explain what they were trying to do in this or that work. The patronisation in the 'trying' implies that the artist is not fully competent. But artists usually reply with a version of 'If I could tell you, I would not have to make the work.'

Leonardo da Vinci (quoted by Bambach 2003) wrote quite candidly about the stream-of-consciousness solutions arising from the intuitive process of exploration, and his approach was a great conceptual breakthrough for the history of art. His justly famous passage exhorts young apprenticing painters to look at the suggestive forms of stains and variegated patterns on stones in order to stir the creative juices and train the eye to a process of invention:

I cannot refrain from mentioning among these precepts a new device for the imagination, which, although it may seem rather trivial and almost ludicrous, is nevertheless extremely useful in arousing the mind to various inventions. And, this is, when you look at any walls spotted with stains, or with stones of various patterns, if you have to invent some setting, you may be able to see therein a resemblance to various landscapes, graced with mountains, rivers, rocks, trees, plains, wide valleys, and hills in varied arrangement; or, again, you may see battles and figures in action; or strange faces and costumes, and an endless variety of things, which you can distil into well-drawn forms. And what happens with regard to such walls and variegated stones is just as with the sound of bells, in whose jangle you may find any name or word you choose to imagine.

Hamlet (Act 3, Scene 2) used the same capacity to *see-as* in his conversation with Polonius:

Hamlet: Do you see yonder cloud that's almost in shape of a camel?

Polonius: By th' Mass, and 'tis like a camel, indeed.

Hamlet: Methinks it is like a weasel.

Polonius: It is backed like a weasel.

Hamlet: Or like a whale.

Polonius: Very like a whale.

The same processes could have stimulated human-made rock art. Many examples of rock art are within, accompanied by, or consist partially of natural depictions, or simulacra, as though (in an Australian model), ‘The ancestors put themselves into the rock’.

I spent my academic career teaching students archaeology at the University of Sydney, specialising in rock art and formal archaeological methods to find out about rock art. In teaching I always tried to set things up so that the students could find out for themselves not only the course content, but also that they themselves had many competences and capacities. I wanted them to learn about rock art by looking at it and responding to its challenges. By contrast, one of my colleagues on field excursions would stand on the far side of a flat site, shouting a lecture to the students. They, knowing the importance of examinable knowledge, inched their way close to him, notebooks and recorders in hand. By the end of the discourse they were standing on the rock art.

They shut their notebooks, turned off the recorders, and returned to the bus, without ever seeing the pictures.

Sometimes I take visitors to my favourite near-by sites. Their individual interests and needs are very different, and at first seem different from those of academics. I always aim to let them see the pictures for themselves with a minimum of explanation from me. They may enjoy the bush and interact with the petroglyphs or drawings for themselves. Few tourist guides work like that. I hope I allow the visitors to take from the experience according to their capacities and needs.

Here are descriptions of groups I’ve taken to see rock art.

A group of important, dignified, Chinese managers comparing heritage management problems and practises in Australia and China. Their experience with me included the minor indignities of becoming tired, having to touch the rock, and having to work. They retaliated later by drinking me under the table.

Actors breaking jet-lag needed to be kept awake.

Another group of actors (who work a lot with light trance) wanted a day out of the city; they experienced a new reality.

Interested Americans, ignorant of Australia’s deeply racist past, met an Aboriginal ranger from Tasmania. I explained that she (then about 30) had been officially extinct until five years before.

I split an unwieldy group of 30 foreign students into three groups, led by me and my sons, then 9 and 11. The nine-year-old’s guidance was not followed, so the group got lost for at least ten minutes — an experience much appreciated by the students after they found us. The eleven-year-old’s group found a previously unknown engraving. Both experiences were very significant for the visitors. My elder son decided archaeology was too easy, and took up chemical nano-technology).

A South African visitor was working hard to find his roots, and share them with others in a similar situation.

An Aboriginal man, stimulated by what was there, and having me to discuss with, kept trying to tell me, an old white man, stuff that was secret. I had to keep telling him

to maintain the secrecy of what I should not know. (I felt very flattered.)

A group of Greenlander student teachers came to realise that the Australian Aboriginal experience could be relevant to their own situation, particularly their needs and wishes to rebuild and reconnect to their culture.

All these visits gave me new insights and ideas. Every trip re-illuminates the whole relationship between rock art and people, generating new ideas and new appreciation. Many visitors want to know more, and drive me to tell them what is surmised, as well as what is known. Only the requirements of ongoing respect for the past, and for the present owners, and an ethical prohibition on deliberately misleading interpretations limit possibilities. As I contrast these experiences with those of academic archaeology, it becomes clear that much is to be gained from loosening attitudes to insights and appreciation. Archaeology does not own rock-marks. Only in narrow senses (which are nonetheless crucial) do landowners and managers.

Two American accounts of court proceedings give very different and puzzling viewpoints about the values and respect (or lack of it) people set on rock art.

A newspaper reported that on 8 September 2008 a Reno federal court convicted John Ligon of stealing three large boulders bearing the rock etchings (sic) of an archer and bighorn sheep. The government did not prove the boulders’ value exceeded \$1000. Ligon (41), had not been employed for more than eleven years, and had a net worth of more than \$6 million.

Emery Craig (22) was to appear on 21 September 2008 in a Utah court for allegedly vandalising a rock art panel, with a picture of an eye, a heart, a large letter ‘U’ (‘I love you’), and the word ‘Wendy’.

The examples I have given reveal that rock art and trips to see it can have many different motivations and stimuli. The information is not direct, but derived or second-hand. I sought more direct information from those who enjoy visiting rock art about their motives and experiences. I asked various contacts and friends (excluding professionals and students) about what they get out of rock art.

I received seventeen replies, too many to present in detail. Many of my personal friends and acquaintances had visited sites with me. Their replies were diverse and personal, but had common themes of *finding out* and *experiencing things outside and beyond the usual world*. Others of my informants responded to my request through the rock art discussion list run from Arizona State University. They had two overwhelming themes: art and mystery. Many correspondents found the request interesting and challenging, as though they had not previously tried to put into words their motives and the outcomes of their visits to rock art. Here are quotes from the responses, chosen to reflect the overall flavour.

One can appreciate a place as meaningful without understanding the meaning.

An overwhelming respect and awe for those artists and their myths and stories.

The voluntary form of exploration observed in many species for example in rats, ravens, and human beings, com-

monly called curiosity, and the fun of questioning experts' pronouncements).

At rock-art sites I quite like the art itself. ... But a big pull is the MYSTERY surrounding it.

Every engraving is a part of the Soul of our Ancestors, a part of their Writing, Philosophy, Beliefs.

Shirley certainly found the visit she did with Freda a very interesting experience, notably the suggestion that we should wait for the figures to 'emerge'. We get out of our visits some idea of another civilisation.

I was simply shocked by seeing great paintings out of the normal context of a great painting. 'Why the hell is this stuff *here*?'

Cool question ...

The spiritual dimension must not be discounted ... I suggest an analogy with pilgrimages to religious shrines.

Feeling a chasm in time and yet a closeness of human nature.

It started as an interesting learning about cultures... The awe, the amazement of viewing these 'windows into the past' has never left me.

To have my preconceived notions turned upside down, refuted, confirmed, or to be totally confused, to be delighted, depressed, excited or uplifted is a fascinating experience.

I enjoy the natural setting; I am thrilled to see a new site and 'discover' it for myself.

Folks visit rock art sites with the same curiosity/interest as any people who share in 'art'.

For the connection to the past.

I like to visit a couple of sites I know just to make sure they are still there.

These people do not want to be *told* about rock art. They want to find out for themselves. And they are quite capable of doing so. The important exception is their wanting to learn (perhaps to be told) about the rock art's culture. I know I love doing archaeology for the processes of finding out. But I am much less interested in being told what others have found.

One of the more pressing themes to come from this enquiry is that 'rock art' is 'art' (Brook 2008). People enjoy contemplating it, even though they may not easily put into

words either the nature of the benefit or precisely how it is derived. Although detailed knowledge of the culture in which art has been produced enhances appreciation, it is not a prerequisite to appreciation. These considerations approach a puzzle central to aesthetics, an approach which is still rare in rock art studies (Heyd and Clegg 2005).

All those who enjoy rock art can learn from each other. The rigorous strictures appropriate for some studies may be counter-productive in other cases, and should not be applied to all. Rock art does not belong to archaeology, or to any other discipline. Certainly some people have special relations to rock art. (I am thinking specially of the descendants of those who made it, and those with cultural connections to it.) Their rights, obligations and needs must be welcomed by the rest of us. Otherwise, so long as we and our actions and attitudes respect the rock art and those who relate to it, and are careful so protect it from harm, we should be free to appreciate rock art as best we may, each to our own needs and capacities. If we are free to follow our own curiosity, we may even find things useful to academics and experts.

I don't know how I could pass these conclusions on to those who presently insist on being told, or those who feel they must do the telling, or those who insist there is no point in either. I feel that they are disrespectful of the rock art itself, but do not know any better. So long as they do no physical damage, they perhaps do little direct harm.

## REFERENCES

- BROOK, D. 2008. *The awful truth about what art is*. Artlink Australia, Adelaide.
- HEYD, T. and J. CLEGG (eds) 2005. *Aesthetics and rock art*. Ashgate, London.
- BAMBACH, C. C. 2003. Introduction to Leonardo and his drawings. In *Leonardo da Vinci, master draftsman*. The Metropolitan Museum of Art, New York. <[www.metmuseum.org/special/leonardo\\_master\\_draftsman/draftsman\\_intro\\_essay.asp?printFlag=1](http://www.metmuseum.org/special/leonardo_master_draftsman/draftsman_intro_essay.asp?printFlag=1)>

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## Survey of Australian archaeological skills

The Australian Archaeology in Profile 2010 survey aims to build a profile of professional archaeology in Australia and to define key archaeology learning and training issues. This survey builds on data collected in a similar survey undertaken in 2004/2005 to provide information on longitudinal trends in professional archaeology in Australia.

The survey is open to anyone who used archaeologi-

cal skills in paid employment during 2009 and works in Australia (or based in Australia and works overseas). It can be accessed online at <https://www.surveymonkey.com/s/KTTMC3C>

The deadline for completion of the survey is 1 July 2010.

# Flakes, blades and carcasses: putting ice in the Ice Age

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**Abstract.** Skeletal remains of animals undergo many taphonomic processes, and archaeological studies of processed meat focus on analysis of bones and their articulation, cooking, secondary usages and disposal. Lithic tools are also studied in this connection, the focus often being on their typology, quantity, wear, source and settlement patterns. These investigative undertakings, however, mostly reflect the taphonomic survival of some elements of food procurement and preparation. What taphonomic history of processed food has never addressed is the processing of frozen carcasses, a common occurrence in the cold zones, at least seasonally. Meat being one of the main sources of their food, hominids must have had ways of processing frozen carcasses they procured hunting or opportunistically scavenging. This essay explores the efficiencies of various lithic tools in processing frozen meat and the possibility of frozen food as a direct link between climate and the increasing dependence on laminar technologies.

**KEYWORDS:** *Climate, frozen carcass, blade, food processing, Upper Palaeolithic*

## I. Frozen meat

### 1. A modern problem

What is the easiest way to cut up frozen meat?

Cutting frozen meat manually is not easy. How hard? The question above was posted on the Internet and generated the following exchange: <http://uk.answers.yahoo.com/question/index?qid=20080204082533AA1oHAL>

I was given a frozen lamb recently and I fancy a leg for dinner tonight, having trouble chopping it off though. Any butchers out there that know the best way? Really appreciate any advice, thanks.

Best answer (chosen by Asker):

Use a hacksaw with a coarse [sic] blade it'll will do the job nicely as long as you get someone to hold the meat still. Butchers use an electric band saw but you are unlikely to have one of those. DO NOT TRY USING and [sic] electric knife.

Other answers included suggestions of partial thawing then cutting, a meat saw, band saw, microwaving to thaw, chain saw and a circular saw.

### 2. A Palaeolithic solution (or a kitchen experiment):

In a kitchen setting, the easiest way to cut frozen meat is to use a kitchen knife to shave off thin slices of flesh. A lithic blade or bladelet can also perform the task of slicing frozen meat.

#### 1. Cutting frozen meat: fracture mechanics

Cutting fresh meat is possible with a wide range of sharp tools. The difficulty, however, is the rubber-like flexibility that gives the fleshy substance a low elastic modulus (property to be deformed) resulting in a large compliance when a blade is forced into it and the strain energy is dissipated through its structure (King 1997: 387; Dobraszcyk et al. 1987: 28–29; Williams 1998: 5351). What is interesting to note here is that, in order to overcome this flexibility in our industrial age, meat is chilled before cutting it using various techniques to slice the iced meat (e.g. vibration cutting), which adds to the processing stages (King 1997: 388).

Though fresh meat has a low elastic modulus and high yield strain, it is still possible to cut it using pre-Historic tools, as experiments involving the use of stone tools to butcher various mammalian species have indicated. However, not all lithic tools perform with the same effectiveness. For, example, unmodified flake edges are very effective in cutting meat, particularly muscle (Schick and Toth 1993: 259; Claud 2008: 451; 259; Tomka 2001: 211). A bifacial, which counts among the earliest lithic inventions, also works as a cutting tool, with its two symmetrical faces distributing the elastic modulus outward perpendicularly to its cutting edge, thus minimising the wobbling and bending of the flesh (plastic or elastic deformation) and lowering the yield strain or energy required for cutting. A bifacial is, however, less effective than ordinary flakes, or even Levallois flakes. Typologically, Levallois flakes are often classed as scrapers. Moderately steep or obtuse and having a convex edge profile, Levallois flakes are thought to have been used mainly for skin processing (Claud 2008; Eren et al. 2008; Bar-Yosef and Kuhn 1999). But with their plano-convex design and sharp denticulate edges, Levallois flakes can be used for ripping the flesh like a serrated blade, with the off-cut cumulating on the dorsal side of the flake.

It is perhaps worth noting here that bifacial tools became less important during the Riss/Würm interglacial (c. 130 ka – 85 ka), while Levallois flakes became dominant (see Kooyman 2000: 72–73).

But meat is apt to freeze, especially in the northern latitudes and mountainous areas. During the last glacial and interglacial cycles of the Würm glaciation, frigid climates also flowed and ebbed along the periglacial areas (places on the edges of glacial formations) resulting in the successive advances and retreats of ice sheets. Even during warm interstadials, such as the current one, there are vast areas in the northern latitudes which go through a long winter freeze-up. Glaciations also affected mountainous areas in southern latitudes as, for example, the Atlas Mountains, Mount Kenya, and the Ruwenzori range in central Africa.

Freezing gives the meat of the carcass a degree of

fracturability (the property of a substance to crack or shatter, brittleness), changing the requirements for cutting and raising the energy required to generate the fracture in frozen flesh. The cutting force is made up of the work required to overcome friction, the work required to plastically deform the off-cut, and the surface fracture energy. The force, or fracture energy, required to cut frozen animal meat is also affected by the thicknesses of the cut, and direction in relation to the muscle grain. Pressure melting of the ice crystals around the cutting region also occurs during cutting, creating a hydrodynamic lubricating layer of water, further reducing the friction of the cutting tool. Freezing, therefore, places a severe limit on the type of cutting tool that can be used effectively on meat.

When meat is frozen, acute tools are more efficient, and blades are more effective in providing the force required to cut it. Bifacial flakes do not perform as well the shaving function of frozen meat. The bulging and scaring on their faces deflects the energy as the cutting edge comes in contact with the surface area of the frozen carcass.

Blades, on the other hand, maximise the 'work to fracture ratio and minimize energy-dissipating mechanisms. Unlike scrapers, the cutting edge of the blade is long and linear and its angle is sharper.<sup>1</sup> As it shears through frozen meat, a lithic blade provides an efficient combination of friction, flow and fracture energies. It also provides better control and precision, the flat ventral side allowing for various adjustments of the penetration angle and depth. This maneuverability also minimises contact (friction) between the frozen meat and the flat ventral side of the blade. Blades can also be backed by blunting the arched edge, which would transmit the energy of the fingers efficiently, reduce hand strain, and minimise injury to the fingers. Finally, the friction along the linear cutting edge creates a partial melting of ice, further minimising the fracture energy or cutting force.

## II. Frozen carcasses and the evolution of lithic technology

Skeletal remains of animals undergo many taphonomic processes — that is, the sequence of events leading from the death of an animal to the disposition of its bones in an archaeological context (Koon et al. 2010: 67). Archaeological studies of processed foods focus on analysis of bones and their articulation, cooking, secondary usages and disposal. Lithic tools are also studied in this connection, the focus often being on their typology, quantity, wear, source and settlement patterns. The activities inferred from these investigations are sometimes examined synchronically, diachronically or both (Kooyman 2000; Mellars 1996). Obviously, like most archaeological research, these investigative processes mostly reflect the taphonomic survival of some elements of food procurement and preparation (see Bednarik 1994 and 1995a).

What taphonomic history of processed food has never addressed, however, and what is totally absent from the literature is the processing of frozen carcasses.<sup>2</sup> Interestingly,

when lithic tools and their functions are discussed in the context of cold, the attention is directed away from nutritional activity and toward sartorial concerns. For example, the incidence of scrapers is usually taken as an indication of a shift towards the increased use of animal skins (for clothing, rugs, shelters etc.) during the increasing cold condition of isotope stage 4 (Mellars 1996: 350). But there is no substantial treatment of the most immediate impact of cold and its long-term consequence for adaptive behaviour of hominins: the freezing of food.

Yet, frozen carcasses must have been a common occurrence in the cold zones, at least seasonally. Vast areas of the globe are susceptible to freeze up even during the interstadial periods, and their span only becomes larger during the stadial stages, as in the last glacial (Würm). Meat being one of the main sources of their food, hominins<sup>3</sup> must have had ways of processing frozen carcasses they procured hunting or scavenging.

It is even possible that Palaeolithic people may have integrated frozen meat into their food processes in an unexpected way. For example, recent excavation of caves in Idaho has shown that Palaeo-Indians consistently practiced the storage of bison meat in cold storage over the last 8000 years (Henrickson 2002: 4). Long-term practice of caching bison meat in cold caves, Hendrickson says, may have played a role in pre-Historic subsistence patterns.

Frozen meat and carcasses present archaeologists with a taphonomically-determined limitation of data. Indeed, as Bednarik (2006) has pointed out, 'taphonomic processes effect the loss of a certain portion of a phenomenon category per time unit'. Except for few animals (e.g. mammoths) in the Arctic zones, a frozen carcass has a very brief taphonomic threshold. But, although it is a highly taphonomic phenomenon, a consideration of freezing of carcasses can yield valuable new insights into the archaeology of the past.

As P. Mellars (1996: 348) has noted, attempts to find functional or adaptive explanations for the documented variations in technology are at present seriously handicapped by the scarcity, if not total absence, of data bearing on some of the most crucial behavioural parameters of the assemblages, such as the specific functions of different tool types, variation in patterns of seasonal occupation in different sites, or indeed the size and character of the human groups who occupied the sites. Perhaps the datum that has been most absent is freezing and its impact on Palaeolithic food processing. Understanding this phenomenon, therefore, can go a long way in addressing some of these limitations.

Indeed, it may well be that frozen carcasses played an

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Neanderthals scavenging carcasses of bison (Straus 2005: 54). Frozen carcasses are also mentioned in connection with Palaeolithic sharpened wooden staves such as the ones recently found in Germany and their use as snow probes for dead animals, like the Eskimos do (Grayson and Delpech 1994: 21, 359; Thieme 1997: 385, 807).

<sup>3</sup> - Recent stable isotope studies of the Marillac, Sclayn and Vindija Neanderthals point to the great importance of meat in Palaeolithic diet (Straus 2003: 54, citing Fizet et al. 1995; Bocherens et al. 1999; Richards et al. 2001).

<sup>1</sup> - Cutting tools have an edge less than 60° and more than 18°.

<sup>2</sup> - Scavenging of carcasses is acknowledged as a behaviour in hominins. Straus, for example, envisages the possibility of the

important role not only in shaping the processing technology (lithic tools), but also carving and the production of portable art.

One may imagine a development along the following lines:

*First:* In the presence of prolonged freezing of food supply, suitable tools had to be selected from available kits for cutting/slicing/shaving the frozen carcasses (see, fracture of frozen meat, *supra*). For the reason stated above, these were the backed blades, which are ancient and known in various areas of the globe. Indeed, backed blades are found earlier in the central of Africa, where the Lupemban<sup>4</sup> industry is dated to c. 300 ka. Backed blades are also found in the Last Interglacial (OIS 5d) assemblages of Tönchesberg in Germany and similar ones in northern France (Conard 1990: 246). Backing also occurs in the Mousterian of Acheulian Tradition (c. 65 ka to 45 ka) in south-western France, producing backed bifaces (*biface/couteau à dos*) (Soriano et al. 2007: 687). These Middle Palaeolithic backed bifaces include backed knives of the Keilmesser type found in central and eastern Europe and backed knives of the Mousterian of Acheulian Tradition in south-western France (Hackbeile bifaces, Micoquian bifaces and Mousterian *tranchets*) (Débénath and Dibble 1994: 154 et passim; Claud 2008).

*Second:* The intensification of human interaction at the end of Middle Palaeolithic in regions that are affected by cold such as South Africa, northern Africa, Europe and western Asia, led to generalisation of the use of backed blades primarily for cutting frozen meat.

Once the abilities of cutting/slicing/shaving frozen meat were mastered, the acquired skills were employed elsewhere:

- a. A transference of learned skills followed, whereby the sharp edges of the backed blades were applied to other materials and other surfaces for the manufacture of non-lithic hunting tools (e.g. points from antlers, bones, ivory, and wood). Thus the backed blades truly became a tool for making tools.
- b. Progressively, the process of cutting, shaving, slicing was extended to the production of decorative artefacts and portable art objects. In Europe, where freezing conditions are more salient, this process gave rise to the various Upper Palaeolithic traditions so far unearthed (c. 45 ka): Châtelperronian, Uluzzian, Zwieryniecian, in western Europe; Bohunician in the middle Danube basin, Carpathian basin and Volhynia, Tamnata Cave in Bulgaria, Korolevo and Transcarpathian Ukraine; Szeletian and Streletskian in eastern Europe (Kozłowski 2004; Svoboda 2004; Marks and Monigal 2004).
- c. Further development of blades into bladelets and the production of portable art culminated in the appearance of the Aurignacian c. 38.8 ka, which became dominant after 33 ka.

<sup>4</sup> - It is interesting that the Lupemban blades are thought of as having been used for cutting wood, yet no connection is made between blades and cutting frozen meat.

In this dialectic processes, it is easy to imagine that the freezing of meat dictated the choice of tool (backed blade), and that the blade-carved core of frozen meat served as a model for the carving of figurines and bas-reliefs. In both activities, the same tool (blade) and the same motions (shaving slicing) were employed to manipulate the fracture properties of hard materials<sup>5</sup> for different purposes, one utilitarian (satisfaction of biological need), and one artistic (satisfaction of mental need).

The same energy that carved the frozen carcasses was culturally adapted to the carving of wood, rock and ivory into anthropomorphic or zoomorphic images.

It should be emphasised that the initial widespread use of backed blades and their endurance as a cultural marker is dependent on two conditions:

1. A lengthy and recurrent exposure of the relevant areas to cold (which is frequent in some latitudes even during the interstadials); and
2. The presence of a critical mass of hominins so as to sustain the transmission of the lithic tradition and its spread.

Without these two conditions, blades disappear from the record after their appearance for a while, which maybe just what happened to the Howiesons Poort industry (*infra*). There, the disappearance of the backed blade technique may have been the result of a combination of a warming of the climate, reducing the possible occurrence of freezing and frozen carcasses (hence the need for backed blades), and a dwindling of the population to such a degree that interaction between groups and generational contacts became minimal or nil.

*Third: Correlation of cold climate and blades*

Support for the co-presence of blades and freezing conditions that may have affected food processes is indicated in the following:

- a. Geographically, there is a close fit between the distribution of the Early Upper Palaeolithic blade-based traditions and the northern latitude zones where cold and stadial influences are potentially great (Brantingham et al. 2004: 12–13, Fig. 1.2). This is certainly true of western Europe, eastern Europe the Near East, central Asia and northern China. All these areas lay on the edge the ice sheet that covered the northern latitudes during the Pleistocene. They all have evidence of a blade industry at some point (Svoboda 2004: 35, and Fig. 3.1).
- b. The earliest blade manufacturing of Still Bay in the Howiesons Poort industries, which anticipated the Upper Palaeolithic technological transformations, are found in South Africa, a region within the Antarctic climatic influence (Jacobs et al. 2008). This industry has been dated to c. 70 ka, which coincides with OIS4, a period of aridity and decreasing temperatures (Jacobs et al. 2008;

<sup>5</sup> - The same process of transferring the use of the Lupemban blades from cutting food to cutting wood could be involved in tropical Africa in connection, for example, with the production of tools, such as the harpoon points from Katanda, Zaire, c. 90 ka.

Sorian et al. 2007).

- c. Even the north African Aterian industry may be strongly linked to the glacial cycles. The Aterian is an old industry in a region that is exposed to the northern currents and some of its mountain ranges contain glaciers (High Atlas). The blade content of this industry is significant, in spite of the fact that, with few exceptions (e.g. McBurney 1967: 105), most of the studies of this industry tend to put too much stress on tanged or stemmed points to the detriment of blades (Wendorf and Schild 1992: 50; van Peer 1998: 118; Hublin 1993: 120; Camps 1974: 33).
- d. Another part of the world where the correlation between blades and cold is evident is in the southern United States, where the Clovis tools made their appearance around 11 ka. These are finely shaped projectile points, but blades are also present from sites in the Southern Plains and in the Southeast of the United States (Tomka 2001: 108; Meltzer and Soffer 1993). The time and location of this culture coincide with retreat of the ice sheets during the Younger Dryas, and the presence of mastodons.
- e. As indicated by Attenbrow et al. (2009), even in Australia, this correlation between cold climate and backed blades holds. There, in Mussel Shelter, Mangrove Creek, and various other places in south-eastern Australian regions, the increased use in backed artefact that occurred between approximately 3300 and 1970 cal. BP coincides with a colder and drier period produced by intensifying El Niño conditions.

From this close association of blades and freezing temperatures it is possible to conclude that the widespread use of backed blades is a cultural retention from past exposures to cold and the freezing of food sources (meat). This is why, as Kuhn et al. (2004: 247) have pointed out, the Upper Palaeolithic is not so much a break from Middle Palaeolithic as it is an extension and expansion of some subset of it. Put differently, it is the freezing of meat that contributed greatly to the extension and expansion of the blade-based cultures.

### III. Implications for the question of origins

The question whether the attributes of modern behaviour is the result of cumulative changes during the Pleistocene or is the result of innovative shifts during the Upper Palaeolithic is still being debated. There are those diffusionists who favour replacement of one culture by another one endowed with a genetically determined capacity for complex behaviour and higher symbolising power (Stringer and Gamble 1993). But there are also those who hold opposite views, rejecting the notion that a particular culture originated in one area and spread outward to replace local Middle Palaeolithic industries (Bednarik 1992, 1995, 2008; Kuhn et al. 2004; Svoboda 2004; Marks and Monigal 2004; d'Errico 2003; Zilhão et al. 1999; Straus 2005; Green et al. 2010).

With respect to the diversity of Middle-Upper Palaeolithic transitional patterns and the origin of the Upper Palaeolithic, the behavioural approach of this essay is neutral, focusing on the connection between blades (a common diagnostic feature) and a tangible effect of climate on food processing

(the widespread phenomenon of frozen carcasses).

In so doing, it allows for a decoupling of the genetic and the cultural processes and a reassessment of the assumptions about the phylogenetic significance of blade production (Bar-Yosef and Kuhn 1999: 329). It helps establish that cultural/behavioural modernity is independent from biological modernity (d'Errico 2003: 188). It also addresses one of the main concerns of archaeology; namely, that, if we see archaeology as an independent discipline, we should be able to assess issues that deal with cultural change on purely archaeological grounds rather than through models shaped by current hypotheses of human biological evolution (d'Errico 2003: 190).

The scholarly view is almost unanimous that there is no one-to-one relationship between modern behaviour and the use of laminar blades. Bringing frozen-food processing under focus does not prejudice that view. Rather, it merely points the research to a new and concrete way of understanding how demographic factors and climate have combined to shape human adaptive patterns (culture). It also helps explain some of the inconsistencies in the archaeological record, such as:

- a. The sporadic appearance of Upper Palaeolithic technologies (blades, worked bone tools, use of pigments and ornaments, hunting technologies) during Middle Palaeolithic/Middle Stone Age (e.g. Howiesons Poort).
- b. The presence of blades in periods predating the Mousterian, as in Mount Carmel (Israel), Jabrud (Syria), Abu Sif Cave (Jordan) and Abri Zumoffen (Lebanon). At Klasies River in South Africa, they date to 70 ka.
- c. The occurrence of a back-and-forth movement between the Upper Palaeolithic and Middle Palaeolithic/Middle Stone Age (Kuhn et al. 2004: 242; Bar-Yosef and Kuhn 1999: 329–30).

The missing explanatory link to all these questions may primarily be the impact of frigid climate on food processing.

### Conclusion

Prismatic blades may be the diagnostic features that characterise modern behaviour, but the functionality of blades, their instrumentality in the production of hunting/fishing tools, ornaments and portable art objects, is a derived attribute, stemming from their effectiveness in processing frozen food. The mechanics of frozen meat favour the straight edge of lithic blades (over denticulates and scrapers). Once successful in performing in the presence of freezing conditions, the technique of using blades to slice frozen carcasses was then employed to manipulate the fracture properties of hard materials (wood, bone, ivory) for different purposes, some utilitarian (satisfaction of biological need), and some artistic (satisfaction of mental need). The persistence of widespread use of blades is assisted by the demographic conditions.

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## REFERENCES

- Andrefsky, W. 2005. *Lithics. Microscopic approaches to analysis*. Cambridge.
- Bar-Yosef, O. 2002. Upper Paleolithic revolution. *Annual Review of Anthropology* 31: 363–393;
- Bar-Yosef, O., A. Belfer-Cohen and D. S. Adler 2006. The implications of the Middle-Upper Paleolithic chronological boundary in the Caucasus to Eurasian prehistory. *Anthropologie* 44(1): 49–60.
- Bar-Yosef, O. and S. L. Kuhn 1999. The big deal about blades: laminar technologies and human evolution *American Anthropologist* 101(2): 322–338.
- Bednarik, R. G. 1992. Palaeoart and archaeological myths. *Cambridge Archaeological Journal* 2(1): 27–43.
- Bednarik, R. G. 1994. A taphonomy of palaeoart. *Antiquity* 68(258): 68–74.
- Bednarik, R. G. 1995a. Metamorphology: in lieu of uniformitarianism. *Oxford Journal of Archaeology* 14(2): 117–122.
- Bednarik, R. G. 1995b. Concept-mediated marking in the Lower Palaeolithic. *Current Anthropology* 36(4): 605–634.
- Bednarik, R. G. 2006. Towards a theory of cognitive origins. Semiotics course ‘Cognition and symbolism in human evolution’, lecture 7. <http://www.chass.utoronto.ca/epc/srb/cyber/cyber.html>
- Bednarik, R. G. 2008. The mythical Moderns. *Journal of World Prehistory* 21(2): 85–102.
- Blades, B. S. 2001. *Aurignacian lithic economy: ecological perspectives from southwestern France*. Kluwer Academic/Plenum Pub., New York.
- Brantingham, P. J., S. L. Kuhn and K. W. Kerry 2004. On the difficulty of the Middle-Upper Paleolithic transitions. In P. J. Brantingham, S. L. Kuhn and K. W. Kerry (eds), *The Early Upper Paleolithic beyond western Europe*, pp. 1–13. University of California Press, Berkeley.
- Camps, G. 1974. *Les civilisations préhistoriques de l’Afrique du nord et du Sahara*. Doin, Paris.
- Claud, É. 2008. *Le statut fonctionnel des bifaces au Paléolithique moyen récent dans le sud-ouest de la France*. Thèse présentée à l’Université de Bordeaux I pour obtenir le grade de Docteur. [http://tel.archives-ouvertes.fr/docs/00/36/12/90/PDF/these\\_Emilie\\_Claud.pdf](http://tel.archives-ouvertes.fr/docs/00/36/12/90/PDF/these_Emilie_Claud.pdf)
- Conard, N. J. 1990. Laminar lithic assemblages from the Last Interglacial Complex in northwestern Europe. *Journal of Anthropological Research* 46(3): 243–262.
- Cremonesi, M., S. Di Lernia and E. A. A. Garcea 1998. Some insights on the Aterian in the Libyan Sahara: chronology, environment, and archaeology. *African Archaeological Review* 15: 261–286.
- d’Errico, F. 2003. The invisible frontier. A multiple species model for the origin of behavioral modernity. *Evolutionary Anthropology* 12(4):188–202.
- Débénath, A. and H. Dibble 1994. *Handbook of Paleolithic typology. Volume I: Lower and Middle Paleolithic of Europe*. University Museum, University of Pennsylvania.
- Dobraszczyk, B. J., A. G. Atkins, G. Jeronimidis and P. P. Purslow 1987. Fracture toughness of frozen meat. *Meat Science* 21: 25–49.
- Eren, M. I., A. Greenspan and C. G. Sampson 2008. Are Upper Paleolithic blade cores more productive than Middle Paleolithic discoidal cores? A replication experiment. *Journal of Human Evolution* 55: 952–961.
- Grayson, D. K. and F. Delpech 1994. The evidence for Middle Paleolithic scavenging from Couche VIII, Grotte Vaufray. *Journal of Archaeological Science* 21(3): 359–375.
- Green, R. E. et al. 2010. A draft sequence of the Neandertal genome. *Science* 328: 710–722.
- Henrickson, L. S. 2002. Ponds, rivers, and bison freezers. Evaluating a behavioral ecological model of hunter-gatherer mobility on Idaho’s river plain. Doctoral dissertation, University of Oregon.
- Hublin, J.-J. 1993. Recent human evolution in northwestern Africa. In M. J. Aitken, C. B. Stringer and P. A. Mellars (eds), *The origin of modern humans and the impact of chronometric dating*, pp. 118–131. Princeton University Press, New Jersey.
- Jacobs, Z., R. G. Roberts, R. F. Galbraith, H. J. Deacon, R. Grün, A. Mackay, P. Mitchell, R. Vogelsang and L. Wadley 2008. Ages for the Middle Stone Age of southern Africa: implications for human behavior and dispersal. *Science* 322: 733–725.
- King, M. J. 1997. Fracture energy during slicing of frozen meat by a vibrating knife. *Meat Science* 46(4): 387–399.
- Koon, H. E. C., T. P. O’Connor and M. J. Collins 2010. Sorting the butchered from the cooked. *Journal of Archaeological Science* 37(1): 62–69.
- Kozłowski, J. K. 2004. Early Upper Paleolithic backed blade industries in central and eastern Europe. In P. J. Brantingham, S. L. Kuhn and K. W. Kerry (eds), *The Early Upper Paleolithic beyond eastern Europe*, pp. 14–29. University of California Press, Berkeley.
- Kuhn, S. L., J. P. Brantingham and K. W. Kerry 2004. The Early Upper Paleolithic and the origins of modern human behavior. In P. J. Brantingham, S. L. Kuhn and K. W. Kerry (eds), *The Early Upper Paleolithic beyond western Europe*, pp. 242–248. University of California Press, Berkeley.
- Marks, A. E. and K. Monigal 2004. Origins of European Upper Paleolithic, seen from Crimea. Simple myth or complex reality? In P. J. Brantingham, S. L. Kuhn and K. W. Kerry (eds), *The Early Upper Paleolithic beyond western Europe*, pp. 64–79. University of California Press, Berkeley.
- McBurney, C. B. M. 1967. *The Haua Fieah (Cyrenaica) and the Stone Age culture of the south-east Mediterranean*. Cambridge University Press.
- Mellars, P. A. 1996. *The Neanderthal legacy: an archaeological perspective of western Europe*. Princeton University Press, Princeton, NJ.
- Soffer, O. and N. D. Praslov (eds) 1993. *From Kostenki to Clovis: Upper Paleolithic Paleo-Indian adaptations*. Plenum Press, New York and London.
- Schick, K. and N. Toth 1993. *Making silent stones speak: human evolution and the dawn of technology*. Simon and Schuster, New York.
- Soriano, S., P. Villa and L. Wadley 2007. Blade technology and tool forms in the Middle Stone Age of South Africa: the Howiesons Poort and post-Howiesons Poort at Rose Cottage Cave. *Journal of Archaeological Science* 34(5): 681–703.
- Straus, L. G. 2005. A mosaic of change: the Middle-Upper Paleolithic transition as viewed from New Mexico and Iberia. *Quaternary International* 137: 47–67.
- Stringer, C. and C. Gamble 1993. *In search of the Neanderthals. Solving the puzzle of human origins*. Thames & Hudson, London.
- Svoboda, J. A. 2004. Continuities, discontinuities, and interaction in Early Upper Paleolithic technologies. In P. J. Brantingham, S. L. Kuhn and K. W. Kerry. *The Early Upper Paleolithic beyond western Europe*, pp. 30–49. University of California Press, Berkeley.
- Thieme, H. 1997. Lower Palaeolithic hunting spears from Germany. *Nature* 385: 807–810.
- Tomka, S. A., 2001. The effect of processing requirements on



- reduction strategies and tool form: a new perspective. In W. Jeffrey Jr., *Lithic debitage: context, form, meaning*, pp. 207–223. The Utah University Press, Salt Lake City, UT.
- Van Peer, P. and P. M. Vermeersch 1990. Middle and Upper Paleolithic transition: the evidence for the Nile Valley. In P. Mellars (ed.), *The emergence of modern humans: an archaeological perspective*, pp. 139–159. Edinburgh University Press, Edinburgh.
- Wendorf, E. and R. Schild 1992. The Middle Paleolithic of north Africa: a status report. In F. Klees and R. Kuper (eds), *New light on the northeast African past*, pp. 39–78. Current Prehistoric Research Symposium, Heinrich-Barth-Institut, Cologne.
- Wenzel, K. E. and P. H. Shelley 2001. What put the small in the Arctic small tool tradition: raw material constraints on lithic technology at the Mosquito Lake Site, Alaska. In W. Jeffrey Jr. (ed.), *Lithic debitage: context, form, meaning*, pp. 102–123. The Utah University Press, Salt Lake City, UT.
- Williams, J. G. 1998. Friction and plasticity effects in wedge splitting and cutting fracture tests. *Journal of Material Science* 33: 5351–5357.
- Wurz, S. 1999. The Howiesons Poort backed artefacts from Klasies River: an argument for symbolic behaviour. *South African Archeological Bulletin* 58: 34–50.
- Zilhão, J. and F. d’Errico 1999. The chronology and taphonomy of the earliest Aurignacian and its implications for the understanding of Neandertal extinction. *Journal of World Prehistory* 13(1): 1–68.

## National Guide of Expert Witnesses

In July 2010 the Law Institute of Victoria (LIV) will launch the first edition of the *National Guide of Expert Witnesses*. Containing an extensive listing of experts across many specialist areas this publication will be an invaluable resource for lawyers. Expert witnesses are frequently required by members and the greater legal profession when preparing cases and for court appearances.

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In recognition of the expertise and professionalism of members of Australian Rock Art Research Association Inc. the LIV would like to offer its members a discounted rate to be listed in the 2010/2011 National Guide to Expert Witnesses. Members can take up a standard listing or choose from a range of advertising sizes. Any queries can be directed to:

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## Heritage science course in London

I am delighted to be able to announce a new Masters in Heritage Science, to start in September 2010 at UCL Centre of Sustainable Heritage, London, UK. The course

will cater for interdisciplinary Masters students and for heritage professionals with several years of experience and demonstrable aptitude for research. It will be delivered in four 14-day blocks, and can be taken either as full time or part time. The fifth and final module, i.e. the Masters Dissertation can be taken as a placement, to carry out a piece of research which is particularly relevant to heritage institutions. This will hopefully allow for enough flexibility for candidates - heritage professionals to attend the course, as well.

I was hoping such a course might be of interest to the members of AURA. Further information is available at: <http://www.ucl.ac.uk/sustainableheritage/mres.html> Please do not hesitate to contact me for further information.

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## **Report concerning protection of Dampier Cultural Precinct, for Hon Colin Barnett MLA, Premier of Western Australia**

ROBERT G. BEDNARIK

The following report derives from the writer's meeting with the Premier of Western Australia on 13 February 2009, held at Cottesloe, W.A. The subject of the meeting was the protection of the rock art of the Dampier Archipelago, noting that, despite extensive public exposure of the matter, there remains effectively no practical protection of this irreplaceable cultural heritage. Discussions revolved around the same three aspects this report refers to: the proposed listing as World Heritage, the possibility of establishing a National Park, and the question of tourism. These three matters are intricately interlinked: World Heritage listing inevitably involves tourism, and effective protection raises the controlled management of the complex. Nevertheless, each of these three aspects is treated separately here.

### **1. World Heritage**

Listing under the UNESCO World Heritage Convention can only be requested by national governments and application is a lengthy and complex process. It involves a major submission, documenting all possible aspects of the property (e.g. geological, geographical, biological, anthropological, archaeological) and detailed proposals concerning its perpetual management, determination of buffer zones and so forth. In the case of Dampier, much of this information is readily available and only needs to be assembled, but a major obstacle is the lack of an inventory of the cultural features. I have fairly comprehensive coverage of the main island, Murujuga (the Burrup), but coverage of the remaining forty-one islands is largely lacking and will need to be secured.

Before being considered for listing, properties are now submitted to a Tentative List UNESCO maintains. There are currently 170 pre-Historic sites from other countries on the Tentative List. Australian nominations for the Tentative List, for the next ten years, were expected to be finalised in late 2009, so it is imperative that this matter be considered as urgent. The Commonwealth Minister has indicated his interest in receiving a request from the WA government concerning the nomination of the Dampier Cultural Precinct. The preparation of the eventual submission is the responsibility of his department, but he will need to be assured that the state government supports the nomination, and this is where the process needs to commence.

It is of particular relevance that UNESCO will soon implement a new policy, according to which strong preference will be given to nominations of pre-Historic (rather than Historic) monuments, and to non-European (rather than European) properties. I have been closely involved in these changes, which are a result of UNESCO's current perception that the present World Heritage List is 'not

representative and balanced, and therefore not credible'. The strong preference will be for nominations of rock art sites and find sites of human fossils. This will obviously favour Australian rock art sites greatly.

Nomination involves only one obvious disadvantage: it introduces the threat of vastly increased tourism. I have prompted and been involved in the submission to UNESCO of another rock art monument in recent years, that of Bhimbetka, central India. As a result of its inscription on the World Heritage List in 2003, visitation of Bhimbetka increased roughly 100-fold, and within a year of inscription, the Archaeological Survey of India saw itself forced to limit the number of visitors to 1600 per day. Dampier is more remote than Bhimbetka, which is only 40 km from a major city, but there should be no doubt that its visitation, currently estimated at 40,000 per year, will increase significantly as a result of inscription, probably rising to a level similar to Kakadu or Uluru. Clearly, the Karratha region is currently ill equipped to handle such levels of tourism.

### **2. National Park**

At present the Cultural Precinct of Dampier is almost entirely unprotected. The only exception is the land on the Dampier Salt Lease (only accessible by permit) and some small fenced-in areas. In all other areas, visitation is entirely uncontrolled (at least on foot), and vandalism of both rock art and stone arrangements has been rampant for many years, as has been pilfering of small rock art boulders. This is despite the fact that the Precinct has been on the National Heritage List since July 2007.

Everyone agrees that this state of affairs is unacceptable, yet so far no government agency, state or federal, has presented a plan of how to protect the nation's largest and most magnificent cultural treasure. It will require the vision and initiative of a strong leader to solve what would appear to be a straightforward issue. Clearly, the Precinct needs to be protected in perpetuity, by measures that have been tried and tested. The most relevant model is that of Kakadu, a World Heritage property which, like Dampier, contains an industrial area, and which also contains a great deal of rock art. Kakadu is regarded as such a success that national parks with rock art in other countries have been modelled on it (e.g. Serra da Capivara, Brazil). At Kakadu, the land is held by an Aboriginal community, which leases it to the federal government as a National Park. If the same model were adopted at Dampier, it would greatly alleviate many issues. It would fulfil Indigenous aspirations of regaining a heritage, and it would provide the basis of a healthy tourism industry managed by the state (instead of the present informal tourism at Dampier, said to involve 40,000 un-audited visitors

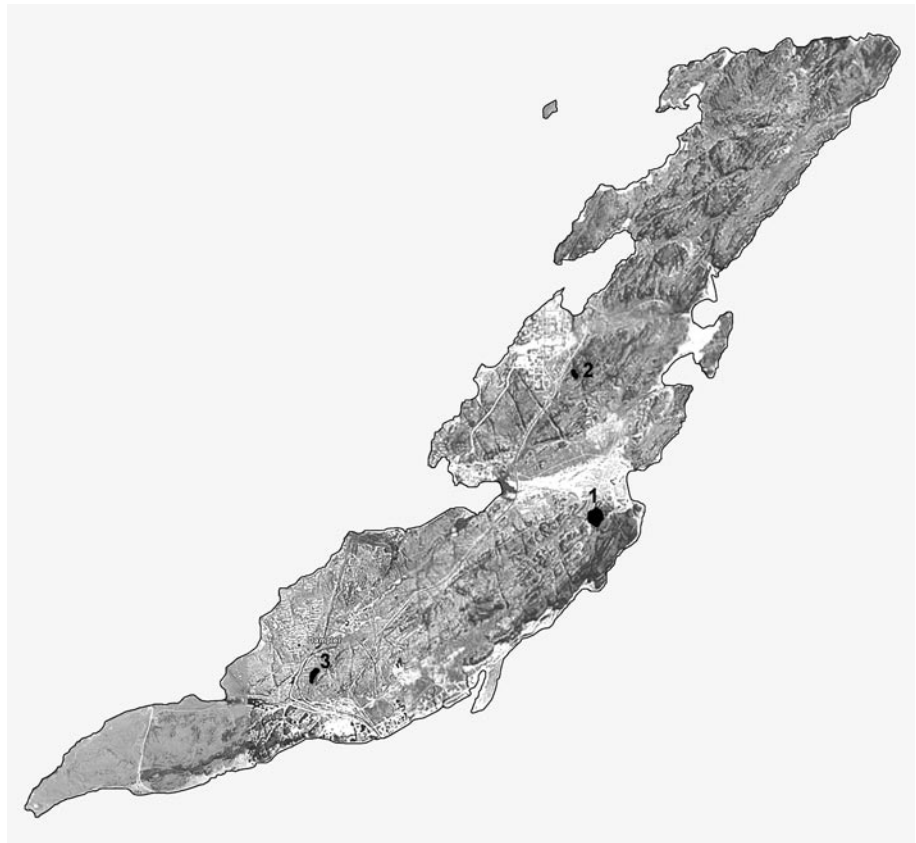
annually).

It is equally obvious that the most effective way of managing and protecting a remote and far-flung precinct is to involve an experienced agency that already manages, very successfully, similar properties in other parts of the country. It is simply inevitable that rangers will need to be installed, particularly with greatly increased tourism as a result of World Heritage listing. This would provide excellent opportunities of particularly suitable employment for the large local Indigenous community, the members of which would see their social status raised as a result. Since the Cultural Precinct has already been inscribed in the list of National Heritage, its establishment as a National Park should be of no concern to established industrial proponents, except that they may perhaps express some concern over having to share infrastructure with tourism (road access etc.) and there may need to be some adjustment in that area. Other than that, all stakeholders would find such a solution either satisfactory or would indeed keenly welcome it.

### 3. Tourism

This topic raises the greatest problems. Listing as World Heritage will inevitably involve a massive increase in human visitation. The region's tourism resources are currently stretched to their limits; there is simply no spare capacity in such areas as accommodation. This does not only apply to the Karratha region, but also to the Pilbara in general. It has great tourism potential, but accommodation and services are entirely dominated by the resource companies who are even buying up caravan parks. Clearly, World Heritage listing must be accompanied by a significant upgrading of relevant facilities. Perhaps the establishment of a dedicated tourism village somewhere in the vicinity of Karratha would provide a suitable solution.

The Dampier Archipelago is a fragile environment, already severely compromised by development. The impact of tourism has to be minimised, as both heritage listing and park requirements would in any case demand. Sites made accessible to mass tourism need to be made safe for all visitors, which may involve wheelchair access in some cases, and will certainly include the erection of access structures of the type widely used elsewhere. It will also involve minor road construction and parking bays, as well as an interpretation centre. The latter, as well as park management facilities, should be established on the mainland, perhaps adjacent to the start of the causeway (i.e. near Karratha



**Figure 1.** Map of Murujuga (Burrup) showing areas to be sacrificed to tourism: Deep Gorge (1), and two smaller sites.

airport). Here are my recommendations.

Tourism at Dampier should be divided into general and limited access. The former would be in keeping with normal National Parks practice: one major area to be developed for general high-density visitation. The latter would be guided tours to a few selected locations, by licensed tourism operators (preferably but not necessarily by Aboriginal corporations) working under the supervision of Traditional Custodians and Parks authority. The latter could include one of the smaller islands, yet to be determined according to access and other considerations.

I have canvassed the options with the foremost of the traditional custodians and they have agreed that the main visitation area should be the Deep Gorge complex (marked 1 on Fig. 1), a major corpus of several thousand petroglyphs close to Hearson Cove. This is the most accessible significant concentration of rock art at Dampier. It presents some interesting engineering problems for visitation structures, but these are entirely manageable and in fact these stainless steel structures may well become notable features in their own right. There is a large open and flat area in front of this complex, where a visitor's centre may alternatively be located, with ample room for parking bays, and the short road to Hearson Cove will need to be sealed (there is scientific evidence that the dust from unsealed roads affects rock art).

Two sites nominated by the traditional custodians for select tourism (visitation with guides only) are the place known as 'Climbing men panel' and nearby other rock art

(marked 2 on Fig. 1); and a site south of Dampier town, close to the railway (3). Particular concern is being expressed about ongoing uncontrolled visitation of one site complex on the southern shore of King Bay, and custodians point out that many other, more remote places comprise significant sacred components and must not be visited except by special arrangement. Indeed, outside of designated tourist areas, all visitors should be accompanied by accredited Aboriginal rangers operating with the approval of traditional elders. This is also required to satisfy public liability issues, which in areas of unstable boulder deposits are of paramount importance. Allowing tourists to wander about in this kind of terrain would expose the state to a litany of public liability claims.

#### 4. Summary

It is evident that the three factors defined above are closely interwoven. The nomination for World Heritage listing requires a sound management plan, which can be best assured by declaring the Precinct a National Park. UNESCO would view this as convincing 'proof of intent'. Similarly, listing would inevitably involve a sharp increase in tourism, and to remain in control of this it is arguably most effective to create a National Park with the appropriate resources and measures. Tourism in turn demands specific measures relating to access, interpretation, logistics and management, and past experience leaves no doubt that this is most effectively achieved through the establishment of a National Park. The present state of unmonitored tourism is clearly unsatisfactory, therefore some form of remedial measure is inevitable in any case, irrespective of other considerations. On the other hand, to increase tourism, and specifically to attract high-end cultural tourism, it is essential

that the monument secure international recognition through UNESCO's listing. To achieve that, a sound and thoroughly convincing management plan must be in place, and a steep increase in tourism has been accounted for by appropriate protective measures. Therefore it is obvious that the three factors are so closely interlinked that they are almost inseparable. The orderly sequence in which the required actions need to occur is as follows:

1. Request the Federal Minister for the Environment to include the Dampier Precinct on the Tentative UNESCO List, an action that is now urgent. Request that he sets aside funds for the relevant costs, e.g. an adequate inventory survey.
2. Initiate a dialogue of the relevant parties to determine how best to create a National Park in the archipelago and create relevant legislation. Source funding for the required feasibility/impact reports and developments on the ground.
3. Assist the Federal Minister in preparing the final submission to UNESCO.
4. Source land and services for appropriate developments to establish the required tourism infrastructure (accommodation, transport etc.) off the islands and involve private enterprise to create a tourism industry base.
5. Physically establish the facilities of the National Park, including an interpretation centre, walkways, protective measures, staffing, staff facilities and so forth.

Robert G. Bednarik

Re-discoverer of the Murujuga Cultural Precinct

20 February 2009

Please visit the Save the Dampier Rock Art site at  
<http://mc2.vicnet.net.au/home/dampier/web/index.html>  
 and sign the Dampier Petition. Thank you!

#### *AURA Newsletter*

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