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## The allegory of the hammer and the nail gun and other unstable orthodoxies of ‘modernity’: possible pitfalls of ‘behavioural modernity’

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**Abstract:** This paper presents first an allegorical/satirical scenario in which two artefacts, one allegedly simple and the other allegedly complex, are excavated from a fictional archaeological site. Some of the interpretive problems faced by archaeologists are described, as is a critical treatment of a literary phenomenon that is termed an ‘unstable orthodoxy’ regarding human origins. The discussion then moves to a summary on the state of research on the tool type known as the Acheulian handaxe. A statistical analysis is then performed on contemporary one-hand hammers to demonstrate that some of the various proportional regularities in handaxes are also found in some contemporary hand tools. Also discussed is the lack of internal logic in framing research on Lower and Middle Palaeolithic hominins as somehow ‘less than human’.

**Keywords:** allegory, satire, lithic implement interpretation, Acheulian handaxe, hammer

*‘I don’t know which species is worse. You don’t see them f-----g each other over for a g-----n percentage’.* Lieutenant Ripley in *Aliens*, directed by James Cameron, 1986, 20th Century Fox Films.

Let us assume that a distant future archaeologist lacking any knowledge of hammers, nails and nail guns visited and surveyed a site (Site X) in what was once a small town in central Iowa, in the prairie interior of what was once a nation-state self-identified as the United States of America (Thompson 2011). Site X, approximately 50 m<sup>2</sup>, was interpreted as a possible domestic structure, composed of a central, primary square foundation of large anthropogenic composite/conglomerate bricks with appurtenant sub-foundations on the west, south and east sides. In the course of these activities, our prehistorian found two implements of unquestionable intentional manufacture: one, Artefact A, a corroded iron implement alloyed with a very high proportion of carbon, the handle apparently having long since rotted without a trace (Figure 1); and the other, Artefact B, an articulated iron/carbon alloy artefact with aluminium and synthetic components, whose various perishable parts had also apparently disintegrated into inorganic compounds, leaving no associated organic traces (Figure 2). There were no human remains associated with these artefacts, and no other

material associations. Just the two isolated artefacts above were recovered, found at the same elevation and separated by approximately 7 m. Soil samples from within the structural foundations indicated high proportions of decayed organic structural material, such as plant matter or wood, indicating a substantial former organic component. Due to widespread contamination of the site, no absolute dating methods were able to provide accurate age estimates.

Analysing the comparative complexity of the two artefacts the archaeologist suggested, based upon extensive prior practice and a voluminous scholarly literature, that the ‘simple’ artefact was a sort of generalised simple tool of some sort, and was likely much older than the ‘complex’ composite artefact. This accorded well with much of the archaeological literature of the time, a significant subset of which had been devoted to rather an unfocused and poorly-evidenced discussion concerning the relative ‘modernity’ of ancestral human species as based upon the putative ‘complexity’ of primordial artefact attributes and properties. Although the archaeologist’s conclusions initially encountered



**Figure 1.** *Artifact A. Simple iron/carbon alloy tool from Site X.*

some disagreement on chemical compositional grounds (the ferric/carbon alloys from which both were made were virtually identical, perhaps by the same species), once they brought attention to the smallness and standardised character of many of the ‘complex’ artefact’s many components, and to the synthetic materials contained in many of them, they were roundly applauded by their colleagues. Based upon the demands of manufacturing such a ‘complex’ implement it was obvious that the complex iron tool was made by humans who had superior working memory and were probably a different species altogether than the humans who made the simple iron tool.

Several colleagues observed that archaeology generally had little to no actual knowledge regarding the uses to which the artefacts were put. The ‘simple’ Artefact A, for example, seemed to resemble many visually similar items that had been found scattered across huge expanses of land, but given very wide geographic distributions, determinations of the actual functions were allegedly harder to determine. Wide distributions seemed to remove simple correlations between local environments and artefact functions. Some specialists began to suggest that Artefact A in fact *had* no particular function, but was intended to accomplish a variety of tasks. Others wished to concentrate on the item’s simplicity relative to Artefact B.

In later reviews and re-reviews, the archaeologist published their interpretations concerning the identities of Site X artefact manufacturers. They concluded, based upon long-standing tradition, some poorly understood and sparse genetic data, extremely adept statistical analysis of excruciatingly mundane artefact attributes and properties, and careful navel-gazing that the artefacts were made by entirely separate species of humans. In the archaeologist’s opinion, the ‘simple’ artefact was made by a very primitive early human, an archaic hominin who probably lacked spoken language, any sort of artistic or symbolic capacity, virtually reptilian ‘working memory’, propensities toward cannibalism, even stunted manual dexterity (e.g. Mellars 1996; Tattersall 1995). The ‘complex’ artefact was made by someone with fully human linguistic ability, capacities for abstract art and highly symbolic behaviour, perhaps the husband of the genetic ‘Eve’ about whom many molecular specialists had begun voluminously to speculate. The ‘complex’ artefact was



**Figure 2.** *Artefact B. Complex composite iron/carbon alloy artefact with synthetic components from Site X.*

also alleged to carry encoded ‘social symbolism’, serving as a kind of ethnic or tribal or other social identifier of some kind (phallic symbol?). It had ‘meaning’ in the symbolic realm, therefore, and warranted intensive study and lucrative pondering by other specialists who were adept at finding the inherent meanings within stone tools. The ‘simple’ tool from Site X *had* no encoded social meaning whatsoever, as it was merely a tool, a simple one at that.

In subsequent papers, the archaeologist even alleged that Site X was the probable birthplace of humanity itself, the very spot where humans became self-aware and invented ‘behavioural modernity’. In an age of decreasing public investment in anthropological and archaeological research, the archaeologist from Site X somehow found the project exceedingly well-funded. Research grants began to arrive in torrents, as did book contracts. Tenure was immediately granted. The ‘behavioural modernity’ research at Site X was simply that valuable and critical to understandings of the ennobled human species. The archaeologist became a fixture within many cutting-edge colloquia and symposia. Site X-themed discussions of ‘behavioural modernity’ became all the disciplinary rage. Such discussions could apparently not even *proceed* without the archaeologist from Site X (or their allied colleagues, all of whom were terribly busy mutually citing one another and publishing multiple redundant accounts of each and every artefact they had ever found, most of which were starkly isolated finds, photographed from all possible perspectives and subjected to tomographic analyses) being invited to opine virtually annually at prestigious scientific academies.

Mysteriously, and by unknown methods but nearly on-cue the popular media began to sniff out the buzz around Site X and its now-famous excavator, which brought about further notoriety during subsequent funding cycles. Suddenly video cameras and media teams appeared at Site X. Fortunately, coincidental to the appearance of videographers, another site was found nearby Site X, which the archaeologist labelled ‘Site Y’. At Site Y, the intrepid occupants had actually managed to sit down at a small caveman fire and eat a meal of clams, that most challenging of Pleistocene fauna. Obviously Site Y humans were modern; they ate clams. They also scratched on chunks of ferric oxide (to make powder?)

Maybe ochre pieces are just ochre powder sources as opposed to real artefacts and perhaps systematic patterns of surface modification actually relate to mimetic patterns of ochre reduction, which for patterns with long representation spans = lack of intelligence) and made cute, little sharp pieces of knapped siliceous material. These little chunks of rock were trumpeted to be unimaginably important, and there were high-precision statistical measures of length, width and thickness to prove it, even though nobody could really say for certain what these little rocks were except points or armatures.

Ever more parties heralded the archaeologist's research and conclusions, but especially a previous, older generation of lithic specialists and comparative human anatomists who had always known very deeply that 'anatomically modern humans' were just like us, and here was visible proof the Site X artefacts clearly, demonstrably, statistically, genetically, tomographically, archaeologically and ontologically 'proved', beyond measure of doubt by any responsible practitioners, that the maker of the 'simple' artefact was immeasurably more primitive and profoundly dumber than the maker of the 'complex' artefact. Obviously the complex artefact's makers were the direct ancestors of we contemporary humans. Obviously we had annihilated, out-bred, or otherwise replaced the makers of the simple artefact. The simple artefact-makers were likewise obviously not the ancestors of contemporary people. They were too primitive, as revealed by further non-systematic DNA analyses from bones and astronomically minute artefact attribute analyses of the larger and weirder Artefact A. (Ironically, not every human fossil contained accessible DNA, so a precise chronological sample of the range of variation in ancient human DNA was impossible. So no one ever really knew just how variable or interrelated the ancient human genomes were. Such studies were, however, very well-funded in spite of the inconclusiveness.)

Thus it was materially, ideationally, symbolically, cognitively, and certainly conventionally that the 'complex' artefact was widely approved as being self-evidently complex, and could not have been manufactured by the crude makers of the 'simple' artefact from the same site. The 'simple' artefact makers were not even humans, and certainly not even remote ancestors. They were so simplistic and crude that they were removed from 'anatomically modern' human ancestry, even where the always infrequent genetic data actually indicated admixture. Site X and Site Y were where it was at. Humans (if they even were humans) from other areas were unimportant, as were their artefacts. They were sad evolutionary dead ends, interesting but ultimately unimportant since they were culturally unrelated to moderns even if they were genetic relatives. Everything except 'anatomically modern humans' was an unimportant dead end. Such views became axiomatic in certain anthropological and archaeological circles, to be uncritically accepted as received wisdom from the august mouths of the disciplinary high priesthood within the Body of Academic Anthropologists and the Society for Archaeology, the movers and shakers who decided who and what got to happen in the field.

Prestige attributed to the Site X and Site Y behavioural complexity orthodoxy rapidly attained the sort of lofty acclaim only rarely devoted to subjective palaeoanthropological just-

so stories, such as the famous, earlier, and very widespread orthodoxies that *Homo erectus* was obviously the only original human colonist and emigrated from Africa at no earlier than 1 million years ago (an orthodoxy that was well-known during the 1980s and early 1990s), or how *Australopithecus afarensis* was obviously the stem or basal hominid from which all later forms evolved (a very fashionable orthodoxy of the 1970s). Contrary views or even factual observances of the discontinuous natures of 'archaic' archaeological visibility were simply swept away and ridiculed out of consideration. It was all so obvious.

*La Fin*

This essay explores some disciplinary places we can look to 'see' archaeological evidence of contemporary and virtual retro-ethnocentrism and retro-prejudice based upon a perceived absence of evidence for us-ness. I will, perhaps, be forgiven for taking some sarcastic literary liberty above. This fictional scenario is not so very different from recent archaeological disciplinary reality. Primarily on the basis of a handful of artefacts from a handful of extremely well-funded sites from one particular area on the planet, combined with a reinvigorated push from molecular analyses of human nucleic acids and palaeontology, a novel and reinvigorated unstable orthodoxy has grown over the past fifteen to twenty years. Just a few of the explicit and implicit assumptions underlying this orthodoxy are as follows:

1. Anatomically modern humans only evolved in Africa; mainly South Africa, at that.
2. Admixture between archaic and modern humans was either impossible or it was possible but unimportant (making them conspecifics?). Only modern human DNA matters genetically (even if they were conspecifics?).
3. 'Modernity' was also born only in Africa; South Africa, at that regardless of precise chronology. It was diffused everywhere else, despite a general pan-anthropological distaste for most post-Palaeolithic diffusionary themes.

What really is behavioural modernity? Why do archaeologists and paleoanthropologists concern themselves with the phrase when it is ultimately untestable? Is it even important? Assuming it is even tangible, are we confident we're asking the right questions about it? These are but four of the innumerable queries one could pose regarding rather a strange topic with considerable currency in contemporary academia. Since, perhaps, the mid 1980s, through at least the 1990s and early 2000s, a voluminous body of literature was written concerning behavioural modernity (Henshilwood and Marean 2003; Klein 1994, 1995, 2001; Mellars 1995, 1996, 1999; McBrearty and Brooks 2000; McCall 2006). Whatever else we might say about behavioural modernity, we should probably note that (1) none of the ancients, including the South African anatomical moderns, were actually much like 'us' at all, and (2) even the most behaviourally modern exemplars of human modernity lived technological lives that were not nearly as complex, modulated or compartmentalised or complex as ours. Were they inferior to us? Why or why not?

Returning to the allegory above, we should recall

that although the ‘complex’ nail gun was found at the same elevation and site as the rusty, old simple thing, the archaeologist assumed that they understood the apparently different artefact functions and was thereby secure in assigning a later date to the more ‘complex’ composite artefact. This is an obvious allegorical allusion to actual sites such as Kebara or Arcy-sur-Cure, where ‘modern’ and ‘archaic’ stone tools have been found together. But given what we know about our own material culture, would such an assumption as above be necessarily warranted or correct? Lacking any material associations, would the archaeologist attribute the simple hammer and the complex nail gun to manufacture by the same *species*, in this case humans? On the basis of what criteria would the archaeologist even conclude a shared manufacturer in such a scenario? On the basis of what data from the site could they conclude the functional identity between both tools (i.e., to drive nails), perhaps knowing nothing about construction practices? Would they understand the possible comparative economic significance represented by the cheaper hammer and the pricier nail gun (rich vs. poor contractor competing for jobs), or that whereas the hammer might have belonged to a solitary, self-employed contractor the nail gun might have belonged to a large, national travelling *crew* of multiple contractors? How many would realise that often the very same members of the same species of hominin made and possessed *both* items simultaneously? What about the uses to which they were put? Do nail guns aid in the building of better structures than hammers? What variance is there in the range of products made with nail guns in relation to those made by hammers? Are symbolic aspects of hammers and nail guns even relevant insofar as they even exist beyond personal, individual preferences? Are we as wrong as the guy above was for making such assumptions?

Lacking evidence of either nails or ancillary perishable technology it is doubtful anyone without *a priori* awareness of these implements would even recognise a similarity of function, to say nothing of manufacturer identity. Though mere allegory, the above serves ominously as a potential warning for much of what currently passes for archaeological systematics and interpretation as based upon presumptions of Palaeolithic stone tool technology, given our distant level of awareness. World pre-History cannot be resolved by viewing everything through the lens of South African archaeology.

Received almost as an inheritance from the times when a militant, self-consciously ‘scientific’ veneer was applied to much of the New Archaeology (e.g. Binford 1989; Salmon 1982), it is still currently very *en vogue* to treat with ridicule or at least extremely ruthless scepticism any suggestion that Lower or Middle Pleistocene humans shared recognisably ‘human’ cultural behaviours. Since the late 1980s and early 1990s, it has also become *tres chic* to deny that Lower or Middle Palaeolithic implements even had functionally determined morphologies (Dibble 1987; Rolland and Dibble 1990). Many publications seem to question whether such implements even *had* legitimate functions. Would Howieson’s Poort humans actually recognise or perceive the symbolic behaviour we have attributed to them?

With respect to function, would any of the personalities in our allegory realise that Artefact A, despite its ‘simplicity’,

was useful for a much wider variety of functions than the ‘complex’ Artefact B? Since we here and now know that Artefact A is a hammer, and Artefact B a nail gun, we know how they function. Hammers are useable within a much wider range of functions than nail guns. Hammers can drive and pull nails, whereas nail guns simply drive them. Hammers can function as axes, as knives or adzes with the claws sharpened, etc. Hammers are excellent weapons. Besides driving nails, what else can a nail gun do? The wide functional applicability of a hammer is disguised by its simple design; the narrow functional range of a nail gun is also hidden by its sophistication. A nail gun is only useful within an exceedingly narrow functional range whereas a hammer can accomplish as many tasks as human imagination can conceive for it. Malfunctioning nail guns do not make good hammers (to this the author can attest personally).

Regarding composite tools, whatever else we can say the following. Composite tools represent conflation of individual tools that served multiple functions into multiple tools with highly specialised, reduced or solitary functions. Points, which could have served many purposes combined with shafts, perhaps used as walking sticks or probes as well as obviously wooden spears and other functions, were in their congregate forms used almost exclusively, according to a vast ethnographic and experimental literature, to puncture the thoracic and abdominal cavities of animals. Yet, despite this apparent reduction in the range of tasks actually performed by them, composite tools are often held to be evidence of all sorts of things, from fully modern language, to virtually contemporary aesthetic sensibilities. I am, however, interested in general purpose tools in this paper, such as the lowly one-hand hammer and other simple things.

Issues of ‘behavioural modernity’ are only rarely if ever applied to Acheulian bifaces. So let us then extend our discussion to that most hammer-like and constant tool from the Palaeolithic, the Acheulian handaxe. By way of comparison we can regard the nail gun as an analogue for a ‘composite tool’. One is here, however, more interested in hammers and their possible analogues. Rudely dismissed as an unconsciously shaped flake source at worst, or a kind of ape-man Swiss army knife at best (probably not the best simile, although it escapes me who started labelling handaxes Swiss army knives; does Victorinox know about this?), many palaeoanthropologists and archaeologists have opined mightily regarding the simple handaxe. One general consensus seems to be that the mere fact that handaxes lasted for so long in the archaeological record casts doubt upon the intelligence of their makers, as though stylistic longevity in tool form represented a lack of cognitive ability. If this is the case, then what should we make of the pencil? Or eyeglasses? There are many utilitarian items in use by billions of contemporary anatomical modern humans that have extremely long stylistic longevities traceable back into the remote past. Chopsticks, for instance. Would a long duration of archaeological visibility and stylistic longevity in chopsticks be used against their users as evidence of stunted working memory? Probably not, for ethnographic accounts and recorded history would demolish such a conclusion. Contemporary AMHs can be observed using them besides. Yet, no one really uses Acheulian handaxes anymore beyond

experimental and morphometric studies and we cannot, of course, observe their makers.

In chronological terms, it is also rather interesting when we consider the relative stylistic longevity of the hammer, as we know it in its current form. When first did humans lash rocks to sticks and fashion the first recognisable version of the familiar hammer form with a head and a handle? If we assume, as many scholars do, that ‘behavioural modernity’ existed by approximately 40 ka, then this means that modern humans have been making tools for at least forty thousand years. One might then ask for what percentage of that forty thousand years have humans been manufacturing recognisable handled hammers. This temporal aspect of artefact form, which I label stylistic longevity, has certainly been used in reference to Lower and Middle Palaeolithic implements, mainly to criticise archaic humans for a perceived absence of diachronic technological sophistication in stone tools.

Unquestionably hafted implements occur in many contexts by 30 ka, so it is hardly a stretch to assume that humans have been lashing rocks to sticks and making handled hammer-like things for the past thirty thousand years at least. Simple division indicates that  $30/40 = 0.75$ . So for something like 75% of the time during which we ‘know’ that anatomically modern humans have existed, they have made handled hammers with a basically consistent morphology, using a variety of raw materials. This is a relative index of the hammer’s stylistic longevity amongst moderns. It is unlikely either that modern human manufacture and usage of hammers is going to cease, and a trip to any hardware store will show that the ancient handled hammer morphology is if anything more common than in the past. How does that accord with the stylistic longevity of the lowly handaxe?

If we assume that humans have been making stone tools for about 2.5 million years, for what percentage of that 2.5 million years did a variety of hominins make handaxes (and noting that multiple ‘species’ made these things is important)? Handaxes first seem to occur at about 1.4 Ma (Shick and Toth 1993) and seem to last until about 200 ka (Whittaker 1994), or about 1.2 million years. To express this as a percentage, then  $1.2/2.5 = 0.48$ .

Comparatively, then, for about 0.48 or 48% of the time hominins have made stone tools the Acheulian handaxe was made in recognisable form, while for about 0.75 or 75% of the time the famous ‘anatomically modern humans’ have existed they have made recognisable hammers.

In other words, the *avant garde* AMHs have been making hammers in modern form for a proportionately longer interval of the time they have existed than a variety of (species? Subspecies? The same species?) hominins made Acheulian handaxes in relation to the total time many hominins have made and used stone tools. It’s true that handaxes existed over an absolutely longer interval of time, but that is about all that can be said. How do the lithic industries of the Lower Palaeolithic relate to the Middle Palaeolithic? Is it important that apparently multiple species produced handaxes or bifaces that seem to portray diachronic elaboration and knapping refinement? Does it matter that *H. heidelbergensis* and Neanderthals made them for much shorter times? Were all of these multiple species really making similar handaxes due to

digital impairment, which has been claimed (Clark 2001)?

What’s more, anatomical moderns have engaged in this retentiveness in hammer morphology in spite of living in vastly more integrated societies populated by humans living in exponentially higher demographic densities. Without regard to the relative social ‘complexity’ of any particular hominin, what we may regard as ‘behavioural modernity’ includes an inestimable but basal matrix of variables, such as increasing frequencies of social contacts between increasing numbers of people who are increasingly integrated with one another and communicating more frequently across decreasing distances, with shrinking temporal intervals between technological inventions, innovations and diffusions. During the Upper Palaeolithic, a sharp increase is noted in the frequency of archaeological sites, indicating population growth (Bocquet-Appel 2000). Since the Pleistocene glaciations appear at a macroscale to have lessened in general severity over time (i.e. Wisconsin/Würm glaciations were apparently less intense than the preceding Illinoian/Riss glacials), there may be significant environmental controls on aspects of the Upper Palaeolithic demographic growth. What should we, then, make of this protracted cultural retentiveness in regards to hammers? Should stylistic longevity in tools indicate different things relative to the hominins that fabricated them? If so, why? Why should the rate of technological sophistication be constant? Is it constant now?

Changes that have occurred in the modern hammer design have been related to changes in the materials from which they are made *as well as in relation to other tools with which they function in tandem, such as nails*. Changes in hammers have occurred both as effects and causes of changing nail designs, and in relation to other tools and functions. Might some of the changes observed in handaxe morphology thereby be related to changes in associated aspects of the total toolkit we cannot see due to negative archaeological visibility (i.e. biodegradation)? In such changes we might perceive indirect indices of changes in other aspects of archaic toolkits. The evidence might therefore be right in front of us already, at least the non-perishable components.

It would seem wise to learn a great deal more about the initial adoption of, production of, social role of, innovation in, dispersal of, and hominin sources of early technology before we say too much regarding non-falsifiable hypotheses such as the judgment of relative ‘intelligence’ or working memory, mimetics, semiotics, or language and cultural deficiencies in relation to handaxes. For one thing, we all learn early in our training that culture is cumulative. There is no reason to suspend uniformitarianism in relation to basic culture process. And since handaxes fall close to the very origin of human technology and evolution, we should probably expect periods of stasis and low innovative technological turnover. Humans had first to adapt to technology; technology that was probably not distributed equitably across the total population of hominins alive at its inception. The rate of technological change should be expected to occur slowly initially and to speed up over time. The rate of technological change is well known to increase rapidly in the contemporary age, so understanding that such things occurred slower, earlier, within much sparser and dispersed populations is not difficult.

Were there functional controls on handaxe form? The following may prove to be unpopular arguments, but one suspects archaeology and palaeoanthropology might be able to learn a great deal from analyses of the ways in which people make and use tools today. How many would argue that the *chaîne opératoire* or material fabrication sequence of a hammer is more important to its physical form than its function? The assumption that lithic tool function is independent of lithic tool form is belied by nearly every contemporary tool category that comes to mind. Some would weakly counter with an appeal to the relative comic absurdity of comparing modern and archaic tools.

The available archaeological/palaeoanthropological literature suggests that at least three basic sub-paradigms of Acheulian handaxe function exist. These categorical sub-orthodoxies essentially relate to authors' assumptions regarding the existence of functional controls on handaxe morphology. I would label the first category as pro-functional (Gowlett 1999; Gowlett and Crompton 1999; Rossano 2010; Toth 1987), in which allowances are made for some basic functional controls on handaxe form. The second category would be antifunctional (Petraglia 2003; Petraglia et al. 1999; Wynn 1995; Wynn and Tierson 1990) in which functional conditioning of handaxe morphology is strictly denied. Wynn (1995), for example, suggests that form has no relation to function in handaxe morphology, since any function can be fulfilled by a multiplicity of forms. This is highly provocative since we have few specific indices of particular handaxe functions. So how could we know whether form and function are related for handaxes? How many really novel forms can we find for our own contemporary hammers? There is not a wide variety, and hammers are today manufactured with clear form/function relationships.

The third category is defined by its lack of accordance with either of the first two, and can be understood as functionally-agnostic (Gowlett 2011; Klein 2000; Potts et al. 2004; Sheppard and Kleindienst 1996; Whittaker and McCall 2001). The third category, although it allows for some degree of functional constraints, essentially ignores handaxe function in favour of grinding other, mainly methodological and specifically quantitative/statistical, axes.

Gowlett (2011), in fact, in a very interesting paper has pointed out that the 'aesthetics' of some handaxe forms appear to conform to the Golden Section, or what some term the Golden Ratio, an hypothetical aesthetic measure relating to many human phenomena, from architecture and art, to music and mathematics. The golden section hypothesis states that a visual form is most aesthetically pleasing when the ratio of the dimensions ( $x,y$ ) equals the ratio of the larger dimension to the sum of the two, i.e.  $x/y = y/(x + y)$ , often expressed as the ratio 1:1.61 (Plug 1980). Besides handaxes some other noteworthy ancient items that appear to conform to this Golden Ratio are the rectangular sections of the Parthenon in Athens and Khufu's Pyramid at Giza. Gowlett (2011) related the ratio of some handaxe length  $\times$  breadth ratios as conforming to the Golden Ratio. Although there is a range of variation that falls outside the Golden Ratio (especially 'long' handaxes), for which Gowlett postulated a different ratio of 1:1.5, it does appear that a certain basic

proportionality was involved in making Acheulian bifaces (Gowlett 2011). Such dimensional referents as length and breadth might have a clear visual impact on handaxe design, and deviations from the dimensional ratios 1:1.61, 1:1.5, or other proportional ratios might therefore have presented handaxe makers with visually unacceptable products. This presented me with some questions. Are contemporary tools so constructed according to similar aesthetics? What about other tool attributes besides length and breadth? Are there other sorts of accordance between measurable tool characteristics that might indicate proportionality, perhaps unrelated to purely visual proportion?

What other attributes of tool manufacture might correspond to this observed ratio of 1:1.61? For the purposes of this paper, I used an analysis of contemporary hand tools, in this case common one-hand hammers, such as claw hammers, rip hammers, ball peen etc. made by two reputable hammer manufacturers: Estwing and Stanley.

Both Estwing and Stanley list various hammers specifications on their corporate websites (<http://estwing.com/index.php> and <http://www.stanleytools.com>). Two-hand mauls, sledge hammers etc. were not considered for this analysis, since they are used in rather different fashions. Two classes of data provided online by both manufacturers above are weight (in grams) and total length (axial length in millimetres). A total sample population of 106 common hammers from both Estwing and Stanley were used in this analysis. Weight in grams and total length in millimetres was recorded for each of the hammers.

The null hypothesis was that no significant ratio exists between weight and total length in contemporary hammers. The alternative hypothesis was that a significant ratio does exist between weight and total length in contemporary hammers. Bivariate correlations and linear regressions were run using SPSS (Figure 3).

A highly significant linear relationship was noted between hammer weight (grams) and hammer total length (millimetres). The Pearson's correlation coefficient was 0.562; Kendall's was 0.57 and Spearman's was 0.725. The  $r^2$  value of the linear relationship was 0.316. The two sided p-score was 3.68E-10, with 104 degrees of freedom. The critical values for linear relationships with 104 degrees of freedom would be  $r^2$  values of 0.195 for significance at the .05 level, and 0.254 at the .01 level. The  $r^2$  value of 0.316 is therefore highly significant. The null hypothesis is discarded, and the results clearly show a very strong correlation between the variables hammer weight and total length. This is unsurprising.

What was, however, rather unexpected was the averaged ratio between hammer weight and total length. Based on the sample population of common one-hand hammers in this study, that ratio is 1:1.61. This is basically the Golden Ratio. Given the strength of the correlation between hammer weight and total length, it is unlikely that collecting data on many other common one-hand hammers would elicit a very different result. What does this mean?

Recalling Gowlett's (2011) handaxe ratios of 1:1.61 and 1:1.50, and comparing them to the 1:1.61 ratio of weight to total length in one-hand hammers, it seems as if there may be some sort of pattern present. We could, perhaps,

investigate attribute ratios between other pairs of data relative to handaxes or even other contemporary tools. There might be, in fact probably are, many other similar ratios hiding inside such raw data. But what would they mean? To answer that, we might consider the human hand. Human hands can be subjected to similar analyses. My left hand is 190 mm in length and 106 mm in breadth from the joint of the second phalanx across my palm. Expressed as a ratio, this would be 1:1.79. So we have these figures, 1:1.50, 1:1.61, 1:1.79, whose mean would be 1:1.6333. In other words, whatever relative proportions we might calculate for the comparative dimensions of handheld manual tools, we should obviously remember the dimensions of what is holding and using them. Variation in handaxe size could therefore be expected to reflect variation in hand size, with bifaces made to suit differently sized hands. This might paint a very different picture of the makers. Far from being mere accidents, Acheulian bifaces could be exhibiting allometry as a reflection of allometry among the hand sizes of their makers. Intentional manufacture according to the user's hand size, in other words.

We might also consider how archaeologists and palaeoanthropologists are performing as diagnosticians of artefact functions. How many carpenters, or blacksmiths, or other artisan craftsmen have opined on the possible uses to which Acheulian handaxes might be put? An archaeologist accustomed to air-conditioned offices and graduate admissions committees and unaccustomed to performing routine manual labour is perhaps not the best judge of Palaeolithic tool function at such remote analytical perspectives. Archaeologists and auto-didactic flint-knappers can reveal some things about *how* stone tools are made; one wonders if they are particularly well-equipped to discuss *why* stone tools were made within the ranges of forms they exhibit.

Although it may not be *au courant* to observe, there is a basic similarity between the outlined size and shape of an extended human hand and an Acheulian handaxe. Perimeter-edged handaxes also exhibit rather a suggestive similarity with contemporary perimeter-edged woodworking tools known as shavehooks (Figure 4). Even a cursory inspection of a catalogue of common forms in which humans made and make tools will produce few analogues for the perimeter-edged handaxe. We might examine the functions of those few contemporary things

Correlations

		wtgrams	lengthtot
wtgrams	Pearson Correlation	1	.562**
	Sig. (2-tailed)		.000
	N	106	106
lengthtot	Pearson Correlation	.562**	1
	Sig. (2-tailed)	.000	
	N	106	106

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Correlations

			wtgrams	lengthtot
Kendall's tau_b	wtgrams	Correlation Coefficient	1.000	.570**
		Sig. (2-tailed)	.	.000
		N	106	106
	lengthtot	Correlation Coefficient	.570**	1.000
		Sig. (2-tailed)	.000	.
		N	106	106
Spearman's rho	wtgrams	Correlation Coefficient	1.000	.725**
		Sig. (2-tailed)	.	.000
		N	106	106
	lengthtot	Correlation Coefficient	.725**	1.000
		Sig. (2-tailed)	.000	.
		N	106	106

\*\* . Correlation is significant at the 0.01 level (2-tailed).

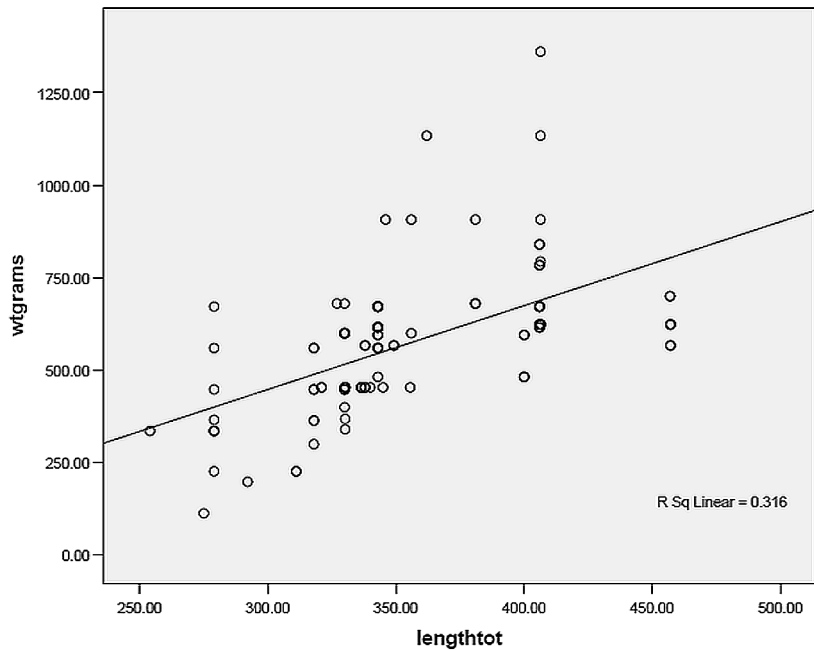


Figure 3. Hammer weight (g) and total length (mm) correlations.

that are similar to handaxes in form. Beyond personal preference, there is then really no basis to deny a form-function correlation for handaxes. As Gowlett (2011) observed, instances of the Golden Ratio could likely be found within the measurable attributes of many human products from many times. If things as widely separated in time, space and origin as the Parthenon, Acheulian handaxes and claw hammers evince the Golden Ratio in various of their physical attributes, then we should return to consideration of the things we can now measure. Human hands, like all human attributes, can be measured and size-plotted according to a normal distribution with high central tendency. Most are basically the same size and shape allowing for sexual dimorphism and regional variation. We certainly wouldn't discount form-function correlations



**Figure 4.** Comparison between a handaxe from Saint Acheul (upper left) and some contemporary perimeter-edged woodworking tools called shavehooks.

for human hands.

While we lack much hard data indicative of handaxe functions, beyond what is discernible through use-wear analyses and experimental replication studies, this phenomenon probably tells us more about ourselves than about handaxes or their makers. Some suggest that they may have been thrown as projectiles (O'Brien 1984), while a more recent critique of handaxe-throwing cogently questioned that function without actually suggesting any functional alternate hypotheses (Whittaker and McCall 2001). Wynn and Tierson (1990) describe a possible cultural variable in handaxe manufacture that nonetheless lacks functional morphological control. Stout et al. (2008) indicate that increasing neuromotor coordination perhaps related to language and perhaps other sociodemographic factors was necessary during human evolution for the manufacture of bifacial implements, which is probably obvious to anyone who has attempted to make any actual stone tool with hard hammer techniques. Handaxes are not an easy make, although they are easier than Levallois methods of controlled flake production. In one's opinion blade reduction methods are actually the simplest to fabricate once cores are prepared, so it is not obvious that task difficulty or complexity really correlates with language.

Petraglia et al. (1999), however, have demonstrated a considerably standardised manufacturing component in an Indian context, whereby handaxes were systematically made

into symmetrical handaxes in spite of the unique dynamics imposed by particular structural bedding and cleavage planes of the local tabular siliceous limestone. Lithic raw materials often vary locally in fracture characteristics, let alone across larger geographic distances, and some are not tabular but are instead nodular or irregular. Yet, irrespective of the range of variation in lithic raw material chemical and structural composition, size and shape, the familiar handaxe form apparently prevailed. That is interesting. This imposition of the familiar handaxe form on highly variable raw materials from unrelated areas as distant as Boxgrove, England, and Isampur, India, tends to contradict the handaxe as flake source hypothesis. Raw materials from such widely separated loci cannot have imposed the same physical constraints on the handaxe makers. The materials are simply too variant across a range of too many separate characteristics. Despite the variation in raw material the consistent handaxe makers seem to have been certainly goal-oriented in handaxe form.

What kinds of flakes would be produced from a mindlessly repetitive mimetic handaxe reduction sequence? Would random flake production randomly result in the fabrication of over a million years' worth of handaxes? If the flakes weren't different (couldn't have been if one thinks about basic properties of lithic reduction) then what about the makers? Don't we learn that *H. ergaster*, *H. erectus*, *H. antecessor*, *H. heidelbergensis* and *H. neanderthalensis* were different species? Why such stylistic similarity, for so long, over huge distances, between human groups who were separated by space and time as well as perhaps by species? This is very interesting. Even if flakes were more or less made to standardised sizes within a variable range based on the sizes of human hands, the continual repetition of the teardrop handaxe shape begs explanation. One can make similarly-sized flakes from cores of virtually any number of shapes. This doesn't require a teardrop shape. Furthermore, the flake scars on the handaxes themselves reveal quite obviously that the debitage produced while making handaxes did not exhibit constant dimensions. Likewise, the thinning often found at handaxe tips also argues persuasively against the flake core model, since thin handaxe tips would be meaningless for flake production (Gowlett 1999).

One of the potential complications of European Lower and Middle Palaeolithic archaeology is the probability that many Lower and Middle Palaeolithic sites are submerged beneath the waters of the Atlantic Ocean, the North Sea and the English



Channel. The large quantities of mammoth bone unfortunately available for sale online, dredged up from the North Sea and Channel, as well as recent recoveries of handaxes hauled in by fishermen (Brian Handwerk, <http://news.nationalgeographic.com/news/2008/03/080317-hand-axes.html>) are tantalising examples of archaeology we are in a poor position to sample. Such material is, however, highly relevant. One of the linchpins of the behavioural modernity orthodoxy has been the paucity of coastal adaptations among archaic humans. With respect to northern Europe, a pitfall of such orthodoxy is that many of the actual 'coastal' sites are probably located out on the continental shelves, far out of reach of conventional archaeological sampling. Are we in a position to speak to coastal adaptations by archaic humans when we lack access to the areas where such sites would occur?

So, at this point, one may respectfully ask: just *why* are such pervasive and unstable orthodoxies constructed? For example, similar once-authoritative orthodoxies have repeatedly come and gone in anthropology, generally after recovery of more data. We have no idea how present states of knowledge are going to be affected by future data. Yet, it appears from the recent literature that we cannot avoid falling into the unstable orthodoxy trap. As above, *Australopithecus afarensis* was once heralded, widely, and passionately, as the basal hominid species from which all subsequent hominid species evolved. Recovery of earlier hominids has falsified this. It was once common also to explain human origins as resultant from a series of *Homo erectus* emigrations from Africa beginning approximately 1 Ma. This primitive late *erectus* emigration orthodoxy was convincingly demolished by the Dmanisi finds, among others. As more data was recovered these orthodoxies collapsed. So why the continual construction of unstable orthodoxies? Is there something about archaeology/palaeoanthropology that results in carving out highly temporary explanatory orthodoxies that seem nearly always to collapse under the acquisition of more data?

We might inspect the disciplinary publication norms of other sciences. Take, for instance, geology, or astronomy/cosmology. In those disciplines it is normal, even expected, for publication of method, theory or speculation to contain disclaimers: disclaimers premised upon the acquisition of new data. Cosmologists, for example, routinely include caveats just in case new discoveries are made. Is this a routine aspect of archaeological or palaeoanthropological publishing? If not, why not? Have all the recent publications premised upon South Africa come with admonitions of high criticality? Have they come with allowances for future discoveries? Or do they claim rather ultimate prerogatives for themselves and their subject matter? Do they suggest further reading or do they claim to be the last words? Why or why not? Something that is sorely missing in much of the archaeological literature is basic humility, or even addressing the temporary nature of findings or results as well as admission that future discoveries might very well refute nearly everything that we might in the now have to say.

Even if 'archaic' hominins didn't produce archaeologically visible 'art' (we'll never know for certain whether they did unless we find some, rather as in finding extraterrestrial intelligence etc.) as we conceive of it they certainly had

bipedalism and fire and so a capacity to vacate and/or to reorder their natural surroundings in ways unavailable to most other organisms. The geriatric and edentate 'Old Man' from Dmanisi also indicates a touching element of altruism, in stark relief, at about 1.8 Ma. The recent discoveries of the Denisova population (Reich et al. 2010), and a Chinese example of a Neanderthal/AMH hybrid dating to 100 ka (Wu et al. 2010) suggest that the genetic story of the MP to UP transition is far from complete. It may also contain a very serious Asian component quite apart from the African material. Finally, recent evidence from Italy indicates that a population of Neanderthals exhibited a preference for bird wings, specifically a suite of raptor wings (from vultures, eagles, hawks, falcons) with unusual breakage patterns, which could indicate a form of symbolic selectivity for charismatic wing feathers (Peresani et al 2011). Such discoveries might indicate that the South African 'behavioural modernity' orthodoxy is straining under the accumulation of new data.

To conclude, in one's opinion as based upon the contemporary literature, archaeologists and palaeoanthropologists have a tendency to dismiss in favour of the familiar or conventional. Every so often, the familiar and conventional change, often radically, as new scholars rise in the fields and as new discoveries are made. We really have no reason to think the same doesn't apply to Acheulian handaxes, Howieson's Poort lithics, hammers, nails and nail guns. It may well be that our unstable orthodoxies tell us much more about ourselves than the phenomena they purport to address or to explain. Finally, the archaeological and palaeoanthropological communities, as members of the 'anatomically modern' human species, ought to be very careful to what and to whom they choose to apply labels such as 'creative' or 'innovative' in the past, given their own species' creation and innovation of such things as slavery, institutional inequality, thermonuclear weaponry, depleted uranium projectiles, racism, ethnocentrism, speculative commodities investment, and the high-interest adjustable rate mortgage, just to name a few of the technological and cultural gadgets popular in first world nations (and as for racism and ethnocentrism, we MUST have created and innovated them since we could not have inherited them from archaics who didn't contribute to our genome). Modernity is not simply some wonderful quality that brings sunshine and flowers and happiness. Instead of viewing 'modernity' as the crossing of the Rubicon for all the right reasons we might just as well investigate it as a potential cause of many of our species' pathologies. Living in 'modernity', we might be in rather a poor position to judge it.

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# Cultural heritage management, ethics and rock art in Western Australia

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**Abstract:** A critique of established cultural heritage practices in Western Australia is presented, focusing on the control of the process by corporate proponents, and its effects on rock art and stone arrangements. The moderating roles of scholarly societies in questions of ethics are reviewed. The paper ends with a constructive proposal to end practices that have facilitated large-scale destruction of cultural heritage sites.

## 1

The practice by professional archaeological consultants of destroying rock art sites in the Dampier Archipelago, Western Australia, said to be the site of the world's largest concentration of rock art, has thrown a long shadow across the disciplines of archaeology and anthropology (Bednarik 2006). The multi-million dollar business of removing rock art and destroying stone arrangements has become the focus of ethical considerations that may have far-reaching implications. It is run by professionals who, although the public would intuitively see them as the champions of cultural heritage and of indigenes, are obliged to abandon that role in the pursuit of lucrative contracts with powerful resources companies. This is not a new issue; it has surfaced on previous occasions in other countries, most notably in Portugal (Arcà et al. 2001) and Chile (Bustamente Díaz 2006, 2012). In Western Australia, the neglect of cultural heritage is facilitated by the state's legal regime of protecting indigenous heritage, and its rubberstamping of destruction orders through the racially discriminative *Western Australian Aboriginal Heritage Act 1972*. That Act allows the exploitation of a loophole giving the developer the right to appeal, but not giving the indigenous owner the same right. It merely regulates 'the legalised destruction of WA's Aboriginal cultural heritage' (Ritter 2003). Over 99% of the applications to destroy Aboriginal cultural heritage in Western Australia (WA) have been granted since 1972 (Bednarik 2007). A fair indication of the state of legal deficiencies in WA is the rate of Supreme Court judgements being overturned by the Federal High Court, which is higher in that state than in any other.

In 2007, the WA Crime and Corruption Commission found it necessary to investigate the intervention by the then Premier, Alan Carpenter, in the application to destroy cultural heritage at Abydos/Woodstock (also in the Pilbara), but unfortunately did not pursue the matter further. Similarly, the legality of the recent approvals of Woodside's Pluto project at Dampier is dubious, and it contradicts Australia's international obligations (e.g. the *UNESCO Declaration concerning the Intentional Destruction of Cultural Heritage*, which Australia is a signatory to) as well as the Australian instruments governing cultural heritage management.

More important than matters of legality — to the professional standing of the organisations representing Australian archaeologists and anthropologists — are matters of ethics. The legislative body, the state government itself, has in the

past consistently failed in its responsibility to the State's heritage; hence legality is not the main issue here; professional integrity is. Organisations aspiring to high academic standards possess codes of ethics, and constitutional provisions for enforcing them.

In September 2007, four relevant organisations received appeals from Dampier Traditional Custodians to take disciplinary action against a member alleged to have played a leading role in the destruction of rock art sites at Dampier. They were the Australian Anthropological Society (AAS), the Australian Archaeological Association (AAA), the Australian Association of Consorting Archaeologists Inc. (AACAI; apologies for the slip of the pen) and the Australian Rock Art Research Association Inc. (AURA). Their respective responses to a plea of help from an Aboriginal community whose cultural heritage is under severe and immediate threat may help in understanding their respective underlying ideologies.

AAS responded by explaining that it does not currently have any procedures to investigate or adjudicate allegations about unethical behaviour by its members, or to take any action about it. Although it is perceived as a professional association, it prescribes no professional culpability for its members. However, endeavours are now underway to introduce appropriate procedures for investigating alleged breaches of the *AAS Code of Professional Ethics*, and to effect two amendments to the current constitution. The originator of the Code, drafted in 1986, has stated that, without a disciplinary clause, a code is only 'aspirational' but not binding.

AAA, AACAI and AURA have robust procedures for dealing with unethical conduct, as, conversely, has the Anthropological Society of Western Australia. The relevant clause of the *AAA Professional Code of Ethics* states that:

Any person can notify the Executive Committee of a member's conduct which they believe to be detrimental to the interests of the Association. Complaints may activate procedures outlined in s 32 (Expulsion of Members) of the Constitution, including rights of appeal.

However, it is understood that the AAA Executive Committee has advised the Dampier TCs that it will take no action in the matter concerning the destruction of Dampier rock art and stone arrangements.

The relevant clause of the AACAI constitution states:

38. Where the National Executive Committee is of the opinion that a member of the Association:

- (a) has refused or neglected to comply with a provision or provisions of the Objects or Rules or Codes of Conduct; or
- (b) has acted in a manner prejudicial to the interests of the Association; or

(c) has been guilty of conduct unbecoming a member,

the National Executive Committee may, by resolution ('the initial resolution'):

- (i) reprimand the member;
- (ii) suspend the member from membership of the Association for a specified period; or
- (iii) expel the member from the Association.

It is understood that, since the TCs submission was made to AAA in 2007, no decision on the matter has been made or communicated. On the other hand, AURA has reacted swiftly and, by decision of the Executive Committee, invited the member concerned to respond to the allegations that he removed rock art at Dampier, and to appeal against possible expulsion. He explained in defence that:

- a. The works carried out were done in accordance with the Section 18 notice issued by the WA Minister for Aboriginal Affairs under the *WA Aboriginal Heritage Act 1972*.
- b. It had been endeavoured to consult the TOs; however, the fraught nature of Aboriginal politics in the area meant that it was impossible to ensure the satisfaction 'of all Aboriginal persons laying claim to the area'.
- c. The works carried out were in accordance with the contractual obligations to an employer.

AURA found this explanation unsatisfactory, taking the view that:

- a. The association was under an obligation to assess the complaint purely from the point of view of the effect of the activities complained of on the association's reputation, rather than their legality under WA State law.
- b. That as a professional archaeologist, the member was subject to the codes of ethics or constitutions of various scientific bodies with which AURA is affiliated, and also with the provisions of the *Burra Charter* and other relevant instruments. If his or her employer requested him to breach those standards, then the contract ceased to be legally binding, and it was his or her professional obligation to refuse to carry out any inappropriate actions requested to perform.

AURA determined that in removing rock art, the member had engaged in conduct that was detrimental to the association under clause 3.12 of the *AURA Constitution* and he was expelled in accordance with clause 3.11.

## 2

The underlying issue in all of this is the state of the cultural heritage management industry in WA, which in the case of non-British heritage is largely dominated by heritage consultancy work sponsored by the major resource companies operating in the State. The lucrative role of these heritage consultants is essentially to facilitate applications by the mining and hydrocarbon companies for exemptions under Section 18 of the *WA Aboriginal Heritage Act 1972* (Moore 1999; Ritter 2003). That piece of flawed legislation provides developers with a means for the legalised destruction of any

indigenous heritage site in WA following ministerial consent — which has been granted in 99.7% of recorded cases. Consequently mining companies spend millions of dollars on consultants' fees (Bednarik 2007:238), in much the same way as they employ political lobbyists to influence politicians (many of the latter have had to be sacked in recent years, following their exposure by the WA Crime and Corruption Commission).

The consulting industry thus governing the protection of indigenous cultural heritage in WA contends with significant conflicts of interest: while it is expected to preserve, for instance, rock art sites, it finds itself recruited as the facilitator of their destruction (Bednarik 2008). Archaeological or anthropological consultants are beholden to immensely powerful corporate entities that are capable of directing governments, and often find themselves involved in clandestine operations. Concealed from the attention of the public, these are conducted deliberately to mislead or misinform the media; participants are required to sign confidentiality clauses, and public access to reports of such operations is prevented (Laurie 2006). These conditions create a second layer of unethical conduct, because the participants, while claiming academic privileges, are engaged in thwarting the unfettered access of their peers to their findings or results. The corporate consultants produce no published reports of their work, which remains shrouded in secrecy and generally inaccessible. They are clearly answerable only to their corporate masters, and not to the traditional owners of the rock art, or to their discipline, or to the state, the public, or to humanity at large. Thus the notorious lack of published works about the numerous Dampier consultancies, conducted at the cost of many millions of dollars, is attributable to the secrecy of the process of cultural heritage management in WA. The amount of money spent on archaeological consultancies at Dampier exceeds by far that spent anywhere else in the country, and is in the order of that spent at locations in Egypt, Mesopotamia or the French Dordogne, which have yielded huge numbers of publications.

Bearing in mind that these monuments and cultural sites are, in the first instance, the patrimony of the indigenous communities in question, and in the second, the heritage of all of humanity, these practices are unethical. The indigenous people, who in the case of Dampier have witnessed the genocide of the Yaburara at the hands of the state (Bednarik 2006), and who today oppose the destruction of their heritage most vigorously (Churnside 2007), are pushed aside by the participants in this inequitable system. The nation of Australia is being robbed of its greatest single cultural asset, and the international community of nations loses one of its finest monuments. All of this is entirely unnecessary, because hundreds of better locations are available for these industrial developments; and it is all done for the financial gain of a few (the vast majority of development contracts are let to overseas tenders), including the consultants doing the bidding of their employers.

While the resource companies may be driven by technical, logistic or political expedients, the destructive process would not be possible without the collaborating anthropological or archaeological consultants who facilitate the 'preferred

outcomes' of their masters. They are defined as 'independent', when in fact they are patently dependent upon the resource companies; they claim the mantle of academia, when in fact they exclude any form of peer review of their handiwork; they conduct themselves as cultural resource management experts, when in fact their role is the destruction of the sites; and they present themselves as experts on the subject of their destruction, when in fact they are not.

### 3

It is through this last proposition that a constructive solution becomes apparent. Australia, with many of the world's outstanding rock art researchers, has for some time been a world leader in rock art conservation and in the scientific study of this resource. And yet, most of the consultants engaged in assessing rock art are general archaeologists who lack demonstrated or substantive expertise in rock art, its proper study or its management and conservation. They are not members of a rock art organisation, do not participate in the development of the discipline, and yet they present themselves as experts on the study or management of rock art. Over twenty years ago, Australia hosted the first, and so far only, post-graduate diploma course on the conservation of rock art (Watchman 1989), at considerable cost to the nation. One half of the graduates of this course, given by Alan Watchman in Canberra, found no employment in that field in the year following the course. Even today, archaeologists lacking any worthwhile expertise on the subject of rock art dominate the lucrative consultancies offered by the state and industry. Moreover, these consultants have often displayed unacceptable attitudes to the rightful owners of the rock art, the indigenous nations of Australia. Some Australian archaeological consultants, who are of what Trigger (e.g. 1989) describes as nationalist, colonialist or militarist inclinations, are not suitable to research Indigenous histories. The widely published concept of 'pathological anthropology' (e.g. Price 2000, 2005; Houtman 2006, 2007; McNamara 2007) could also be considered in archaeology.

The diagnosis, then, is that *some* of those who execute cultural heritage policies in Australia are politically, socially, epistemologically or academically unsuited for their tasks. Much more appropriate, better predisposed scholars would be available, but the industrial proponents have often developed a symbiotic relationship with those consultants who have become dependent upon them — paradoxically describing them as 'independent' (Moore 1999:248). Proponents also corrupt the relationships between indigenous communities and anthropologists. 'Typically the proponent is likely to prefer an anthropologist consultant who has done no previous work with the community in question' (Moore 1999:245). However, the communities only trust anthropologists with whom rapport has been established through long-term relationships and trust, an affinity not possible with strangers. The proponent, on the other hand, would tend to be opposed to his anthropologist forming any rapport with the indigenes; he would rather have the anthropologist on his side — after all, he does pay him. Clearly, then, the 'research' of the anthropologist contradicts all canons of sound anthropology.

The solution to this unsatisfactory state is so obvious it

hardly needs to be defined. Two things need to occur. Firstly, the existing structures need to be replaced with a consultancy system that is equitable, that protects the cultural resource, is supportive of indigenous aspirations, and is transparent and accountable. Secondly, the relevant legislation needs to be revised. It is absurd that the state abrogates its responsibility of managing the cultural heritage on its territory and passes it on to resource companies. Certainly, the proponents ought to meet the costs of assessments, but it is fundamentally objectionable, indeed self-corrupting, that they control who makes the assessments. This responsibility must be in independent hands. Here, then, is a proposal of re-structuring the management practices of the immovable cultural heritage of Australia:

1. The responsibility of awarding consultancies in this area should be included in the duties of an existing government agency (such as the Department of Indigenous Affairs) which, upon application from a proponent, would issue tenders and select consultants on behalf of the proponent. There is no contact between the proponent and the consultant other than co-operation in practical matters of access and logistics; the consultant is answerable to an independent agency. In addition, the ministerial prerogative is to be subject to appeal and legal action.
2. The Australian Rock Art Research Association Inc. should establish a register of rock art researchers who are specialists in the study and conservation of rock art rather than some other field, who are committed to the preservation of heritage and who adhere to the existing management and ethical instruments (especially the *Burra Charter*) and the *Constitution of AURA*. AURA should maintain this register, recording the particular areas of expertise of each consultant, making it available to the relevant state agencies and Indigenous Communities. To counteract the secrecy surrounding such consultancies AURA should publish details of all major contracts after completion, and endeavour to publish relevant scientific papers wherever this may be appropriate.

These two simple measures involve no additional costs of any significance, and yet they would streamline the process and render it transparent and authentic. The only challenge is how to assess candidates for the register objectively and fairly. Selection boards of this nature exist in many other areas of expertise or endeavour, which can serve as models. A board will need to be established, of Aboriginal representatives and highly experienced specialists who would exclude themselves from consideration to be on the register; and a fair procedure of assessment, based on previous experience and performance, would need to be established. This is certainly not excessively difficult to achieve, but it would have a very significant impact on the effectiveness of cultural heritage management in Australia, which at present is seriously compromised, particularly in Western Australia and Tasmania.

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## Milestones in the history of the Dampier Cultural Precinct

Pre-1860s - Beginning many millennia ago, the Dampier rock art and megaliths are created by the Yaburara.

1868 - The Aboriginal occupation of the Dampier Archipelago ends abruptly when the Yaburara are decimated in a series of massacres beginning 17 February and ending three months later. Only six people are recorded to have survived this premeditated genocide by police, for which the state has offered no compensation to this day.

1954 - The first offshore North-West Shelf gas deposit is discovered by Woodside.

1962 - In response to a proposal to construct a deep-water port on Depuch Island, east of the Dampier Archipelago, the Western Australian Museum conducts an impact study. It finds concentrations of rock art and the plan is abandoned, but it also reports that there is almost no rock art in the Dampier Archipelago.

1963/4 - In response to the botched museum survey, government and mining interests decide to build the harbour on Dampier Island (Murujuga) instead. The large-scale destruction of Dampier rock art commences.

1967 - R. G. Bednarik re-discovers most of the Murujuga rock art and commences his survey of it, registering some 572 petroglyph sites and numerous rock arrangements over the next three years. He witnesses extensive destruction of rock art by Hamersley Iron and commences a long-term study of its deterioration.

1970 - R. G. Bednarik asks the Western Australian Museum to protect the Dampier petroglyphs, ahead of further destruction by Dampier Salt.

1972 to 1978 - Several further rock art researchers, including F. L. Virili, W. Dix, B. Wright, M. Lorblanchet and J. Clarke, examine the Dampier rock art corpus and recommend that it be appropriately protected.

1979 - The northern half of Dampier Island (Murujuga) is named Burrup Peninsula, after the 19th century Roebourne bank clerk Henry Burrup.

1980 - The commercial development of the North-West Shelf commences. Woodside Offshore Petroleum employs archaeologists to remove rock art on a large scale. The traditional owners are not consulted, and no attempt is made to assess the impact of the petrochemical development. Almost 2000 engraved boulders are deposited in a fenced-in 'temporary' storage area at Hearson Cove.

1994 - R. G. Bednarik proposes the archipelago's declaration as a National Park, return of the land to Aboriginal ownership, and nomination to World Heritage List.

1996 - The government announces the development of the Maitland Heavy Industry Estate, located on the mainland to the south-east of Dampier.

Late 2001 - A plan to significantly increase the industrial capacity on Murujuga (the 'Burrup Peninsula') is announced.

January 2002 - The Australian Rock Art Research Association (AURA) and the International Federation of Rock Art Organisations (IFRAO) decide to oppose the expansion of the petrochemical plants, because similar development has already caused the loss of 24% of the Murujuga rock art.

June 2002 - In response to a paper by R. G. Bednarik in *RAR*, the government announces the establishment of an expert panel to assess the claims made in it. The media reports the appalling conditions of the 2000 petroglyph boulders deposited in a compound in the 1980s. The local Shire President announces that the shire council has not been consulted in the planning. IFRAO accuses the government of cultural vandalism and economic mismanagement, AURA launches an Internet petition on its Website.

9 June 2002 - A public rally is held at Hearson's Cove, which turns into a demonstration in favour of the rock art, demanding unanimously that the industrial development be located at Maitland. This establishes clearly the strength of local support for the campaign.

15 July 2002 - IFRAO predicts that some of the companies may well reconsider their involvement in view of the un-

certainly it creates by dithering, accusing the government of endangering the projects.

25 July 2002 - The government announces that it will conduct an independent four-year study of the deterioration R. G. Bednarik has already studied for 35 years. It is not clear how the wishes of companies wanting to commence their projects in the meantime will be accommodated. While this vindicates the concerns that led to this campaign in the first place, it is also clear that the government still does not comprehend the implications of its inaction.

22 August 2002 - The National Trust of Australia places Murujuga (Burrup 'Peninsula') on its list of Endangered Sites of Australia.

26 August 2002 - IFRAO, through R. G. Bednarik, petitions the National Native Title Tribunal to ensure the return of Murujuga to the local Aboriginal people, and registers a strong public interest in the rock art precinct. This submission leads to the NNTT's decision, ten weeks later, to call for public submissions on the case.

24 October 2002 - On behalf of IFRAO and AURA, R. G. Bednarik nominates the Dampier rock art to be listed as one of the world's WMF 100 Most Threatened Monuments to the World Monuments Watch program of the World Monuments Fund. There have never been any Australian properties on the list of most threatened sites.

29 January 2003 - The head of the Department of Environmental Protection, R. Payne, is sacked by the Premier of Western Australia, Dr Geoff Gallop. His superior, Environment Minister J. Edwards, is under pressure to resign.

13 March 2003 - Methanex Corporation of Vancouver announces that its proposed \$2 billion methanol plant for Murujuga/Burrup will not proceed. Its withdrawal follows that of another Dampier proponent, Syntroleum, after rejection of a request for substantial government support. A third of the prospective Murujuga companies, Dampier Nitrogen, is also hesitating, and in response to the relentless campaign by IFRAO, nearly all of the 17 proponents eventually withdraw, at a loss of dozens of billions of dollars in investment.

15 March 2003 - C. Barnett MLA, the W.A. State Opposition Leader, states that if Maitland were in place, the Methanex project would not have been lost, and that he would move immediately on developing Maitland were he the premier. He also argues that the rock art at Dampier is the most significant heritage issue the state has ever faced, and that 'the corporate entities are not going to want to be seen in conflict with the rock art'.

26 March 2003 - In response to IFRAO's probing, Woodside, the operator of the North West Shelf Venture, announces that it has misled the government about the level of its emissions.

4 April 2003 - The Western Australian Department of Environmental Protection, which has been the object of severe criticism for several months, admits that a series of internal reviews show that it is incapable of fulfilling its functions. It is to be completely restructured and renamed.

22 March 2004 - R. G. Bednarik, on behalf of IFRAO, submits the Dampier Rock Art Precinct for the National Heritage List.

28 April to 5 May 2005 - The travelling exhibition *Visions*

*of the Past: the world's most endangered rock art*, assembled by R. G. Bednarik of IFRAO, is premiered at Karratha, Western Australia, close to the Dampier rock art it presents. After its opening in the Walkington Theatre by some of the main stake holders it is open to the public for one week, and seen by a large part of the local community.

5-9 September 2005 - R. G. Bednarik presents the Dampier issue to UNESCO in Paris and helps drafting the international recommendations for the protection of global rock art. These are significantly based on the experience of state vandalism occurring at Dampier.

16 January 2006 - Dr G. Gallop MLA, the Premier of Western Australia since February 2001, suddenly announces his immediate retirement. He has presided over the world's most severe case of state vandalism of rock art in recent history.

25 June 2006 - The film *Sacred Stones* is shown in the national TV program *60 Minutes*, presenting the plight of the Dampier rock art to the Australian public. It is seen by 2.4 million people and has a significant effect on public opinion in Australia. It marks the beginning of the end of the opposition to protection of Dampier rock art.

13 July 2006 - The federal leader of the Greens, Senator Dr B. Brown, visits the Dampier rock art with R. G. Bednarik and Senator R. Sievert, and pledges his total support for the Dampier campaign.

29 January 2007 - R. G. Bednarik applies to the United Nations Special Rapporteur on the Violations of the Rights of Indigenous Peoples at the Office of the United Nations High Commissioner for Human Rights in Geneva for help to have the rights of the Dampier Traditional Owners respected by the Australian governments.

23 February 2007 - John Bowler, the WA minister who in mid-2006 lied several times on TV about there not being any further rock art destruction at Dampier, is sacked after revelations by the CCC (Crime and Corruption Commission) of his corrupt conduct as a minister. He cries in parliament.

2 March 2007 - The endemic corruption and incompetence in the government of WA has now claimed the political careers of five ministers, an opposition politician and the Deputy Director-General of the Dept for Industry and Resources, Gary Stokes. Today it also claims the scalp of the former federal Minister for the Environment and Heritage, Ian Campbell, who had visited the Dampier rock art with R. G. Bednarik, but subsequently refused to protect it.

3 July 2007 - IFRAO's application to list the Dampier rock art precinct on the National Heritage List is accepted by the Federal Minister for Conservation and Water Resources, Hon Malcolm Turnbull MP, three years and three months after it was made, and against bitter and sustained opposition from the state government and the Woodside company.

7 December 2007 - R. G. Bednarik, on behalf of IFRAO, requests the Federal Minister for the Environment, Heritage and the Arts, Peter Garrett MP, to pursue an application to have the Dampier Rock Art Precinct placed on the World Heritage List.

To this day, no such application has been made by the Australian government.

## Recent actions in U.S. rock art protection

In *AURA Newsletter* 28(1–2) of November last year we featured eight reports illustrating that rock art protection at grassroots level is much more successful in the United States than it is in Australia. Here are two more recent examples.

### Men sentenced for defacing pictograms

BOISE – Two Lewiston men have been sentenced for defacing ancient Native American pictograms at a shelter near Hell's Gate State Park.

U.S. District Judge Edward Lodge sentenced Michael Bernal, 21, and Tyler Carlson, 23, on Wednesday for their roles in spray-painting a rock wall at the Red Elk Rock Shelter last February. The shelter's red-pigmented tribal drawings are believed to be 2,500 years old and in a region traditionally occupied by ancestors of the Nez Perce tribe.

Bernal and Carlson were convicted of willful injury or depredation of federal property.

The pair and a third defendant, Jerad Bovencamp, hiked to the shelter and used cans of spray paint to deface rock art drawings depicting animal figures and geometric shapes.

Bernal was sentenced to 36 months in prison, while Carlson will serve four months in prison. They were each ordered to pay more than \$33 000 in restitution to cover

damages.

Bovencamp, 24, of Lewiston, was convicted of similar charges and is scheduled to be sentenced in June.

*The Spokesman-Review*, Utah  
2 March 2012

### \$4000 reward for information on rock art vandalism in the U.S.A.

Local governments, industries, interest groups and the Bureau of Land Management have pooled their resources to offer a \$4000 reward for information leading to the arrest and conviction of the persons responsible for vandalising an archaeological treasure in Nine Mile Canyon.

In late September [2011], someone built a campfire near the so-called First Panel, then used charcoal to scrawl graffiti on some of the ancient Native American rock art.

The BLM intends to bring in a professional restorer to remove the damage later this year.

John Serfustini  
Associate Editor  
*Sun Advocate*  
22 March 2012

### The best things in life tend to be free!

At 99.95 euros the new book *The human condition* (August 2011, Springer, New York) is no bargain, but it is still a worthwhile investment. However, the key elements in it are summarised in the article 'The origins of human modernity', which has recently appeared (*Humanities*, Volume 1, Issue 1, pp. 1–53, doi:10.3390/h1010001). And this article is available free on OpenAccess, at <http://www.mdpi.com/2076-0787/1/1/1/>

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