



A Major Change in Archaeological Paradigm

Robert G. Bednarik

Abstract. – Using three examples of emerging incongruities in world archaeology, this theoretical paper explores systematic and underlying epistemological problems in orthodox archaeology. The examples analysed were chosen to illustrate three fundamental types of issues: the influence of a popular fad, the effects of overinterpretation of inevitably skewed and ideology-influenced data, and the consequences of employing an inadequate epistemological framework of processing data in deriving interpretations. These considerations lead to the proposition that a paradigmatic shift is essential, particularly in Pleistocene archaeology, to prevent the discipline from sliding into epistemological stagnation. [*Archaeology and epistemology, archaeology and universal theory, metamorphology, taphonomy, Pleistocene*]

Robert G. Bednarik, Chairperson of the International Federation of Rock Art Organizations (IFRAO), Chairperson of the AURA Congress, and Secretary of the Australian Rock Art Research Association (AURA). Editor of four scientific journals and two series of monographs. His recent publications include "Rock Art Science. The Scientific Study of Palaeoart" (Turnhout 2001) and numerous articles on archaeology in scientific journals; see also References Cited.

Introduction

There are a number of disciplines that deal with events and phenomena of the past. Some of these, when they are conducted within certain parameters, offer falsifiable and thus scientific propositions, others do not, even though they may be based on perhaps perfectly "sound" practices. The similarities and differences between astronomy and archaeology would be a case in point. Both deal with the past; no astronomer has ever observed an event or phenomenon of the present (for the sake of the argument, the question of linear versus nonlinear time is ignored here). He or she

can only witness the *past* in cosmic space, because cosmic present is only rendered accessible to us by *becoming* cosmic past. Some of the astronomical events we observe occurred some minutes before certain of their effects become detectable to us, others took place many millions of years ago and are chronologically more distant from us than the earliest hominid archaeology. But despite the similarity of dealing with events and phenomena of the past, there are significant differences between astronomy and archaeology. The astronomer can make predictions about the trajectories of all sorts of variables and then test them, the archaeologist can not. The astronomer uses universals from physics in explaining observations (e. g., spectral shift, properties of chemical elements, nuclear reactions), whereas those cited by the archaeologist refer to ethnographic analogy (cf. Huchet 1991), deductive uniformitarianism (cf. Cameron 1993), or similarities in the products of modern experimentation (e. g., microwear on implements). Many of these explanations may be valid, perhaps even most of them. This is not the issue; the issue is that there is no mechanism available to test them effectively. Moreover, it must remain debatable that uniformitarianism is an appropriate universal theory in the study of cultural systems.

To compensate for the discipline's weak scientific base, in terms of its lack of falsifiability, archaeologists have adopted stringent requirements of "proof": absence of evidence is taken to indicate nonexistence of the type of phenomenon such evidence is thought to refer to; if we find no evidence of it, it probably did not exist. For conventional archaeology, absence of evidence equals evidence

of absence. For instance, if we cannot perceive any evidence for communication, then that capability does not exist archaeologically. This epistemology can even be extended to nonarchaeological topics by archaeologists, e. g., animal communication exists only when it is perceived by humans (Davidson 1992). It could be defined as a kind of ultra-empiricism: an ontology in which human knowledge alone determines how things really are in the world, and things do not exist until humans become aware of them. This kind of ideology is all-pervading in orthodox archaeology, e. g., we perceive no evidence of human occupation predating Clovis in North America, hence that continent was not occupied earlier. Irrespective of its incompatibility with South American evidence (Bednarik 1989b), it is clear that this pronouncement rests entirely on negative evidence – on the absence of evidence.

Archaeology as a discipline possesses no autonomous universal theory. Its theoretical underpinnings are a potpourri of theories and scraps of theories, imported, often in corrupted form, from other disciplines. Uniformitarianism has served geology and other disciplines well, so a particular brand of it, modulated by selective ethnographic analogy, provides the discipline's *de facto* universal theory. Archaeology treats past human societies as mechanistic entities, in the same determinist way one would study other organisms in our ecotone. But humans have always been "intelligent" organisms with highly complex cultural imperatives, throughout their history, and one must question the adequacy of this approach: human responses were no doubt always influenced by cultural choices, by decisions that bore little or no resemblance to the response models prescribed by determinism. There is no allowance for individual initiative in processual archaeology, in fact this form of theory effectively reduces its subjects to organisms of predictable behaviour patterns that played out their roles in "prehistory" in the same uniformitarian way sand grains being washed down a slope behave entirely as one could predict.

Another of orthodox archaeology's borrowed theories concerns the art historical idea that cultures can be identified through the styles of their artefacts. It is assumed that archaeologists can identify and taxonomise those variables of artefacts that define their historical categories. This ability is verified by a process of circular reasoning: we can identify these classes, hence they exist, and we can place future finds into the pigeonholes we created; so they seem to be valid. While it is likely that styles do apply to artefacts, an

unfalsifiable system based on individual perception of alien specialists, or their collective perception prompted by academic conditioning, may not always provide secure taxonomies. Numerous examples can be cited where this system failed, in relation to the identification of such artefacts as stone implements or rock art motifs. Perceptions of style refer to perceived patterning in variables considered to be crucial, and in extreme cases may even select such variables among purely non-anthropogenic phenomena (leading to the interpretation of geofacts as artefacts, xenoliths as petroglyphs, and so forth; Bednarik 1994b).

A major misunderstanding about archaeology is the belief that there exists some homogeneous entity called "world archaeology." This is a myth. The word archaeology has quite different meanings in different parts of the world, and these may be determined by political, ethnic, and religious preoccupations of societies. In the USA, archaeology is a subdiscipline of anthropology, whereas in many other world regions it is an autonomous discipline, a collection of quite diverse concerns ranging from numismatics to Pliocene hominoid evolution. The diverse spheres of interest seem to be held together particularly by the method of excavation. However, this is not a technique of investigation exclusive to archaeology, it is shared with many other disciplines, such as palaeontology, sedimentology, palynology, and geology. In various schools of archaeology, the term "prehistory" is preferred, which only serves to illustrate the ethnocentrism of this discipline. Based historically on antiquarianism and the pursuit of ethnic and religious origins, this form of archaeology, particularly its Anglophone strain, ignores that the term "prehistory" is likely to be offensive to more than 90% of all humans and human societies that ever existed, and some practitioners would scoff at the suggestion that it be reconsidered (Dortch 1998; Langton and Megaw 1999). However, the term is itself unscientific, because the implied proposition concerning the significance of written records (that they are more reliable than oral records) is unfalsifiable.

Another perspective of archaeology is illustrated by the Chinese treatment of the human past, in which that past is divided into two parts that belong to two separate disciplines: hominid history up to the early Holocene is seen as human palaeontology, while recent periods of archaeology are seen in historical or art historical terms. Very likely this is a result of China's preference of Marx or Darwin over the ontologically inspired archaeology of the West. Not surprisingly, Chinese

palaeoanthropologists have never shared the enthusiasm of Western archaeology for the African Eve model. The Western desire to find some demarcation between humans and other animals, which continues to influence Western archaeology, is ultimately inspired by religious ideology. It would be inappropriate to perceive such a pursuit as scientific, even if it did have a scientific rationale, because it is driven, at least subconsciously, by confirmationist ideology (for a superb discussion of the delicate intertwining of Christianity and Palaeolithic art "sanctuaries" see Freeman 1994).

Eve's Fall from Grace

The African Eve or Garden of Eden model and its enthusiastic reception, particularly in Protestant-dominated world regions, provides an excellent example of the susceptibility of orthodox archaeology to ideological currents. Briefly, it consists of the hypothesis that all living humans are the descendants of one female that lived in sub-Saharan Africa towards the end of the Middle Pleistocene. For some unknown reason her progeny were unable to interbreed with other humans, evolving separately into a superior people who replaced all other human groups, either by exterminating them or by outcompeting them.

The African Eve fad is based on the claims of some geneticists (rejected by other geneticists) that data derived from mitochondrial DNA of living people permit us to estimate the time when modern humans split from other populations.¹ Other researchers have done much the same with the Y chromosomes of males (Hammer 1995). However, a number of assumptions made in all these speculations is unwarranted. For instance, the divergence rate in base substitutions is unknown, and if we apply that of the Eve advocates, 2%-4% per million years, to the genetic distance between humans and chimpanzees, we arrive at an undeniably false divergence point of 2.1 to 2.7 million years. The rate suggested by Nei (1987), 0.71% per million years, would match the nuclear DNA hybridisation data for the hominid-pongid split, but it demands a divergence point for modern humans of 850 ka, which is unacceptable to the African Eve scenario. Templeton, who had already refuted the original model (1993, 1994), by demonstrating that the computer program used in its

formulation had been inadvertently misused, has also shown that the several revised models have no merits. He pointed out that the mitochondrial data actually favour the hypothesis of a restricted gene flow rather than the African Eve model (Templeton 1996). Most geneticists accept that the model rests on untested assumptions, while some oppose it for a variety of reasons.² For instance, assumptions made about the mitochondria have been shown to be false for species such as fruit flies or hybrid Brazilian bees (Wainscoat 1987; Hall and Muralidharan 1989), and assumptions about a neutral mutation rate and a constant effective population size have either been falsified or cannot be demonstrated (Brookfield 1997). More recent studies have resulted in the precise opposite view of what has been believed by African Eve protagonists: modern humans evolved from two discrete populations, one resulting in modern Africans, the other in non-Africans (Pennisi 1999). In the absence of any reliability of the proposed rates of nucleotide changes and the many variables still to be accounted for effectively, the claims by the replacement advocates are clearly premature, and nucleotide recombination renders their views redundant (Strauss 1999).

However, the most striking aspect of the Eve theory is that it lacks any archaeological supporting evidence. Archaic and "modern" sapiens people of the same periods can be found within specific geographical regions, for instance in Australia, Siberia, Spain, France, and Israel. In all cases, the two morphologically different populations used very similar types of tools, even ornaments; they seem indistinguishable culturally and technologically. This is difficult to reconcile with the idea of the cultural and technological superiority of the "Moderns." If they were engaged in an endeavour to take over the world, why did they adopt the local cultures wherever they went? And if that is what they did, why should one assume their cultural and other superiorities? Moreover, numerous sites have yielded human remains either of reportedly intermediate specimens, or specimens of both hypothetical populations from the same occupation deposits (Bednarik 1997b). Examples are Mladec Cave, Krapina, Vindija Cave, Hahnöfersand, Lagar Velho, Crete, Starosel'e, Rozhok, Akhshtyr', Romankovo, Samara, Sungir', Podkumok, Khvalynsk, Skhodnya, Narmada, Jinniushan, and other Chinese sites. This alone renders the straight replacement hypothesis

¹ Stoneking et al. 1986; Cann et al. 1987; Stoneking and Cann 1989.

² E. g., Barinaga 1992; Ayala 1996; Brookfield 1997.

refuted, because it can not admit the possibility of hybrids, nor can it tolerate intermediate specimens between Neanderthals and Moderns. And yet there are many more archaeological forms of evidence that seem incompatible with the Eve hypothesis. For instance, there is not the slightest evidence of an advanced culture appearing in northern Africa during the Late Pleistocene. On the contrary, the Middle Palaeolithic mode of technology (Foley and Lahr 1997) continues longer there than anywhere else except Australia, up to about 20 ka BP, whereas the Upper Palaeolithic appears by 40 ka in Europe, and much earlier in Siberia. In other words, there is no trace of any movement of technology or culture out of Africa at the time in question. More advanced technologies developed elsewhere first, they were not introduced from Africa during the last 100 ka.

A distinctive feature of the African Eve hypothesis is its rejection of any form of sophistication – cultural, technological, or cognitive – prior to the appearance of humans of “modern” morphology. One of its principal tenets demands that essentially modern human behaviour was limited to Eve’s progeny. This includes especially speech or language, the use of symbolism, body adornment, art-like productions, interment practices, the use of blade stone tool industries, hafted tools, the use of cordage and resins, construction of shelters, apparel, and artefacts made of wood, bone, and ivory. It also includes complex technologies such as those needed in underground mining and particularly seafaring.

The epistemologically important issue here is not that all these capabilities and behaviour traits appeared long before the advent of morphologically modern humans, up to a million years ago in fact, but that the relevant knowledge has in all cases been available in published form for many years. The heuristic question to be asked here is this: why were the African Eve advocates unaware of it all along? The ability of *Homo erectus* to cross the sea has been known since the 1960s, but not to the replacement theorists. Evidence of underground mining predating the Upper Palaeolithic has long been reported from three continents, as have art-like finds and Lower Palaeolithic beads. The issue is not whether the evidence of early human sophistication is valid, the issue is that most scholars did not consider it, because they were unaware of it, and that in order to defend their genocidal theory they have attacked every instance of contradictory data, or tried to explain it away as a “running ahead of time” (Vishnyatsky 1994). It should be of con-

cern that the academic system permitted this to occur, through its inadequate refereeing system and the contemptuous treatment of dissenters. A whole generation of students and scholars, not to mention the public, has been misled into believing there is any credence to this unfounded model, and we need to ask how this could have been possible. Archaeology needs to be subjected to critical epistemological study if it is to regain its reputation, and to avoid a repetition of the African Eve fiasco.

The Loss of Style

Orthodox archaeology is about style: the style of stone implements, of ceramic vessels, of human interments, petroglyphs, or whatever else archaeologists may be interested in. The material evidence they regard as archaeologically relevant is divided into taxonomic entities on the basis of individual experience, academic training, culturally conditioned perception, ontological conditioning, and similar subjective parameters. The surviving evidence of archaeological events does not automatically fall into predetermined objective categories, like elements of some periodic system of archaeological material entities. These categories have to be created, a process that is much more like the work of the sculptor than the work of the scientist (Frankel 1993). Taxonomic boundaries in archaeology are generally subjective constructs of specialists who possess no firsthand knowledge of the cultural systems they seek to investigate (Bednarik 1998) and whose knowledge of relevant replicative archaeology is usually inadequate.

The parietal art of the Upper Palaeolithic of Europe can serve to illustrate the pitfalls of relying on stylistic pigeonholes in developing chronological sequences of a class of archaeological material evidence. Ever since mainstream archaeology (Lewis-Williams 1993) accepted the authenticity of the Franco-Cantabrian cave art tradition – after first rejecting it vigorously for some decades – it has sought to develop a universal stylistic chronology for it. For about one century the basis of this endeavour was the assumption that researchers possessed the ability to readily identify those variables of the art that determined the stylistic conventions of specific cultures. It was never satisfactorily explained why the researchers should have these abilities, how they had acquired them, and how one would define and test them.

The history of the discipline itself provides a test for this proposition of special powers of perception. After a variety of models of rock art evolution sequences of the European Upper Palaeolithic had been presented,³ direct dating techniques were at long last introduced in 1990 (they had then been used for ten years in Australia) and immediately led to a revolution in the way Palaeolithic rock art chronology was perceived.⁴ For instance, Lorblanchet rescinded his own ideas concerning the uniformity of the Cougnac corpus (1984) as soon as he secured the first radiocarbon results for charcoal pigment in that site (Lorblanchet et al. 1990), and subsequently questioned stylistic dating generally (Lorblanchet and Bahn 1993). Clottes corrected initial stylistic hunches at Cosquer⁵ and Chauvet Caves (Clottes 1995, cf. Clottes et al. 1995) after he managed to secure a series of dates from pigment and, in the case of Chauvet, soot.

While various of the reactions to the results of "direct dating" from the Franco-Cantabrian cave art were unwarranted and premature (see Bednarik 1994a, 1996), it is true that the traditional models of Upper Palaeolithic rock art chronology all emphasised the evolutionary progress from the most archaic and simple to the most complex and sophisticated styles. The portable art of the same period, by contrast, had long been accepted as commencing with very sophisticated material,⁶ but it was only recognised after the first dating evidence from Chauvet Cave that the same applied to rock art. As a consequence of this and other evidence, all evolutionary stylistic schemas of Palaeolithic rock art formulated in the course of the entire 20th century must now be regarded as squarely refuted (Bednarik 1995c).

The complete consensus of all Palaeolithic art specialists concerning the Pleistocene age of the petroglyphs in the Côa valley of northern Portugal, which have been attributed to the Holocene by the dating scientists analysing them (Bednarik 1995c, 1995a; Watchman 1995, 1996), illustrates the point. No scientific evidence supporting their Pleistocene age, or even a Pleistocene occupation of the region, has ever been presented (Abreu and Bednarik 2000). That consensus also questions

the ability of the "stylists" to reliably judge rock art styles chronologically. At least in part this may be attributable simply to false perceptions about the essence of "Palaeolithic style" (caused by such beliefs as that all of the art in Lascaux is Upper Palaeolithic, which is most probably not the case; Bahn 1995), or "Palaeolithicity" in style (Bednarik 1993). However, there have also been other factors at work. The very idea that the stylistic essence of an alien art can be detected by an untutored observer with false notions of objectivity or powers of discrimination resembles the belief of some researchers who think they possess the ability of validly identifying the objects depicted in the art. Their belief is never justified by explaining how they acquired this power to penetrate the intricacies of systems of perception and depiction to which all other contemporary humans lack such access. Ethnographic research shows that such pretensions of Western researchers are essentially self-delusions (Macintosh 1977) and that styles of individual artists living in the same community can differ significantly more than the collective "styles" of historically unrelated cultures (Mulvaney 1996; Novellino 1999).

"Style" as an attribute does not exist independent of the original producer and consumer of formal attributes of archaeological material evidence. Without direct ethnographic access the archaeologist's ability to correctly judge the stylistic variables may be severely limited. It is in any case not amenable to refutation, which renders propositions about style unfalsifiable, and thus nonscientific. They would certainly facilitate the cognitive study of the modern observer of artefacts, they may tell us a great deal about how he or she perceives the world. To what extent such propositions may tell us anything valid about the human past, however, cannot be ascertained, tested, or indeed known. This limitation applies equally to all archaeological constructs of style, be they about Palaeolithic rock art motifs, stone tools, Bronze Age ceramic vessels, or indeed any formal variables thought to denote a period, era, ethnic group, school, or individual. This is not to suggest that findings based on the stylistic vibes of archaeologists are necessarily false, or even that most or some of them are false. The question of their falsity is scientifically not relevant as it remains untestable, because such hunches refer purely to the ontology of the researchers. Therefore, epistemologically sound archaeology will either not rely on "stylistic" deductions, or will demand a justification for their consideration in formulating archaeological constructs.

3 Breuil 1952; Laming-Emperaire 1962; Leroi-Gourhan 1965; Kühn 1971; Lorblanchet 1977; Jordá Cerdá 1979.

4 Lorblanchet et al. 1990: 19; Clottes, Beltrán, Courtin, and Cosquer 1992.

5 Clottes, Beltrán, Courtin, and Cosquer 1992, cf. Clottes, Courtin, and Valladas 1992.

6 Marshack 1989; Bednarik 1989a; Hahn 1971.

Taphonomic Logic Rules

The greatest problem with orthodox archaeology is that it tends to treat its samples of material evidence as reflecting technological, cognitive, or cultural variables of periods in human history. This fallacy seriously questions all findings of the discipline since its beginnings. The material evidence we consider archaeologically relevant does not provide the random samples one would require to reconstruct cultural systems adequately. To do so demands systematic treatment of the raw data in accordance with the rules of taphonomic logic (Bednarik 1992, 1994c). An extended form of this treatment in accordance with the underlying universal principle of taphonomic logic leads to a scientific version of archaeology, called metamorphology (Bednarik 1995b). While the severity of this limitation may barely affect Holocene archaeology, it has such profound effects on Pleistocene archaeology that most propositions about it need to be questioned, particularly when it comes to Middle and Lower Palaeolithic times.

Taphonomic logic is not concerned merely with preservational biases, but also with the cumulative effects of multiple biases through time, and particularly with the logical necessity of regarding *all* archaeological phenomenon categories as truncated. While the actual truncation may range from <1% to >99% of phenomenon duration, and varies greatly according to many factors, it must be emphasised that no category of material evidence is exempt from this rule.

To illustrate the severity of this limitation an example, navigation capability, is considered. The material evidence for navigation is entirely limited to the Holocene, with the earliest finds of oars, paddles, and fragments of watercraft peering out between 8,500 and 10,500 years ago (Bednarik 1997a). However, extensive seafaring must have taken place in the Pleistocene, as the human skeletal remains, stone tools, and in some cases rock art from Australia and about twenty islands have shown unambiguously. These land-masses were never connected to any continent for the duration of hominid existence; indeed, many have not been connected to other islands. The sea distances separating them from the nearest human population necessitated the use of watercraft for their colonisation in all cases, and the history of maritime navigation began about one million years ago.⁷ Therefore, in the case of navigation, material

evidence has been recovered from only the last 1% of the full historical duration of navigation.

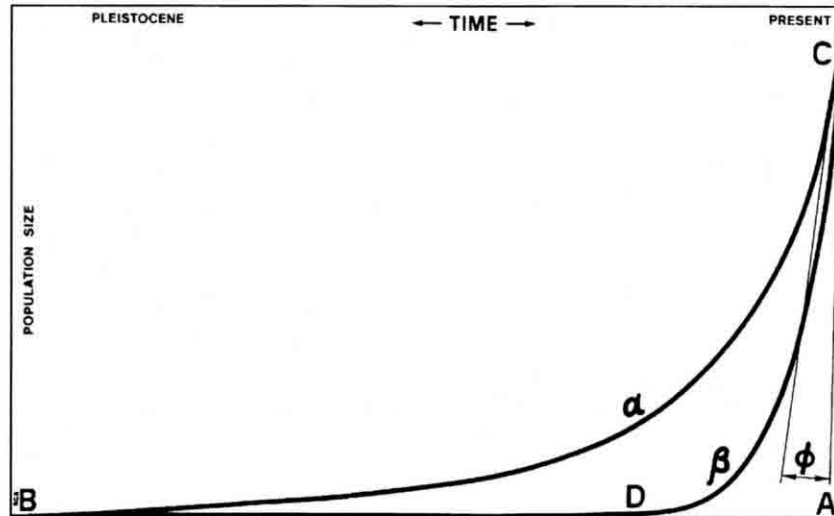
Far from being unusual, seafaring is in a taphonomic sense quite typical of the majority of archaeological phenomenon categories – except that in most cases indirect evidence may not be available, hence the “taphonomic lag time” remains unknown. Phenomenon categories such as wood, bark, fibre, skin, resin, and so forth, i.e., most of the materials presumably used during the Pleistocene, should typically possess taphonomic lag times well in excess of 90%. Taphonomic logic does not demand the complete absence of finds from the lag period, on the contrary, it demands that there should be rare (or extremely rare) instances available, except in cases of particularly effective truncation processes (e.g., sea level oscillations in respect of coastal phenomena) (see Bednarik 1994c: Fig. 2). Some archaeologists have even applied the worst possible quantitative explanation to such rare find instances by attributing them to a “running ahead of time” of specific phenomena (Vishnyatsky 1994), thus explicitly negating the reality of taphonomy. This kind of archaeological interpretation, which is practically preset to almost always generate false interpretations, still dominates the discipline’s favoured models. It is a fair indication of the lack of credibility attributable to orthodox archaeological reconstruction.

The systematic nature of this interpretational distortion becomes fully apparent when Fig. 1 is considered. In it, curve α represents the production of a material evidence category through time. The crucial element is the behaviour of curve β relative to α . Any ordinate below α conveys the number of items made at that point in time, and the area below that curve represents all such items ever produced. Obviously many of these did not survive and since deterioration is a cumulative process, the proportion surviving will decrease with increasing age until a point in time when the surviving population of items has been reduced almost to zero. But instead of touching the abscissa it hovers just above it, because the probability of survival for any form of material evidence can never be nil. The point in time marked D is called the “taphonomic threshold,” and the time span between it and the historical commencement of production (B) is the “taphonomic lag.”

While it is clear that the course of both the α and β curve differ for each and every type of material evidence, the underlying principles apply always. A snowman made by a Neanderthal child can theoretically survive, although the probability of that having happened is so minute that our

⁷ Sondaar et al. 1994; Bednarik 1997b, 1999; Morwood et al. 1999; Bednarik and Kuckenburg 1999.

Fig. 1: The principle of taphonomic logic: remains which are subject to a cumulatively increasing proportional loss with time must experience a cut-off point in time beyond which evidence must be extremely scarce. The area below α represents original population of evidence category, the area below β represents surviving population, its decline being a function of angle ϕ .



chances of detecting such remains are rather discouraging; they are even more remote than finding a *Homo erectus* watercraft. At the extreme other end of the taphonomic spectrum, gold objects may have superb survival chances, but not all have survived, and their taphonomic lag, perhaps around 1%, is still a reality. All other forms of material evidence have taphonomic characteristics somewhere intermediate between these two extreme cases.

The important issue here is that orthodox archaeology perceives the taphonomic threshold as the first occurrence of the activity of the phenomenon category it is thought to relate to, thus interpreting the available record as a literal random sample. Bearing in mind that it is probably wrong by more than 80% or 90% for most Pleistocene phenomenon categories it should be evident that the degree of distortion must be so severe that our ideas about our Pleistocene past are profoundly inadequate. This is not so much due to the incompleteness of that record, but primarily due to its systematic misinterpretation in the modelling practices of orthodox archaeology. In interpreting Pleistocene human technologies, cultures, cognition, and even intellect, the discipline must be expected to produce significantly false or distorted models in nearly all cases. This is an inescapable deduction of taphonomic logic. To be realistic these models need to be systematically subjected to taphonomic logic, which will almost certainly lead to their rejection. In correcting these massive paradigmatic inadequacies it will not suffice to implement gradual or progressive improvements, they will only lead to further distortions. Rather, the discipline will need to acknowledge that its universal theoretical basis, naive uniformitarian-

ism, has been inappropriately applied – that its epistemology has been universally, systematically, and profoundly flawed.

Discussion

A major change in paradigm, especially in Pleistocene archaeology, is required just to address the taphonomic issues alone. The previously discussed other difficulties serve to reinforce this point, and they are by no means the only problems traditional archaeology faces as it proceeds into a new century and millennium. Its significant difficulties in discriminating between relevant and nonrelevant phenomenon categories (e.g., lithic tools versus naturefacts, petroglyphs versus natural rock markings), which have led to thousands of misidentifications and many false models, are a related issue (see Bednarik 1994b, 1999). The ethical difficulties of reconciling the discipline's significant curatorial aspirations, which are unequalled in other fields of research, with those of alternative stake holders (e.g., indigenous peoples around the world) have become very evident in recent times. They have led to politicising archaeology to the point where, as part of the cultural resources management industry, it is increasingly perceived as a political tool in the hands of the state, for the gradual disempowerment of autochthonous societies through the deconstruction and Westernised reconstruction of their cultures.

Archaeologists and their subtle processes of cognitive colonialism (based on the invalid assumption that reality is as perceived by the Westerner) have long been unwitting agents in this

process. Since a Western ontology is no more and no less likely to be subjective than an autochthonous one, its constructs of alien cultures are not necessarily more valid than alternative ones. The discipline's lack of falsifiability, its preoccupation with credibility at the expense of veracity, and its tendency to usurp contiguous fields of research ("the archaeological octopus" of Lorblanchet 1993) are also unfavourable aspects.

These comments may seem to paint a rather depressing picture of the discipline, and some may be perceived as exaggerated. The concerns expressed are, however, real and timely. Taphonomic logic shows that most interpretations of Pleistocene archaeology must be expected to be false, and the susceptibility of the discipline to such fads as the African Eve notion speaks for itself. The collapse of all stylistic constructs of Palaeolithic European rock art spells the end of an era in that specialised field, raising the question of what will be established in their place. Should archaeology be allowed to continue into the next century in the same way it has floundered through the last, or can it absorb a radical change, a shift in paradigm? Such revolutions have occurred in just about every other discipline, while archaeology seems to be trying to take a 19th-century ideology into the 21st century.

My solution is to turn the humanistic discipline into a scientific one, not by the use of more scientific data imported from other disciplines, but by replacing the traditional naive uniformitarianism with a falsifiable universal theory. Metamorphology (Bednarik 1995b), with taphonomic logic at its core, provides such a framework, and its economy, reliability, and expedience meet the demands made of an underlying universal theory. More importantly, without it the discipline will remain unable to discriminate effectively between viable hypotheses and those that are not worth pursuing further. In fact, without it archaeological interpretation is no more than a game of chance, and the sum total of its hypotheses will remain a "consensus fiction" of the past (Bahn 1990: 75). The public, which funds this discipline, might come to realise that we tend to produce, much of the time, less than credible models of the human past. It seems unlikely that we can continue in this haphazard fashion in perpetuity.

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