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THEORETICAL APPROACHES TO ROCK ART STUDIES

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Abstract. To date most of the work in rock art studies has been done by archaeologists and anthropologists and so rock art research has mostly adopted theory related to historical contextualisation. Without playing down the contribution of archaeology and anthropology, I examine the theoretical basis of historical approaches before going on to assessments of non-historical or universalist approaches (those of structuralism and, more recently, the 'phosphene' hypothesis — both in its shamanic and non-shamanic versions). Finally, I give an account of my own approach which is applicable not only to rock art but to art in general, and in that respect has relevance to the discipline of art history. Specifically this approach involves a combination of phenomenology, cognitive science and neurophysiology. Phenomenology, or the analysis of phenomena, provides a philosophical framework for the discussion of rock art from the standpoint of visual perception. At the same time cognitive science (in the form of perceptual psychology) and neurophysiology (knowledge of the neural structures of visual perception) provide experimental support for phenomenological analysis. Without excluding other approaches, this one seeks to offer yet another basis for a universalist rather than a historically oriented line on rock art studies.

There is a most basic way of categorising current rock art research methodologies: those which investigate rock art for what, *indirectly*, it can tell us about the *context* in which it was made; and those which investigate it *directly*, for what it tells about *itself*. Of course in many instances these two approaches may be combined, in varying proportions.

To date much of the work done on rock art around the world has been done by reference to some notion of contextualisation, that is, the assumption that to understand any phenomenon we need to place it in its cultural setting. In short, most studies have based themselves on the historical paradigm. This is a theoretical position which developed in Europe in the late-eighteenth-century Enlightenment and was systematised in the early 1800s at the University of Berlin, at the time one of the most advanced institutions in the world. What was developed — to an extent, invented — was a historical methodology. Today this methodology is so universal that it is taken for granted. But 200 years ago, Europeans still interpreted the past in terms of a religious text, the Bible, assuming that this text transcended time, i.e. was transhistorical. So it was a major ideological shift to suggest, as the scholar and theologian Schleiermacher did, that the Bible itself had to be read historically or contextually — not exclusively in terms of eternal truths, but as statements written by

humans in a particular historical situation — to be read by other humans in *their* particular historical situation (Schleiermacher 1977). This was a revolutionary change and the methodology has subsequently been adopted by most academic disciplines.

In rock art studies a historical methodology, borrowed from the discipline of archaeology — usually with substantial input from the cultural contextualising of anthropology — has as its aim to reconstruct past cultures. Now I do not wish to oversimplify the current position of what we may term A&A disciplines. For several decades they have been changing considerably, with increasing politicisation and an increasing sense of reflexivity. Nonetheless, and for reasons relating to their origins in late-eighteenth/early nineteenth century thinking, their basic premise remains that of reconstruction: to use the material in question, whether, for the archaeologist, bits of dug-up debris, or, with rock art studies, the images, in order to reconstruct the context of its making. This paradigm understandably prioritises absolute dating or, alternatively, the making of taxonomies that might assist relative dating or sequencing, so as, finally, to attempt to answer the question 'who made the art — when and in what context?' Since only a minuscule proportion of rock art has been assigned dates — themselves not beyond debate — hypotheses built on sequences may be

seriously challenged, not least by new discoveries. The finding of Chauvet Cave in the south of France on December 18 and 24, 1994, for example, completely altered existing assumptions both about the presumed earliest dates for Palaeolithic European art and its geographic distribution (Chauvet et al. 1995). Despite upsets of this sort, historically-oriented, i.e. chronological, taxonomies/categorisations remain a vital tool within the reconstruction paradigm (though their details are inevitably disputed).

There are, of course, basic theoretical issues arising from the imperative of identification and classification of rock art motifs as a prelude to the construction of a sequence — and sequencing itself, even with assistance from various kinds of more or less empirical analyses (not least superimposition), presents many difficulties. Where sequencing relies on the idea of 'style', further problems arise, generally, like all hermeneutic questions, understood in such (essentially archaeological) methodology in terms of the subjective/objective binary (for a critique of which see Dobrez 2011a). The researcher, anxious to avoid 'interpretation', i.e. 'subjective' readings, opts for very general and minimally informative categories such as 'zoomorph' and 'anthropomorph', then constructs a classification which hopes to be non-arbitrary — though that too, like the original identification of motifs, necessarily involves interpretative decisions: at this point, say, 'naturalistic' (i.e. 'looks like something') and 'abstract' ('does not look like anything — must be a symbol!'). Fortunately there are other points of reference: archaeological reconstruction may have options of reliance on anthropological evidence in the form of conversations with indigenous custodians or ethnographic material. In this context well-understood difficulties with the paradigm include those of using arguments by analogy, as well as those encountered in the interpretation of ethnography or the problematics of the anthropologist-informant situation (for which see Schaafsma 2013). All in all, despite the difficulties, a number of impressive, if necessarily polemical, chronological taxonomies have been elaborated, for example in Australia for areas like Arnhem Land and the Kimberley, notably by Chaloupka (1993) and Walsh (2000). In the United States, Schaafsma (1980) has written the definitive text for art sequences in the southwest and Keyser the definitive text for sequences in the northwestern plains (Keyser and Klassen 2001). Similar work was done by Wakankar in India (Brooks and Wakankar 1976); this, without citing other parts of Asia, as well as South America, southern and Saharan Africa and Europe.

But it is not my intention to go into details of such studies here. My present interest is theoretical, and my key point is that these studies all base themselves on the reconstruction paradigm, i.e. the historical approach, initially systematised (essentially with primary reference to classical and biblical studies) by Schleiermacher less than 200 years ago. Prior to which the historical method of understanding and analysis

existed at best embryonically in all the disciplines. With rock art studies, reconstruction has obvious strengths — and also a notable weakness, even an unacknowledged internal contradiction, viz that while the researcher pieces together a past situation on the basis of the rock art, s/he she neglects the *direct* evidence of the art itself. This last seems historically out of reach, so that tackling it directly, not as evidence of something other than itself but as evidence in its own right, is glossed over as 'subjective'. The result is precisely those minimalist accounts of a rock art site with lists of items categorised as 'zoomorphs', 'anthropomorphs' etc. In the ironic words of Lesley Maynard at a Sydney commemoration for John Clegg (who died last year): 'when in doubt — count!' So the researcher counts motifs, works out percentages, looks for help from ethnography or local custodians — and more (or less) cautiously speculates as to what the images were *for*.

But in all this, what is left of the images themselves, once 'identified' and counted? The researcher has, hopefully, allowed the images to tell us about their original context but has not allowed them to speak *for themselves*. Indeed I think this hypothetical researcher might respond to my comments by asking what on earth I mean by the expression 'for themselves'. For some, the solution would be very simple: to exclude rock art studies from the A&A disciplines. In this connection I recall a gathering of archaeologists (it was in Bhopal, centre of that great Indian rock art complex) throwing up their hands and expostulating: 'but what can you *do* with this? They're just *pictures!*' I also recall John Clegg asking me if John Mulvaney, the senior archaeologist at my university and in Australia, still held the view that rock art studies had no place in archaeology. Regardless of the correctness or otherwise of Clegg's assumption about Mulvaney's view, the question is revealing of difficulties experienced in the A&A disciplines in the face of rock art — difficulties these days resolved less, I think, by exclusion than by turning rock art research into a form of archaeology, usually by limiting it to historical contextualisation. Which again brings up the question: what else could you possibly do with it, once you have noted that, for example, motif X is in location A and not location B, that it is in such-and-such quantities, that it depicts such-and-such subject matter etc.? All this being taken to 'reflect' a particular lifestyle or use of local resources etc. Assuming no help from ethnography, we are still left with the situation in which the researcher within the reconstruction paradigm is bound to treat rock art as evidence of something *other than itself*, i.e. as evidence of a (more or less material — at best broad-brush ideological) historical context. And, no matter how much sympathy one has for the reconstruction project, this must be regarded as a serious limitation.

Might another discipline, that of art history, step in at just this point? I have no simple answer to the question, partly because it depends on art historians taking a much greater interest in rock art than they

currently do. Looking at all of this from the standpoint of basic theoretical premises, we can point out that archaeology-oriented methodologies applied to rock art studies have always relied on ideas borrowed from art history: the notion of 'motif', for example, as well as of 'style'. Likewise methods described above are likely to analyse rock art images in formal terms also borrowed from art history — but with a difference, that is, an attempt to make such analyses as 'objective' as possible. In this connection there is a hardline (see Officer 1984) and a middle-of-the-road option (see Walsh 2000). Would art historians working on rock art find themselves adopting a methodology comparable to that of archaeologists and/or anthropologists — and one entailing a similar limitation, viz an inability to use the evidence of the rock image in some *direct* way? Might not such an art-historical enterprise end up reliant on archaeology and indistinguishable from it? Certainly art history would have another option: that of formal analysis of a less mechanical or external kind (such as the mere listing of e.g. 'anthropomorph' features like 'headgear', 'sashes', 'tassels', 'associated tools/weapons' etc.). This is not the place to go into detail regarding a more art-history-oriented formal analysis of, say, Gwion or Wandjina figures in Australia or Barrier Canyon ones in the USA or of dynamic scenes in the Drakensberg. But such analysis is possible and it would differ from much, if not all, archaeology-oriented formal analysis ('not all', because an element of art-historical method is already present in the work of some who would identify themselves as A&A scholars). Similar comments may be made about the art history focus on 'iconography', already implicit (or, less frequently, explicit) in archaeological work. Once again, iconographic studies of a specifically art-historical kind could make a difference to discussion of rock art motifs. The kind of difference entailed in a more direct approach to the rock art image may be left open at this stage. My reason for the above comments is that I think it is time for the discipline of art history to make a greater contribution than it currently does to the burgeoning study of rock art. Naturally in this situation analysis would have to be of a kind suited to the peculiar characteristics of its material: a rock art panel cannot be treated like, for example, a picture on a canvas or a scroll.

However, if we are looking for approaches that might examine rock art *in its own right* and not simply as evidence (additional to, say, material debris) for a given historical situation, then art specialists might introduce an *aesthetic* element in the discussion — hopefully while avoiding the obvious pitfalls. Indeed, such a move, whether coming from art historians or anyone else, would have the merit of squarely addressing the fact that rock art elicits an aesthetic response in many (most?) observers. It being, after all, extremely odd that this fact should generally be ignored or glossed over in an aside (usually reserved for the tendentiously-assumed higher-quality rock art of the Franco-Can-

tabrian caves). Or that it should be dismissed as merely subjective. (Again, for the problematics of the subjective/objective binary see Dobrez 2011a.) In fact there have been attempts to introduce aesthetics ideas to the discussion of rock art, and that seems important, not least because it is precisely where the aesthetic value of rock art is most acknowledged, in France and Spain and chiefly with Palaeolithic art, that rock art is treated with the respect it deserves. All of which may be done without compromising the historical/scientific value of rock art. In Australia the journal *Rock Art Research* has been active in encouraging debates about aesthetics as well as art history contributions. Likewise in Australia, Clegg for a long time but most recently in collaboration with Heyd (Clegg 1977a, 1977b; Heyd and Clegg 2005, 2008) sought to tease out the implications of acknowledging the aesthetic aspect of rock art. I have made contributions to both the *RAR* and Clegg/Heyd discussions. With respect to the second, I came to feel that the real difficulty is that it is not easy to see, once the aesthetic dimension of rock art is accepted, where an aesthetics-led discourse would go — other than to formal analysis of the art history kind. Clegg himself tried as much as possible to *quantify* the aesthetics of rock art along broadly empiricist lines, seeking to isolate categories of 'personality', 'medium', 'function' and 'culture' in rock art images so as to identify variability in the art object. In this way he introduced something approximating art history notions to his analysis, for example looking for the signature of an *individual* artist in Sydney petroglyphs or arguing for mimetic realist success or occasional failure at Chauvet. I had no sympathy with this but enjoyed arguing with Clegg, both via email and face to face. In particular I regarded the introduction of art history concepts, at least in the form he proposed, as anachronistic. So I remain in the situation of waiting for more input from the general direction of art history/aesthetics. Further disciplinary engagement from this quarter would be good for rock art and especially good for art history, which remains in the postmodern doldrums of hyper-reflexivity and (supposedly) politicised art. But to what extent would an expansion of art-criticism-influence in rock art amount to a more *direct* engagement with the rock art image? To some extent it would, though of course art criticism, aesthetics-dimension included, has its own strong bias towards historical reconstruction. At any rate it goes without saying that any aesthetics-oriented approach to rock art has to preserve a clear distinction between a (presumably universal) human capacity for aesthetic response and culture-specific *taste* (the latter being strictly historical).

So it seems that, despite the difficulties, you can do quite a lot with pictures, and without limiting yourself to the historical reconstruction paradigm. This fact is important to the present argument, since my aim is primarily to highlight alternatives to the historical approach — without seeking in any way to undermine it. The reconstruction line, for all its problems, has been

immensely productive, not merely in rock art research but in so many other disciplines. Nonetheless other approaches are possible and equally valid.

Let us note at once that archaeology itself flirted for a time with a non-historical methodology — derived from linguistics via anthropology. Lévi-Strauss (1968), under the influence of Jakobson and, ultimately, Saussure, sought to analyse myths not by means of historical contextualisation but as systems or structures, i.e. viewed synchronically. That inevitably led to *universalist* conclusions, in other words conclusions about the nature of the human mind across time and space. Leroi-Gourhan (1982) applied this to the study of the layout of Franco-Cantabrian caves, looking for a systemic logic for the placing of images in different parts of a cave. These structuralist approaches are as vulnerable to critique, though of a different sort, as conclusions drawn from historical sequencing, the chief one here being that while structuralist analysis claims objectivity (i.e. its structures or patterns are supposed to emerge solely from the material under study), it is all too evident that its conclusions are referable back to interpretative assumptions or methodological decisions made by the interpreter (see, for example, the structuralist obsession with binaries). But it is also true that structural synchronic (non-historical) analysis may lead to productive theses, not least where historical information is largely or wholly absent — which tends to be the case with rock art in general and is especially the case for rock art in Europe. Leroi-Gourhan's idea that an art complex in a given cave may have a unified structural logic remains tantalisingly attractive while hard to prove (and indeed rather unlikely in many cases). Whatever else, it may be said that by way of structural analysis Leroi-Gourhan and others addressed themselves *directly* to rock art imagery, sidestepping the archaeologists' tendency to read rock art solely as a signature of its particular historical moment. But it is necessary to add immediately that at many points the dividing line between universalist and historical analysis was liable to be blurred, with synchronic analysis used in tandem with diachronic sequencing (say, on the basis of style).

The general drift of these last comments especially applies to the 'phosphene' hypothesis taken up by otherwise very diverse researchers. Supporters of the trance/shamanic hypothesis first proposed by Lewis-Williams (Lewis-Williams and Dowson 1988) appeal to both historical and transhistorical evidence and, in the latter case, address rock art images directly, that is, in their own right. This line of argument seeks to elucidate the *content* and, in some cases, the *origin* of rock art compositions by appeal to various practices and experiences gathered under the general umbrella of the shamanic as a type of hunter-gatherer spirituality. With Lewis-Williams it relies on ethnography relating to the South African San, plus arguments by analogy with the people of the Kalahari. At the same time it appeals to a particular exposition of trance states as a

universal phenomenon. This is not the place to return to details of the debate around Lewis-Williams' version of the shamanic thesis (see commentary from various authorities appended to the Lewis-Williams/Dowson 1988 text, as well as the debate presented in *RAR* 1991). Suffice to say that while aspects of the thesis may be relevant to some societies in southern Africa, its wholesale application is problematic. Some of the basic elements of the phenomenon covered by terms like 'trance', 'ecstasy' and 'rapture' and generally discussed under the rubric of 'mysticism' may well be universal. To see that the phenomenon need not be understood as structurally monolithic, i.e. universally tied to particular experiential patterns, however, we have only to read a Spanish classic like the *Life* of Teresa of Avila (Peers 1946), who gave detailed accounts of its varieties, and with a psychological perspicacity that has a degree of contemporaneity in it. Lewis-Williams incorporates basic graphic forms known as 'phosphenes' into his reading of stages of trance, and there may be something in that. However, when he proposes his hypothesis as an explanation for the genesis of art, indeed for nothing less than the genesis of the mind of modern humanity (see especially Lewis-Williams 2002), he speculates way beyond the evidence (and possibly against it). It should be added that some who have found Lewis-Williams' ideas illuminating have not wanted to take them as far (see Clottes and Lewis-Williams 1996). Furthermore many, especially in the United States, have supported shamanic interpretations of rock art selectively and with specific ethnographic evidence — both for shamans in the Americas and for associated cultural/spiritual phenomena such as the 'vision quest' (Keyser 2004). The fact is that it is relatively easier to identify shamanism in the Americas than in many other places — though that also depends on one's definition of it. Schaafsma (1980) assumes a shamanic influence in some of the major Utah image categories such as Barrier Canyon and Vernal. Whitley (2000) focuses entirely on shamanism, and with respect to California (see also his contribution to Younkin 1998, with specific focus on the Coso Range petroglyphs). In Canada Vastokas and Vastokas (1973) stress the shamanic element in their account of the Peterborough petroglyphs. Let us note that in all these cases the methodology is entirely or almost entirely historical. However, there are other scholars in the United States who accept the centrality of shamanism to the study of their rock art, but with a special stress on the presumed universal phenomenon of 'phosphenes'. In fact, some of these were among the first to publicise the possible relevance of the phosphene thesis to rock art (Blackburn 1977; Hedges 1982). Overall, then, it is fair to say that rock art interpretations which foreground or at any rate take some account of the shamanic are exceedingly varied. They may be either historical or non-historical, or may contain elements of both the historical and the universal. Where they lay stress on the phenomenon of phosphenes they are making some sort of claim to universality — and to

that extent directing their attention to rock art in a way that is different from archaeological methodology, i.e. attending to rock art *as* rock art.

A competing universalist, i.e. non-historical approach ('competing' in that it rejects Lewis-Williams' shamanic thesis) has been put forward by Bednarik, not only in his own publications but also through the promotion of science in his influential journal *Rock Art Research*. Strictly speaking, the scientific paradigm is ahistorical, i.e. its truth is taken to be independent of any particular historical context. In other words, its truth is valid for all times and all places, provided it is not falsified by an experiment (Popper 1968). This is a claim no less ambitious than those of metaphysics, though *particular* scientific results are always understood to be provisional. Bednarik has put his case for the centrality of the falsifiability paradigm to the study of rock art, most notably in *Rock Art Science* (2007). More specifically, he has espoused the phosphene idea (Bednarik 1984) as a means of *direct* access to the minds of the makers of rock art, arguing that archaeological methodology applied to rock art fails to make full use of this resource (Bednarik 2007: 13). In this case rock art is investigated for what it might tell us about human cognitive development, that is, not what it might reveal about our culture at given times, but what it might reveal about the brain — in the context of deep time. Of course interest in art as a deep-time phenomenon sidesteps the historicist approach. It is true that Bednarik complicates his own picture by appealing to the idea of validating the meaning of the art by reference to the original intention of the makers. Nonetheless we are justified in making the general claim that insofar as phosphene forms are understood as an effect of the structure of the human brain (possibly processes in the striate cortex of the visual system, as proposed by Hodgson 2000) the conclusion is bound to be a universalist one: all humans, even very ancient ones, may have made certain forms because they express fundamental brain structures or, more precisely, because their making *activates and reactivates* certain brain areas. Returning to Bednarik, it is not surprising that *Rock Art Research* has encouraged cognitive psychologists, as well as discussion informed by neuroscience. At the same time, though, and to its credit, it has published extremely varied material: much of it informed by archaeological and/or anthropological premises but also, on occasion, material relevant to the aesthetics of rock art, either in the context of evolution or featuring input from the discipline of art history.

I would like to reassert the view, put before me by others (see the debate centred on comments by Odak in *RAR* 1991 and 1993), that rock art studies is a new discipline or a discipline-in-the-making. Ideas relating to this observation were, as I understand, aired at the first AURA conference in Darwin 1988, which resulted in the formation of IFRAO. What I conclude from it is that in 2016 it continues to be important to make room inside rock art studies for as many varied disciplinary approaches as possible. Among the historically-oriented

disciplines, archaeology and anthropology are firmly involved, and I am of the opinion that much greater involvement from art specialists would be beneficial, both for rock art studies and — even more, I suspect — for art history, which surely cannot develop without seriously engaging rock art. It goes without saying that in this process of contributing to a new discipline, existing disciplines cannot expect to remain unchanged. Among the transhistorical disciplines, science already has a place in rock art studies (and not merely, and most obviously, for the purpose of dating).

But my aim in the rest of this article is to outline a theoretical position which may serve to illustrate the possibility of working on rock art at the *interface of several disciplines*, and in a way that once more directs attention to issues intrinsic to the rock art image. This is the position I have sought to establish in a number of articles (Dobrez 2007, 2008, 2010a, 2010b, 2010/11a, 2010/11b, 2011a, 2011b, 2012, 2013, 2015a, 2015b), sometimes in collaboration with others (Dobrez and Dobrez 2013a, 2013b, 2014; Keyser et al. 2013, 2015).

My approach is *entirely* a universalist one in that it requires no reference back to the original intention of the makers of rock art, recent or ancient. This does not preclude a keen interest in archaeology, anthropology or ethnography: it is just that information from these sources is not essential to my methodology. Nor does it imply that I want to relativise the meaning of rock art images. Following the elaboration of historical methods in the nineteenth century, twentieth-century hermeneutics (or theories of interpretation) elaborated interpretive models which sought to include the receiver of the (verbal or visual) text, *as well as* the maker. (For a philosophical statement of this position see Gadamer 1993.) In some instances, usually identified in a shorthand way as 'postmodern', meaning was indeed relativised: the meaning of the text under consideration was taken to be the interpreter's meaning (see Barthes 1974 on the 'plural text'). I have no wish to go in that direction, preferring what I take to be the more balanced and better theorised Gadamerian way. Accordingly I want to take both visual text (the image *as* image) and its observer (visual reception of the image) into account, focussing on what rock art may tell us, in a *direct or intrinsic* way, about the nature of visual perception — which I take to be relatively constant across the time and space in question. The possibility for this kind of universalist analysis of the way we perceive images lies in the fact that, while the human brain is plastic, i.e. variable, fundamentals such as the visual system have not radically altered in the twenty million years that separate us from monkeys. This means that at the general perceptual level (and I stress I am talking about visual perception, not the human brain as a whole) we twenty-first-century observers of rock art do not differ from quite remote ancestors — and assuredly not from the quite recent people who made the rock art, ten, twenty, thirty or forty thousand years ago. Because I focus on the way humans see,



Figure 1. 'Stone arrangements' trail, Mt Borradaile, Arnhem Land, Australia.

my analysis will be relevant to *any* kind of depiction, i.e. any form of art. It will also ground perception of a depiction in real-life perceptual situations, i.e. it will make no radical distinction between seeing a *real* and a *depicted* object — which enables a link to be made with evolutionary imperatives operating in both situations. Since analysis is of the phenomenon of observing a given image, it concerns, as noted above, *both* the nature of the image *and* of the observing. In other words, it is in part determined by us, the observers (i.e. by the nature of the human visual system) and in part by the image being observed (i.e. by its particular visual markers or characteristics). In this way phenomenological analysis (as originally outlined by the philosopher Husserl; see Husserl 1970) avoids the subjective/objective dilemma. At the same time it may be supplemented by more experimental or objectivist perspectives. Thus I have sought to integrate results from cognitive (perceptual) psychology and from neuroscience (especially neurophysiology) into my model. Such integration is not difficult, since it is simply a matter of examining the same phenomenon from diverse methodological angles: when we observe an image we may (1) analyse the experience of seeing, (2) check the result with experiments in perceptual psychology, and (3) with the known neural structures of the visual system. If (1) and (2) do not match, it will be because either the direct analysis or the psychological experiment is deficient. If there is a mismatch with neurophysiology, it will be either because of inadequate analysis or inadequacy of

neural data. Certainly whenever we see X there must be a neural correlate, or neural basis for the visual experience of X (*in that sense vision is never wrong*). At the same time, returning to the subject of the interpretation of rock art images, it must be stressed that, necessarily, my universalist analysis cannot arrive at conclusions about the specific meanings of rock art. It must remain at an appropriately general level, i.e. cannot comment on culture-specific aspects of art — which are the province of historical approaches. Still, it can suggest typologies or categorisations for rock art images, as well as practical definitions in rock art studies.

To summarise the argument thus far. Historical methodology requires the scholar to reconstruct the past, i.e. to reconstruct the intention behind the making of a given body of rock art — its 'original intention'. This is the project initiated by Schleiermacher: to understand the past 'in its own terms', i.e. to understand what was in the minds of the makers of the rock art. What did a particular individual or group *intend* in making the art? My stress is on 'reception' rather than 'intention': what is in the eye, or rather, the visual brain of the observer of rock art rather than in the *mind* (or psychology) of the maker. And, as I am at pains to point out, provided I maintain focus on aspects of the art which are *not* culture-specific (a problematical but not impossible project), I can have some confidence that what I see is not different from what the maker saw. Psychology and psychological motivations change over time, along with associated changes in brain circuitry, but the human

eye, the human visual system, have remained more or less the same for a very long time.

When we look at any depiction, including rock art, the first thing we do — in terms of visual perception — is to *isolate* the image so as to focus on it. This is the process of ‘framing’ an image. The operation can of course be underlined by putting the image in a *material* frame, such as a European wooden or metal support enclosing the image, or on a support of any kind (a scroll or screen, as in Chinese, Korean and Japanese art). However, a material frame is not essential, and indeed in rock art it does not exist (except arguably in cases where the rock-shape itself serves as a frame, or where an image is enclosed by a line). First and foremost, ‘framing’ an image or set of images requires a *mental* operation: we mentally separate the image from anything around it. Now it is true that rock art is nothing like an isolated picture on a museum or gallery wall. Rather rock art always exists and is perceived in a natural landscape — which is very much *part* of the rock art image. But part of it in what way? The operation of mentally ‘framing’ the image means that we focus visual attention on it as *different* from its environment, i.e. as man-made. This is the case with any man-made image in the environment, e.g. this anthropomorph on the ‘stone arrangements’ trail at Mt Borradaile, Arnhem Land, Australia (Fig. 1). How does this operation affect our perception of its surrounding environment? I do not have time to develop ideas here but for detail refer the reader to an article published in Brazil (Dobrez 2010b). In general, however, what happens when we ‘frame’ an image is that we perceptually *organise* or *order* the landscape by reference to the image. What ‘stands out’ from its environment organises the environment around it. The more the image is visible from a distance, like the one in Figure 1, the greater the area of landscape it is able to organise, or rather the greater the area we observers organise. Huashan in southern China is a good example, one among many, of this visual organisation of the natural landscape, in this case involving a clearly deliberate placing of art, and on a grand scale on a cliff overlooking a river. Moreover it cannot be doubted here that the makers would have seen additional significance of a symbolic kind in their choice of placing. Still, as explained above, my focus is not on possible ethnography but on strictly perceptual operations cued or prompted by the placing of images or signs in a particular landscape. Moreover in this article I want to concentrate on the ‘framed’ image itself rather than on its surroundings.

When we view such an image, whether figurative or non-figurative, we read it — if at all possible — as a ‘composition’. The composition or pattern need not have been intended by the makers, though rock art researchers like to think of it as intended. However, there is *no good reason* for this assumption. Even if there is no intentional arrangement, indeed even if there is little or no discernible pattern, the brain is geared to order what it sees in some way. With these markings



Figure 2. Keeper and meerkat, National Zoo and Aquarium, Canberra, Australia.



Figure 3. Meerkat painting.

made by meerkats scurrying across a canvas in search of food at the zoo in Canberra, Australia (Fig. 2), there is an element of human control, though of a minimal kind. The tracks are randomly made. Still, even if randomly made, they cannot be read as random insofar as they are *tracks*. As tracks they are sequential and directional, i.e. they specify the time and place of an event. In short, they tell a story. But my interest here is in precisely those aspects of the markings on the canvas which do *not* readily tell a story and which are therefore likely to be read simply as random and unintended. The point is that these marks too will appear as having a pattern. Viewed from this particular one-of-four obvious angles (other angles are possible), a resulting picture (Fig. 3) may be read as a colour pattern (e.g. green mostly on the left). It may be read as a design with marks concentrated on the left and greater open space at the centre and on the right. It may also be read as a green line at top right balancing green marks on the left. We could continue formal analysis by noting further details (while omitting complicating reference to tracks), but the above suffices to make the point. This perception of a pattern, intended



Figure 4. Niaux (model), Parc de la Préhistoire, Tarascon-sur-Ariège, France.

or otherwise (and in this case unintended), is what I mean by 'composition'. A composition is simply a formal arrangement in the eye of an observer, whether or not it was also in the eye of the maker. Of course the more obvious the arrangement, the more likely it is to have been intended. But there is probably no objective test for intention.

When we are dealing with figurative images, we will also see patterns, whether these were intended by the makers or not. So I refer to figurative compositions, random (e.g. made over time, with diverse intentions) or non-random (made in a single phase, with the same intention), as 'compositions'. Such compositions may be of several kinds. The individual images in a composition may have no formal connection with each other. This can be tested by removing some images to see if those that remain are affected or not. If they are formally unaffected, I refer to such images as 'juxtaposed'. Juxtaposition, as at Niaux in the French Pyrenees (Fig.

4), means that even as the observer's eye seeks to find a pattern connecting the figures in the panel, i.e. to read the panel as a whole or a *unity*, the impression remains of images formally unrelated to each other. Rather they are perceived as an *aggregate*: you could subtract some of the bison/ibex, for example, or add some, and it would make no formal difference, i.e. no organisational difference. It is, in short, a very loose composition. However, sometimes changing *one* figure results in a change to other figures. In this composition at Pedra Furada in the Serra da Capivara, Brazil (Fig. 5), if we remove one of the two deer the entire composition is altered. In this case the figures 'belong' together — and I would refer to them not as 'juxtaposed' but as 'associated' — by means of 'nesting'. So a composition involving associated figures is more tightly organised than one characterised by juxtapositions. In rock art research these two terms — juxtaposition and association — are used interchangeably, but I think it is useful to define them as separate. It must be stressed that all the above comments refer to perceptual judgements, and that accordingly these judgements are probably not amenable to objective or external tests (though of course it would be perfectly possible to set up an experimental situation in which subjects are asked for their reactions to various compositions: that would establish reaction parameters).

At this point I have said nothing about 'scenes' in rock art. Researchers have great difficulty in defining scenes, and the reason is, I think, that they try to define them by supposedly objective or external criteria. This procedure is probably doomed to fail because scenes are not simply an aggregate of formal elements in a composition (though certain elements or 'markers' are certainly required). Again, what is involved is a *perceptual judgement* we observers make — on the basis of certain cues which I will not list here, as I have done



Figure 5. Pedra Furada, Serra da Capivara, Brazil.

so elsewhere. A scene is a depicted event, 'something happening', and this is as readily recognisable in a picture as in real life. Just as an association of figures goes beyond mere juxtaposition, so a scene goes beyond mere association. The two bison at bottom right of the Niaux panel shown above (Fig. 4) could be read either as an association or as a scene, but the difference in the two readings is very instructive, since it clearly indicates what we mean by a scene. If we read the two bison as 'associated' we acknowledge the *formal* fact that they are 'facing' each other. If we read them as a 'scene', we see them as 'facing' each other in the sense of an *activity*, something they are *doing*. In each case, as with all my definitions, I emphasise that the brain, i.e. our visual perception, is not to be envisaged as passive. It is active in its operations, i.e. it is always making judgements. The cues are in the formal structures of the images, but it is the observer who must activate them — so as to 'see' a composition, juxtaposition, association or scene. Analysis of such perceptual judgements is what is termed 'phenomenological'. Of course it is possible to conduct perceptual psychology experiments on the basis of such analysis — and this was initially done by the Gestalt school (see Köhler 1947). More recent movements in psychology, including cognitive varieties, continue to draw on phenomenological traditions, though of course they also have other, more empiricist, origins,

I suggest a three-fold typology or taxonomy of scenes. The basic requirement for a scene is a visual marker, in diverse art traditions either a more or a less evident one, of 'something happening', i.e. a visual



Figure 6. Paperbark Beds site, Mt Borradaile, Arnhem Land, Australia.

indication of a depicted event. This usually (and in rock art almost always) requires depiction of evident movement, without which it is difficult to read a scene as a scene. (For a full discussion of depicted motion see Dobrez 2013.) Given movement, we may distinguish:

- (1) A scene of action involving a single figure, such as 'man running' (Fig. 6).
- (2) A scene of interaction between figures, but with only one figure visible, such as 'animal hit by spear' (Fig. 7). In this case the human who threw the spear at the capybara is off-stage but the spear, as well as spearthrower, indicates his presence. (For another example of a speared animal with hunter not depicted see Fig. 4 above. In each of these examples, however, movement is minimal and the



Figure 7. Toca do Salitre, Serra das Confusões, Brazil.



Figure 8. Mt Brockman, Arnhem Land, Australia (courtesy Judith Hammond).

result arguably a borderline case of a scene — one nonetheless worth noting since it is common in rock art.)

- (3) A scene of interaction with more than one figure shown, e.g. 'man hitting animal with spear' (Fig. 8). Here both hunter and prey (emu) are depicted.

Normally in rock art discourse (1) and (2) are not regarded as scenes, and only (3) is thought to qualify as a scene. I think this is not based on perceptual or any other analysis; it is simply a customary definition and should be abandoned. Interactive scenes involving two or more participants in an event have themselves never been properly analysed or defined. Lenssen-Erz (1992) made the most serious attempt I know of to make this analysis, though my argument has a different trajectory from his. In my opinion the key to understanding the nature of depicted interaction beyond Lenssen-Erz's idea of the 'coherence' of figures in a scene is the experimentally-demonstrated fact that in perceiving interactive events what we actually perceive is causes and effects, i.e. *causality*. For details I refer the reader to the work of the psychologist Michotte (1963), which I have recently discussed (Dobrez 2013, 2015a). As a general observation, we can say that while scenes occur world-wide in rock art, they are notably concentrated in eastern Spain, the Sahara and southern Africa, in central India, parts of the Americas (Red Linear and Biographic traditions in the United States, as well as compositions in Brazil and Argentina), and in parts of Australia (the Kimberley and Arnhem Land). For a

South African example I suggest Injasuthi, in Kwazulu Natal; for an Indian one the 'Rangmahal' site in Madhya Pradesh; for an American one the Pressa Canyon Red Linear type-site in Texas; and for an Australian one, classical Gwion figures from the Mitchell Plateau in the Kimberley.

Analysis of the way we perceive images suggests a number of basic distinctions, all presumably attached to evolutionary imperatives. It is crucial to perceive events, i.e. scenes. We do it in real-life situations of all kinds. So reading scenes or visual narratives in depictions may be understood as a perceptual universal. Another such universal, obtaining both in life and in pictures, may be the reading of what, in collaboration with Patricia Dobrez, I have termed 'canonical form', the visual recognition of characteristic features, especially those of animals (Dobrez and Dobrez 2013a, 2013b, 2014: for examples I refer the reader to Figs 9 and 10). One further universal may be the one I refer to as 'performative' — perhaps the most critical for survival. Scenes involve perception of motion *across* our visual field, i.e. perception of events which do *not* involve the observer. But there is also movement in *depth*, especially something moving *towards* the observer. That could signal a situation of danger (e.g. a tiger coming towards you) and it would therefore not be surprising if the brain were hardwired to react very quickly to it. Of course pictures do not actually move, even if we are able to read them as moving. However, there are images which simulate or reproduce the situation of

'something coming towards you'. These are likely to be large, full-frontal and frequently to engage eye-contact, i.e. to have prominent eyes. I choose especially powerful examples from Australia (Fig. 11) and North America (Fig. 12). Perceptual psychology experiments show that we react very strongly to figures that increase in size, i.e. appear to 'loom' towards us (see Dobrez 2013). In recent European art this effect may be generated by exaggerated perspective, as in comics, cartoons or graphic novels. Traditionally, it was simply generated by making the figure large, often with eye-contact contributing to the effect of a 'direct engagement' (note prominent eyes in Figs 11 and 12). In the 3-dimensional case of giant Thai or Chinese or Japanese Buddhas, frontality and size are essential. At any rate frontal images represent an important category in rock art, as in art generally, and are perceived in a way that is more directly engaging than scenes.

I do not have space to discuss other types of rock art images here, such as those usually described as 'abstract' (Fig. 13), though they are also represented world-wide. As indicated above, certain images (including lines, circles, dots, chevrons etc.) have been discussed by a number of researchers in connection with 'phosphenes'. Hodgson (2000) in particular has suggested that such images relate to processing in the early part of the visual system (the primary visual cortex). What I have tried to do in a series of articles, on the basis of available work in neurophysiology, is to connect my own depictive categories listed above (scenes or 'narratives', 'canonicals', frontal 'performatives') to other specific areas of the visual system, areas higher



Figure 9. 'Reindeer', Alta, Norway (vandalised with paint).

in the processing chain than the primary visual cortex. Thus 'canonical forms' have processing connections with the inferotemporal area (TE), as do 'looming' faces (specifically, the fusiform gyrus); while perceived movement, both in real life and in pictures, may be located at the MT (medial temporal) or V5 area in the



Figure 10. 'Guanaco', Cueva de las Manos, Santa Cruz, Patagonia, Argentina.



Figure 11. Wandjina figures, upper Barnett River, Kimberley, Australia.

superior temporal lobe. For details of these points the reader is referred to articles mentioned above.

By way of general summary, I want to support researchers who argue, against academic disciplinary territoriality (which exists), that rock art studies may be advanced by the use of many disciplines. Currently these include the primarily, if not solely, historical, contextualising disciplines of archaeology

and anthropology — and should also include the discipline of art history (where engagement with rock art is still at a very early stage and has few representatives). In addition, there are non-historical disciplines currently involved, notably science — not merely in its obvious role of dating rock art, but also via cognitive science, perceptual psychology and neurophysiology. And, not least in discussion of phosphores, there are historical/universalist combinations, some making modest claims, some overly ambitious ones. Since my specialisation is in interpretive theory (hermeneutics), I would like to ensure that we understand the theoretical implications of all our relevant methodologies. As a type case I have outlined my own work which, while taking note of contextualisation (archaeological or art-

historical), emphasises universalist assumptions, i.e. non-culture-specific, non-historical approaches. For me the key is the analysis and understanding of perceptual activities: what we do when we look at rock art — or indeed any art. With this in mind I offer new definitions of key concepts such as 'composition', 'juxtaposition', 'association' and 'scene'. At the same time I offer perception-based, *and therefore non-arbitrary,*



Figure 12. Barrier Canyon figures, Utah, U.S.A.



Figure 13. Chambers Gorge, Flinders Ranges, South Australia.

taxonomies for rock art: 'narratives', 'canonicals', 'performatives' etc. In the present article my focus has been on the phenomenon of visually reading a story or narrative, in short, a scene.

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COMMENTS

The big points of rock art research

By TILMAN LENSSEN-ERZ

Livio Dobrez is to be commended for a paper that may become a standard reference for students in rock art research. While accessibly written his paper covers a broad array of relevant topics and most essentially, for the benefit of young students, he emphasises that it is 'important to make room inside rock art studies for as many varied disciplinary approaches as possible'. To my opinion this is a welcome statement against monothetic approaches that evoke the impression that a complex cultural episteme like rock art could be

unlocked with a one-key solution.

Another merit of Dobrez's paper is his courage of systematically investigating elements that in the language of the 21st century could be labelled 'big data' issues: it is a tacit consensus that concepts like 'aesthetics' or 'composition' are utterly complex, being based on a huge variety of data and accordingly they are so little understood that there is no agreed definition for either of them.

I would like to focus on two concepts that Dobrez elaborates on — compositions and scenes. When speaking about composition the author takes as an example a random pattern of tracks that a meerkat in a zoo made after having walked over colour patches. He then points out in which way these patterns could be interpreted in terms of an art historical approach. While he is right in stating that a 'composition is simply a formal arrangement in the eye of the observer' he misses that a scientific approach, if applied, e.g. in this case, can generate a clearly sensible pattern that *plays* with randomness: there is convincing evidence that mobility patterns of all kinds of organisms, from microbes up to humans, particularly when in search for food, follow a Lévy-walk (or Lévy-flight) pattern (e.g. Rhee et al. 2011; Raichlen et al. 2014; Zhao et al. 2015). In the case of the meerkat tracks this could mean that the superficially observed scatter of tracks seems to be random while the distribution actually follows a set of rules. This in fact supports Dobrez's call for universalist and structuralist approaches since structures like Lévy-walk patterns do not catch the eye easily; rather they

emerge from data only when recording and processing them with sophisticated methods and devices.

Dobrez is one of the very few writers who endeavour to find clues for understanding scenes. But he mentions the Gestalt school only in passing, while credit should be paid to Gestalt psychology which has established the 'Gestalt laws' (e.g. Fitzek and Salber 1996) that can be of great help if identifying scenes in crowded panels (Fritz et al. 2013). A number of the criteria of these laws, today often used in advertising, are applicable in pre-Historic rock art (Lenssen-Erz 1992). Dobrez emphasises that action and interaction are important elements in shaping a scene and indeed it is through interaction that scenes are also narratives (Fritz et al. 2013). I think, however, that scenes involving two or more figures have to be seen differently from those with only one figure because the information is of a different quality. Speaking of a scene is doubtful to me when only one figure is present and all kinds of interaction that the figure may be involved in have to be inferred. For artificial vision systems (as used, e.g., in self-driving vehicles) this inference is seen as a necessary requirement in describing scenes but in fact it accounts for the difficulties in recognising them (Neumann and Möller 2004). By contrast, if scenes are understood as pictorial configurations in which several actors are visible, they can be analysed as to their full social implications. Accordingly in the analysed body of rock art scenes from the Daureb/Brandberg in Namibia it can be shown how different gender roles are manifested in the pre-Historic art – such as the apparent dominance of women in the implementation of symbolic codes and ritual (Lenssen-Erz 1998).

While I agree with Dobrez's view of scenes in a lateral view, where the plane of reference is among the actors of the scene, I would not accept a generalisation of his interpretation of the frontal aspect of figures. The message of a frontal aspect of a figure facing the observer may be of a different character than that which implies eye contact. For example in Namibian rock art eyes are rarely ever depicted and in the body of Daureb/Brandberg rock art, with its database of more than 38000 figures, 2.4% of women and 1.9% of men are shown in frontal aspect, while 1.6% of the zero-marked (unsexed) humans and only 0.4% of animals are depicted in this way. This is a bias towards women in frontal aspect that has yet to be understood.

Livio Dobrez has written a paper showing his encompassing view of our discipline, naming many fields of research that can contribute usefully to the broadening of our understanding. However, I miss indigenous knowledge as part of the paradigm that should guide future research (e.g. Porr and Bell 2012). I believe that only by including indigenous knowledge can we fulfil the claim to open 'rock art studies for as many varied disciplinary approaches as possible'.

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Rock art – what we do with what we see: a response to Dobrez

By POLLY SCHAAFSMA

In this paper Livio Dobrez leads us on a captivating labyrinthine tour of theoretical approaches to rock art. In due course, he highlights hidden assumptions and brings to the fore various approaches and roads taken. Importantly, he calls our attention to the fact that rock art research is a new discipline searching for a definition as a multidisciplinary field, admirably arguing against 'academic disciplinary territoriality'. Struggling with (but not denying the usefulness of the traditional historical paradigm of archaeological approaches), he proposes a methodology for addressing rock art 'directly' as art.

Rock art research has evoked different global interests. In the Americas, for example, rock art studies are, for the most part, firmly grounded in a cultural/historical paradigm of archaeology and anthropology, with an emphasis on culture. In Europe, Africa and Australia, on the other hand, while the 'historical paradigm' or the 'reconstruction project' also prevails, questions concerning the 'origins' of art and as well as questions based in neuropsychology and neuroscience have introduced a cognitive dimension to rock art research that seeks for universals in the making and perception of imagery. This involves the direct perceptions of the contemporary observer. This has great merit in that it awakens us to acknowledge that rock art or any art has a timeless human dimension in that, once created, it continues to communicate throughout human history. The information accessed by the direct methodology casts added insights on similar visual strategies used by rock art makers through time to convey similar types of information, testimony to the universality of the human brain.

Concerned with universals in human perception, here and in previous publications Dobrez outlines a set of principles as a guide to establishing canonical forms, discusses the significance of framing and the perception of compositions or the desire to see compositions and, importantly here, the definitions of scenes. To this might be added a similar direct approach to Paleolithic rock art fully elucidated by Barbara Alpert in her recent book *The creative Ice Age brain*. In this volume she explores play, visual puns, humour and optical illusion as various means to understand the intent of the creators of this early art. Thus she broadens this field of investigation.

While Dobrez does not deny the usefulness of the 'reconstruction paradigm', overall, I find rather curious the Australian discussion as to whether rock art studies have a place in archaeology. How can one say rock art is not part of archaeology when it — simply put — is? Further, the historical paradigm is not an end in itself, but taxonomies, figure counts, chronological positioning and cultural contextualisations are not limited ends in themselves, but means to access the more dynamic issues of anthropological interest, such as survival strategies, social relationships and patterning, the spread of cosmologies, ascribed values, and in other words, cultural processes through time. The goal is to define and understand cultural *systems*. Interpretations of iconographic content are not to be avoided, but sought after when there are enough data available to make reasonable suggestions as to meaning. By using rock art as a component of cultural systems from the past, we add a dimension to archaeological studies that is less accessible through other media. Using the strategies of art history, such as the identification of styles and their cultural/chronological significance are simply tools to this end.

This does not keep us from appreciating Dobrez's direct approach that advocates responses to universal aesthetics grounded in neurophysiological phenomena shared with ancestral populations. Nevertheless, I offer a cautionary note. The argument for the phosphene case seems to me controversial. To assert that various non-figurative markings are representations of phosphenes is clearly an interpretive decision on the part of the researcher, not a direct aesthetic response. The appropriateness of this interpretation must be weighed within the cultural context of the art and not just as a direct response on the part of the modern viewer. But the interpretation is not an end in itself. If the validity of the phosphene interpretation is established (if this is even possible) then that interpretation contributes to cultural/historical information about past ritual practices.

In other cases, knowledge of culture history may be important in evaluating the formal characteristics of rock art elements. Goggle-eyed figures in Southwestern American rock art provide examples. While the frontally depicted, often large, looming 'goggle-eyed' anthropomorphs in the archaic Barrier Canyon style evoke awe in the modern observer, the 'goggle-eyes' of rain deities represented in Jornada-style rock art are a signature feature of identity, with an iconographic history in Mexico. If the latter are awe-inspiring, this is not their primary function. Thus again, cultural contexts and historical process have to be taken into consideration, without which interpretation goes astray or contemporary responses can be misleading.

In sum, Dobrez takes great pains to acknowledge that the historical/contextual and universalist paradigms are commonly used simultaneously. But as an archaeological curmudgeon, I suggest that if one does not return the discussion to its historical-archae-

ological framework, it is the direct approach and not the reconstruction paradigm that seems limited. Seeking for universals in graphic expression in rock art, nevertheless, is an interesting pursuit, in itself 'historical', in that it involves time. Making comparisons between the ancient and the new unites us with our kindred of the past. But is there more?

Finally, one asks how or if the goals of the direct approach to rock art imagery differ from the perspectives of collectors of antiquities who value their decontextualised 'objects' in their own right for their aesthetic properties — as ends in themselves, as archaeologists decry the loss of context and what these objects might have contributed to our understanding of the past were their cultural associations and in situ contexts known. At least rock art, fixed in landscape (unless stolen) does not suffer from such irretrievable damage.

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RAR 32-1202

Response to Livio Dobrez: keeping depictions to the fore

By DEREK HODGSON

Dobrez's analysis makes a useful distinction between universal and historical approaches to rock art by also showing how these interact. One of the ways of examining rock art 'in its own right' is by way of aesthetic criteria. I have reservations as to how far this can inform us about intentions of the authors, as aesthetics was probably not a determining feature of the art — a fact Dobrez alludes to regarding universal and historical aesthetic tendencies. The former seems to rely on certain long-standing perceptual/sensory cognitive precursors (the medial orbito-frontal cortex is implicated in aesthetic appeal [Ishizu and Zeki 2011]) while the latter relies on the intentional stance. Aesthetics may, therefore, only be relevant to some 'basic' skills needed to produce an image, such as balance, order, symmetry, good continuation etc., which, nevertheless, were themselves not always adhered to in rock art. In other words, some of these factors were chosen or ignored according to ongoing needs.

With regard to the universalist approach, Dobrez's emphasis on the need to concentrate on what is intrinsic to the image is useful but this could have been predicated with a discussion on embodied or grounded cognitive psychology and material engagement theory that has recently proved valuable to understanding the

archaeological record (see Malafouris 2013, 2015; and Hodgson 2003a, 2008, 2014; Hodgson and Helvenston 2006 for examples of how this approach has been applied).

Dobrez claims 'fundamentals such as the visual system have not radically altered in the twenty million years that separate us from monkeys'. While certain aspects have not altered much, there are changes of the micro-circuitry of the early visual system, e.g. V3a has undergone reorganisation (Tootell et al. 1997), and layer 4a in V1 of humans, unlike monkeys and chimps, has a mesh-like structure (Preuss et al. 1999), and there is variability in the mini-columns (Casanova et al. 2009). Crucially, there are reciprocal tracts connecting the early visual cortex and higher association areas whereby the dynamic interaction between these regions has led to differences in visual processing compared to nonhuman primates (see Vyshedskiy 2014 for a review).

Dobrez's distinction between 'scenes' that suggest an association and those that show something happening (causal) is well made and provides a useful corrective to claims of scenes in Franco-Cantabrian cave art. Dobrez rightly alludes to the importance of the canonical form in the depiction of animals but fails to refer to the numerous papers in which I previously discussed this issue in depth, e.g. Hodgson (2003a, 2003b, 2008, 2012, 2013), Hodgson and Helvenston (2006) or Hodgson and Watson (2015). In this regard, and echoing Dobrez's view, I suggested that

As the perceptual factors identified are common to Upper Palaeolithic people and modern humans, this provides a reliable way to make inferences regarding parietal art and associated artifacts. As a variety of features that typify Upper Palaeolithic depictions can usefully be accounted for by perceptual/visual and neuropsychological mechanisms, this provides a more secure basis for determining those aspects of the art that may derive from socio-cultural factors. Greater clarity on this issue also provides a means for avoiding misunderstanding regarding exactly which features of cave art should become the focus of research for each respective discipline (Hodgson 2012).

The introduction of the 'performative' dimension with regard to the looming effect and the front facing image is pertinent and adds a useful line of enquiry for future research.

In all, I commend Dobrez's direct approach to rock art where the depicted image is not lost and contextualised out of existence, which often transpires by employing symbolic/arbitrary modes of analysis. I would like also to second Dobrez in thanking *Rock Art Research* for providing a forum for the multi-disciplinary investigation of rock art.

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RAR 33-1203

Why art historians should study rock art

By SUSAN LOWISH

In his article 'Theoretical approaches to rock art studies' Livio Dobrez states that 'it is time for the discipline of art history to make a greater contribution than it currently does to the burgeoning study of rock art'. But why should art historians study rock art and what kind of contribution could they make? Dobrez believes that greater involvement by art historians in rock art studies would 'be good for rock art and especially good for art history, which remains in the postmodern doldrums of hyper-reflexivity and (supposedly) politicised art'. While I do not share Dobrez's critical assessment of the current state of art history, I agree with him that 'much greater involvement from art specialists would be beneficial', particularly in raising awareness about rock art sites around the globe, and especially when their continued existence largely depends upon promoting their value above and beyond that of co-located natural resources.

Dobrez outlines issues with reconstruction, arising from the historical approach — a popular paradigm in rock art studies, which he states has led to a situation where so much attention is given to contextualising information that the art itself is neglected; rarely if ever is it tackled directly. Instead, art becomes an item to be identified, listed, counted and categorised. He asks if art history might offer a remedy, allowing for approaches that examine rock art *in its own right* (emphasis in original). He acknowledges that rock art studies already borrows ideas and terminology from the discipline of art history, but what appeals to Dobrez the most seems to be more formalist approaches to art, popular amongst art historians of a previous era (like Roger Fry 1866–1934). He also hopes that art specialists might introduce an aesthetic element into the discussion, but perceives difficulties in moving beyond formalism as an end in itself.

Dobrez's approach involves 'a combination of phenomenology, cognitive science and neurophysiology' that provides 'a philosophical framework for the discussion of rock art from the standpoint of visual perception', along 'universalist rather than historically-oriented' lines. He draws upon phenomenological analysis in support of more objective encounters with images. My understanding of phenomenology in relation to rock art comes from Tilley (2004) and Chare (2011) and is based on the belief that phenomenological approaches allow for multidimensional and sensual engagement with environments, going beyond visual perception to accept that 'participation is a fundamental process of perception, an active interplay between the body and that which it perceives' (Tilley 2004: 19). Dobrez departs from this view to focus primarily on the way humans see and more specifically, 'what we

do when we look at rock art'.

There is an increasing movement within art history towards phenomenology although it is recognised as having its limitations. 'A common statement in phenomenological research is that not everything can be asked about complex phenomena such as art' (Hainic 2011: 73). As Christian Hainic states, 'Works of art, like all other phenomena, before being objects for the study of various sciences, belong to the research domain that they put forth themselves. That is to say, the reason why our attention is constantly drawn to the extraordinary space and time of the work of art is the work itself and nothing else' (Hainic 2011: 75). It is here that the shared ground of art history and phenomenological approaches to art exists — the primacy of the work of art. Like archaeology, art history is an object-based discipline.

It is a true rock art enthusiast who claims 'rock art studies is a new discipline or a discipline-in-the-making' and that 'art history ... surely cannot develop without seriously engaging rock art', as Dobrez states here. But he also wants 'to take both visual text (the image *as* image) and its observer (visual reception of the image) into account, focussing on what rock art may tell us, in a *direct or intrinsic* way, about the nature of visual perception'. This puts him at odds with more recent avenues of enquiry within the discipline of art history, which have brought renewed attention to the artwork's 'materiality' rather than its 'visuality'.

Nowadays, far more attention is being paid to the materials that constitute the object and the ways in which their circulation creates social relationships that become part of the meaning of the work of art. This renewed attention to the artwork's materiality has shifted the terms of investigation. Recent theories of the visual in art history have raised questions of affect, subjectivity and medium, and are now being combined with socio-historical considerations. Works of art increasingly invite complex interactions in which the entire body, not only the eye, is solicited, and multiple temporalities are invoked by collapsing past and present (see Terra Foundation 2016).

To my mind, Dobrez conflates the idea of a discipline with the various approaches and theories it utilises. He also conflates art history with the various critical theories that individual art historians may choose to frame their inquiries. While the differences between these realms may seem trivial to the outsider, art history differs from theory and indeed from art criticism, which 'consists of opinions processed into judgments of quality'; art criticism is deemed more objective and having an 'explanatory power' (Jansen 1986: 44).

I agree art historians should study rock art, but the kind of contribution they make depends upon the theories and methods to which they subscribe. As 'the rock art capital of the world' (McDonald 2008: 17), Australia has the most work to do when it comes to developing and refining art historical perspectives on rock art (Lowish 2015). Rock art is included in our art

historical narratives, but it is treated as a starting point from which progresses a sequence of ever increasingly modern styles of mostly non-Indigenous art. As art historians, we do not even identify, classify, evaluate or interpret rock art with the same degree of rigour or scholarship that we apply to other areas in our purview. Even if we were to embrace new theories of materiality or attempt interpretive anachronism (see Didi-Huberman 2003), our specific disciplinary historiography cannot be escaped or overlooked.

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REPLY

Doing phenomenology in rock art

By LIVIO DOBREZ

It may be as well to point out to commentators that my article was not intended as a balanced exposition of my take on rock art, for which I refer them to Dobrez 2015c, which poses the fundamental question: how to order the field of depictions as a whole, i.e. how to set up a taxonomy that might make sense of *all* pictures? Such a taxonomy would, for a start, break down the artificial boundary between art in general and rock art in particular. I suggest *one* way might be via analysis not of pictures (a formal exercise) but of our perception of pictures (a phenomenological/universalist procedure). But at this point it might help to break down another artificial boundary, the one between depiction and the extra-depictive, i.e. the world of non-art situations, and to consider our perception of these. Which situations are we to choose? Clearly situations of some significance, say having evolutionary import. Three situations might be (1) that of observing something, say animals, including conspecifics; (2) that of observing an event, i.e. a scene; (3) that of being caught up in the situation being observed, i.e. becoming a participant. Each of these might matter in terms of survival. Each has depicted equivalents, which I have termed 'canonicals', 'narratives' and 'performatives', and in each case these depictive types have worldwide distribution and deep-time lineage. In line with the above logic of an inclusive approach to pictures, one which might break down conceptual boundaries, I wrote the present article as a plea to archaeologists and anthropologists (henceforth A&A scholars), who currently dominate rock art studies, to encourage other disciplines into the field, and to art

historians to make a stronger contribution to the field. In the process I stressed the importance of a scientific contribution. Of course my own work does not fit neatly into any of these disciplinary categories, but borrows from all of them. In order to make my plea as pointedly as possible I divided the field in the broadest manner, viz. between historical and universalist studies.

Schaafsma rightly focusses on this division, which I see as one way of highlighting the present argument, something I must have insufficiently emphasized, since she retains an impression that I am being, if only by implication, prescriptive. I would like to dispel this impression, which I must have given a couple of years ago to Robert Layton who at the end of a presentation asked me if my approach left any room for anthropology in rock art studies. It leaves all the room in the world, though of necessity *beside* a universalist approach and not *in* it. Any image will inevitably be overlaid with cultural information, so providing material for the anthropologist. It will equally provide another sort of material for scholars looking for universal structures. One approach does not exclude the other, but rather complements it. To Schaafsma I would say that, while I pursue my particular argument with vigour, I do not 'struggle' with the usefulness of history. In fact I have spent my academic life promoting historical approaches, and when I taught along theoretical lines I sought to reconcile Schleiermacher (historical reconstruction) with Gadamer (reception of past horizons in the present).

Schaafsma picks up my further distinction between a 'direct' and an 'indirect' approach to rock art. This is just a way of putting things, but hopefully it points up the fact that you can have an interest in rock art as a window on the past, or as something in its own right. In a context in which most rock art work is done by scholars with the aim of getting information about societies removed from the scholar in time (and/or space), I just make the point that rock art, like any art, is also of intrinsic interest. There may be various ways of tapping into this, one of which is the aesthetic. I take the aesthetics of rock art for granted and was surprised when one of the most senior rock art researchers in Australia told me years ago (when I was green enough to be surprised) that art had no such effect on her. I say this conscious of the fact that Schaafsma studied art history before she became an anthropologist. So her concern that on its own the aesthetic response leaves us in the situation of 'collectors of antiquities' comes from one who presumably recognises the temptation, as I do. We balance the aesthetic with intellectual interest, of whatever variety, but without remaining unmoved in front of the 'holy ghost' panel at Barrier Canyon or the misnamed 'white lady' of the Brandberg — or delicate cupules at Daraki-Chattan (not merely patterned such as to suggest cognitive control, but *delicate*, as suggesting aesthetic judgement, conscious or otherwise). Schaafsma mentions the phosphene thesis, with which I do not engage in this article, merely noting

that it is based on presumed universal forms and in that respect implies interest in the forms as it were for their own sake, though of course in a way unrelated to the example of the aesthetic. With my thesis of perceptual constants, that makes three possible approaches to rock art (no doubt there are many more). But it should not be inferred that these three have much in common, other than the fact that all three are independent of historical interpretation.

Thanking Schaafsma for her positive comments as well as her provisos, I want to say that the situation of rock art research in Australia strikes me as being not so different from that in America (about which Schaafsma naturally knows more than I do), with A&A scholars on occasion making it clear that theirs is the way rock art should be investigated. It is true that rock art studies is liable to waves of illegal immigrants in the form of amateur, arty enthusiasts. But the problem here, if there is one, is not amateurs (who, as a matter of fact have probably done more to further rock art studies worldwide than academics), nor practising artists, nor, certainly, people who come to rock art out of enthusiasm and not career interests. The problem might be that not enough people with a strong disciplinary base take an interest in rock art, *along with* the others. I believe this is the source of Schaafsma's concern and the reason for her wanting more, not less, A&A scholars in the field — and, by extension, more, not less, historical work on rock art. In Australia we have notable conceptual input from science, both practical (as one would expect from archaeology), and theoretical, this last mostly via the pages of *RAR* which has no equivalent elsewhere. At any rate the plea for a variety of disciplinary approaches is a pressing one, even as it threatens to put *no one* out of business. Though, like any other, the 'direct' approach I propose has its limits, as Schaafsma points out — and it certainly pays to go to Mexico for some history, say the 'goggle-eyes' genealogy Schaafsma mentions. And I have done that.

I thank Lenssen-Erz for his kind comments and also his criticisms. To be sure, indigenous knowledge has a key role to play in rock art studies, even with all the complications introduced by the anthropological situation. The reason I make no mention of it here is that the article is not an introduction of some sort to the discipline. As stated above, it is a plea for an inclusive approach to the subject addressed to particular groups. Anyone aiming to give a rounded picture would have to make reference to indigenous views, which would be one way of introducing culture-specific approaches, i.e. the historical. Lenssen-Erz talks of having the courage to tackle large issues. I respect his work not because we arrive at the same conclusions (we do not) but because, while I stay on a theorizing plane, he takes on the task of making order out of a daunting mass of difficult and ambiguous real-world data. We both know we are required to start with definitions. Following one line of thought I proceed from 'composition' (intended or otherwise), to 'juxtaposition' (a loose composition),

to 'association' (a tighter composition), to scene or narrative (a tight composition, normally intended). Lenssen-Erz is rightly at pains to distinguish the concept of composition from that of scene. I accept his gloss on my definition of a composition as in the eye of the beholder to the effect that Lévy-walk patterns suggest the movement of my Canberra meerkats is probably not random. As he notes, that would be very much in line with the drift of my argument, which broadly follows Gibson's view of the data given to the eye as already ordered, rather than the alternative view of such data as requiring to be entirely structured by the brain.

On the matter of scenes and the Gestalt school contribution. Perhaps, despite some reservations about cognitive psychology, I have been too influenced by the reading of it. But in fact what I argue is generally in line with Gestalt. For example the article on 'canonical form' (Dobrez and Dobrez 2013a) consistently foregrounds a whole-first or whole-before-parts interpretation. It might even be said the article is chiefly about that. However, my relation to Gestalt thinking is mostly via phenomenology which is, after all, the philosophy behind the Gestalt movement in psychology. It is true I do not define scenes in terms of 'coherence' or the 'belonging together' of figures (Lenssen-Erz 1992), a procedure which seems to me to have weaknesses as well as strengths. Figures may regularly go together like the Franco-Cantabrian horses and bovines, without constituting scenes, only juxtapositions; they may be more obviously formally associated without constituting scenes. So figures which 'cohere' may define a compositional coherence rather than a scene. I think I take the point that Lenssen-Erz's quantifying mechanism which allocates a numerical value to complex aspects of similarity between figures is meant to counter this difficulty. Nonetheless, I would prefer to work with a definition which prioritises scene as depicted action or event, 'something happening', i.e. a more holistic premise instead of quantification reminiscent of Clegg's procedures. After all it is a principle of wholes that they cannot be made by a mere addition of parts. I hope I have not misunderstood Lenssen-Erz on this account. Of course 'something happening' may sound like falling back on *Anschauung*, but it is good phenomenology (provided it includes sound analysis), as well as making neural-evolutionary sense. We do not, as I have argued, see the world in bits and pieces, but in pre-packaged hardwired perceptual units which enable rapid survival response. The scene is just one such visual package: we see it directly (Gibson) and whole (Gestalt). And indeed Lenssen-Erz proposes scene as depicted action in his 1992 article and he foregrounds it in his reply to commentators. But in the article he prioritizes 'coherence'. This last, I feel, is necessary to the definition, but not sufficient. It is necessary because the units of the scene, i.e. individual figures, must relate to each other. They do this by being perceived as 'doing something' in relation to each other.

But this raises the matter investigated in Michotte's perceptual experiments: we see figures relating, i.e. cohering, because we directly perceive cause and effect interactions. So I suggest that a sufficient, as well as necessary, definition might be provided by an argument incorporating all the above elements, and starting with an analysis of the perception of depicted motion (see Dobrez 2013). This approach has the advantage of not discriminating against depicted *action* in favour of depicted *interaction*, i.e. one-figure scene vs multiple-figure scene. If the essential element is indeed a depicted event, then one figure running is as much a scene as two figures running. I realise this conclusion makes Lenssen-Erz's job of sorting out scenes in that enormous southern African database more difficult than it already is, but we require a convincing category for that single runner. Of course I take Lenssen-Erz's point that scenes with more than one figure may provide unique information, say in connection with 'social implications' — of which 'gender roles' is given as an example. But that takes us to the cultural/historical which I leave to other scholars.

At this point I come up against a further issue of definition. In my analysis I distinguish between investigation of perception of an image (i.e. its *reception*) and a (historical, of course) investigation of the original *intention*, i.e. what might have been in the minds of the makers of the image. This latter is the aspect normally excluded from phenomenology as being 'psychologistic'. If I may return again to Lenssen-Erz 1992 in the context of teasing out 'social implications' from rock art (an obviously worthwhile enterprise), it seems to me important to distinguish between reception and intention, even if we plan to draw on both at different moments of our analysis. Unless I misread him, Lenssen-Erz tends to run the two together, though, as indicated above, he accepts that fundamentally a scene is in the beholder's eye, i.e. is a matter of reception. In which case we might allow that one figure suffices for the definition of a scene, though an interactive scene may well provide more historical information. In short, the distinction is not between what is/is not a scene, but between two types of scenes: action/interaction ones.

A final point relating to frontal figures, more specifically my category of 'performatives'. I cannot argue with Lenssen-Erz's 38000-strong database and readily accept his judgement that these may not be at all categorisable in terms of my performatives thesis. I also note that he finds few frontals in his large sample. As to the second comment, it is interesting that some geographical areas (e.g. parts of Australia and North America) feature a great many frontals, while other areas — in which, even on the basis of my limited knowledge, I would certainly have placed southern Africa — feature many scenes. This is something to discuss elsewhere. As to Lenssen-Erz's first comment I should explain that I do not automatically regard all frontals as performatives. For examples of the category I refer Lenssen-Erz to images from other locations than

southern Africa, in which the eye-contact phenomenon or something like it seems critical. For comments on frontals of a non-performative kind I refer Lenssen-Erz to Dobrez and Dobrez (2014). In brief, I think many frontals in rock art simply function or are perceived as canonical humans — and if I have not sufficiently clarified this in the past I welcome the opportunity to do so now. Some frontals, however, demand a different analysis, and I stand behind my categorisation of these as ‘performatives’.

Lowish may have been a little offended by my statement that art history ‘remains in the postmodern doldrums of hyper-reflexivity and (supposedly) politicised art’. Or she may simply have felt that this is an inadequate characterisation. I intended it as a broad comment covering, by now, several decades of academic, as well as artistic, trends. This as someone who lived through the decades-long impact of what we tendentiously termed ‘contemporary theory’ in many disciplines, originally via literary studies. It is true that reflexivity and politicisation could be used for good and this was at least in part the case in A&A, with scholars such as Hodder, Marcus, Fischer and Clifford who spearheaded a move away from earlier all-too-obvious Western ethnocentrism, insisting that the anthropologist acknowledge her own privileged position vis à vis indigenous subjects at the political receiving end of research. But in retrospect it seems to me the influence of ‘contemporary theory’, which I taught, was in many respects negative, even if it delivered some disciplines away from older and rather limited formalist methodologies, others away from narrowly empiricist ones. At any rate my using strong language expressed some frustration that few art historians take an interest in rock art, especially when we consider the incredible wealth of art that is there, not least in Australia, outside the walls of galleries and museums, waiting to be acknowledged. The point being that, at present, acknowledgement comes chiefly from archaeologists and anthropologists. Lowish raises the question as to why and how art historians might make a contribution, but does not go into the (admittedly difficult) ‘how’ — unless an answer is meant to be implicit in her defence of an approach characterised by ‘materiality’ rather than ‘visuality’. Depending on how it is carried out, I have no objection to a research thematic of ‘materiality’. Patricia Dobrez (2013), for example, extends visual-led approaches to consider the role of bodily proprioception and mirror neurons in rock art research. My own focus, however, is unapologetically on the visual, in which connection I remind Lowish that the visual system, indifferent to academic trends, continues to take up what might seem a disproportionate part of the human brain.

On the matter of ‘materiality’, or rather what may be no more than rhetorical gestures in its direction, I take serious issue with Lowish’s idea of phenomenology. With (partially) disarming candour she says she follows Tilley and Chare in her definition. It is unwise

to accept accounts of philosophy entirely at second hand, since that may lead to misunderstanding. For my part I broadly follow Husserl, and the element of phenomenology in my writing is best seen in my analysis of the way we register or receive images, especially depicted scenes and ‘performatives’. Unfortunately I barely touch on this in the present article, which may have misled Lowish with its stress on the formal in connection with definitions of ‘juxtaposition’ and ‘association’. She needs to understand this in the context of the reception of formal properties rather than the formal as an analytical end in itself. She should also note that once I begin talking about ‘scenes’ I am entirely concerned with the reception of images rather than their formal properties. At any rate I refer her to other published material, particularly articles in which I comment on the representational space of scenes and its obverse in frontal ‘performatives’ (and also on ‘lived’ space in Dobrez 2009). This omission on my part in the present piece may account for Lowish’s notion that my analysis is of the formalist, Roger Fry sort. While I applaud her pitch at wit, I have to say that particular judgement is wide of the mark. At the same time it is true that in proposing a role for art history in rock art studies I mention formal analysis. But I also mention iconography and aesthetics — and if even then the list remains too limited, that simply reflects the open-ended nature of my view that it is up to art historians to propose their own ways of approaching rock art.

To return to phenomenology: I refer Lowish to Dobrez (2011a) for my views on the subject/object binary. Phenomenology famously sidesteps the binary but not (please!) to ‘allow for multidimensional and sensual [surely ‘sensuous’] engagement with environments going beyond visual perception’. Certainly phenomenology analyses any form of perception, visual or otherwise. For which, however, it does not need to go ‘beyond’ one perceptual mode in order to access others. It simply takes our experience of — whatever it happens to be — seriously, and scrutinises it. This doubtless explains why the method is liable to be understood by non-philosophers in a debased way, as some sort of wallowing in the senses. Which brings us back to ‘materiality’ and Lowish’s sources. Tilley is a respected scholar and he gives a reasonable account of phenomenology, though one derived entirely from Merleau-Ponty, who represents a very particular French development of Husserl’s philosophy. Lowish’s other authority, Chare, would seem to be quite another matter. I had not heard of him and accordingly looked up the reference in Lowish’s bibliography. What Chare has to say reminds me of an easily-parodied aspect of an otherwise helpful contribution to Chippindale and Nash (2004): an article by Smith and Blundell who adopt a ‘phenomenological’ attitude by ‘immersing’ themselves in the landscape, ‘experiencing’ it as they imagine rock artists might have done — a version of being-in-the-world which would have made Heidegger squirm.

Chare, however, takes Smith and Blundell to a new level of self-parody. Discussing a stone arrangement in Oxfordshire, he tells us po-facedly that Neolithic people would have experienced going uphill to the site as 'felt in the calves and in the slight quickening of their breathing' and once up there would have had an 'enhanced tactile awareness of the feet' such that 'pedestrian touch' would have notified them of a 'change from incline to even ground'. Along similar lines we are told that 'at night ... the pain of cold stone against the palm is particularly apparent: it becomes chill, sharp, biting', this being part of stone's 'polysemy'. Once Chare is done with the tactile he proceeds to taste: *if [sic] there were Neolithic rituals involving feasting at the site, it would have been associated in people's minds 'with the taste of this cooked meat'. Why not? After all, and extending Baxandall's idea of a 'period eye' in art history, there must also be a 'period ear, period hand, period nose, and period palate'. Sadly at present 'the stone circle has lost its ancient flavour'. After which Chare does the same job on smell and sound, at one stage lamenting that Tilley (from whom *he* claims to derive his 'phenomenology') writes in a too matter-of-fact, un-purple way. There is a lot more of this. Chare's obsession with sensation protests far too much, such that in the end it gives an impression directly opposed to what is intended: it comes across as cerebral, sensation wholly in the head. I have lingered on this because it demonstrates just how trivially philosophy may be understood and how radically misapplied — and because Chare is put forward by Lowish (who undertakes collaborative work with him) to illustrate, I take it, the sort of 'materiality' she favours as an approach to art.*

At the same time none of my comments should be taken as a general criticism of art historians interested in a thematic of materiality rather than visuality. One thing is very clear, though: it is not enough for art historians to quote an archaeologist to the effect that Australia is 'the rock art capital of the world'. They have to make this judgement (right or wrong) for themselves.

To Hodgson many thanks for comments both positive and negative. Hodgson sees the possible advantages of non-historical approaches and usefully zeroes in on the aesthetic. I agree this can offer no insights into the original *intentions* behind given rock art. It can, however, indicate that the makers had a sense of the aesthetic, just as we have, though they might have had an entirely different culture-specific *taste*, or indeed have in no specific way foregrounded aesthetic considerations. Hodgson's citing Ishizu and Zeki (henceforth I&Z) prompted me to read the article, which recalled for me the debate in RAR 2011 on the subject of the aesthetic and sexual selection in which I participated. But my interest here is very specific, viz. Hodgson's putting it forward at least by implication as settling issues of aesthetics by reference to the neural. I think it does not settle anything, though its input, as cross-disciplinary, is most welcome

— even without Zeki's considerable reputation. I want to tie the matter of 'settling' issues to Hodgson's suggestion in the next paragraph that I might have based a universalist argument on something more scientific, as he does. Of course I have often appealed to psychology and neurophysiology (e.g. in connection with 'canonical form' and depicted motion). But for all the encouragement of Bednarik, to whom I am indebted in this respect, science, soft or hard, is not my starting point. The I&Z article helps me to explain why. If I begin with philosophical analysis of visual phenomena this is not as second-best.

I&Z open their discussion of the aesthetic response as neurally sourced to the medial orbito-frontal cortex (mOFC) with a reference to pioneering aesthetics texts of the eighteenth century, in particular Burke on the 'beautiful' and the 'sublime'. Without thinking through what, if anything, the distinction might mean today, they say at once they will pass over the 'sublime' to concentrate their experiment on perception of the 'beautiful'. Unfortunately they are especially unaware of eighteenth-century usage with respect to the term 'beautiful', assuming a similar meaning for today. I note this by way of an aside because it returns us to Schaafsma's defence of historical approaches. In the present case ignorance of history matters, since it weakens I&Z's case. Turning to my main point, however: the fact that I begin with philosophy rather than experiment. I do not suggest everyone should begin in this way, but simply that thought-through premises are as necessary to a scientific experiment as to any argument. I&Z have a basic task before them, that of *isolating* the phenomenon of the aesthetic (the 'it's beautiful' response), so as to source it to the spot in mOFC which they will dub A1 (presumably as a witty allusion to V1 in the visual system). But — and here's the rub — they are mindful that mOFC is a centre for value/reward response processing in general. What if their 21 experimental subjects registering given pictures and music as 'beautiful' merely register satisfaction, a non-aesthetic positive? I am reasonably confident anyone is perfectly capable of identifying an aesthetic response when they have one. But is the term 'beautiful' sufficient to guarantee a properly controlled response in those 21 subjects? Maybe they will give an 'I like' (or not) response. But you can like something without it being an aesthetic response. You can like a picture aesthetically or for its content (which happens to be of interest to you); a piece of music aesthetically or for relaxation. I like apple strudel as a wine-taster likes a fine vintage; but I also like the sugar-hit. We have no guarantee I&Z's subjects will make such distinctions. It may be that I&Z hope they are covered simply because they have chosen to expose their subjects to pictures and music, i.e. that an aesthetic response is defined by its object — some objects being more liable to it than others.

This is not the case, however, and I&Z know it, since you can respond aesthetically to just about any-

thing at all. By way of conclusion they introduce a few complications. Thus pictures by Bacon and Lucian Freud, not to mention Duchamp's celebrated urinal, are not 'beautiful' (at this point defined as 'pretty' or 'attractive'). Perhaps they are still aesthetic objects due to 'artistic merit' (a woolly concept, if ever there was one). This would be the point to acknowledge that the term 'beautiful' simply did not do the job. Complications, tacked on as an afterthought, should have been built into the experiment itself. Frankly, if I had been one of the 21 I&Z subjects I would not have hit the button without asking what the hell we were talking about. As things stand, all that is clear is that A1 in mOFC registers some sort of positive, 'I like' response which *might* plausibly be 'A' for 'aesthetic'.

For me all this illustrates the value of grounding a discussion in reasoned, ultimately philosophical, rather than off the top of one's head experimental, premises. So I use psychology and neurophysiology as bottom-up complements to top-down analysis of experience. To turn to the precise extent to which the human visual system is not, as I argue, radically different from the monkey's: we need not count angels on the head of a pin (after all, monkeys do not make rock art). My comment is there to underline the untenable nature of the view that we cannot be sure the makers of the art saw — biologically — as we do now. Even if we go beyond the 40000-year limit currently accepted for rock art, say to possibly-Acheulian cupules, we have to postulate that whoever made the cupules saw they were not making them *square*. But I am grateful to Hodgson for his references to material broadly relevant to my thesis, most of which on his advice I have now perused. It does not alter what I have to say, but it is well worth knowing about. Re his complaint that Dobrez and Dobrez did not cite him enough in their 'canonical form' piece, I plead that traditionally the humanities disciplines we know best have used citation sparingly, unlike the perennially fund-seeking sciences. We refrain from citing papers arguing along lines very different from ours, or which provide information available from earlier sources — unless we specifically aim to engage other arguments. In discussing canonicals we engaged sources which might be regarded as foundational, such as Rosch and others on categorisation; Attneave and Deręowski on salience; Arnheim, Biederman and Hochberg on *pars pro toto*; Buswell, Gibson and Hochberg on saccades etc. This is not to say that we do not regard Hodgson's articles as making a significant contribution to rock art discourse. And here it may be as well to relate this observation to the larger issue raised by my article, viz. the need for as varied a disciplinary input as possible with regard to rock art studies. Hodgson has done as much as anyone to alert rock art researchers, myself included, to the potentially key role of psychological and neurophysiological options.

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