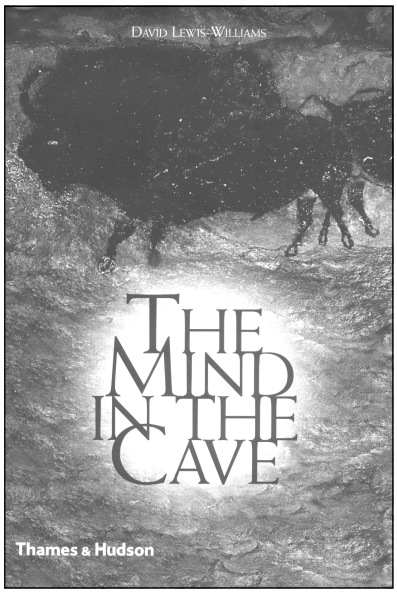
Review Feature

The Mind in the Cave: Consciousness and the Origins of Art by David Lewis-Williams. London: Thames and Hudson, 2002. ISBN 0-500-05117-8 hardback £18.95 & US$29.95; 320 pp., 66 figs., 29 colour plates.



David Lewis-Williams is well-known in rock-art circles as the author of a series of articles drawing on ethnographic material and shamanism (notably connected with the San rock art of southern Africa) to gain new insights into the Palaeolithic cave art of western Europe. Some 15 years ago, with Thomas Dowson, he proposed that Palaeolithic art owed its inspiration at least in part to trance experiences (altered states of consciousness) associated with shamanistic practices. Since that article appeared, the shamanistic hypothesis has both been widely adopted and developed in the study of different rock-art traditions, and has become the subject of lively and sometimes heated controversy.

In the present volume, Lewis-Williams takes the argument further, and combines the shamanistic hypothesis with an interpretation of the development of human consciousness. He thus enters another contentious area of archaeological debate, seeking to understand west European cave art in the context of (and as a marker of) the new intellectual capacities of anatomically modern humans. Radiocarbon dates for the earliest west European cave art now place it contemporary with the demise of the Neanderthals around 30,000 years ago, and cave art, along with carved or decorated portable items, appears to announce the arrival and denote the success of modern humans in this region. Lewis-Williams argues that such cave art would have been beyond the capabilities of Neanderthals, and that this kind of artistic ability is unique to anatomically modern humans. Furthermore, he concludes that the development of the new ability cannot have been the product of hundreds of thousands of years of gradual hominid evolution, but must have arisen much more abruptly, within the novel neurological structure of anatomically modern humans.

The Mind in the Cave *is thus the product of two hypotheses, both of them contentious — the shamanistic interpretation of west European Upper Palaeolithic cave art, and the cognitive separation of modern humans and Neanderthals. But is it as simple as that? Was cave art the hallmark of a new cognitive ability and social consciousness that were beyond the reach of previous hominids? And is shamanism an outgrowth of the hard-wired structure of the modern human brain? We begin this Review Feature with a brief summary by David Lewis-Williams of the book's principal arguments. There follows a series of comments addressing both the meaning of the west European cave art, and its wider relevance for the understanding of the Neanderthal/modern human transition.*

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Overview

David Lewis-Williams

The art historian Max Raphael believed that the *Homo sapiens* communities of the west European Upper Palaeolithic were 'history-making peoples *par excellence*; they were in the throes of a continuous process of transformation' (Raphael 1945, 3). His book *Prehistoric Cave Paintings* was an inchoate attempt to put his kind of Marxist historical theory into exemplified form. True, much of it reads like high-sounding mumbo-jumbo. Nevertheless, it is a pity that today commentators focus on his obvious failings and the ideas that Annette Laming-Emperaire and André Leroi-Gourhan later developed. They ignore the broader theory that underlies his thought.

'History-making peoples *par excellence*'

Since the 1930s and 1940s, when Raphael was writing, researchers have accumulated abundant evidence to support his insight. Compared with the preceding Middle Palaeolithic, a great deal happened in the Upper Palaeolithic, events that cannot be explained simply by environmental changes. Real, thinking people were doing things: they were not mere pawns moved across an ecological chequerboard by forces entirely beyond their control. This notion underlies *The Mind in the Cave*. It is an attempt to account for the comparatively swift flowering of what we today call 'art' during the west European Middle to Upper Palaeolithic Transition in terms of people making their own history. Image-making was not a consequence of an inherent 'aesthetic sense', an adaptive drive to make things special. Rather, aesthetics has always been an historically situated, socially-contingent construct; it developed in various historically-contingent ways *after* people started making images. Moreover, representational image-making was *sui generis*; it did not evolve out of a vaguely conceived twentieth-century notion of humankind's innate 'spiritual' proclivities towards beauty and 'specialness'. In contrast to that view, I argue that, during the Transition, cosmology, image-making, religion, and developing social distinctions were hardly distinguishable from one another. What are today seen as 'art' and 'religion' were, during the Transition and probably much of the Upper Palaeolithic, part and parcel of social discrimination. In other words, people were making their own history.

In this short overview I do not attempt to summarize all that is in the book: 85,000 words into 2000 simply will not go. I therefore omit discussion of the historical circumstances of the discovery, rejection, and acceptance of Upper Palaeolithic art, methodology (e.g. the inappropriate notion of proof, and my insistence that one does not have to explain everything in order to explain something), and important components of the art (e.g. mobile art, alfresco art, different techniques, distribution of images in caves, and associated activities). Instead, I emphasize a few key issues that relate to the efflorescence of image-making during the Transition.

More than intelligence

Today, researchers tend to develop arguments based on human intelligence. They believe that, through the millennia, hominids gradually became brighter and smarter until, with *Homo sapiens*, they were like us. I do not underestimate the role of intelligence in human evolution, but the phrase 'like us' is a give-away. It carries with it a comparatively recently developed value system: we value rationality and see Western technologically informed life as a product of it. We go on to assume that all previous 'advances', from the making of handaxes onward, were the results of improving intelligence.

But rationality is only part of the human brain/mind. There is also consciousness. Intelligence and consciousness clearly go hand-in-hand, but they are not identical. Most importantly, what are commonly — and vaguely — called 'altered states of consciousness' are not a discrete condition that befalls certain rather odd people. The ways in which the brain is neurologically structured and the ways in which it functions electro-chemically suggest that we should think of consciousness as a comprehensive spectrum with 'alert' and 'autistic' ends. At the alert end there is waking, problem-oriented thought during which we respond appropriately to our environment. This state grades into day-dreaming, a condition in which our thoughts are more inwardly directed and in which we are less aware of our environment. From day-dreaming, there is a slide into hypnagogic states — half awake, half sleeping. Sometimes people experience hypnagogic hallucinations: they wake up believing they have heard someone speak or knock on a door. Then we move into REM sleep, during which we dream. Finally, we pass into deep 'unconscious' sleep. All people everywhere *necessarily* experience the whole spectrum; it is simply a product of the way in which the brain functions. We have every reason to believe that the anatomically fully

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modern *Homo sapiens* populations of the Upper Palaeolithic also experienced the whole spectrum.

Again necessarily, communities must come to terms with the whole spectrum, though individuals may contest the received view. People everywhere divide the spectrum up into the sort of (but not always the same) sections I have noted, and they place different values on those sections. It is, for example, hard to imagine a community that does not collectively know about dreams and entertain some understanding about what causes them and their significance. Because of our present-day Western emphasis on acute, alert intelligence, we (rightly) dismiss any suggestion that dreams are the voices of gods or spirits urging us to adopt certain courses of action. But that is not true of all communities; nor was it true of the West in medieval times.

To the normally experienced spectrum we must add an intensified trajectory. At more or less the hypnagogic point it branches off into stages of hallucinations, each becoming 'deeper' and more vivid. At the 'deep' end of the intensified spectrum people experience visual, auditory, somatic, olfactory, and gustatory hallucinations; they see monsters and animals, experience terrifying or blissful states, feel themselves being dismembered, or suffer other bizarre conditions. The intensified trajectory is set in train by many different factors. These include ingestion of psychotropic substances, sensory deprivation, pain, rhythmic and auditory driving, and pathological states, such as temporal lobe epilepsy and schizophrenia. Not everyone in a population experiences this trajectory, but everyone has the potential to do so because the human nervous system is so wired.

Even as the normal spectrum has to be socialized and accommodated, so too does the intensified spectrum. Some communities place great emphasis on the deeply autistic, hallucinatory end, and many people strive to reach it. In other communities the 'deep' end is socially demarcated and reserved for a few special people, the seers — those who can 'see'. Ordinary people know more or less what the seers are talking about when they describe their hallucinations because they experience similar states in their own dreams. They may believe their dreams to be ephemeral glimpses of the spirit realm that the seers claim to visit. They may even, on occasion, enter upon the intensified trajectory and verify its existence. Because it is not open to *everyone,* the intensified trajectory provides an instrument that can be used for social discrimination. It does so in all religions.

I argue that it is out of these universal, neurologically created, yet always culturally construed, experiences that notions of a tiered cosmos develop. As subjects approach the start of the intensified trajectory they experience a vortex, they feel sucked into a tunnel with, often, a bright light at the end. From this vortex they emerge into a realm of hallucination with its own rules of causality. At this point, they experience two kinds of sensations. On the one hand, they feel that they are rising up, becoming weightless, floating. On the other, they feel the constrictions of the vortex hemming them in, darkness, and difficulty in breathing. Virtually universally, the first condition is interpreted as flying or visiting a realm above the sky, the second as passing underground to a subterranean realm. Here, I believe, we have an explanation as to why communities all over the world believe in (actually highly improbable) spiritual realms above and below the level on which they live. But the mind and the body that it inhabits are on the central, mundane level. As a result, the spirit realms are believed to be simultaneously transcendent and immanent.

Two species of *Homo*

So far, I have considered only *Homo sapiens*. Accepting the replacement hypothesis, I believe that the first Aurignacian *Homo sapiens* communities to enter western Europe lived side by side with *Homo neanderthalensis* groups for some millennia before the anatomically archaic Neanderthals died out. Much debate surrounds the events of this time. For our present purposes, I focus on what the Neanderthals borrowed from their new neighbours and what they did not.

First, it appears that some Neanderthals of the Châtelperronian technocomplex learned lithic blade technologies, though they did not adopt the full Aurignacian toolkit with its diversity of raw materials. We may assume that the Neanderthals used the new artefacts — blades, end-scrapers, burins — for, by and large, the same purposes as the Aurignacians did. They also seem to have acquired personal ornaments from the Aurignacians, whether by stealth, barter or imitation. But it is highly unlikely that these objects signified exactly the same social statuses as they did in Aurignacian communities. If, as most researchers would agree, Neanderthal society was structured differently and, by and large, was unable to adopt fully the more complex hunting strategies practised by the Aurignacians, Aurignacian social distinctions would have been meaningless to the Neanderthals. In some sense, they were imitating the Aurignacians, not duplicating their behaviour.

Similar observations apply to the vexed matter

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of Neanderthal burials. If the west European Neanderthals did begin to bury some of their dead, they did so without the often elaborate grave goods that occur in numerous *Homo sapiens* graves. They had a different social structure and different concepts of death. Then, whatever we may believe about certain extremely rare Neanderthal and pre-Neanderthal artefacts, they did not make images.

How do we explain this situation?

Two types of consciousness

There is a vast literature on consciousness and cognitive evolution in general. To cut a long story short, and by no means rejecting all this work, I accept Gerald Edelman's notion of primary and higher-order consciousness, lucidly presented in his book *Bright Air, Brilliant Fire: on the Matter of the Mind* (1994). Inadequately summarizing his neurological account, I outline both types.

Edelman aptly speaks of primary consciousness as the 'remembered present'. Certain animals have it to varying degrees. They are aware of their environment and can form mental images in the present, but they have no sense of a person with a past and a future. They can learn certain tasks, but they have no long-term memory. As a result, they can at best have only a form of proto-language that lacks notions of past and future, and they cannot remember and socialize (reach consensus about) dreams and visions. By contrast, higher-order consciousness, possessed by only *Homo sapiens*, permits a socially constructed self, complex language, recognition of one's own acts and emotions, and long-term storage of symbolic relations. Higher-order consciousness enables *Homo sapiens* people to remember and to socialize their dreams and visions, and, ultimately, to conceive of spirits, spirit realms, and life after death — and before birth.

I argue that Neanderthals probably possessed a form of primary consciousness, and Upper Palaeolithic *Homo sapiens* had higher-order consciousness. This hypothesis explains why Neanderthals borrowed only the things they did, but not others, from their *Homo sapiens* neighbours. Neanderthals were locked into the present. They were congenital atheists.

Current evidence suggests that *Homo sapiens* acquired their advanced neurological wiring (what Edelman calls reentrant circuits) in Africa. This neurology enabled them to assemble modern behaviours piecemeal and, possibly, spasmodically. They thus brought higher-order consciousness and modern behaviour with them to western Europe.

A pre-existing symbolic vocabulary

There never was a time when Upper Palaeolithic people made images of whatever caught their fancy, a time when individuals produced a wide, unrestricted repertoire of pictures and carvings — a comprehensive range of animal and bird species, trees, snakes, faces, moons, and so forth. The earliest Aurignacian images (mobile art from southern Germany and parietal images in Chauvet Cave) encompass a major slice of the same bestiary as the much later Magdalenian imagery (principally, bison, horses, aurochs, felines, deer) though the proportions of one species to another (and, in some measure, probably the symbolic associations attached to them) varied through the millennia of the Upper Palaeolithic. There must therefore have been a socially accepted set of zoomorphic mental images *before* people began to make representational images of them.

In western Europe, certain conditions, possibly intensified by the proximity of Neanderthals with a form of primary consciousness that did not permit them to comprehend mental images and spiritual states, made it appropriate for the Aurignacians to manifest their already-existing mental symbology. I argue that, because these zoomorphic mental images were experienced most vividly by people at the autistic end of the intensified trajectory, they were projected onto surfaces, as such hallucinations indeed are, where they seemed to float free from any environmental context; such projected imagery has been likened to a slide or film show. The surfaces included cave and shelter walls, floors, stalagmites, stalactites, and ceilings.

People thus did not (by intelligence alone) 'invent' images. The environment of at least some people (the seers) was already invested with images — a set of socially agreed-on symbolic animals. All that was needed were social conditions that made it advantageous for the seers and their communities to 'recreate' those evanescent images, and thereby to gain control over them and to demonstrate to others their contact with spiritual realms. In doing so, they entrenched a form of cross-cutting social discrimination that was independent of age, sex and physical strength. Complex society as we know it was thus being born.

Cosmology, religion, image-making, and social discrimination

Even as they divided up the spectrum of consciousness, Upper Palaeolithic people divided up the caves

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into 'activity areas'. In these areas, different groups of people were permitted to perform different kinds of rituals and to make different kinds of images. Some activities involved large groups and the making of communal images (as in the capacious Hall of the Bulls, Lascaux), others were solitary (as in the small Diverticule des Félins, also in Lascaux). There was therefore a dialectic between, on the one hand, the hugely diverse geomorphological shapes of the caves and, on the other, a number of internally interacting elements: shifting human consciousness, cosmology, social distinctions, religion, and image-making.

Entering the caves was, I suggest, virtually indistinguishable from entering the mental vortex that led to the underworld. In that underworld, some (not all) people sought, by sight, touch and (hallucinatory and humanly produced) sound, members of a commonly accepted set of spirit animals that would give them 'spiritual' power and its concomitant, a form of historically contingent political power. As they painted and engraved, they constructed a multi-sensory underworld that was a template for social discrimination, one that could be controlled and manipulated by individuals and groups: only certain people were allowed into certain places to experience appropriate segments of the full spectrum of human consciousness and to perform specified, socially discriminating activities, one of which was image-making. People were consciously making their own conflictual, fractious societies, their own history.

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Bridging the Gap between Cognitive Neuroscience and Archaeology

E. Thomas Lawson

Building both upon acute observation motivated by significant theoretical expertise and sophisticated information from neuroscience about how the mind/brain acts and responds in extraordinary situations, David Lewis-Williams argues in his *The Mind In the Cave* that Upper Palaeolithic art is the work of altered states of consciousness typical of shamanistic experience. In adopting this approach to these magnificent productions of Upper Palaeolithic human creativity, David Lewis-Williams continues a tradition of psychological investigation into religious behaviour instituted by William James in his classic *The Varieties of Religious Experience* (1997 [1902]). In his attempt to explain the emergence, persistence and value of religious ideas and practices, James made the methodological decision to focus upon the very special feelings that a select class of individuals, whom he regarded as religious geniuses, underwent in special circumstances.

While James's approach proved influential among those psychologists who had a scientific interest in religion, he failed to exert a great deal of influence on scholars in the social sciences and the humanities, because his approach was considered too individualistic and failed to explain a great deal of historical and socio-cultural phenomena at the level of analysis that these scholars expected. James's failure to make a dent in the social sciences and the humanities was both unfortunate and instructive. It was unfortunate because it encouraged scholars in the social sciences and humanities to continue their attempts at explaining religious phenomena without reference to psychological and biological discoveries, and to perpetuate the Durkheimian notion of the autonomy of social facts. It was instructive because there were some social scientists and humanists who were willing to listen to the claim that psychological and biological factors were to be taken into consideration as long as there promised to be a socio-cultural payoff. *The Mind in the Cave* provides such a pay-off by showing how an understanding of altered states of consciousness provided by neuroscience can explain cultural productions such as the cave and rock art of the Upper Palaeolithic period. What is particularly exciting about Lewis-Williams's work is that it bridges the gap between the social and the psychological and behavioural sciences. In this regard his work stands alongside that of the cognitive archaeologist Steven Mithen which also steps across the divide.

Today, because of the cognitive science revolution, some of us operating within the social scientific tradition are much more sympathetic to examining and theorizing about the psychological foundations of cultural forms. Lewis-Williams has made a fundamental contribution to this type of explanation. This does not mean, however, that David Lewis-Williams is home free but he has demonstrated both the plau-

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sibility and the applicability of a theory informed by cognitive neuroscience.

So Lewis-Williams has convinced me that the instigation of the cave art he analyzes so brilliantly and with such a keen eye is the consequence of the extraordinary experiences that the makers of the art had undergone whether these experiences were the result of sensory deprivation, fasting, drugs, frenzied dancing, or other vigorous bodily movements. His close attention to the details of the works of art as well as to their physical context has made sense of recurring features not only in Europe but also in Africa and North America, for example the entoptic phenomena apparent, but easily missed by the non-discerning eye, in the works of art under examination.

What problems remain? I wish to argue that while Lewis-Williams has explained the production of the works of art, he has not explained their reception. The vast majority of people across cultures and throughout history eagerly and willingly entertain religious ideas and engage in religious practices, such as participating in rituals, for example of initiation. They have never had 'religious experiences', however, and have never undergone altered states of consciousness. As James himself showed, these are the experiences of the few rather than the many. It is this fact that has led the rapidly developing cognitive science of religion to examine the possibility that such ideas and the artefacts and practices they inform are the consequence of our very ordinary, garden variety cognitive processes. This point has been made in different ways by Pascal Boyer in his *Religion Explained: the Evolutionary Origins of Religious Thought,* by Scott Atran in his *In Gods We Trust: the Evolutionary Landscape of Religion*, and by Robert McCauley and myself in our *Bringing Ritual to Mind: the Psychological Foundations of Cultural Forms.* We make these claims not to deny the fruitfulness of explaining some phenomena such as Upper Palaeolithic cave art by appealing to highly specialized neurological processes triggered under very special conditions, but because the broader picture requires additional, and perhaps more fundamental, accounts of the representation, acquisition and transmission of religious ideas. For example, David Lewis-Williams argues that the works of art are the work of a specialized class of people known as shamans. His account certainly grants us a plausible, and in fact convincing, explanation of the experiences which made such art possible. But his account does not explain why this art captured the imagination of those who in the same context had not had such experiences. What made these images compelling to those who had not undergone the highly extraordinary experiences of the 'religious geniuses'?

Such ordinary folk are not missing from Lewis-Williams analysis, but their responses to the images are not accounted for by his theory. Perhaps this point would not be of great importance were it not for Lewis-Williams's aim also, by virtue of his theory to account for the complex relationships between individual and society throughout history. For example, he talks about particularly adept individuals who demonstrate an ability to manipulate to their own advantage the larger group because of their knowledge of the resources and rules of the social system (p. 271). The cognitive resources typical of the group must be taken into consideration. What makes them susceptible to the visionary claims of the leaders? Adverting to 'socialization' as an answer will not be enough because we already know too much about the cognitive constraints on the production and reception of religious concepts.

Even the person undergoing initiation in the cave (not the producer of the art) does not necessarily have to experience any of Lewis-Williams's three stages to be awed and even terrified in the dimly lit cave by the image either of charging bison or strange geometric imagery. As several cognitive scientists of religion have been able to demonstrate, it is rather natural for human beings to respond to representations of the 'supernatural'. What these scientists of religion have discovered is that it does not take much to be responsive to ideas about gods, spirits, and other worlds. The ease with which human beings of all cultures think about and talk about agents with special, minimally counter-intuitive qualities has been repeatedly demonstrated in recent experimental work.

What is absolutely clear, however, is that with the publication of *The Mind in the Cave* we have a better understanding of how it comes about that so long ago there were some people who were inspired to produce not only great works of art by any standard but marvellous representations of imagined worlds populated by imagined beings. Even when the many did not hear the inner voices of the few they were sensitive enough to respond to those who had developed special ways of hearing these sounds.

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Seeking Answers (Out of the Caves)

Knut Helskog

The Mind in the Cave is a culmination of David Lewis-Williams's ideas about Palaeolithic cave art, previously expressed in numerous articles and books. It reads like a detective novel where page jumping is not advisable if one wants to understand the answer at the end. The answer to one argument becomes the basis for the next in a careful chain of questions and arguments, on a steady path towards altered states of consciousness and shamanism, power and social and political control. The book is not as much based upon the rigid empirical analysis of data as on carefully constructed arguments, and the view that it must be possible to understand why *Homo sapiens* and not Neanderthals made images on walls in caves, why the depictions were made, some of their many meanings, and the status/position gained by those who controlled meaning in rituals and in social and political interaction in and between societies.

Most researchers today would agree with Lewis-Williams's arguments that the depictions in the caves are not art for art's sake. But I am not willing totally to reject the idea of sympathetic magic, or that totems were represented in the caves, as Lewis-Williams does, simply because both are important in hunter-gatherer cultures. In my own work (Helskog 1999) on Arctic rock art, some surfaces are landscapes supporting composite-depicted narratives. To transfer this argument to the surfaces inside the caves, these might be more than membranes, but instead denote landscapes or environments in which myths are narrated in rituals. The places to which animals were ritually lured might be represented on the walls inside the caves, although they are physically at quite different places. I am not happy with the idea of hunting magic, however, but more comfortable with the concept of communication between humans and spirits (other than humans) that for example allows animals to be captured, eaten and regenerated, people to be cured, and so on. Similarly, the belief in ancestral descent from animals, birds or plants is a fairly general phenomenon in the ethnographic record, and it is, therefore, possible that totems have long been important in explaining ancestry and in distinguishing self from others. No matter the arguments to the contrary, even if shamanism were involved, there is no reason that totems might not also be represented in narratives depicted or associated with the art. After all, as Lewis-Williams points out, it is the maker of the art who, for some reason or other, selects what to depict. Population size in the Upper Palaeolithic is bound to have been relatively small and perhaps the variety of totems was not as large as in the much later ethnographic record.

Lewis-Williams applies part of the ethnographic record to enlighten his understanding of the choices people made in prehistoric hunting and gathering societies. I agree that analogies are a powerful source of enlightening examples in seeking answers when general patterned tendencies, rather than direct analogies, are recognized. But the population change from Neanderthals to *Homo sapiens* is unique, especially if the neurological makeup of Neanderthals was different from that of *Homo sapiens*. Hence, the existing ethnographic information on hunting and gathering societies is even less useful for understanding the life of the Neanderthals. The neurological model Lewis-Williams presents is therefore a valuable addition for those seeking explanations for the advent of the Palaeolithic cave art and differences between the Neanderthals and *Homo sapiens*. Lewis-Williams argues that the consciousness produced by the neurological structure of the brain of *Homo sapiens* enables them to remember and entertain mental imagery from a range of states of consciousness (see p. 92 for a six-points list). He uses this to explain why they made cave art and not the Neanderthals (whose neurological structure and associated mental imagery were closely linked to motor skills). This is, in the best scientific tradition, testable in the sense that if (rock) art found in caves can be associated with Neanderthals, the hypothesis is falsified. The proposed neurological dichotomy stands or falls with the altered states of consciousness and shamanism argument; if other reasons for making the art can be demonstrated, then the proposed dichotomy falls. Clearly the road ahead is paved for many an interesting discussion.

Furthermore, Lewis-Williams suggests that *Homo sapiens*, who expanded into Europe from Africa, had the mental potential for imaging the art but it was not before the 'right social circumstances' — 'social conflict, stress and discrimination' — in western Europe that triggered the making of the art. If this were the case, a closer look at African rock art needs to be undertaken, and in theory it should be found to predate that of Europe. After all, there is no reason why the right circumstances should have prevailed only in a very limited area of western Europe. Africa should become a centre for future research.

The images in the cave are argued to represent a selection of motifs chosen by a shaman from an

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altered states of consciousness experience. This may indeed be so according to the arguments presented, if the images produced in altered states of consciousness were the same 15,000–30,000 years ago as at the present. They could also, however, be images chosen from life in the known environment including the cosmic world of which spirits were a part, without being connected to an altered state of consciousness experience. If, for example, the images were associated with beliefs, rituals and associated narratives, certain rules might have to be followed in selecting what to depict or not to depict. The selectivity of the images indicates as much. In north Eurasian ethnography, the other worlds where spirits and the dead lived were modelled after the world in which people live. This again means that the images are a selective 'mirror' of life in the human environment, and might not be freely chosen to shape the makers' or users' own position in society. Perhaps there was not much freedom in selecting images or attributing meanings. But, of course, leaders of rituals likely had the possibility to negotiate or manipulate the rules of selection, and assign meanings to some extent.

The caves in which the art is found served as living and ritual areas through long periods of times, extending over thousand of years. Owing to the lack of finer chronological control the majority of the images are seen as separate entities. Compositions appear to be relatively rare, although when images are added to a panel they become composite, as in the inner sanctum of Les Trois Frères. It appears difficult to separate images from the caves into chronological groups, yet a better chronological control might shed light on the frequency with which images were depicted and used through time. My work (Helskog 1989) on the 4000-year chronology of the hunter-gatherer rock carvings at Alta in arctic Norway shows that so-called stage 1 entoptics are all early. There are distinct typological changes though time, which again indicate some form of changing selectivity contemporaneous with other changes in the archaeological record. It is interesting to note that in some areas of the world, clear morphological changes are seen in the images — some might call these changes in style — through time and space, which again indicate that some makers (as well as users) did not freely choose form or content. Though Lewis-Williams stresses the cultural selectivity of makers and users, I feel he might be giving them more freedom than they might actually have had.

Moving into the deep caves — walking or crawling as at Les Trois Frères — might have been like moving into and inside the realm of death (if that was underground). Certainly, this is more the feeling I personally had when visiting deep caves; into the darkness with the shadows created by the lamps, the cold, the humidity, the smells, the enclosed environment, the fear of the unknown (watching me), and being trapped — a mixture of cultural and neurological reaction. So, instead of spirits living behind the walls, they could be in the caves themselves, and the images of spirits were already on the walls, to be outlined in rituals rather than added. If so, the topographic features of the cave walls were not used to emphasize features, but were parts of the images themselves to start with, in a landscape that was already there. Entering the deep caves might mean breaking through the membrane, rather than navigating along the membrane as suggested. The makers and users of the art could have seen physical entry into the subterranean passages, as Lewis-Williams suggests, as equivalent to psychic entry into deep altered states of consciousness (p. 252), or, alternatively, into different realms of the world of the spirits. Not all caves are deep and dark with subterranean passageways. The Late Palaeolithic caves in the southern Urals or the Holocene caves of northern Norway indicate variation in how caves (and shelters) were perceived and used. I realize, of course, the difference between the contexts of Palaeolithic and Holocene art, but perhaps our understanding of Holocene rock art can be an additional 'analogy' or basis for understanding the much older art of the Palaeolithic.

I feel that Lewis-Williams navigates rather narrowly on the issue of shamanic interpretations and explanations, although he does discuss other options. Central to this interpretation are the concepts of a divided universe and communication with the spirits therein. If the art was part of shamanistic or other forms of ritual communication, paintings as well as engravings should be expected to be found at other entrance points between these worlds. Why only in the caves? Were there places outside the caves oriented for example towards spiritual life in the upper worlds, those in the sky? Clearly the life that appeared in the sky night and day would not have gone unnoticed. Such art outside the caves would be difficult to find as its chances of survival are small compared with that in the caves, but the discovery of Palaeolithic images outside the caves might strengthen the argument for a divided universe (upper, middle and lower worlds), and possibly the argument for shamanism. In essence, more (Palaeolithic?) engravings such as those in the Coa Valley in Portugal need to be searched for.

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In Lewis-Williams's mind, rock art is more about individual social and political power and control than communication between people and spirits. The ethnographic sources in the circumpolar region indicate certainly that this is a part of their significance, but I judge the role that the shaman played in maintaining the 'health' of the society and its members to be more important than bolstering his or her own position. Lewis-Williams's view, I feel, implies that a shaman is *the* leader, which is not necessarily the case. That a shaman's position depends on performing well does not necessarily mean that he or she can control individuals who have gained status by other skills, and prevent serious negative reaction when not performing well.

Lastly, I have always wondered why Lewis-Williams has not paid more attention to the colour coding of the paintings, in the Palaeolithic images as well in those in South Africa. Colours must certainly have had a meaning. Might this be only a repetition of a shaman's vision, or was it an arbitrary choice by the maker to be interpreted at will by the users?

Some day we may be better able to understand the differences between the Neanderthals and *Homo sapiens* and why images in dark caves were made, what they meant and what significance they might have had in forming and maintaining social and political roles. There are still no exact answers, and might never be such, and perhaps the time has come to extend the search outside the caves, and to other places than the caves of France. None the less, in *The Mind in the Cave* David Lewis-Williams presents thoughtful and well-formulated hypotheses and reasoned arguments, suggesting answers which are bound to have an impact on the discussion in years to come. This is truly a challenging and enjoyable book.

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Minding the Past

David S. Whitley

Lewis-Williams's latest book, *The Mind in the Cave*, addresses the origin of image-making but only by considering first (and plausibly solving) the related question of the origin of human consciousness. It also concerns itself with archaeological method, in this case through careful attention to the philosophy of science. And then, true to its contention that art is socially situated in human contestation, it concludes with a case study of the 'Wounded Man' motif of the Quercy, illustrating the importance of art and ritual in the construction of local histories. The result is a masterpiece of analysis, inference and interpretation; indeed, one that has very few equals in our existing archaeological literature.

A work of this scope and importance naturally raises a series of subsidiary issues. One of these is the relationship between the appearance of west European shamanism at the Middle to Upper Palaeolithic Transition and processes and events in the rest of the world. As Lewis-Williams acknowledges, the regional phenomenon he documents is only one of a variety of the potential manifestations and outcomes of the development of human consciousness; or, put another way, the appearance of west European Palaeolithic shamanism was not necessarily mirrored throughout the then (humanly) colonized world, nor is the form of this shamanism precisely paralleled by ethnographically-known cases. I know, for example, of no Native American society that created the kind of composed, corporate shamanistic art seen in the entry areas of the Palaeolithic caves. This suggests that the social context and perhaps the structure of these Palaeolithic societies may also have differed from historical Native American hunter-gatherer societies in important (but as yet unidentified) ways.

There is, however, empirical evidence for Palaeolithic-age shamanism in southern Africa (Lewis-Williams 1984) as well as for shamanism during the terminal Pleistocene in North America (Whitley *et al.* 1999), using 'shamanism' here in its general sense. But there currently are also important chronological and geographical lacunae, including broad regions of Eurasia, and not all of these appear to be a function of missing data. One of the most interesting lacunae is central Asia and Siberia, where shamanism does not seem to first appear until the middle Holocene (Whitley in press). Despite the fact that this region is widely considered the cradle of shamanism and, especially, the source for New World shamanism (given shared traits in these two areas), this empirical conundrum has led Andrzej Rozwadowski and me to investigate evidence for the alternative hypothesis: the possibility of an American origin for so-called Asiatic shamanism. This possibility notwithstanding, Winkelman's (1986; 1992) cross-cultural analyses point to the conclusion that

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the historical distribution of shamanism is only partly explained by diffusion, with certain regional manifestations then the result of autochthonous processes. The appearance of western European shamanism at the Transition appears to be a case in point in the sense that it was both dependent upon the evolution of human consciousness and may have developed independently of the outcome of this same cognitive evolution in other areas of Eurasia and other parts of the world.

Lewis-Williams emphasizes the relevance of social context and human agency in understanding Palaeolithic shamanism and the art that it engendered, using the pierced or 'wounded' human figures from the Cougnac and Pech-Merle caves as examples. Two comments are relevant in this regard. The first concerns the common somatosensory hallucination that informs these motifs: the feeling of stabbing or stinging that can accompany entry into an altered state of consciousness. There are two ethnographic examples from Native California, not mentioned by Lewis-Williams, that further illustrate the importance of this reaction. One is from northernmost California where, among the Yurok, Karok, Shasta and others, the spirits received by the shaman during trance were transliterated into English as 'pains', referring to the piercing sensation that can accompany the altered state. Speaking of a prospective Shasta shaman, for example, Kroeber (1925, 301) recorded that:

> Catastrophic dreams also soon asserted themselves, and after a time swarms of yellowjackets were seen. This last type of dream was regarded as a conclusive proof of impending shamanistic power, the insects being interpreted as spirits . . . About this period, also, it was customary for the prospective shaman to be addressed by a voice and to see a spirit aim an arrow at her heart while he commanded her to sing . . . She at once fell down in a senseless seizure in which she remained for some time . . . After this the spirit reappeared and warned her that he would shoot her with his 'pain;' if she were strong enough to bear the pain in her body she would be his friend. As the pain entered her she again fell in a catalepsy . . .

A second Native California example of the relevance of this somatosensory effect involves the ritual use of stinging nettles (*Urtica holosericea*). In south-central and southern California this plant was used for medicinal purposes because of its putative connection with supernatural potency. It was also administered topically in puberty initiations, the primary purpose of which was to expose initiates to the supernatural world of trance and to assist in their acquisition of a spirit helper. Zigmond (1981, 68), for example, wrote that:

> Younger people, to procure dreams [i.e., visionary experiences], walked through a growth of nettles pressing them against the bared chest causing severe lacerations.

Whether intensive exposure to stinging nettles can cause hallucinations is unclear. I have previously assumed that it could, but perhaps the ritual use of this plant was analogical rather than causal; i.e. it mimicked the effects of, rather than helped induce, trance. In this sense its ritual associations would be similar to the use of the bull-roarer, flute and rattle — ritual musical instruments that simulated the auditory hallucinations sometimes associated with altered states of consciousness. Regardless of its potential psychotropic effects, however, the ceremonial use of nettles provides another cross-cultural link between altered states of consciousness and the physical hallucination that Lewis-Williams identifies in the art at the two French caves.

The second comment on Lewis-Williams' discussion of human agency, social contestation and local histories concerns the wider archaeological implications of the empirical example that he identifies at these Quercy sites. Almost certainly, there are additional reflections of this social process in the larger archaeological record from this same region, as well as other examples of (structurally) similar processes and events at other sites, regions and time periods. In this sense the interpretation of art and social process that he proposes is, in fact, potentially verifiable in the 'dirt' archaeological record: observable empirical changes in one kind of evidence should correlate with observable changes in other types of evidence. And, just as a full understanding of these processes cannot be inferred from the art alone, so too is the dirt archaeological record inadequate on its own to paint a full picture of west European Palaeolithic society.

The relevance of this point partly derives from the fact that one value of a new hypothesis or interpretation is its ability to foster new insights and open new avenues of research. What Lewis-Williams proposes in the Quercy example does just that. It can be seen as a model upon which a much deeper and richer understanding of Palaeolithic Franco-Cantabrian prehistory can be based, achieved through a closer interdigitation of the art and artefactual records.

One of the most important implications of *The Mind in the Cave* is its underlying sub-text, and this concerns the ultimate definition of our discipline. As

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Lewis-Williams's book reminds us, archaeology is the study of the human past, broadly defined. Predominantly this involves analyses of material cultural remains. But much archaeological research equally requires analysis of historical linguistics, genetics, palaeoclimate, and so on, just as Lewis-Williams' study involves neuropsychology and a concern with cognition — a fact that belies the frequent contention that 'archaeology is the science of material culture'. Material cultural remains commonly constitute much of our empirical data, but to confuse our data (material artefacts) with our disciplinary topic of interest (the human past) is akin to claiming that epidemiology, to cite one parallel example, is the science of bacteria and germs.

As archaeologists, we study material culture because we are interested in understanding human society and culture, and (now that behaviourism is dead) these necessarily implicate the human brain-mind. While Lewis-Williams is certainly not the first to raise the issue, *The Mind in the Cave* is a major advance in our understanding of human cognitive prehistory, about which all archaeology ultimately revolves. As a case in point, the origin of human consciousness may seem, at first glance, the least likely of archaeological topics. *The Mind in the Cave* suggests that it may be the most appropriate.

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Symbolism, Meaning and the Neanderthal Mind

Paul Mellars

David Lewis-Williams has written a brilliant, creative and highly readable account of what is surely one of the most remarkable developments in prehistory — the emergence of the spectacular cave art of the European Upper Palaeolithic. I will leave it to other commentators to analyze some of the specific features of his interpretations of the character and meaning of the art itself. My own interests lie primarily in the wider cultural and evolutionary context in which the cave art appeared, and I will focus my comments mainly on these aspects of his book.

First, it is good to see his clarification of some of the slightly tedious semantic confusions which have surfaced in the recent literature over the notion of the 'Human Revolution' (e.g. McBrearty & Brooks 2000). As Lewis-Williams points out, those of us who have used this term have always made it clear that we were applying this specifically in a European context, to characterize the radical shift in behavioural patterns over the period of the conventional Middle to Upper Palaeolithic transition. But of course in this case one is comparing essentially a 'before and after scenario', evidently connected closely with the demographic replacement of Neanderthal by anatomically and genetically modern human populations (Mellars 1996). While there was no suggestion that this 'revolution' occurred directly *in situ* in Europe, the fine-grained archaeological records from Europe still provide by far the best archaeological data base for documenting the radical nature of these behavioural contrasts between characteristically 'archaic' (i.e. Neanderthal) and fully 'modern' populations — for which the origins must be sought outside Europe and most probably in Africa. If one adopts an explicitly evolutionary perspective then one would of course expect these innovations to occur in a much more gradual, piecemeal pattern in the archaeological records of Africa than in those of Europe — which is exactly what the archaeological evidence suggests (McBrearty & Brooks 2000; Deacon 2000; Mellars 2002). Whether one chooses to describe what happened in Africa as a 'revolution' depends entirely on semantics — i.e. whether one defines a revolution primarily in terms of its consequences, or by the speed with which it occurred (Bar-Yosef 1998).

Nor of course is there any suggestion that the full 'package' of Upper Palaeolithic behaviour (in a European sense) dispersed wholesale with the dispersal of anatomically modern populations from Africa — via Asia — to Europe. As Lewis-Williams points out, there are many aspects of the 'Upper Palaeolithic package' which are unique to Europe (e.g. many features of bone and antler technology, the early appearance of representational cave art, and the extraordinary human and animal figurines from central Europe) and others which are no doubt unique to Africa. Even so, the broad similarities should not be played down. The archaeological evidence from Africa still shows a much earlier appearance of explicitly 'symbolic' representation (best represented by the Blombos engravings: Henshilwood *et al.* 2002), typically Upper Palaeolithic end scraper

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and burin forms, extensively shaped bone artefacts and equally explicit 'imposed form' in stone tool manufacture than can be documented in the archaeological records of the European Upper Palaeolithic (McBrearty & Brooks 2000; Mellars 2002). To ignore these well-documented similarities between the later MSA archaeological evidence from Africa and the various expressions of early Upper Palaeolithic culture in Europe would be to take a strangely blinkered view of the archaeological evidence as a whole.

A second critically important feature of Lewis-Williams's book — probably the most valuable of all in my view — is his insistence on the inherent complexity of what have often been loosely grouped together under the headings of 'art' and 'ornamentation' (or 'visual symbolism' in an even broader characterization) — which as he points out can potentially reflect a wide variety of both cultural meanings and even underlying cognitive *capacities.* The whole of his study is based on the premise that the capacity to produce 'representational' images of elements in the natural world (such as animals or human figures) is fundamentally different from the capacity to decorate the body, or to wear personal ornamentation, and in his (more controversial) view reflects a hard-wired change in the capacity of the human brain to conceptualize these two- or three-dimensional images and transfer them to the walls of caves or the modelling of human or animal statuettes. In his view modern humans possessed these new neurological capacities (through the emergence of what he refers to as 'higher order consciousness') whereas earlier archaic populations — such as the European Neanderthals — did not.

The whole of this discussion of course has a critical bearing on the patterns of interaction between Neanderthal and anatomically modern populations in Europe, and in particular on how we interpret the demonstrable capacity of some late Neanderthal groups to reproduce some of the distinctive features of early Upper Palaeolithic technology such as shaped bone tools and (more significantly) grooved or perforated animal-tooth ornaments. Regardless of whether these elements were simply 'copied' from the new, modern human proto-types or (in my view much less likely) invented independently and spontaneously by the final Neanderthals themselves (Mellars 1999; 2000; d'Errico *et al.* 1998;), the crux of the issue is whether the capacity to produce and reproduce these objects implies that the artefacts carried exactly the same cultural meanings in the late Neanderthal and anatomically modern groups, together with precisely the same associated cognitive capacities. Lewis-Williams's answer to these questions is emphatically 'no', for the reasons he discusses at great lengths. As he points out, to assume that similar items of material culture in two different societies necessarily carried precisely the same meanings in cultural and cognitive terms would be not simply logically unfounded, but positively bad anthropology — as numerous anthropological and ethnographic studies of material culture have documented.

The question of exactly what significance the production of grooved and perforated animal-tooth pendants *did* have among some of the final Neanderthal groups in western Europe raises a range of intriguing issues. In the case of the extraordinary proliferation of personal ornaments associated with the earliest stages of the Aurignacian in Europe (in the form of perforated animal teeth, perforated sea shells, and a wide variety of carefully sculptured 'bead' forms of mammoth ivory, serpentine etc.) it is generally assumed that the wearing of ornaments was carrying some explicit *social* message, in terms of the precise social roles (such as age, gender, status or kinship relationships) of the individuals within the societies involved (White 1993; Mellars 1996; Gamble 1999). But to extrapolate this meaning automatically across the modern human/Neanderthal divide would be patently unwarranted, for all the reasons which Lewis-Williams so clearly points out. The alternative (as discussed in more detail elsewhere) is that the wearing of animal-tooth ornaments among the late Neanderthal groups could have been stimulated directly by contacts with the intrusive anatomically modern populations, and acted primarily as a new dimension of social or personal display within the context of the Neanderthal societies themselves (Mellars 1999). Expressed in Darwinian terms,

> in a contracting, competitive, late Neanderthal world, it may have been precisely the ability to copy the habits or appearance of the new, intrusive groups which conveyed increased personal or social prestige, or even improved mating success, within the local or regional groups. If this were the case, then this could have had a critical impact on the evolutionary survival strategies of the final Neanderthal groups (Mellars 1999, 350).

In any event, it should be recalled that the occurrence of these pendants is at present securely documented from at most two or three late Neanderthal sites in western and central France (most notably

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Arcy-sur-Cure and Quinçay), all of which are almost certainly contemporaneous with the presence of early Aurignacian communities either in France itself or in the immediately adjacent parts of northern Spain and southern Germany (Mellars 2000; White 2001; Conard & Bolus 2003).

However we view this situation, two things are clear: first, that some degree of exchange of material culture between the local Neanderthal and expanding anatomically modern populations is not merely plausible but entirely predictable in anthropological terms; and, second, that it would be entirely unfounded to assume that some degree of exchange or 'acculturation' of items such as personal ornamentation between the two populations carried with it exactly the same implications for the social structure and organization of the two groups, or identical patterns of cognition and mentality.

Whether the Neanderthals and other species of 'archaic' hominids did have radically different patterns of cognition and 'intelligence' (in the widest sense) from those of modern humans remains of course the 64,000-dollar question in modern human origins research, and it is here no doubt that Lewis-Williams's book will remain controversial. His discussion in general is somewhat dismissive of conventional approaches to the 'evolutionary psychology' of human development — with their attendant use of comparative primate studies, mental pathologies, and child developmental patterns etc. as potential models for specific aspects of human cognitive and neurological evolution. No doubt some of the other commentators will have strong views on these things. But at the end of the day his entire analysis of the origins of art depends on the prime assumption that pre-anatomically modern populations *lacked* something in their cognitive equipment which prevented them from either experiencing the kind of altered-state images experienced by fully modern humans, or at least remembering these experiences and the associated images after the trance-like states were over. He leaves no doubt that he regards this contrast as being hard-wired in the neurological structure of the brain (e.g. pp. 92–3) and therefore a direct product (presumably) of normal biological evolutionary processes (though again their are certain slightly barbed references to 'Darwinian' approaches to human behavioural development in general). What is lacking from Lewis-Williams's analysis is any discussion of exactly when and how this radical evolutionary transformation occurred (? involving one mutation or several) and exactly what adaptive and selective pressures may have lay behind it. A large part of the problem here lies in the belief that this fundamental neurological transition can only be described and understood in terms of 'orders of consciousness' — perhaps not the most sharply defined or clearly understood concept in neuropsychology, and in Lewis-Williams's view not to be confused with normal concepts of 'intelligence'. Nevertheless the fundamental assumption is that, however we choose to conceive the notion of 'higher order consciousness', this new cognitive capacity emerged as a direct product of the biological evolution from archaic to fully modern humans, and brought with it equally radical changes in both the complexity and structure of language, and the associated patterns of social organization and extended (i.e. long-distance) kinship relationships that we see so clearly in the archaeological records of the Upper Palaeolithic (Mellars 1996; Gamble 1999).

This is stimulating stuff, and will no doubt generate lively debate in the future literature — especially from those who believe that any suggestion of 'inferior' or even 'different' mental capacities in pre-modern human populations is in some way bordering on the politically incorrect (e.g. Zilhão 2001). The irrationality of the latter view of course is self evident: not only would it effectively deny the possibility of significant changes in mental capacities during the later stages of human evolution but it would equally ignore all of the accumulating evidence that the evolutionary trajectories of the European Neanderthals and the emerging African 'modern' populations are likely to have been separate over a period of at least 400–500,000 years — i.e. cumulatively almost a million years of potentially divergent evolution between the two lineages (Krings *et al*. 1999; Beerli & Edwards 2002). In my own view, the question of whether the European Neanderthals *did* have significantly different cognitive capacities from those of modern humans still remains an issue for further investigation, rather than an *a priori* premise to be assumed. But Lewis-Williams's penetrating analysis of the emergence and character of Upper Palaeolithic art is an important step in that direction.

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Reply

J. David Lewis-Williams

Busy and successful researchers seldom have time to review others' work. I am therefore grateful to those who have commented so thoughtfully on *The Mind in the Cave*, and so generously. Their remarks raise both specific and general issues.

Most of the specifics are of the Oliver Twist variety. Thomas Lawson would like to know more about the 'reception' of west European Upper Palaeolithic images. Knut Helskog would like more about the chronology of images, the significance of alfresco art, and colour symbolism. Paul Mellars, who provides an authoritative summary of the principal features of the Middle to Upper Palaeolithic Transition, wants more on 'exactly when and how this radical evolutionary transformation occurred'. He believes that Africa holds the answers. David Whitley, too, asks for more about what happened in the rest of the world. A point that I make in the book is that one does not have to explain everything in order to explain something. So my response to these requests is to take my place in the line behind the angelic young mendicant. I did not write about most of these issues because I do not know the answers.

An exception is perhaps the fascinating matter that Lawson raises. Why do ordinary people, he asks, who have never experienced an altered state of consciousness, believe what the seers tell them about spirits and other realms? 'What made these images compelling to those who had not undergone the highly extraordinary experiences of the "religious geniuses"?' He answers his own question by saying, 'As several cognitive scientists of religion have been able to demonstrate, it is rather natural for human beings to respond to representations of the "supernatural" . . . It does not take much to be responsive to ideas about gods, spirits, and other worlds.' I respond: What does 'rather natural' mean? What is the 'not . . . much' that belief in spirits takes?

I tried to answer this question in the book by pointing out that deeply altered and fully hallucinatory states of consciousness are only part of a continuum, or spectrum, of mental conditions. *Everyone* has experienced profound, enveloping reveries, hypnagogic hallucinations, and dreams. Moreover, many people have found bliss in the mental introversion of meditation and prayer. It is these conditions that provide 'ordinary' people with glimpses of 'other realms' and mental states and that predispose them to accept what the seers tell them, often in charged emotional circumstances. In any event, hallucinations are, in numerous societies, not 'highly extraordinary'; they are part of daily life and are frequently discussed.

The next point is crucial. Not everyone is gulled by the seers. In some societies, there are those who challenge the seers's revelations and (some of) the rules that they try to impose, but within the general framework of belief. These dissidents are able to assert their independence without wishing to overthrow the entire religious system. By contrast, other societies — post-Enlightenment, post-Darwin Western society is the prime example — offer an alternative cosmology that does not require any belief whatsoever in supernatural entities. We now know that the 'rather natural' human propensity to believe (to us) manifestly absurd beliefs about spirits is created by the electro-chemical functioning of the human brain, a functioning that is, given the right intellectual circumstances, not ineluctable.

Beliefs about spiritual things do, of course, take many forms. Helskog therefore wonders why I do not pay more attention to sympathetic magic (he discounts hunting magic), mythical narratives, and totemism. Let us take each in turn.

Strictly speaking, sympathetic magic is founded on 'sympathy' between an image and a real animal or person; what is done to the image will, it is believed, happen to the real creature. I believe that underground image-making was a more complex process. Less strictly, I agree with Helskog that subterranean interaction between people and spirits, such as a Lord of the Animals, may have been believed to lead to the release of animals to hunters (but *only* those species depicted, which, we know, do not proportionately reflect the image-makers's diet?). What we need to ask is: What was the conceptual framework for such beliefs and for, specifically, underground image-making? Here, I respond that a tiered cosmos is the answer. Transitions, both psychic and physical, between cosmological levels may sometimes have been related to hunting, though, overall, hunting magic (however it may be conceived) was not the principal motivation behind the making of images (Ucko & Rosenfeld 1967, 123–5).

Without any recorded myths it is hard to find something to say about Upper Palaeolithic mythology that goes beyond naive assertions about the importance of myth in all kinds of societies. In southern Africa, we are more fortunate: we have verbatim transcriptions of nineteenth-century /Xam San myths. I have analyzed two of these in detail (Lewis-

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Williams 1996; 1997a, reprinted in Lewis-Williams 2002, 73–94). This work led me to realize that San shamanistic myths are studded with metaphors of transition that also appear in their rock art, but the 'vocabulary' of the art is by no means the same as that of myth (Lewis-Williams & Pearce in press). Accordingly, I wrote in *The Mind in the Cave*: 'Rather, the metaphors and images that lay at the heart of Lascaux shamanism and that structured the people's thinking were expressed in different contexts — myth and art, and probably in dance and music as well' (pp. 265–6). Upper Palaeolithic images did not merely 'illustrate' myths. Subterranean image-making was an autonomous practice. Nevertheless, amongst their multifarious experiences, shamans sometimes visit the supernatural realm of myth and meet mythic personages, and therein lies a link (not the only one) between myth and shamanism — and a warning that we should not, as some researchers do, oppose 'shamanism' and 'mythology' as two incompatible categories of interpretations.

If 'myth' is difficult to define, 'totemism' is an even more slippery word, as Claude Lévi-Strauss long ago showed (1969). The possibility of some sort of totemism in the Upper Palaeolithic was suggested at the beginning of the twentieth century by Salomon Reinach. More recently, Robert Layton has addressed the issue. He sees totemism and shamanism as 'two opposed ways of appropriating motifs from the vocabulary of a cultural tradition' (Layton 2000, 179). He concludes: 'The distribution of animal motifs in Upper Palaeolithic caves . . . tends towards the shamanistic pattern . . . (a limited number of species favoured, but all found at a high proportion of sites)', though he expresses reservations. He continues: 'On balance, however, this tends to support Clottes and Lewis-Williams' interpretation of the [subterranean] animal art' (Layton 2000, 182–3; second parenthesis added). I cannot entirely agree with Layton's method, and I argue that there are far better reasons for supposing that Upper Palaeolithic cave art was essentially associated with shamanistic trans-cosmological travel rather than totemism (cf. Ucko & Rosenfeld 1967, 120–30). That is why *The Mind in the Cave* focuses on shamanism.

Helskog speaks of the subterranean level of that cosmos as a 'realm of death'. I do not experience the 'necrological reaction' that he 'personally had when visiting deep caves', but I of course accept that the dead were probably associated with the underworld. Most of what he says about the topographic features of the caves is indeed what I too argue. The caves led both physically and mentally into an underworld in which there were spirit animals and beings, possibly including some of the dead. Be that as it may, 'death' is a socially and historically situated construct; we cannot assume that Upper Palaeolithic people thought about death as modern Westerners do.

Moreover, Helskog questions whether spirit animals and beings were only *behind* the rock walls. That some images of animals appear to be emerging from behind the 'membrane' of the walls does not preclude their numinous, invisible presence everywhere in the chambers and passages that thread their way through the chthonic realms. We must not be too precise and dogmatic about such points; Upper Palaeolithic people themselves were probably more flexible in their beliefs — within certain parameters.

Just *how* we try to understand Upper Palaeolithic belief in an underworld visited by shamans is one of the general issues that all commentators raise. This point takes us to what I think is the heart of discussions about such elusive matters as Upper Palaeolithic image-making. Often one reads that a writer has not 'proved' his or her point. Proof is an inappropriate and meaningless concept in such discussions. I venture to suggest that nothing of interest in archaeology is ever 'proved', though arguments may be strong enough to warrant acceptance. That is why it is boring to present readers with supposedly descriptive but actually tendentious chapters of 'data', and then to 'analyze' or 'interpret' those data (within the framework that led to their selection in the first place). That is also why, in Helskog's phrase, I cast my discussion in the form of 'a careful chain of questions and arguments' — though I prefer the metaphor of a multi-strand cable — and presented relevant data along the way (Wylie 1989). Method (the form of argument employed to reach a conclusion) is perhaps the central issue demanding attention in Upper Palaeolithic image-making research.

One of the evidential strands on which I draw is ethnography, and Whitley shows how, in a spirit of co-operation, researchers can edge closer to an understanding of what was happening in the Upper Palaeolithic caves. He provides further examples of the sensations of piercing that are widely reported as part of shamanistic experience (pp. 270–84; Lewis-Williams 1997b). Here we have to walk a tightrope between homogenizing shamanism world wide and paying so much attention to differences between shamanisms that we cannot see the wood. That there should be differences comes as no surprise. What are surprising are the similarities between shamanisms that have no connections with one another.

These similarities, never absolutely identical but always culturally situated and understood, are, I argue, explained by the wiring of the human brain. That being so, we have a bridge to the Upper Palaeolithic, a point that Mellars realizes may provoke discussion, but which I see as virtually indisputable: what the Neanderthals borrowed and what they did not borrow from Aurignacians suggest a different form of consciousness and thus (perhaps subtly but none the less highly significant) a different wiring of the brain. The shamanisms that must have come and gone during the long Upper Palaeolithic period and their expressions are our field of study.

Continuing in a positive vein, Whitley points out that archaeology is more than 'the science of material culture'; we should also be after the cognitive past. He contends that we need to intertwine our research with evidence from 'dirt' archaeology to achieve this broader understanding. This is also what Mellars means when he points to the engraved ochre from Blombos, southern Africa, illustrated in *The Mind in the Cave*: 'The archaeological evidence from Africa still shows a much earlier appearance of explicitly "symbolic" representation . . . (Henshilwood *et al.* 2002)'. Similarly, Helskog states that 'Africa should become a centre for future research' into the origins of art and modern human behaviour. Africa holds the keys to understanding the evolution of modern human behaviour (McBrearty & Brooks 2000; Henshilwood & Marean in press).

As one of those who have worked for a long time in Africa, I, of course, concur. David Pearce and I argue that beliefs about material objects can be detected in the southern African archaeological record as long ago as 70,000 years (Lewis-Williams & Pearce in press; Pearce in prep.). These traces (over and above the controversial implications of ground and fragmented ochre) suggest the infiltration of 'spiritual' beliefs into material practices, such as hunting. Technology is socially and cognitively embedded. The material correlates (rather than merely expressions) of religious belief and symbolic thought can be found — if we know what to look for. Information will come not only from new excavations but also from re-assessments of material excavated in earlier decades.

I am not one to underestimate the practical difficulties of such a quest, but a partial insight is better than no insight at all. The course of true research never did run smooth. Mellars is therefore correct in predicting controversy, especially from those who seek to rehabilitate the Neanderthals. Was there a difference in mental capacity between them and *Homo sapiens*? If so, what was the nature of that difference? *The Mind in the Cave* emphasizes the importance of different kinds of consciousness (rather than simply degrees of intelligence) and shows that it is differences in consciousness that explain some of the principal features of the Middle to Upper Palaeolithic transition. In answering some — by no means all — of the questions about that period, I hope that the book will contribute to a diminution in, not an escalation of, controversy and that it will encourage a tighter research focus in some areas of enquiry.

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