

# Current Trends in Rock Art Theory \*

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## INTRODUCTION

**This paper explores the trends in northwestern European rock art theory since World War Two.** Many of the same issues and developments that occurred generally in archaeology have been present during this period, both in northwestern European and in international rock art studies. As Whitley and Loendorf (1994) have noted, archaeology during the last half of the nineteenth century responded to the positivist program by incorporating the geological principles of stratigraphy, uniformitarianism, Darwinian biological evolutionism, and cultural evolutionism. Philology was displaced and rock art research became marginal to a discipline increasingly focused on the techniques of stratigraphic excavation (Whitley and Loendorf 1994:xi-xii). The struggle over the place of stylistic analysis as opposed to physical approaches to dating rock art is at this moment a fiercely contested issue due to the temporarily halted, but threatened, flooding of the Coa Valley petroglyphs in Portugal, claimed to be stylistically of Upper Paleolithic age (Zilhao 1995; Dorn 1997). The body of ethnohistoric and archaeological evidence suggesting that rock art was made by shamen after vision experiences in many parts of the world has made David Lewis-Williams and Thomas Dowson's (1988) "neuropsychological" model of rock art a predominant one at this time. The model has been "transplanted" to a European context in both France, Britain and Ireland. David Lewis Williams and Jean Clottes (1996) have suggested its application to the Upper Paleolithic caves in France, and Thomas Dowson has physically moved from South Africa to the University of Southampton to teach rock art. In Ireland, innovations on this model by Timothy Dronfield (1994, 1996) suggest a statistical methodological approach is also possible. Richard Bradley (1989, 1993), has "transplanted" the North American concept of the sacred landscape (Molyneux 1983) to northwestern Europe and has generated a reemphasis and a renewed focus on the reconstruction of past environmental conditions and the physical landscape. Bradley, Valcarce and Boado (1994) have undertaken a pilot study in Galicia, north-west Spain, viewing rock art research as a type of landscape archaeology. An attempt at post-modern "text" based interpretation has been undertaken with regard to figurative rock art by Christopher Tilley (1991) with remarkably unconvincing results. In France, spectacular finds of new parietal art have demonstrated the importance of AMS dating for establishing chronology (Clottes 1996). Waller's (1993) research suggests that cave paintings may have been deliberately placed in locations acoustically best suited for drumming and the playing of music.

## **THE "STYLISTIC" PERIOD AND "EVOLUTIONARY" THINKING IN TWENTIETH CENTURY ROCK ART STUDIES.**

Whitley and Loendorf (1994) have argued that Mallery's (1886, 1893) nineteenth century approach to rock art was very influential in rock art studies during most of this century. Since a formal evolutionary approach was at odds with theoretical trends in archaeology as a whole in the twentieth century, this helped lead to the marginalization of rock art research (Whitley and Loendorf 1994:xii).

Julian Steward (1929,1937) adopted Mallery's formal and classificatory approach in his rock art studies in the far west. Steward shunned the use of ethnographic information for interpretation as "speculative" (Steward 1937:405). As indicated in chapter one, Steward would later reintroduce evolutionist thinking in archaeology in the 1950's and 1960's (Steward 1955).

Heizer and Baumhoff (1962) adopted the view that rock art followed an evolution from simplicity to complexity and introduced "hunting magic" as an explanation just as the French were rejecting it (Whitley and Loendorf 1994:xii). Later faunal analysis in France by Delporte (1984) indicated that the animals most represented in the Upper Paleolithic parietal art were not the animals used as food (e.g. ibex and horse). This certainly posed a problem for the persuasiveness of the hunting magic hypothesis.

The radiocarbon revolution and dendrochronology combined to marginalize rock art as an area of archaeology which fell out of the dateable record (Whitley and Loendorf 1994:xii). For most of the past fifty years rock art has been dated stylistically and that is still the primary means available in many areas of the world. For example Johnston (1993) has pointed out that in Ireland:

The broad date range for rock art in Britain and Ireland which is generally accepted is based on stylistic affinities between rock art and various motifs in other, dateable contexts such as megalithic tombs and cist burials. . . . Over 90 % of motifs are circular, either simple cupmarks or cupmarks surrounded by concentric rings. Less than 10 % of motifs are based on single, or in combinations of, straight lines. . . . Irish rock art is generally considered to be later Neolithic in date, though perhaps extending into the earlier Bronze Age. This places it somewhere between 2500 - 1500 b.c." (Johnston 1993: 144-145).

As Paul Bahn (1993) has noted, in 1940 after the Upper Paleolithic cave of Lascaux was discovered, the stylistic dating of the cave was done by the abbé Breuil and Denis Peyrony. When both reached the same conclusion that it was Perigordian, Breuil said to Peyrony "Tope là " (its a deal), they shook hands, and the cave was Perigordian for 20 years. This period in rock art studies is in many respects analogous to the culture-history period for archaeology in general. Stylistic studies using the precedent of ceramic analysis, lithic analysis, and seriation, described and

then dated rock art to different relative time periods based upon stylistic criteria. These stylistic chronologies were sometimes built on superficial characteristics and the assumptions and accuracy of some of that era's work have been called into question by "absolute dating" developments since then (Clottes 1996), and a reexamination of the assumption that style necessarily reflects chronology (Johnston 1993:143). Proponents of the neuropsychological theory have pointed out that ethnohistorical sources indicate that different styles are made contemporaneously to reflect the different experiences encountered during altered states of consciousness (Whitley 1994:87-8). For example, incised and en toto styles may both be used by contemporary rock artists. Whitley has urged caution regarding using a stylistic approach generally, and he has observed that studies of altered states of consciousness predict imagery that:

will change as an individual progresses through the three stages of trance. We should then expect a corpus of shamanistic art that may combine iconic and geometric motifs; incorporate polychromatic and monochromatic paintings, or fully pecked, outline-pecked, and fine line engravings; vary from simple to complex graphic imagery; exhibit considerable variation in graphic conventions (for example, solid outlining versus dotted borders); and include a relatively wide range of subject matter (for example, from "nonrepresentational" through zoomorphic and anthropomorphic themes). Instead of signaling different cultural-historical styles, that is, attributes such as these may be expected as the internal variation within a specific rock art style" (Whitley 1994:8889).

Whitley (1992:58-59) has advocated a realist, rationalist approach to scientific method for rock art studies instead of the mid-century logical positivist approach (Whitley and Loendorf 1994:xiii). In the 1980's and 1990's chronometric dating of rock art was developed, mostly in North America, by Ronald Dorn and David Whitley for petroglyphs (Dorn and Whitley 1983, 1984), and Chaffee, Hyman, and Rowe (1993) for pictographs.

In North America, the stylistic approach to rock art resulted in large areas being divided into stylistic regions (Grant 1983). Minnesota, for example, was placed at the center of three large rock art regions, the northern Woodlands, the Great Plains and the eastern Woodlands. The stylistic dating of petroglyphs and correlation with datable excavation artifacts (where carbon 14 dating is available) still stands as the only means available for chronological classification in Minnesota because the bedrock has been tested, at least at the Jeffers site, and is not amenable to the absolute dating techniques used elsewhere (Whitley 1996; Lothson 1976). Using the presence or absence of copper age tanged projectile points, lunate forms, and atlatls with finger loops and banner stones, is still the most reasonable dating method for this area.

The New Archaeology in the 1960's with its emphasis on technology and environment did embrace the view that ideas and society were part of cultural

processes but the study of processes over time and evolutionary process needed the control of chronology. Rock art was not able to provide exact dates and so a perception of the study of rock art as unscientific or unstudyable by scientific means seems to have been adopted by some (Whitley and Loendorf 1994: xii).

In Scotland and northern England where the symbolism of Neolithic and early bronze age rock art consists mostly of variations on the geometric themes of cup and rings and radial grooves, a primarily descriptive and almost culture- historical focus on recording, describing, and producing distribution maps was maintained (Morris 1977, 1979; Beckensall 1983). Morris was understandably concerned that there had been one hundred and fifty years of speculation about the meaning or function of this ambiguous rock art style and a plethora of suggestions had been made. No sustained theory or interpretation was attempted beyond the listing of over 100 possible explanations, weighted as to his own view of their plausibility. Little interpretation or explanation was undertaken and little ethnohistoric information was reviewed. Morris made an excellent effort to compare the relationship and distribution of the rock art to the environment and landscape as it would have existed during in Neolithic Britain.

The surprising recent discovery of "Cheddar Man," as well as a direct descendent who was still living in the same location some 8000 years later, indicates that the people and perhaps the ethnohistoric memories in Britain have not been totally obliterated by repeated invasions and migrations.

During the 1980's and early 1990's Ian Hodder (1992), as a postprocessualist, pointed out that although science might be appropriate in the analysis of the material side of "material culture," it was entirely inappropriate and ineffective for the analysis of the cultural side of "material culture" (Hodder 1992:8) Some processualists like Binford (1987) agreed that science was inappropriate to symbolic analysis, but then dismissed symbolic analysis.

A major advance in interpreting rock art, and in rock art theory and method, was made in the 1980's with the development of David Lewis-Williams and Thomas Dowson's (1988) interdisciplinary neuropsychological model. This is an ethnographically informed "middle range" theory. They proposed that the neuropsychological model, which had been developed in South Africa, could be applied to Upper Paleolithic European rock art. Unlike the discredited idea of "sympathetic hunting magic," which Lewis-Williams argued was based on anthropologists' "vague and misguided notions of 'primitive mentality' rather than reliable ethnography," the neuropsychological model was an explicitly anthropological model based upon ethnography, medical science, laboratory findings, and Homo sapiens shared neurology (Lewis-Williams 1982:430; 1988: 201-204). As a scientific model it made empirical predictions that could be tested against a rock art site, which gave a means of adjudicating between competing interpretations. Rationalist science and scientific methodology were thus applicable

to the study of archaeological cognition. The ethnographically informed interpretation of the San rock paintings as the product of shamen who later depicted their visions and hallucinations during altered states of consciousness (ASC) designed to obtain power, turned out to have unexpectedly broad and global application. Ethnographies from around the world, frequently neglected by archaeologists in the past, now could be seen to refer directly or through metaphorical references to the connection between shamen, vision quests, and rock art. The issues of epistemology, ontology, and metaphysics in archaeology that were the subjects of lengthy debates between processualists of the new archaeology like Binford (1987) and the post-processualists like Hodder (1986), and Shanks and Tilley (1987) were viewed as resolvable by Whitley (1992) if the post-processual criticisms of processual methodology were acknowledged as mostly correct, the need for scientific rigor and explanation sought by the New Archaeology was preserved, and a realist, rationalist approach was taken to analysis using scientific methodology to "achieve interpretive and symbolic explanations" (Whitley 1994:xv). Whitley viewed the neuropsychological and ethnohistoric approach to rock art studies of Lewis-Williams and Dowson (1988) to be at "the methodological forefront of archaeology in general" since it "has conjoined the opposing positions in this increasingly rebarbative debate" (Whitley 1994:xv). A cognitive archaeology which is to be scientific and hermeneutic "suggests that archaeology fundamentally is an interpretive endeavor, but one in which scientific method and heuristic play their part" (Whitley 1992:59).

Rock art is a physical remnant of prehistoric behavior related to subjective experiences and products of the human mind such as myths, institutions, beliefs, etc. (Whitley 1992:61-62) Positivism's emphasis on "immediately perceived" sense data was criticized by postpositivists or realists as too narrow since many material phenomena can only be indirectly observed, all sense data are theoretically informed, and science should not be defined as simply empirical or methodological since by necessity our senses incorporate presuppositions and generalities (ibid:64). Once it is acknowledged that humans fundamentally tend to perceive what they are looking for and frequently do not perceive what they are not educated to see, it becomes important to make presuppositions consciously explicit and subject to debate, or the unspoken and unexamined presuppositions become "embedded" into "the fabric of the field" e.g. the data (ibid.:65; Reed 1981:477). The positivist idea that one crucial falsifying or verifying test is possible has also been criticized as simplistic and therefore a method or means of validation based upon "inference to the best hypothesis" is needed since many ideas have evidence both confirming and disconfirming them (ibid.:65). If paradigm shifts occur when a new theory matches the empirical evidence better, implicit theoretical disputes may be masked by what appears to be an empirical and methodological debate.

A post-positivist philosophy of science does not "imply only a single approach to research" (ibid.:66). Rationalist cognitive archaeology has a goal and a set of principles for comparing rival theories and recognizes that ontological theories are

"true or false by virtue of how the world actually is, independent of ourselves," but that scientific truth is "only progressively approximating the real truth per se" (ibid.:66-67). The set of principles for comparing rival theories include observational nesting or preserving past observational success of prior theories while improving upon them, fertility or guidance for future development, track record or the record of accumulated success of the theory, inter-theory support, smoothness or accounting for observational anomalies, internal consistency, compatibility with well-grounded metaphysical beliefs, and simplicity (Newton-Smith 1981; Whitley 1992:67).

Rock art theorists like Whitley, Lewis-Williams, Dowson, Clottes, and Dronfield have been ahead of archaeology as a whole in using anthropological, testable, rock art theories that model the relationships between human neuropsychology to rock art sites using good "middle range" theory that is grounded in the post-positivist, realist, and rationalist philosophy of science. The renewed focus on ethnohistoric sources is also a part of this "theory based" form of anthropological archaeology, and so the post-modern crisis of confidence in social-cultural anthropology about the problem of doing ethnographic fieldwork is of some concern. Anthropologists have long recognized the problems of ethnography and the difficulties of obtaining accurate and understandable information about beliefs, values, and meanings directly from informants who may not be able to articulate meaning or beliefs, may use metaphoric language, may themselves misunderstand cultural symbols, may be disinclined to articulate them, or may intentionally mislead and make false statements (Whitley 1992:76). Geertz has even taken a position favoring observation of public events as a means of accessing cultural symbolic systems (Geertz 1973:17). Viewing ethnographic accounts critically and as a raw data set containing multiple sources can alleviate some of the concerns regarding the construction of truth that has caused the current crisis of confidence in post-modern ethnography. Ethnohistoric accounts exist in Scotland, northern England, Finland, Norway, France, etc. that address the meaning of cupmarks. Up to this point they have been largely ignored and have rarely been used even by the anthropological archaeologists.

## **STYLISTIC ANALYSIS VS. ABSOLUTE DATING**

The entry of desert varnish, carbon 14, Accelerated Mass Spectrometry (AMS), thermoluminescence, and chlorine 36 dating has been heralded (perhaps prematurely) as causing a "Post-stylistic" era in the study of rock art, with conferences and publications (e.g. Bahn 1993) that discuss the effect of absolute dating techniques on the primary place that stylistic analysis has had in the study of rock art. In stating his opinion that the Coa Valley petroglyphs, "discovered" in November 1994, were of recent age, Robert Bednarik (1995) even entitled his article in the journal *Antiquity*: "The C<sup>14</sup> petroglyphs: an obituary to the stylistic dating of Palaeolithic rock-art." The obituary may have been premature however because Joo Zilhó (1995) who wrote the opposing article entitled: "The stylistically

Palaeolithic petroglyphs of the C<sup>TM</sup>a valley (Portugal) are of Palaeolithic age: a refutation of their 'direct dating' to recent times" got the dam that would have flooded the paintings stopped, at least temporarily.

Several of the most important people in rock art studies have given opinions on whether or not the petroglyphs are from the Paleolithic period. Those indicating that they are stylistically Paleolithic in age include Bahn (1995); Clottes et al. (1995); Zilhó (1995); and Zŷchner (1995). On the other side of the argument are the radiocarbon results of Watchman (1995; 1996) and the microerosion arguments of Bednarik (1995a; 1995b; 1995c; 1995d) suggesting a more recent age. One might ask whether or not the dam should not be stopped anyway, even if they are of a more recent age, but the era the paintings were made seems to be a determinative factor in whether or not the dam will be built.

The accuracy of various dating methods has been a subject of heated and public controversy. For example, Ronald Dorn (1997), who pioneered desert varnish dating, has recently taken the position that microscopic carbon 14 dating of the Coa petroglyphs in Portugal is not reliable because the layer of silica that forms over the trapped carbon is permeable. He and Alan Watchman produced similar dates based upon carbon 14 based tests of small samples but Dorn has argued that the dates are not reliable because of this newly discovered fact. In his 1997 article he indicates the technique is not reliable because of, "evidence for the addition of younger carbon in an open system, and evidence of contamination from older sources of carbon." (Dorn 1997). Using another approach based upon a different technique Phillips et al. (1997) have concluded that the "panel faces in the C<sup>TM</sup>a valley, Portugal, were available for engraving during the Upper Palaeolithic, according to <sup>36</sup>Cl exposure ages of 16,000 to 136,000 years."

## **ROCK ART STYLE AND EVOLUTIONARY THEORY**

The early assumptions of a linear stylistic evolution in Paleolithic art was already being criticized by Garcia (1993) before the recent dateable finds at Chauvet of early advanced artistic techniques. Garcia pointed out that:

the stylistic method 'oblige' the figures being studied to be constrained by hypothetical, evolutive 'formal rules' whose credibility is the basis of the fundamental methodology. Any alteration, variation or undervaluation of these formal rules invalidates the method completely, as it destroys the framework supporting the whole deductive-chronological process of the relationship between style and date (Garcia 1993:37).

## **COSQUER, CHAUVET, AND THE USE OF AMS DATING TO COUNTER CLAIMS OF FRAUD BASED UPON STYLISTIC ANALYSIS.**

Several very significant Upper Paleolithic caves have been found in southern France during the past few years including, the now famous, Cosquer and Chauvet caves. AMS dating techniques have been used at both of these sites by Jean Clottes et al. (1995) with great effect to verify the age of the caves and refute persons who claimed the paintings were fakes on the "stylistic" ground that the artists were too sophisticated and therefore had to be modern. At Chauvet cave three AMS samples were taken from animal paintings and were dated to around 31,000 BP (Clottes et al. 1995). It was initially argued, for example, that no Upper Paleolithic artist could have done the paintings at Chauvet because they show an understanding of perspective. AMS dating of many paintings and the circumstances of the finds conclusively established their Upper Paleolithic age (Clottes et al. 1995). The AMS technique involved physicists removing about half a milligram of charcoal directly from the painting. Since 1990, twenty-five dates from paintings in five caves including Chauvet, Cosquer, Cougnac, Le Portel, and Niaux have been taken and several caves dated to other time periods by other methods have been corrected. The French are also refocusing their studies from the paintings to the context of the cave and environmental questions which have often been overlooked in the past (Clottes 1996:184-185). Examination of the paintings by ethologists, or animal specialists, have given new insights into the degree of familiarity Upper Paleolithic people had with the animals they lived with e.g. conceptually these are not broadly generic bison but show, for example, "the aggressive male bison, the young bison playing, the dead adult," etc. (Clottes 1996:188). For Clottes: "Shamanism provides a framework which makes more sense of this art (Lewis-Williams & Dowson 1988) than any of the previous explanatory theories" (Id.).

In 1996, Jean Clottes and David Lewis-Williams wrote a short piece explaining their collaboration and explicitly stated the elements of their theoretical approach in interpreting some of the Upper Paleolithic caves in France.

We accept that ethnographic analogy is unavoidable. Refusal to use any ethnographic analogy merely forces researchers to fall back on unacknowledged Western notions of art and artists. But we certainly do not suggest that any single analogy will illuminate 20,000 years of the making and meaning of Upper Palaeolithic art. Instead, we are developing multiple analogies that will build on the San analogy and piece together a complex hypothesis to account for the diversity and historical progression of Upper Paleolithic art. New interpretations deriving from this work are being judged by their internal consistency, the quantity and diversity of data they explain and their heuristic potential. Above all, our interpretations are linked to the Upper Palaeolithic by human universals and what philosophers call strong relations of relevance (Wylie 1988) (Clottes & Lewis-Williams 1996:138).

Clottes and Lewis-Williams are looking for images that are broadly shamanic and are trying to separate those from images "that may be better explained by some other hypotheses" (Id.). They are also "studying the different uses to which parts of

the caves may have been put" (Id.) In their view, a moratorium on interpretation of the Upper Paleolithic caves occurred after structuralist approaches collapsed following the death of Leroi-Gourhan in 1986. As they put it: "Researchers had already begun to doubt the philosophical foundations of his work and also its empirical content. Understandably enough, a new wave of research emphasized a need to return to the data, and interpretation took a back seat" (Clottes & Lewis-Williams 1996:137). Clottes and Lewis-Williams are now attempting to renew interpretation of the cave art.

The history of interpretation of the Upper Paleolithic caves has undergone many transformations during this century. Before cave art was accepted as authentic, near the turn of the century, portable art objects in the 1860's et seq. were considered leisure time aesthetic "art" objects (Jolly and White 1995:389). Solomon Reinach (1903) drew ethnographic analogies to living groups and beliefs such as Australian "totemism," and hunting magic. Reinach's idea was taken up by Abbé Henri Breuil (1952) who viewed the caves as settings for rituals about increase, hunting, and adolescent initiation. Leroi Gourhan attempted to eliminate all ethnographic analogy and instead turned to "internal analysis," and the model of a binary, symbolic mythogram, and sexual structuralism. Ucko and Rosenfeld (1967) maintained that monocausal explanations were probably too simplistic and that the images may have had multiple meanings and a complex significance. Delporte (1984) pointed out that, if the art was for the purpose of hunting magic, it was surprising that the species painted bear so little relationship to the animals shown by faunal analysis to be the one's eaten. Following Leroi Gourhan's death in 1986 there was a kind of cessation of interpretation and a new focus on reexamining empirical data without interpretation (Clottes & Lewis-Williams 1996:137). Alexander Marshack (1972) contended that some portable objects incised with notational dots and markings were records to keep track of lunar time. His assumptions have been criticized by several researchers (White 1982; D'Errico 1989; O'Farrell and White, 1994). Pfeiffer (1983) suggested that the cave experience, with its three dimensional paintings, sensory deprivation, fearful setting, flickering lights that made the paintings appear to move (and the animals appear to breathe), all caused the visitor to have a heightened sensory experience. Lewis Williams and Dowson (1988) suggested that entoptic imagery existed in these cave sites which suggested that they may have been made by shamen recording their vision experiences. Others have tested those pigments that were chewed and then spit onto the wall to make negative hand prints and observed that the substances used could cause neurological damage. Waller (1996) has reported research results suggesting that the location in the caves where the paintings are located are also the locations where the caves are most musically resonant. Bird flutes have been found at the base in the dirt suggesting the possibility that this was the first "chamber music." It would not be surprising if the current collaboration between Clottes and Lewis-Williams (1996) yielded another interesting theoretical model. They have written that: "Researchers are realizing that empirical work without some explicit guiding theory or hypothesis is problematic" (Clottes &

Lewis-Williams 1996:137). Clottes has recently traced the history of theoretical models and current trends in methodology with regard to the French caves during the twentieth century (Clottes 1996). In addition to the paintings the soft cave materials have become an object of study because they preserve footprints (and the speed of walking or running), hand prints, remains from "fires, torches, bones discarded after meals, [and] lost tools." (Clottes 1996:187) Also "various deposits of objects on the ground or in cracks of the walls, such as teeth of bear or other animals, . . . shells, flints or antlers, may sometimes testify to ritual practices" (Id.).

This trend towards looking more closely at the soft preserved materials inside caves has resulted in new terminology. Faulkner and Simek (1996) reported on a series of caves in east Tennessee that were discovered with rock art from the Mississippian culture that are now called "mudglyphs." These are images drawn with fingers on mud, clay and other soft material. The imagery was recognizable from other sources and demonstrated the possibility of finding "art" in materials, softer than rock, that are well preserved deep in caves. Their cave was also referred to as "1st Unnamed Cave" because there is nothing blocking the entrance or protecting the site yet. Locating information was therefore deleted or generalized and seems to be a current trend.

## **JEREMY DRONFIELD AND THE ROCK ART OF IRISH PASSAGE GRAVES**

Jeremy Dronfield who is working in Ireland with the neuropsychological model has added a statistical component to the theory using associational and distributional indexes of characteristics such as the position of circles and entoptic related phenomena found in the rock art (Dronfield 1993; 1996). Dronfield has explicitly turned to the "vortex or tunnel experience" commonly encountered in altered states of consciousness and described in near death accounts to explain the appearance of circles found in association with the dead in Irish passage tombs (Dronfield 1996). Neurological research suggests the spiral or vortex phenomenon occurs in human beings with spontaneous firing of specific neurons in the V5 or medial superior temporal area of the visual cortex (Dronfield 1996:40). The tunnel experience is also obviously a physically real experience for those charged with bringing the dead down the narrow tunnels to the back of the passage tomb—a physically tangible underground realm of the dead that was still accessible through a tunnel allowing access and reemergence from a real underworld of one's ancestors. The passage tombs may be an attempt to physically reconstruct a mental journey or experience. Based upon the distribution of the concentrics, Dronfield concluded that the concentrics inside the Irish passage tombs were not simply representations of past passages but "signified the locations of points of access to other worlds" (i.e. for the living and the dead)(ibid.:54). In Dronfield's view this would make the tombs more than just bone repositories or places for "ritually enacted communication with the dead. They were places where, through myth, ritual and manipulation of the central nervous system, people were able to travel between dimensions, interact with ancestors and other spiritual beings and witness firsthand the making of their contextually constructed worlds" (Id.). Richard (1992) working in Orkney,

Scotland has suggested that the passage down the passage tomb structure symbolized the journey towards the otherworld and the back stone was the portal which could only be passed through after death. Having personally crawled through several of these tunnels, I would have to say that it is an experience not easily forgotten and it seems reasonable that these tombs phenomenologically invoked feelings and perceptions which are reconstructable today. A more phenomenological approach focused on envisioning the landscape as it would have been during the Neolithic has also been suggested by Richard Bradley working at rock art sites in north-west Spain, and the British Isles (1989, 1994). The concept of a sacred landscape is an old conception of the landscape in North American rock art studies (Dewdney 1975, Molineaux 1983).

Christopher Tilley (1991) has attempted a post-modern textual reading of the rock art at Namsfossen with rather unpersuasive results. Some of the anthropomorphs he interpreted look to me like they match well known postures in metal art that have known myths and stories attached to them that Tilley was apparently unaware of. As Lewis-Williams has pointed out, the literary text metaphor also should not be taken too far, and may even be misleading just as the similar secular metaphor of reading an archaeological "record" may be misleading. Literary texts can have more than one reading and records often do not, but even literary texts do not have an infinite number of readings. As the South African ethnographies reveal, the relationship of rock art is not just to other rock art beside it (as in a "textual" grammatical sentence) but has a three dimensional relationship to the rock. The San rock artist sometimes indicated that they were commemorating a journey into the rock itself. This three dimensionality is not particularly encompassed in the metaphor of text (Lewis-Williams 1995:3-4). Lewis-Williams eschewed the relativist textual metaphor and instead turned to Bernstein (1983) and Wylie's (1989) metaphor of reinforcing strands of evidence as opposed to the positivist chain of evidence. San rock art, ethnography, and medical research on neurologically generated mental imagery make up the three strands of his argument which both reinforce and constrain the explanation that can be given of a painting.

Like Lewis-Williams, Colin Renfrew (1993:249) has also been "deeply sceptical of the claims by some non-processual archaeologists to reach the meaning, in a specific context, of individual symbols" and the interpretive or hermeneutic approach "sometimes offers supposed insights which cannot readily be distinguished from entirely imaginative and unbridled exercises."

It is not clear what methodology Renfrew supports, although he has suggested a listing of traits that are indicators of ritual and religion at archaeological sites (1993).

Cognitive archaeology is also a concern of those working with hominid evolution and the reasons for the Upper Paleolithic "symbolic explosion" of art, song, dance, and ritual. Chris Knight, Camilla Power and Ian Watts (1996) have used neo-

Darwinian theory to approach questions of when our hominid ancestors became symbolic. They postulate that every human has internalized a copy of a communal map learned "through exposure to ritual, art, and other external stores" and that archaic Homo sapiens females found cosmetic menstrual signaling to be of value "to attract and retain male support" (Knight et al. 1996:81). Females used a "sex strike" against those males not returning home with meat. In their neo-Darwinist view the significance of red in rock art and the use of ochre as the species evolved was then related to blood, hunting, and menstruation as a signal of upcoming female fertility.

## **JINMIUM, AUSTRALIA AND THERMOLUMINESCENCE DATING OF ROCK ART**

In the December 1996 issue of *Antiquity*, Fullagar, Price and Head published the results of their thermoluminescence (TL) dating on cupmarks and other artifacts at the base of a sandstone rock shelter at the Jinmium site in northern Australia. The lowest pecked mark was found 97 cm below the ground surface on a piece of sandstone that had spalled off and was buried. Other artifacts and human occupation in the area were dated to at least 116,000 BP +/- 12,000 years. The rock engraving or cupmarks were dated to earlier than 58,000 years. Besides rewriting the dates for the earliest occupants of Australia, this research showed the possibilities of obtaining early dates at the base of rock shelters (or boulders) and the applicability of TL dating to sites where C14 dating would not be able to go back far enough in time because of the length of its half-life. TL dates are still controversial and are considered somewhat experimental by some archaeologists. Christopher Chippendale, the editor of *Antiquity*, who had taken some criticism for publishing the Jinmium, Australia findings, wrote extensively in his December 1996 *Antiquity* editorial how the long, medium, and short chronologies for Australia had all been published in *Antiquity* and he was doing his job in publishing the report from Fullagar, Price, and Head. Fullagar, Furby, and Hardy (1996) reported that after the SAA meeting in New Orleans there was a growing consensus with regard to the possibility of obtaining useful information from residues on stone artifacts such as identifying blood, plant material, DNA residues and identification of the species that made up the residue. This would have obvious implications for rock art sites with stone artifacts, paint and pigments, brushes, etc. and in the future should increase the number of techniques available for dating rock art sites.

## **CONCLUSION**

The current dominant trends in rock art theory in northwestern Europe suggest continuing development and refinement of a multi-strand evidentiary approach with a realist rationalist underlying philosophy of science that is dubious of extreme post-modernist relativism or the literary metaphor of reading rock art simply as a "text." Improvements in the use of ethnography, statistics, and the

incorporation of research from other fields, such as research in medicine and ethology, suggest a theoretical approach that promotes testable hypotheses and a middle range theory grounded in anthropology. On a theoretical level, this approach respects and incorporates both the universal neurological and biological elements that humans share as the last of the hominid species, and the "culturally specific perceptions of those elements, as mediated by individuals in specific historical and political circumstances" (Lewis-Williams 1996:19). This theoretical approach is not pessimistic about recovering broad meanings in rock art, and is optimistic about being able to discriminate against interpretations that are outside the restraining influence of the evidentiary strands that produce the testable predictions. With Dronfield's refinement to the Lewis-Williams and Dowson "middle range" methodology, motifs and symbols can be described statistically. Further refinements to this dominant theoretical model can be expected as it is applied and tested against more rock art sites in northwestern Europe.

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