UNIVERSITY OF SOUTHAMPTON

How To Do Things With Petroglyphs: The Rock Art of Nevada

Alanah J. Woody

Submitted for the degree of Doctor of Philosophy

Department of Archaeology

June 2000

UNIVERSITY OF SOUTHAMPTON

Abstract

FACULTY OF ARTS

DEPARTMENT OF ARCHAEOLOGY

Doctor of Philosophy

HOW TO DO THINGS WITH PETROGLYPHS: THE ROCK ART OF NEVADA

by Alanah Jean Woody

The focus of this thesis is the rock art of Nevada, a state in the western United States. While the previously dominant models of rock art interpretation (hunting-magic and shamanism) have produced significant bodies of research, I argue that both are based on faulty Anthropological theory and produce theorisations which are one dimensional because of the focus on rock art imagery at the expense of site contexts. Because meaning is not derived from the images themselves, but is rather derived from the social contexts of use and production, it is these which must be reconstructed and which will elucidate the imagery. Therefore, it is necessary to examine the details of rock art site contexts, rather than simply select a model and apply it to the site regardless of fit. In short, rock art must be approached as archaeology, albeit informed by ethnography when possible. In this thesis I examine in detail the official rock art site records for the state of Nevada and identify patterns in the contexts and distributions and examine variation and similarities throughout the state. Based on these, I suggest alternative analyses of Nevada's rock art and discuss the role that it may have played in the colonization of the Americas; the symbolic construction of social and ethnic identities; the identification of ritual spaces in pre-history; and the significance of rock art to modern Native Americans.

Table of Contents

List of Figures

List of Tables

List of Maps

ACKNOWLEDGMENTS

The completion of this thesis would not have been possible without the support of several people. Firstly, and most importantly, thanks go to my parents for their unfailing support and faith in my ability to finish school and get a real job—in spite of years to the contrary. Thanks also go to my sweet son, Chris, for putting up with my absences and distraction with good humour and patience. He has also been the scale in countless photographs and my helper at many sites. Secondly, special thanks go to Mr Alvin R. McLane, who has undoubtedly visited more rock art sites in Nevada than any other single person. He has always been willing to go into the field and to share his own research. He is a great resource and a good friend. And to Ms Linda Blair (Harry Reid Centre) for access to the archives and especially to Ms Margaret Brown (Nevada State Museum Records Manager) for providing not only access to archival materials, but also her wit and encouragement.

I also owe a great debt of gratitude to my Advisor, Professor Clive Gamble, for stepping in at the eleventh hour with objective criticism and solid advise. Dr Julian Thomas offered helpful advise, and Dr Pat Barker (Nevada State Archaeologist, Bureau of Land Management) provided all the necessary maps for this study. Thanks are also due to Bob and Barbara Quinlan for giving me a quiet place to do the analysis for the thesis, their generosity and hospitality are greatly appreciated.

In addition, Dr Paul Bahn and William Hyder have read bits and pieces of the thesis and made valuable suggestions and I would like to take this opportunity to thank them. Special acknowledgement goes to Dr Christopher Chippendale and Dr Margaret Conkey, whose friendship and guidance through the last several years has been especially helpful and greatly appreciated. I also want to thank my examiners Dr John Robb and Prof Robert Layton for their suggestions and advise. Thanks also to Anne McConnell, the nit-pickiest proof reader I've ever known. And finally, special thanks to my dear friend, Dr Angus Quinlan for the last several years of pestering and proofreading–my own ideas have been clarified and developed through our spirited debate.

Part I: FRAMEWORKS FOR UNDERSTANDING ROCK ART

Chapter 1: Contextualism and Rock Art

Rock art is a truly global expression of past human behaviour. It is found on every continent (except Antarctica) and in every environment from barren desert to rainforest. The cave art of Upper Palaeolithic Europe has since its discovery occupied an important place in archaeological debates, especially those concerning the origins of fully modern human behaviour (Jones, Martin and Pilbeam 1992:249, 261-264, 329). However, rock art studies more generally have, until recently, occupied a somewhat more peripheral position in archaeology, in the United States and elsewhere (Clewlow 1981:79; Schaafsma 1985:267-268; Whitley and Dorn 1987:150; Whitley and Loendorf 1994:xii; Ouzman and Wadley 1997:386). This is unfortunate since graphic representation or 'art' is the "material site of one's thought about one's knowledge of the world" (Davis 1984:28, cited in Schaafsma 1992:3). As such, rock art potentially provides an important means of confronting aspects of the past less accessible through other archaeological resources (Schaafsma 1986:215).

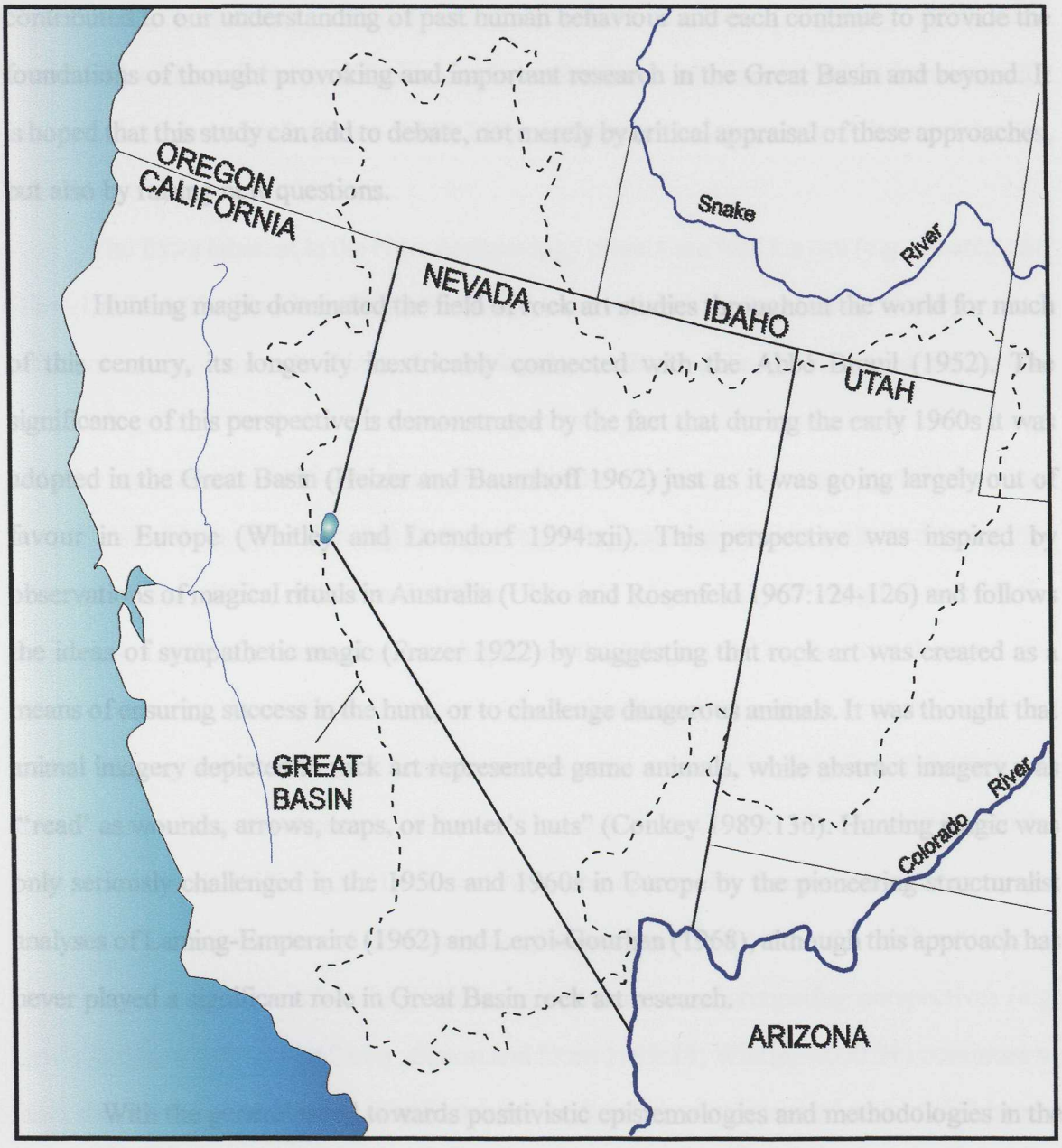
One of the major reasons that previous rock art research has been peripheralized may be because it has often been studied in isolation, with rock art motifs extracted from their cultural and environmental contexts. Yet one of the most important features of non-portable rock art is that it is an "artifact *in situ*" (Ricks 1996:1). This makes rock art unusual in the prehistoric archaeology of the western United States, in that we know without question it has remained where it was created (except for engraved or painted portable stones [Schuster 1968; Santini 1974; Klimowitz 1988]). The distribution of portable artifacts, which make up the majority of the archaeological record, is on the other hand, often the product of mechanical processes, not always related to purposeful action or intentional deposition. Unlike these portable artifacts rock art is a part of the landscape (Bradley 1997:4), in some ways more like a hearth or other archaeological feature. Because of this, the environments and archaeological contexts in which rock art is located can address specific kinds of archaeological questions.

Chapter 1: Contextualism and Rock Art

Currently rock art research is enjoying considerable popularity among the general public, with even mainstream archaeologists admitting something more than just intellectual curiosity regarding the subject (e.g., Frison 1994:105-107). However, rock art studies seemingly still lacks the "maturity to allow diversity, controversy and uncertainty" (Hodder 1992:x) which is important for the intellectual development of any discipline. This is an historical problem in archaeology in general and the 'hard' sciences in particular (e.g., see Kuhn 1962; Feyerabend 1975) where only a single explanation, a single methodology, or a single paradigm dominates the field at any given time. This preference for monolithic methodological and explanatory frameworks is justified by the belief, erroneous according to Feyerabend (1975), that during these periods of theoretical consensus significant progress is made.

One excellent example from New World archaeology is the 'Clovis first' paradigm which has dominated American archaeological thinking for several decades. This model argues that humans have only occupied the Americas since the very end of the last Ice Age, and had replaced an earlier, equally dominant, model which suggested that Native Americans were much more recent arrivals (Meltzer 1991:13-49). The discovery of a projectile point embedded in the ribs of an extinct Pleistocene animal demonstrated that humans had arrived in the New World much earlier than previously thought. Only recently, in South America, have the most influential figures in the archaeology of the peopling of the Americas (Meltzer *et al.* 1997) accepted evidence of an even earlier time of arrival.[1] These are exciting times for New World archaeology and I will argue that rock art has an important role to play in the development of ideas about colonization and population movements in the distant past, as well as the identification of past ethnic groups and the construction of Native American tradition.

[1] This controversy actually continues with some of these same researchers now casting doubt on the reliability of some of the evidence reviewed (Fiedel 1999).



Map 1: *Western United States with the Great Basin indicated by dotted line.*

This thesis is primarily concerned with the rock art of Nevada, the heart of the Great Basin in the western United States (Map 1). In an attempt to understand the rock art of Nevada the primary research paradigms (hunting magic and shamanism) which have impacted Great Basin rock art research are discussed (Chapter 4). These competing models have each

contributed to our understanding of past human behaviour and each continue to provide the foundations of thought provoking and important research in the Great Basin and beyond. It is hoped that this study can add to debate, not merely by critical appraisal of these approaches, but also by raising new questions.

Hunting magic dominated the field of rock art studies throughout the world for much of this century, its longevity inextricably connected with the Abbé Breuil (1952). The significance of this perspective is demonstrated by the fact that during the early 1960s it was adopted in the Great Basin (Heizer and Baumhoff 1962) just as it was going largely out of favour in Europe (Whitley and Loendorf 1994:xii). This perspective was inspired by observations of magical rituals in Australia (Ucko and Rosenfeld 1967:124-126) and follows the ideas of sympathetic magic (Frazer 1922) by suggesting that rock art was created as a means of ensuring success in the hunt, or to challenge dangerous animals. It was thought that animal imagery depicted in rock art represented game animals, while abstract imagery was "'read' as wounds, arrows, traps, or hunter's huts" (Conkey 1989:136). Hunting magic was only seriously challenged in the 1950s and 1960s in Europe by the pioneering structuralist analyses of Laming-Emperaire (1962) and Leroi-Gourhan (1968), although this approach has never played a significant role in Great Basin rock art research.

With the general trend towards positivistic epistemologies and methodologies in the social sciences in the 1950s and 1960s, archaeological research became focussed on an empirical, quantifiable approach, a trend which had begun much earlier (Molyneaux 1977). American processual archaeologists, while acknowledging an interest in 'ideo-technic' behaviours and artifacts (Binford 1962), were, by and large, convinced that the explicitly scientific goals of archaeology were not best served by dealing with such immaterial artifacts as rock art, which were at best problematic. Archaeology "with a capital 'S'" (Flannery 1973) became the goal, one that has since been described as 'physics envy' (Sapolsky 1997:47).

Consequently archaeology repeated the mistakes of the New Geography which had, "attach[ed] such merit to quantification as to confuse ends with means, industriousness with intellectual achievement" (Sauer 1938:381), in its search for universal laws of human behaviour.

The flaws inherent in the New Archaeology project are well known (e.g., Shanks and Tilley 1987:31-37; Hodder 1992:19-32) and need not be discussed here. However, it is sufficient to note that the New Archaeology's emphasis on objectivity and positivistic methodology led to rock art research being generally pushed to the margins of archaeology (Whitley and Loendorf 1994:xi) since its constituent elements (signs and symbols) are not easily classifiable or quantifiable. Although archaeological research into rock art did continue throughout the 1960s, 1970s and 1980s, the field played only a marginal role in the development and refinement of archaeological methodologies and explanatory theory.

The revival in archaeological interest in rock art may be largely ascribed to the development of the shamanistic model (Vastokas and Vastokas 1973; Hedges 1976, 1983a, 1985, 1987; Lewis-Williams and Dowson 1988). This approach's focus on vision imagery and the individual experience of shamanistic episodes seemingly accords well with post-processualist trends in archaeology. However, intolerance of competing perspectives (e.g. Lewis-Williams 1999:89; Whitley, Simon and Dorn 1999:13; Whitley 2000:31) continues to mask the diversity of rock art and stifle debate. A pluralistic environment is essential if the real diversity of rock art functions and symbolic meanings is ever to be appreciated (Ucko and Rosenfeld 1967). As Gibson (1986:2) has noted, a "frozen view is impoverished . . . we need to see all the way around . . . and take different points of observation."

A major problem with many interpretive approaches in current prehistoric rock art research, is their heavy reliance on historic ethnography and their focus on the imagery itself at the expense of context (Molyneaux 1977:45; Kinahan 1999:337). Ethnographic analogy is of course an important source of ideas, and in some cases is critical for understanding the rock

art of a region, especially the generally pivotal period of colonial contact. I discuss the significance of historic rock art in Nevada in Chapter 8 and specific ethnographic information combined with general anthropological theory may provide access to Native responses to colonization. The use of ethnography, however, as the sole 'informed' source of interpretation (Taçon and Chippindale 1998:6-8), especially for very old rock art, simply imposes the ethnographic present on assemblages potentially made and used over very long periods of time. This implies a lack of cultural dynamism, and a stagnant view of prehistoric peoples is created (Monteleone 1998:28), where dynamic human beings are "reduced to an assumed sameness" (Hodder 1992:149). This is especially problematic in a region such as the Great Basin where many rock art sites represent palimpsests created over quite probably many thousands of years, and where the relationship between the makers of rock art and the subjects of ethnography is unclear (see Madsen and Rhode 1994; Rhode and Madsen 1994, for a discussion of the difficulties of identifying prehistoric populations in the Great Basin). Even more lamentable in the Great Basin is that the implication of seamless cultural continuity also denies the level of cultural loss endured by Native peoples at the hands of colonial powers.

The general problems with ethnographic analogy are well known, and both Wylie (1985, 1989) and Lewis-Williams (1991) have discussed ways of strengthening analogy. But it is important to recognize that, like other cultural practices, the reasons that rock art was produced and the meanings and exegeses attached to it, have changed through time. The social and environmental context of rock art must be recovered and reconstructed, not assumed on the basis of historic ethnography. By approaching rock art as archaeology, rather than ethnography, I believe that rock art can inform specific questions in the distant past and replace timelessness with an understanding of dynamic historical processes. This is not to imply that historic ethnography and contemporary indigenous accounts are without value or have no place in rock art studies (Quinlan and Woody 2000a). However, the current enthusiasm for putative indigenous understandings, though well intentioned, neglects that human populations

past and present incorporate a variety of indices of the past (including archaeological resources) into their own cultural heritage. This is an important issue in its own right and one worthy of further study rather than using it merely to validate a particular academic theory.

In Chapter 4, I discuss more fully the currently dominant theoretical approaches in rock art research and their weaknesses, both generally and with reference to the rock art of Nevada. This follows a discussion of the significance of the anthropology of symbolism for informing rock art where I argue that to focus on imagery alone at the expense of context, leads to an analytical dead end, while situated rock art research opens new avenues of inquiry and allows more richly textured interpretations (Chapter 2). Rock art is also examined as a means by which signs and/or symbols engender social communication in relation to the landscape. This idea is not new, with the work of Martin Wobst (1977) generally acknowledged as the starting point (Bradley 1997:12). His basic premise that "stylistic behaviour may be viewed as a strategy of information exchange" (Wobst 1977: 317) has stimulated a great deal of research in the twenty years since its publication, including the work of some of the best known researchers in prehistoric art and early human behaviour (e.g. Margaret Conkey, Clive Gamble, Polly Weissner).

In Chapter 3, I explore the ways in which the landscape plays a role in the lives of Native peoples and how the creation of 'places' in the landscape provides a legitimating ritual context within which negotiation of social relations and the construction of social identities might occur. Rock art examined in context can inform archaeological questions, such as issues raised by 'socializing' the landscape with rock art. Many peoples (although not all) share a feeling of attachment to their land and the mechanisms by which they develop a sense of belonging to the landscapes in which they and their ancestors dwell may be the same everywhere (Taçon and Faulstich 1993:83). The connection that indigenous peoples feel to the landscape is sometimes difficult for non-indigenous people to understand, where "the people

are 'owned' by the country" (Rappaport 1977:43).

It is widely accepted that many cultures that attribute causality to the supernatural also believe that the land is filled with power and participates actively in their lives. In this thesis the concept of landscape will be treated as a structuring agent in the lives of people. It will also be used to approach questions concerning both the diversity and homogeneity that is found in the rock art of Nevada. In doing this I will attempt to recreate a landscape that the original inhabitants may have been more likely to recognize (Thomas1993a:25).

It should also be kept in mind that prehistoric peoples were as well aware as we are of the long-lasting properties of stone and knew that the marks they made would be more or less permanent. This begs the question of why mobile people would wish to create permanent marks on the land (while recognizing that a considerable amount of rock art in the southern and eastern margins of Nevada was the product of farmers). Taçon has argued quite persuasively that not only did the prehistoric creators of rock art intend it to be permanent, but that this clearly implies that they were connecting themselves not just to the past but, perhaps more importantly, to the future. They were in effect "'creating' the landscape for subsequent human use" (Taçon 1994:118). I will argue that rock art might be seen as a way of defining identities and social relations through the landscape. Rock art may have worked in constructing and maintaining tradition and history through habitual action and witnessed performance, legitimizing the present through shared memory (Giddens 1979; Connerton 1989) in much the same way as other constructed and socialized landscapes.

A number of the archaeological landscape studies carried out in the United States, and elsewhere, have made the constructed environment the focus of analysis. This may be simply due to the difficulty of understanding the meaning of the natural environment for indigenous people, or the (hoped for) possibility of a more *emic* interpretation that leads western archaeologists to study such things as formal gardens (e.g., Leone 1984). Fewer studies deal with the non-constructed aspects of the cultural landscape, but rock art does share many of the

characteristics of other, more conspicuous manipulations of the environment. Landscape and rock art have recently been the focus of a fair amount of research, especially in Australia (e.g. Smith 1992, 1999); South Africa (e.g. Vinnicombe 1986; Deacon 1988), and Europe (e.g. Tilley 1991; Bradley 1997). In the western United States landscape and rock art have also been examined on a smaller scale, site-specific basis (e.g. Lee and Hyder 1993) and within larger regions (e.g. Hamann and Hedges 1987; Sundstrom 1990; Hartley 1992 and Hartley and Vawser 1998).

In Chapter 5 the rock art of Nevada is introduced first by a review of its landscapes and an ethnographic review of its Native American populations. The Native peoples of Nevada and the Great Basin were by and large highly mobile hunter-gatherers, and created no type of permanent structures or monuments, with the Fremont and Anasazi (in the eastern and southern margins of the state) being notable exceptions. We should recognize that the fact that rock art was created on stone is why it has survived, while perhaps similar works in other materials did not survive (Bradley 1997:5). Rock art is then most likely only a single thread in the undoubtedly rich tapestry of prehistoric graphic and non-graphic communication.

The Great Basin in general has undergone very dramatic environmental changes since the end of the last Ice Age, most notably the shrinking (and in some cases disappearance) of the enormous Pluvial Lakes (see Grayson [1993] for a general review). Along with the water loss vegetation distributions also changed, but in most cases the immediate surroundings of rock art sites may have undergone only minor ecological changes (water sources may have dried up, surface deposition may have covered other traces of occupation or minor geologic change such as rock slides may have occurred) in the last several thousand years.

The Native peoples who occupied the majority of the Great Basin at the time of European contact spoke languages belonging to the Numic language family (with the exception of the Washoe). Despite this linguistic relationship most researchers would concur with

Hultkrantz's (1987:11) comment that "[T]he diversity of these traditions cannot be reduced to a single tradition." Numic speaking populations are also considered by most archaeologists to be relatively recent arrivals in the area. Although there is continued debate regarding the actual timing of the dispersal of the Numic language family into the Great Basin (Grayson 1993:270-271), it is generally thought to have occurred within the last two thousand to fifteen hundred years, but it is no way clearly demarcated archaeologically (Rhode and Madsen 1994:218-219)[2]. This is in itself important simply because at least a part of the rock art of Nevada and other parts of the Great Basin may not have been made by its historic inhabitants, or even their ancestors, calling into serious question the use of historic ethnographies for other than the most general models.

I then present a detailed discussion of the characteristics and contexts of the rock art of Nevada in Chapters 6 and 7. These data were gathered primarily from official rock art site records housed at the Nevada State Museum (Carson City), and the Harry Reid Centre (University of Nevada, Las Vegas). I am grateful to Ms Linda Blair (Harry Reid Centre Records Manager) and Ms Susan Murphy, and especially to Ms Margaret Brown (Nevada State Museum Records Manager) and for her help and support during this project. Additional data were also gathered from the personal files of Mr Alvin R. Mc Lane, and from my own site records.

In Chapter 8, I synthesize the data discussed in Chapters 5, 6 and 7, and in Chapter 9, I compare a contextual approach to rock art with the alternative interpretative models (hunting magic and shamanism). These two models are found to be similar in their universalist interpretations which ignore site contexts (both environmental and cultural), rather than allow those contexts to inform the imagery. In Chapter 10, I suggest ways that rock art may inform

2 There are some Nevada archaeologists who believe that Numic speaking populations may have arrived in the present locations as early as 4-5,000 years ago.

more specific archaeological questions such as the original colonization of the New World. I follow this by discussing how a clearer recognition of past ethnic groups may be possible through rock art, thereby allowing a better understanding of complex questions of prehistoric population movements. Rock art may also allow the identification of ritual space among hunter-gatherer populations that commonly leave little ritual residues, and the role that ancient rock art may play in the process of building social identities of modern Native American populations is also explored. And finally, in Chapter 11, I conclude with a discussion of important future directions in rock art research. It is my belief that rock art must be considered from a variety of angles, not from a single perspective. From this we may better understand how rock art symbolism was used by the prehistoric inhabitants of Nevada "to structure and regulate inter-personal behaviour" (Renfrew 1994a:6).

Chapter 2: The Symbolic Properties of Rock Art

Because rock art is a visual medium research approaches have tended to concentrate on its imagery to the exclusion of other characteristics (see Chapter 4). This focus is not necessarily appropriate because symbolic meaning is not constituted by imagery alone. Rather, it is the contexts of use and production which evoke meaning (Sperber 1975) and which need to be reconstructed to allow rock art to be interpreted. Anthropological analyses of art in small-scale societies have generally supported Firth's (1951:71) observation that "Primitive art is highly socialized." The connotations of visual imagery, like other symbolic media, are socially constructed (Turner 1969) and these connotations are contained within all art forms, whether spatial, temporal or kinetic, all of which may be important aspects of rock art production and use. These various arts potentially symbolize or express commentaries on all aspects of society, as well as playing a dynamic role in social reproduction (Levi-Strauss 1955:433; Turner 1969:49; Firth 1973:76; Leach 1976:37). These socially constructed discourses are communicated through "signals, signs, and symbols" (Leach 1976:9), although the propositional force of the discourse transmitted through ritual contexts is potentially very weak (Bloch 1974, 1977, 1986).

Bateson (1973 :242) recognized that there are some messages which simply cannot be expressed in words, or at least not by words alone, but rather require special types of expression, often non-verbal or verbal expression of a specialized nature. Symbols are noted for their emotive properties and the emotions they arouse are one mechanism by which the social order is accepted (Turner 1969:49). The dynamic role played by ritual in social reproduction (Bloch 1974:67; Gibson 1986:285; Strecker 1988:9) owes much to the

ambiguous character of its discourse and symbolism (Bloch 1974; Sperber 1975). This makes ritual contexts well suited for the transmission of social information that cannot be overtly stated without potentially provoking conflict (Strecker 1988). Ritual is the preferred context for social reproduction in societies where hierarchy is unstable, or structural principles and social representations are contested (Bloch 1977). However, the ambiguous character of ritual and its symbolism can be exploited for a variety of other social ends, such as providing a means of decreasing difference between social groups (Weissner 1984, 1989), or providing an arena of interaction for conflicting social groups (Turner 1967).

2.1 *The Meanings of Symbols*

Victor Turner's sensitive analyses of Ndembu ritual (1967, 1969, 1971) provide the best anthropological documentation of the polysemous properties of symbolism. Turner recognized that symbols legitimately meant different things to different observers and identified three dimensions of symbolic meaning;

> (1) *exegetic* - where the meaning of a symbol is supplied by indigenous consultants, however one must take care to distinguish between "specialists" and laymen; esoteric and exoteric interpretations; and interpretations that are a "uniquely personal view."
> (2) *operational* - where the meaning of a symbol is equated with its use.
> (3) *positional* - where symbols derive their meaning from their relationship to other symbols [Turner 1971:125-126].

Consequently approaches which insist that rock art can only be understood exclusively from indigenous exegesis (see Chapter 4) privileges only one of the dimensions of symbolic

meaning. This also implies that symbols, rather than bearing 'meaning,' actually may carry many 'meanings' or evoke a wide range of varying responses from those interacting with it.

Important for rock art studies is Turner's distinction between "referential" and "condensation" symbols. Referential symbols (or signs) were primarily cognitive, had single, repeatable meanings, and include speech and writing. Condensation symbols, in contrast, were multivocal and have a polarization of meaning ranging from at one extreme, referents to social organization (the "ideological pole"), to at the other, referents of a natural and/or physiological character ("sensory pole"). Examples of the latter include the use of the colour red to symbolize blood (Turner 1967:50). In this way, a single symbol can stand for many things, and these things are linked by association. For example, among the Ndembu: "'whiteness' enables white clay [*mpemba*] to stand for a multiplicity of ideas and phenomena, ranging from biological referents such as 'semen' to abstract ideas such as 'ritual purity,' 'innocence from witchcraft,' and 'solidarity with the ancestor spirits'" (*ibid*:50). It is clear that the concept of condensation symbols is a useful one for rock art studies to adopt. Even if some rock art assemblages were intended to communicate very specific information (i.e., functioned as signs) in the present day, with their original commentaries lost, they now function as symbolic records.

The reason why symbols can elicit a number of interpretations from their users stems from their lacking any essential 'meaning.' This is highlighted by the arbitrary nature of symbolic selection. Turner (*ibid*:36) noted that although an observer may be able to examine and explain the wider social context of a culture's symbolic system, the reasons why people "select some natural objects rather than others to serve as symbols" cannot be explained.

Similarly, Sperber (1975:13) argues that there is no relationship (and most importantly no predictability) between a symbol itself and its 'meaning' because "symbolism has no semantics comparable to that of language." He rejects the idea that symbolic forms can be "decoded," and suggests that the work of Turner "shows clearly, neither usage nor exegesis defines or constitutes a closed set of given pairs (symbol, interpretation)" (Sperber 1975:32), although Turner himself may have thought otherwise.

Sperber contends that substitutions of either symbols or contexts do not produce synonymy or paraphrase as occurs in language, and "interpretation depends on the context and is generally modified by any substitution" (*ibid*:11). Sperber contrasts symbolism and language because for him (although few others agree), symbolism is a cognitive learning mechanism which continues throughout life, unlike language which has a clearly delineated threshold (*ibid*:89). He suggests that the cognitive symbolic mechanism serves to focalize attention and evoke memories (*ibid*:119), or in Bourdieu's (1991:39) terms "awakening experiences."[3]

Irrespective of the merits of Sperber's cognitive theory of symbolization it is clear that symbols do not 'mean' in any linguistic sense and are capable of provoking an unlimited range of exegesis. Ritual discourse need not be coherent or linguistically intelligible to produce its social effects (Bloch 1974), which derive from the perceived legitimacy of the social institutions supporting the participants (Bourdieu 1991:113). Further, as Sperber and others suggest, symbolism is not just concerned with communication but also with provoking an emotional response (Boas 1927:351; Turner 1967:54).

---

3 As I will discuss below, memory that is shared is fundamental in the construction of any social order and identity (Connerton 1989:3).

One of Turner's (1969:49) most important insights was that symbols had considerable emotive power and were as important for their social functions as for their 'meanings.' This emotive power is partially derived from their ambiguous properties and partly (at times) by their direct effect on human senses (Turner 1967:50). As Sperber (1975:xii) notes, although "symbolism plays a major role in social communication," it is not a specific *idea* that is communicated through symbols. It is rather emotions and relational meanings that are evoked. Further, this evocation is an idiosyncratic event and while "cultural symbolism focusses the attention [and] determines parallel evocational fields . . . If this shared orientation among the members of a single society did not exist, the very existence of cultural symbolism would remain incomprehensible" (Sperber 1975:137). This produces a restricted range of symbolic meanings from which one chooses. Cultural symbolism then works to construct social knowledge and memory through the "constructive character of remembering . . . the same rituals are enacted, but with new actors; the same myths are told, but in a changing universe" (*ibid*:145). It is this repetition of ritual,[4] using the same words, movements and in the same places, that allows both individuals and societies to construct and reconstruct themselves and their social relations, and which I believe may have played a role in the production of at least some rock art.

This is not an original idea, Whitehead (1927:63) for example remarked that "interpretation . . . varies much more rapidly than does the actual ceremonial" and meanings may take on signification through time from the history of use. Boas (1927:88-143) likewise

4 The importance of ritual behaviour should not overshadow the fact that virtually all writers agree that "symbolism is an everyday affair" (Sperber 1975:71).

commented on the fact that not only can a single symbolic form mean many things (even to a single individual), but meaning can change depending on context and different individuals will have different understandings based on their own experience or understanding. In his analysis he found "the general tendency to keep intact the form, but to endow it with new meaning" (Boas 1927:353). So the image, the sound, the movement, or whatever form the symbolic statement takes, is repeated morphologically unchanged but with emotional meanings or evocations that do change. In fact, many researchers have suggested that some of the power of symbolic forms may derive from precise repetition rather than from any particular significance or meaning. Giddens (1979:200) makes this point when he discusses the power of *praxis* or habitual action, and suggests that this is what Bourdieu (1977) calls the "assumption of previous performance" that gives tradition its power. "Tradition has its greatest sway when it is understood simply as how things were, are (and should be) done," and especially when "it is sanctioned, or sanctified, by tradition: when 'reversible time' is invoked in connection to the past and present in social reproduction" (Giddens 1979:219). Similarly Austin (1962:35-38) suggested in his analysis of performative utterances that any "flaw" in ritual utterances, whether incomplete or incorrect execution, will negate the meaning or action. It may be simply a matter of repetition of "how it's done," even using archaic forms (Bloch 1974:56) because to do it otherwise is meaningless, with symbolic statements that are "formally impeccable but semantically empty" (Bourdieu 1991:41).

Symbolism further "converts the obligatory into the desirable" (Turner 1967:30) by "bring[ing] the ethical and jural norms of society into close contact with strong emotional stimuli" during ritual action. In this way "Norms and values, on the one hand, become

saturated with emotion, while the gross and basic emotions become ennobled through contact with social values" (Turner 1967:30; see also Leach 1976:25). Ritual can also be seen as naturalizing social institutions by "assigning properties of a social nature in a way that makes them seem like properties of a natural nature" (Bourdieu 1991:118).

2.2 *The Mechanisms of Symbolic Power*

The mechanisms of symbolic power can be understood by reference to ordinary language philosophy. Austin's (1962) discussion of performative utterances, elaborated by Bourdieu (1991), illustrates the ways that symbols can be used to "do things" in the social world. Central to this position is the realization that ritual and its symbolism derive their authority from the social institutions underlying their production and use (Bourdieu 1991:119). This authority legitimizes the subtle social commentaries contained within ritual and which social agents tacitly grasp using their skills of understanding conversational implicatures (Strecker 1988).

Austin (1962:6) recognized a class of speech acts whereby in saying something one also did something, i.e., performative utterances, in effect "replacing action with speech" (Bourdieu 1991:75). Austin (1962:12-24) argued that performative utterances actually created new states of social being, and statements are either felicitous or infelicitous, as opposed to being true or false. A felicitous utterance must, among other things, be made by individuals who follow proper (socially accepted and recognized) procedure and are both *authorized* and *recognized* to make the utterance (*ibid*:26). But as Bourdieu (1991:72) notes, this implies that the power of performative utterances derives not from language itself as Austin believed, but

from the "the social conditions which enable it to secure from others a recognition of the importance which it attributes to itself."

In further elaborating the social contexts of symbolic production Bourdieu (1991:121) describes (somewhat deterministically) "acts of institution" as special acts of signification which both identify and publicly impose expectations of behaviour. While his emphasis is on individuals, the same is true of groups of individuals, where "stereotyped or ritual forms of expression are programmes of perception . . . helping to impose a more or less authorized way of seeing the social world, helps to construct the reality of that world" (Bourdieu 1991:106) for all those participating.

Austin (1962) drew attention to symbolic *accessories* (e.g., the wigs and robes of a British court of law) which signify or mark the proceedings as something other than normal. In this way he implied that cultural trappings or material objects add to the power and efficacy of the statements being made. I will suggest that other types of symbolic action, specifically the production of prehistoric rock art, may also have been used to create new states of social being by ritually creating and maintaining social relations at special places in the landscape.

Although ritual may articulate a powerful discourse, or provoke emotive interpretations, its discourse may be propositionally slight. Ritual language appears to be "impoverished . . . a language where many of the options at all levels of language are abandoned so that choice of form, of style, of words and of syntax is less than in ordinary language" (Bloch 1974:60). The syntactic complexities of normal speech have been purposely given up, replaced by a structurally more simple form through a process of "formalization" (Austin [1962:19] extended this to any form of conventionalized behaviour which he called

"ceremony or ritual"). Bloch (1974:55) further suggests that ritual symbols can only be understood through an understanding of the rules, or "features of articulation" that govern the ritual medium in which they are embedded, mostly singing and dancing. Formalized ritual speech is recognizable in that it often employs archaic forms and has a "set apart" character (Austin 1962:32; Bloch 1974:56).

Bloch (1974:58) suggests that formalization occurs at every level in ritual. In ritual oratory severely restricted ("impoverished") vocabulary and syntactic forms (often the most polite and impersonal) are used; often traditional histories or proverbs are invoked; with the whole speech following a rigid traditional structure and "a special type of delivery." This combination creates a sense that the speaker(s) no longer act as individuals but have assumed a role of power or authority that speaks traditional truths to and for all. Communication is no longer dialectic because the traditional structure and forms restrict possible responses. This can, in effect, "coerce the response of another" and "be seen as a form of social control" (*ibid*:64). The words take on the force of traditional authority, "What is being said is the right thing because . . . it has become the only thing" (*ibid*:67).

Bloch notes that religious and political oratory are structured and performed in the same manner, and in fact are, in some cases, the same thing. For him this implies that the unquestioned power of both traditional political authority and religion is articulated with this transformation of the speaker, from elder to ancestor and the past becomes the present (*ibid*:78) through the formalization of ritual speech. Traditional and religious authority (often the same thing) shapes the present social reality, where to engage and participate in the ritual implies acceptance of the "truths" that are being expressed in a "total bonded experience"

where "repetition is the only possibility for emphasis" (Bloch 1974:76). Within this total experience "religious rituals push the same techniques of the formalization of language further" (*ibid*:68-69) and is extended to bodily movement and intonation. Bodily movements are formalized and become symbolic dance, where "symbolic statements are communicated through a variety of movements from one person to another" (*ibid*:72). Ancestral truths become "fused" through rhythm and repetition, producing a strong emotional and social (illocutionary) force, where the greater the formalization, the greater the ambiguity.

> If words in ritual have little explanatory power but much socially useful ambiguity . . . they begin to perform less as parts of a language and more as *things*, in the same way as material symbols. It is not surprising, therefore, to find that rituals seem to show a predilection not only to use song and dance but also things for communication [*ibid*:75].

I would suggest that the prehistoric rock art of Nevada was also one of these things used for the communication of ancestral truths, empowered through repetition of past imagery and embedded with the illocutionary force of ritual formalization. Rock art may also be a complement to oral history in the production of social knowledge, especially in regard to the reproduction of social relations.

Bloch (1974) implies that the ambiguity of ritual communication allows for manipulation, but his analysis focuses on the maintenance and reproduction of tradition and authority, rather than the constitution of new social states. While Sperber (1975) describes the assignment of symbolic meaning for the *receiver* of symbolic messages through emotional evocation, Bloch shows how this emotional evocation is constructed by the message *sender* through the process of formalization. In both cases, however, no specific "meaning" is created,

in fact the greater the formalization, the greater the ambiguity, and the less specificity of meaning. The question of how this ambiguity and emotional force can be manipulated to "do *new* things" is not fully addressed by either.

Strecker (1988) confronts this problem, arguing that symbolic behaviour is exploited by social agents in reproducing and creating authority in social relations. He argues, that Sperber's (1975) analysis is one sided, focussing on the receiving end only and overlooking the importance of the manipulation of symbolic forms. Strecker argues that examining the motivations of those sending messages via symbolic media shows that the focalization or displacement which occurs during symbolic discourse, is the product of conscious selection:

> Deep layers of experience are exploited when statements are constructed that are meant to cause focalization and evocation. At the same time, universal physiological and psychological factors play a role as well as specific cultural and historical factors. Furthermore, the construction of these seemingly meaningless and yet so compelling statements is intentional [Strecker 1988:37].

For Strecker, the symbolic communication event is seen as a 'triad,' including not only sender and receiver(s), but also the symbolic medium itself. This allows symbols to have meaning and appear not to at the same time, "to say something and say it not," and have meaning that is "not absolute but situational" or to 'say' "several things at once" (*ibid*:44). What the message sender means may not be what the receiver understands, or the sender may construct a deliberately ambiguous statement. Consequently, various receivers may experience messages differently based on knowledge, age, sex and many other individual contexts (Turner 1967; Lewis 1980). Currently, several rock art researchers have focussed on the manipulation of rock art symbols as a means of negotiating individual power (e.g. Dowson 1994a; Lewis-Williams

1996; Whitley 1998a), but without attention to the various contexts of production which also contribute to meanings, or to the larger social mechanism of negotiation.

Strecker (1988) attempts to explain why ritual becomes the locus of social reproduction and why people in certain social situations prefer to communicate through multivocal symbolization rather than univocal signs or straightforward signification. He approaches this question by drawing on anthropological analysis of politeness phenomenon (Brown and Levinson 1978). A variety of symbolic strategies are available that reduce risk in social situations and in this model, indirectness (or ambiguity) provides the means by which sender and receiver of symbolic messages can both be relieved of the tension of "having said or understood something irrevocably." Strecker (1988:154) expands this to suggest that "symbolization reduces the probability of confrontation and thus acts as a mechanism which helps prevent social conflict in situations of risk."

The anthropological approaches to symbolism discussed here provide an essential framework for understanding the ways in which humans "do things" with symbols and understand the subtle messages they potentially contain (Austin 1962). This will provide a starting point for understanding at least some of the possible connotations of Nevada's rock art in the absence of Native exegesis.[5]

5 It is of course important to remember that native exegesis itself must also be considered a symbolic act (Sperber 1975:48). In addition, the applicability of historic ethnographic sources of information on rock art that may well have been produced in the very distant past will be further discussed below.

2.3 *The Symbolic Construction of Community*

So far discussion has focussed on the role of ritual symbolism addressing dynamics between social agents. However, equally significant is the role of symbolic manipulation in the construction of community. Leach drew attention to the "*artificial* interruptions to what is naturally continuous" (1976:34 emphasis in original; Gibson 1986:16; Bourdieu 1991:120), that is, the areas where social life is filled with the greatest anxiety and ambiguity. Like Turner (1967), Leach (1976) suggests that ritual symbolism helps to mediate such social tensions. Similar to the ways that symbolic meaning derives from a structural contrast between what "is" and what "is not," human communities create artificial boundaries to define social identities. These boundary areas, between zones which are normal or clear-cut, require marking and these markers "are themselves *abnormal, timeless, ambiguous, at the edge, sacred*" (*ibid*:35 emphasis in original).[6]

Enormous ritual importance is placed on gateways and thresholds (boundary areas), in territorial space, social space, social time and in the orifices of the human body itself, areas that are often the focus of taboo and ritual. And when no "natural" or biological boundary is present one is often created which "marks a break point, a threshold, a point of entry" so that "the purity of our social categories [can be] preserved" (*ibid*:62; see also Bloch [1986] and Bourdieu [1991] on symbolic violence).

6 These boundary areas should not be confused with topographic perimeters, see Ingold (1987, 1993).

The social construction of boundaries fosters "a mis-recognition of the arbitrary nature of the limit and encouraging a recognition of it as legitimate"(Bourdieu 1991:118). These socially constructed boundaries are the site of ritual that mark the transgression of the boundary by those who are to be 'instituted.' In this way the initiates are themselves transformed by the ritually crossed boundary and identified in opposition to those who have not, or especially *can not*, cross. Bourdieu (1991:117) criticises Turner (and others) for not recognizing this essential effect of 'rites of passage,' which he prefers to call "*rites of institution.*" In his analysis these rituals create "a lasting difference between those to whom the rite pertains and those to whom it does not pertain," separating not just those who have undergone the transformation from those who have not yet, but especially from those who will not, establishing a critical distinction in status.

These boundaries, in space and time, then are the focus of intensive ritual and symbolic marking of social categories of meaning, both through modification of the social body and of social space. "Power, in this sense, resides in the interfaces . . . in ambiguous boundaries" (Leach 1976:62). This focus on the social construction of boundaries suggests that those same ambiguous areas may also be the site for the ritual transgression of boundaries. If social groups construct identities in opposition to another, some groups may transgress social boundaries together, thereby symbolically reducing difference between them. Weissner (1984, 1989) examines the ways that "style" is used as a means of inclusion or exclusion. Prehistoric rock art may have been one means of marking either difference or sameness; and variation in styles may have been a way to define social identity either in opposition or in relation to others. Another way of understanding these areas of ambiguity in relation to the landscape and places

in the landscape may be as locales of interaction, where the paths of one group cross that of another or important places that are shared (Ingold 1987).

Cohen (1985) explains that although others suggest a sense of community is defined by highlighting differences and hostile relations to 'outsiders,' a sense of community is also defined by zones of interaction with others. The boundary between "community" and "other" may in this way be seen as both a beginning and end, creating a broader sense of sameness within and of difference without. This is similar to the process of classification described by Leach (1976), and Cohen (1985:14) suggests that "all such categories are marked by symbolism." Symbols do more than stand for something else, but rather allow the user (or receiver of the symbolic statement in terms of the discussion above) to provide at least part of their meaning, "Symbols do not so much express meaning as give us the capacity to make meaning" (*ibid*:14-15). This allows flexibility in symbolic statements, but also introduces ambiguity because it allows multiple meanings by creator and consumer.

Within a community symbols can be shared but not necessarily meanings, and so the sense of community is kept alive by the symbolic construction of boundaries (as discussed by Leach [1976] and Bourdieu [1991]), by a continuous definition of 'who is' and 'who is not' and through the manipulation of shared symbols. These then serve to create a sense of identity within a community and also relationships between communities can be symbolically constructed. These "webs of significance" are continually produced and reproduced by people through ritual interaction and the manipulation of these shared symbols.

Cohen (1985:20) suggests that "community" should not be seen as an *integrating* device, where there is homogeneity of meaning, but rather as an *aggregating* device, where

it is the common ownership of symbols (but not necessarily the meaning of those symbols) that constitute the sense of community. He suggests that "the symbol can function quite effectively as a means of communication without its meanings being rigorously tested [and] symbols are effective because they are imprecise" (Cohen1985:21), echoing Turner, Bloch, and Leach.

Cohen (*ibid*:30) suggests that small-scale "multiplex" societies (or "face-to-face" societies in Giddens' [1984] terms), are those where interactions occur in several categories or statuses at once. People commonly interact on several different levels and this requires complex strategies of symbolic mediation. He suggests that corporate alliances of various sorts are the best way of getting on in the world for these societies. In keeping with this, the greater the complexity of relations (the more levels of interaction) the greater the need for ritual to mark social roles on the public stage (*ibid*:30-31). This echoes Austin's (1962:22) suggestion regarding the importance of the public witnessing (being heard and understood) of ritual. This implies that the symbolic construction of boundaries between communities may also be reversed to include "outsiders" or "others" when and where the need for such integration might occur. "Symbolic devices used to contrive and maintain an awareness of distinctiveness" (Cohen 1985:40) might also be used to lessen that distinctiveness.

I will argue that at least some rock art sites are located in boundary zones in both social and topographic terms, which are filled with anxiety and risk requiring symbolic mediation. These places may have been marked using a very specialized form of communication, intentionally ambiguous rock art symbols whose meaning could be easily shared, in effect symbolically minimizing the difference between social groups, and reducing the risk of misunderstanding.

Furthermore, rock art sites are often located in important resource areas which were repeatedly utilized by a variety of potentially non-related groups. The repetition or re-working of earlier symbolic forms would in effect have symbolically legitimated the relationship between these groups through reference to past imagery, evoking shared memories. This symbolic sharing and reconstruction of past relations at important places in the landscape could also have occurred whether or not situations of co-presence were established. By physically "signing the land" (as Bradley [1997] calls it) through intentionally ambiguous rock art imagery, any group could either ask permission for use of the resources (an important aspect of hunter/gatherer life discussed below) or announce their presence ("advertisement" as Ingold [1987] calls it). This may also play a role in understanding rock art as a system by which relations are created, but also as a means of exchange or tribute, as a type of gift-giving.[7] This symbolic exchange is an important and necessary part of the negotiation and construction of social relations between most communities, and also may be a means by which status is negotiated with rock art as a type of symbolic capital. Cohen (1985:33-36) also discusses the fact that in "face-to-face" societies markers of status are often hidden giving the superficial appearance of egalitarianism, but with each community having very specific means of attributing status and prestige or tacit recognition within the community of differentiation. This approach is an important one, but not one that has attracted much anthropological interest. And so, rather than expecting the locations of these interactions to occur exclusively in

7 Rock art may have begun as a symbolic exchange with the earth and later with the "owners" of strategic resources, although as Ingold (1987) and others have shown the concepts of land tenure and ownership, while clearly present among gatherer hunter peoples, are of a very different type than that of farmers or urban dwellers. Rock art may have begun as a way of releasing the power of the earth, transforming the stone and making it cultural (Rowntree and Conkey 1980) or even as a form of symbolic exchange with powerful earth beings, a way of asking permission for or giving something back in exchange for the resources which are taken.

boundary areas, we might more likely expect them to occur in localities of exchange, or where resources are seasonally available in abundance and utilised by a variety of people.

Furthermore, these long-term relationships may have been legitimated by returning to specific locales and recreating specific symbolic forms, the "rightness" and legitimacy of specific social relations confirmed through reference to the past. In the symbolic expression of community "the past is . . . used . . . as a resource" (Cohen 1985:99; see also Bloch 1977), in what Malinowski (1925) described as creating a "mythic charter." Current action is legitimised through a reconstruction of the past where traditional relations are reconstructed or new relations created by conflating past with present and sometimes by inventing tradition (Hobsbawm 1983; Cohen 1985:99), doing something new ("originative" in Kantian terms - [Bourdieu 1991:42]). These condensed mnemonic symbolic references to the past evoke emotions and complex messages become mythically infused with timelessness and righteousness (Bloch 1977:287; Giddens 1979:201; Cohen 1985:102). This process is also very much the same as that described by Turner (1967) where what is necessary becomes what is thought to be correct through the recreation of symbols in ritual contexts.

For Connerton (1989:4), like Austin (1962:22), it is the public performative nature of ritual that embeds itself into the social memory, through which "the past and recollected knowledge of the past . . . are conveyed and sustained." Publically witnessed rites legitimate the past and become embedded in the social fabric as a type of "social habit" through the same types of repetition and rhythm as other types of symbolic communication, and "they do not simply imply continuity with the past but explicitly claim such continuity"(Connerton 1989:45). Through specialized, formal and unchanging symbolic actions in the present which constitute a ritual "re-enactment" of the past, the communal memory is shaped in "special places at fixed

times" (Connerton 1989:44; Gibson 1986:42; Ingold 1993:153, Basso 1996:145-146).

One of the most interesting points that Connerton makes about this performative aspect of social memory is that it is fundamentally associated with the body. Habitual movement and gesture, or "prescribed bodily behaviour" give ritual performances "much of their rhetorical persuasiveness" (Connerton 1989:72). He argues that an important aspect of the social memory is bodily memory, and that "performative utterances have to be cast in a standardized form" in order to insure correct repetition by "the custodians of memory,"[8] including repetition and rhythm and "the co-operation of a whole series of bodily motor reflexes in the work of remembrance" (*ibid*:76). I would argue further, that this performative rite of remembrance, which reconstructs and negotiates social relations in special places at special times, may have been augmented by "an inscribing practice . . . something that traps and holds information" (*ibid*:73). Rock art may not have fully substituted but rather augmented an acoustic record with a visual record as a part of a larger social ritual, using the same characteristics and habitual bodily practices by which memory is sedimented (i.e. repetition and rhythm). By reusing the same symbols in the same place, social relationships are created and recreated, and become legitimated by reference to the past and preserving them for the future (Ingold 1987:153; Taçon 1994:126).

8 Who these "custodians of memory" might have been is, like everything else, debatable. Currently the idea that shamans create rock art as a way of remembering their sacred visions would suggest that they might be one candidate. Connerton (1989:39) however also recounts the work of Marc Bloch (1954) who suggested that "the education of the youngest living generation was generally undertaken by the oldest living generation." It seems likely then that elders could also be likely candidates as "custodians of memory."

2.4 *Conclusions*

While the focus on the legitimation of the past is important, it should also be considered that the people who created rock art imagery understood that these symbols would remain a part of the landscape into the future, and thus *creating* the landscape for future use (Taçon 1994:126). By establishing a connection to others and the past, homogenous rock art established *sameness*, while distinctive rock art may have played a role in distinguishing oneself or one's own social group from others. The foregoing discussion indicates clearly that it is the contexts of symbolic action that hold the key to meanings, although there is no single meaning to be found. Next I will examine the role that landscape plays in structuring the lives of people and how symbolic manipulation of the landscape creates places which provide an anchor for the identity and social relations of its inhabitants.

Chapter 3: Landscape as a Symbolic Resource

Given the importance of context in shaping the meanings and exegeses attached to symbolic systems, it is important to establish the context of rock art sites in their entirety. Landscape is a vital part of that context and has become the subject of a considerable amount of archaeological research in recent years (e.g., Bradley 1991, 1997; Bender 1993a, 1993b; Taçon 1994; Tilley 1994). I begin with a discussion of the ways that symbolic power is embedded in the landscape and general approaches that provide the necessary theoretical background for understanding the cultural and social significance of *place*. I also examine how socially and symbolically constructed *places* help to foster a sense of history within and between communities and develop both individual and social identities. Understanding the role of *places* in the constitution of social praxis helps to address the issue of the placement of rock art sites in Nevada's landscape and why such places maintain their power over time. Landscape becomes conceptualized as "a whole [which] comes to be seen as a continuous record of human behaviour, co-varying with ecological conditions" (Thomas 1993a:19) and therefore contains visible marks of past human interactions with it.

3.1 *Perceptions of Landscape*

Humans are not completely dependent on culture alone for perceiving their natural environments as meaningful entities. Gibson's (1986) theories of direct perception give a real sense of 'being-in-the-world' because they are based on what he calls 'ambient' and

'ambulatory' vision as opposed to 'snapshot' or 'aperture' vision. In the latter cases unnatural or impoverished information and perceptions are created because they are artificially reproduced units of analysis that are fixed and not at all like natural vision. The "information-based" and "panoramic" *ambient vision* of an animal that "goes from place to place" is a very different type of perception, and Gibson's ideas express much more accurately how humans (and other animals) "dwell" in the world (in Heidegger's [1977] terms). Gibson suggests a "mutuality of animal and environment," meaning that an animal is embedded within the environment, and that one implies the other. There can be only a *potential* environment without an organism of some kind within it and no animal can exist without an environment surrounding it (Gibson 1986:8).[9] This panoramic, embracing environment is not to be confused with the simple physical world, because that is what Gibson describes as the 'abstract world of analysis,' which exists at scales both beyond and below human or animal perception. Gibson's environment, on the other hand, exists within an intermediate size band, the same one in which animals themselves exist (*ibid*:8-9), and it *affords* invariant opportunities or possibilities to the organism within it. "A *path* affords pedestrian locomotion from one place to another . . . fire affords warmth" (*ibid*:38-39), just as the air affords breathing and the earth affords support. These affordances are possibilities or opportunities which exist in the world. Hence meaning, in the world of ecological reality as described by Gibson, exists to be discovered by its inhabitants.

Gibson (*ibid*:36) only briefly addresses changes in affordances through purposeful human manipulation of the environment, but he does suggest that "an open environment

9 Sauer (1938) noted that the only "natural" landscape is one without people in it, a similar idea to that of Gibson's "potential" environment.

affords locomotion in any direction . . . whereas a cluttered environment affords locomotion only at *openings*." Discussions of the role played by the shape and physical environment of, for example, Neolithic tombs, in shaping the movement and perceptions of social agents' experience of these monuments (e.g., Bradley 1993; Thomas 1993b; Tilley 1994) illustrate that Gibson's point is now being appreciated by archaeologists. Such discussions, however, concentrate on cultural obstacles to movement in contrast to rock art locales where such obstacles are natural, albeit modified. This means that constructed monuments orchestrate movement via artificial spatial constraints, whereas rock art locales represent purposefully selected natural physical surfaces which are then modified by human action. Human agency in setting the spatial constraints of the latter resides only in the selection of the rock face for the placement of art. It therefore seems likely that one motivation of rock art location is the way its physical context shapes access to it and movement throughout it, and hence perception of the art. In both cases, though, the object is the orchestration of physical movement within the area of these special places to construct new *social* affordances or meanings of the place.

For Gibson gravity provides an absolute axis of reference or orientation, in the medium within which animals dwell. This is in some ways similar to Tuan's (1977) discussion regarding the way that the human presence imposes this primary schema onto surrounding space. For Tuan, the upright orientation and structure of the body provides the fundamental principles of spatial organization and result in social connotations with regard to space, some of which are shared widely by human beings (e.g., prestige is often associated cross culturally with elevation or height [Tuan 1977]). This provides for all humans and other animals as well, a basic foundation for perception which begins with the self in the world.

Also, importantly for this study, each person apprehends the environment and the landscape which surrounds them in terms of the "permanence [that] underlies the change" (Gibson 1986:13), in much the same way as other people do now or did in the past. This permanence may help to legitimate whatever meanings are held in the rock art because of its permanence and placement on enduring surfaces (Taçon 1994:126) in a sense creating history (Bradley 1993:2). The perception of the environment and the landscape is in some ways both familiar because of its regularity and shared because the "affordance, being invariant, is always there to be perceived [and] offers what it does because of what it is" (Gibson 1986:139). Landscapes then have a certain familiarity to individuals and because there are no distinct breaks or radical changes, individuals move through the landscape with certain expectations, even in a new area where they may never have been before.

Because there is a permanence to the layout of the terrestrial environment we are able to sense changes whenever they occur which do not follow our expectations, because we do not perceive "the flow of empty abstract time . . . but processes, changes, sequences" (Gibson 1986:12-13). This sense of familiarity and expectation is important for this study in helping to understand the ways in which human beings come to identify with certain areas as a process of habitual movement through a known landscape. It is also important for building a model of expectations that might have been held by those entering a new area for the first time. As I will discuss below (Chapter 10), these expectations may have guided the selection of rock art sites by the first inhabitants of the New World and helped to identify significant places as they were encountered.

Like Merleau-Ponty (1962), Gibson (1986:43) suggests that we view the world from our own body, but adds that the "idea that each observer stands at the centre of his or her

private world and that each environment is therefore unique gets its main support from a narrow conception of optics and a mistaken theory of visual perception." The environment is perceived, not from a single, static and stationary point of observation which provides each individual with unique perception, but with reference to a moving point along a path that any individual can travel. All observers are surrounded by the environment in the same way and are able to perceive that environment similarly, even though no two individuals can occupy the same space at the same time. Gibson (1986:141) further suggests that the ability to perceive the *common* affordances, that is, seeing the values of things for others, from the different perspective of another person, is the mark of socialization in children. Renfrew (1994b:264) relates a similar, very common and often expressed, feeling when he describes the "intense experience that this is where others, in some way like ourselves, have walked and lived." Gibson's theory of affordances may suggest that there is more to that feeling than just sentimentality.

This intense experience may also have to do with the place where one is standing, where the surface of the earth meets the medium of the air and affordances are recognized or interpreted. This same intense experience is likely to have been just as common among prehistoric peoples as among modern archaeologists when they stood in the places that their ancestors had stood, mythological or otherwise. The Western Apache conceive of the past as "a well-worn 'path' or 'trail' ('*intin*) which was travelled first by the people's founding ancestors and which subsequent generations of Apaches have travelled ever since" (Basso 1996:31), which makes the past conceptually the same as a place. They too feel the intense experience of the past in certain places which "stalk them" and teach them how to live right (*ibid*:59-61), by reminding each person, through narrative picture-names, of the events that

occurred there and the consequences of wrong behaviour. The land and features within it are an integral part of personal lived experience and combine to perpetuate the past and create the present and future. The past exists embedded within the landscape, and one implies the other in the same relationship of mutuality as animal and environment.

The modification of the environment by humans changes what it affords to them as a part of the socialization of the environment and landscape. But this should not be seen as the creation of an artificial environment, somehow separating the *cultural* environment from the *natural* one, "as if there were a world of mental products distinct from the world of material products" (Gibson 1986:130). Humans may modify the shape of the environment, but the fundamental structure, the substances, the medium and the surfaces, remain the same and cannot be changed.

> For terrestrial animals like us, the earth and the sky are a basic structure on which all lesser structures depend. We cannot change it. We all fit into the substructures of the environment in our various ways, for we were all, in fact, formed by them. We were created by the world we live in [*ibid*:130].

Landscape is fundamental to the creation and shaping of identity, both individual and group (Kryder-Reid 1996:228), and "the land itself as socially constituted plays a fundamental role in the ordering of cultural relations" (Layton 1995:229). The landscape is especially important in the construction of identity among Native Americans, and currently the connection between indigenous Americans and their own landscape is extremely powerful (Allison 1999:264). The mechanisms by which that connection is made may be the same everywhere (Taçon and Faulstich 1993:83), and includes the process of turning the "natural" landscape into a "cultural" one, filled with meaning and reflecting the cosmological and social

order (Taçon 1994:118). The landscape itself, but specifically the construction of *places* in the landscape can be seen as a type of communication through which meaning, identity and relations are constructed (Bradley 1993). This *humanized* and *enculturated* landscape acts "dialectically so as to create the people who are of that place" through an ontological sense of belonging (Tilley 1994:26). It is this enculturated landscape that both forms identity and is animated by ancestral potency that in turn creates a sense of history. Specific *places* can also be thought of as acting mnemonically to teach the importance of moral behaviour (Basso 1996: *passim)* and give relevance and legitimacy to the relationships of those "dwelling together" (Heidegger 1977:323). These places are nested within the larger landscape through what Ingold calls a "dwelling perspective" where "the landscape is constituted as an enduring record of, and testimony to, the lives and works of past generations who have dwelt within it, and in so doing, have left there something of themselves"(Ingold 1993:152). Through the landscape (or *taskscape*, in Ingold's terms) and special places within it, a connection with the past is established, creating a special type of *temporality* (Ingold's terms) through which individual and/or group identity is conceptualized, social relations expressed and legitimated, and access to resources guaranteed through reference to the past and/or supernatural forces.

Gibson (1986:42) also deals with "a very special class of artificial objects, or perhaps *devices* is a better term, that display optical information." He suggests that this display exhibits information regarding more than just the surface itself, and permits the "storage of information and the accumulation of information" (*ibid*:42). Gibson deals only briefly with figurative depictions,[10] but does comment that even with *representational* imagery we are not looking

10 Gibson does not deal with what might be termed "less recognizable" imagery which is how the majority of the rock art that is found in Nevada might best be described.

at reality or even an attempt at the illusion of reality, "but an awareness of being in the world" (Gibson 1986:284). He further explains that "the essence of a picture is just that its information is *not* explicit. The depiction captures an awareness without describing it" (*ibid*:285; *emphasis in original*). This echos those who have suggested that the power of symbolic imagery lies in its ambiguity, in its being *not explicit* (e.g., Strecker 1988).

> It can be suggested in a preliminary way, that images, pictures, and written-on surfaces afford a special kind of knowledge that I call *mediated* or *indirect*, knowledge at second hand . . . insofar as the substances shaped and the surfaces treated are permanent, permit the storage of information and the accumulation of information [Gibson 1986:42].

3.2 *Territoriality and Ownership*

Ingold (1987:130-164) discusses the distinction between 'tenure' and 'territoriality,' where tenure is a feature of the social aspect of human experience, and territoriality is a feature of the material aspect. It is an anthropological commonplace (e.g., Myers 1982; Williams 1982; Layton 1995) that among hunter-gatherers land is not *owned* in any codified way, but rather in a jural way whereby those recognized as inhabiting a region also have a series of obligations and rights regarding the land. Hunter-gatherers commonly feel that rather than owning the land, that *they* are owned by the land (see e.g., Williams and Hunn 1982). The same is true among Native Americans, and Versluis has noted the common perception that "We do not own the land, the spirit of the land possesses us . . . yet we are pilgrims within in it" (Versluis 1992:103).

Australian Aboriginal society is the classic example of both obligation and rights to the land and several authors have discussed this aspect of Aboriginal society (e.g., Munn 1973;

Morphy 1991, 1995) whereby groups have a "spiritual obligation to care for the land" (Layton 1995:211). That is that they are *obligated* to maintain sacred sites in the landscape for the benefit of all, but also have the *right* to be asked permission for use of resources. As Williams (1982:148) puts it, "asking permission acknowledges the right of the owner to give permission or not [but] to own is to have the obligation to share." In this way resources of an area are managed by the local residents and the movements of visitors monitored (see Williams and Hunn 1982).

Furthermore, the land often plays a critical role in defining and controlling social behaviour. For the Western Apache, for example, "the land keeps badness away" and certain places where time and space intersect act as "mnemonic pegs on which to hang the moral teachings of their history" (Basso 1996:61-62). The behaviour of the people is governed by rules of conduct that are passed down through stories of events, events that "are anchored to points upon the land with precise depictions of specific locations".

As with most non-literate societies, Native American traditional knowledge is often stored and transmitted orally in the form of stories and songs, as well as in the practices of daily life. However, among the Apache and other Native groups in North America, "After stories and story tellers have served this beneficial purpose ['making you think about your life'], features of the landscape take over and perpetuate it. Mountains and arroyos step in symbolically for grandmothers and uncles" in making sure that the people live right (Basso 1996:60). The evocative power of place names, like other symbolic forms, is such that by speaking the name of a place, an entire narrative and the ancestral knowledge that the narrative contains is brought forth and affects present behaviour. Individuals become connected to specific locales which have something specific to teach them and this merging of self with the

land is common among many Native American groups as discussed by many Native American authors (e.g., Deloria, Jr. 1991). Momaday (1974:80) notes that "The Native American ethic with respect to the physical world is a matter of reciprocal appropriation: appropriations in which man invests himself in the landscape, and at the same time incorporates the landscape into his own most fundamental experience."

Rock art potentially adds considerably to the emotive and sacred power of place. Among the Zuni of the Southwestern USA "some rock art sites [are regarded] as sacred *because* of the pictographs and petroglyphs there and not because of any other factors extrinsic or prior to the rock art. That is, the power of the site is derived solely from the image or cluster of images found there" (Young 1988:177; *emphasis in original*). Similarly, among the native inhabitants of Nevada at the time of Euro-American contact, certain rock art sites ("Medicine or Doctor rocks," see Chapter 10.3) were thought to have curing power and were visited and paid for their healing service (Wheat 1967:20; see below, Chapter 10.3). The power of the place seems to be indicated by the presence of rock art rather than the imagery being the source of the power.

In addition to the physical control imposed by some rock art locales, the place itself may have been an important motivation for the placing of rock art there. Such locales would be important to mobile people as a way of spatially structuring social space and rock art may be seen as a way of *creating* social, or architectural space (Tilley 1994:17). Locales which are culturally defined and purposefully created might then become the centre of cyclical activities among mobile peoples that constitute and condition social reproduction (Giddens 1981:94). Conkey (1980:610) has suggested that aggregation sites (locales where groups converge on

a regular basis) may be the site of social reproduction, "Ritual that binds people together is a critical component of the aggregation / dispersion pattern." Periodic aggregations of hunter-gatherers is an extremely common pattern, and while ecological factors may promote aggregations, "the social and ritual components of aggregations should not be minimized" (Conkey 1980:609).

Ingold (1987:144-145) also suggests that spatial positioning of regions of occupation and utilization are negotiated on a regular basis, either through large public gatherings (i.e., annually) or through frequent visits to the camps of neighbouring groups. To do otherwise, that is to use an area and its resources without advertising one's presence, would be a transgression and viewed with great suspicion. It is the communicative nature of territorial behaviour ("advertisement") "that allows the movement of people from one region to another where seasonally available food resources could be found, usually having been informed of the promising harvest by residents in its vicinity" (Steward 1938:254). An unwillingness to communicate is seen as inherently aggressive among peoples where "less precise boundaries implies lack of conflict" (Williams 1982:146) and where delayed reciprocity is the rule. Ingold (1987:146-147) suggests that this type of advertisement is especially necessary where the communicating parties are not in direct contact.

Hood (1996:122) has suggested that all landscapes are "perceived and categorized into culturally relevant entities," and places are given meaning which affect the interactions between those people and the landscape. For hunter gatherers travel is along paths that have been traversed with destinations that are known. Knowledge about these important places passes from generation to generation because as Heidegger (1977) points out, the awareness of places

brings along with it an awareness of the complex attachments with other places, other people, and other times. Versluis (1992:103) suggests that among "the original peoples, one is irrefutably from a particular spiritual landscape, and to be separated from that place is to be separated from one's spiritual origin."

Knowledge of areas of sacred power and areas where important events in history have occurred and locations of social significance to themselves and other groups, is also passed along while travelling, as elders tell and re-tell the stories of their people. It is a common part of most Native American landscapes for places to be named because of these events or for geological features of the landscape that may be meaningful from mythic times. Among the Western Apache of New Mexico the name of a place is generally descriptive of "the way it was when the ancestors saw it first and made it their own with words" (Basso 1996:14). The name of the place remains, even when the place may have "undergone physical changes and no longer conform to the way their name describes them" (*ibid*:15). This way of naming places was similar to that of Great Basin peoples in general, with places named for geological features (eg. *Atsa'-motsi'kia* ["red peak"], Kelly 1932:74), local resources (eg. *Wiyɨtɨhaga* ["buckberry canyon"], C. S. Fowler 1992:39), mythological events or figures (eg. *K^{w}azi* [the snake which inhabits a particular sand dune], *ibid*:40) or historic events (eg. *Nɨmɨʔoho* ["people's bones"- the location where many had died after poison had been put into the river], Wheat 1967:21-22). It is the mundane activities of life and routes of movement that form the infrastructure of learned understanding of the world (Bourdieu 1977, 1985; Giddens 1984). Through place-names knowledge is passed to children about the resources of an area frequented by the group, vital knowledge within an environment that "makes you work for it," as well as history and the enduring moral character of a people (Basso 1996:63). As Ingold (1993:153) puts it, "To

perceive the landscape is to carry out an act of remembrance, and remembering is not so much a matter of calling up an internal image, stored in the mind, as of engaging perceptually with an environment that is itself pregnant with the past."

Even natural resources are defined culturally and are sought in social ways. Traditions develop through time, giving power to social actions and relations associated with them. Successive uses of a locale reinforces the continuity of tradition itself and becomes a powerful means by which activities and relationships are created and legitimated (Rowntree and Conkey 1980). The manipulation of landscapes can transform or maintain social relations and in this way the landscape itself plays an important role in the construction of society and the relationships between groups within it. Along these "well-worn" paths, a sense of identity is created in relation to place, with "spaces provided and established from the past intimately related to the formation of biographies and social relationships" (Tilley 1994:11). Each individual's sense of self is interwoven with the history of their people, and social learning can be defined in terms of landmarks of ecological, historical or personal significance. Küchler (1993:85) suggests that the "landscape becomes the most generally accessible and widely shared *aide-memoire* of a culture's knowledge and understanding of its past and future." This is in part how individuals and groups create and re-create a sense of identity and a sense of self which is embedded in their land (Whitehead 1927:68).

Among farming populations, where boundaries of exclusion are often marked and maintained, personal identity is founded on principles of exclusion. This contrasts with the *unbounded* collectivity of hunter-gatherers, where:

> A person derives his [or her] sense of belonging ... not from setting himself [or herself] apart from others, but by drawing them into his [or her] own ambience; his [or her] position in the collectivity rests not on the successive differentiations of segmentary opposition but on the successive integrations of inclusive incorporation [Ingold 1987:236-236].

Places within this kind of landscape become vehicles for the active reconstruction of the rules and relationships which define both the group and the individual (Thomas 1993a:33). The ambiguous nature of most of the rock art in Nevada may have served this function of negotiating alliances or social relations with a wider set of others. This is in contrast to the rock art in those parts of Nevada which developed a pattern of subsistence that included farming and is dominated by human and animal figures. I will argue that the difference in rock art in these different areas is a reflection of basic differences in modes of subsistence and social organisation (Chapter 10.2).

Both the economic quest for food and the cognizance of spiritual power, which "are part of the same process: namely *living*" (Ingold 1987:153; *emphasis in original*), are constructed within the landscape through the perception of affordances that are there to be recognized, or are created through meaningful human behaviour at special places. These places become both the basis and the product of those behaviours as the site of significant social interactions. The places themselves play a significant role in the negotiations of social relations and in the construction of the attachment to place by connecting past events to the present. Through time these places would draw people to them as the proper locales for important social ritual to take place. This process of creating *places* in the landscape should not be seen in a simplistic *territorial* way or even as simply a means of *mapping on* to the landscape, although these too are important ideas. Rather it should be seen, as Bender (1993b:1)

suggests, as the product of engagement with the world and people's experience of it. Places are meaningful not necessarily because of what is there in terms of resources (although that too may be important) but because of the meaning that is attached to that place by people.

By creating marks on what might be called "the bones" of the landscape, permanent places become established in the lives of mobile people, places to return to. This constitutes the creation of a social landscape through *engagement* with the land (Bender 1993a, 1993b). Conkey (1982), discussing the Upper Palaeolithic cave art of France, suggested that the physical environment of the cave should be seen as part of its structure and symbolism. The permanent[11] fixing of imagery on the landscape is contrasted with their mobility and becomes "a cultural immobilization of symbolic givens" (Conkey 1989:151). This fixing, or making permanent marks, may be especially important when it is compared to other aspects of both the symbolic and material culture of most hunter-gatherer peoples, but it should be borne in mind that only a small fraction of these societies that have existed ever created rock art, although rock art does occur throughout the entire world (Bahn and Vertut 1988:26-40). The fact that some of these places were returned to over long periods of time and that multiple generations of rock art were produced at the same place in most cases on the same rock surface, is in itself potentially meaningful and informative (Conkey 1987:421).

Traditional or habitual movement through the landscape to specific location, without conscious reflection, continually recreates or encodes the meaning of a place through time

11 Whether or not the imagery were intended to last "forever" or not, we cannot deny that its makers understood quite well the permanent qualities of stone (Taçon 1994) and this permanence may well have been purposely selected to express enduring social realities.

(Bourdieu 1977). Thomas suggests a somewhat different genesis of place during the European Neolithic, "Instead of subjectivity gradually creating place over a period of time, the process *began* with the creation of place, in an actual physical transformation of space" (J. Thomas 1993b:82; *emphasis in original*). This "actual physical transformation" in Europe was the construction of monuments, but in the New World it may have been the creation of rock art sites. This is not to imply necessarily a specific time-frame of activity,[12] but rather simply an analogous cultural behaviour whereby a *place* is established by the physical transformation of the landscape. Although it has been suggested that this type of physical demarcation of landmarks would only become necessary when population densities had become somewhat higher (Barton *et al.* 1994:192), I would argue that the opposite may be true, at least in the New World. Rather than creating social or architectural space in an *intimately known landscape*, indigenous peoples were in fact socializing ('domesticating' in Hodder's [1990] terms) an *alien one*. The fact of entering an uninhabited world (although it is unlikely that the colonizers themselves realized that there were no others occupying the areas that they were moving into) may have resulted in marking the landscape as a means of communication with unknown others. At least some of the rock art in the New World may then be the product of the first arrivals to advertise (Ingold 1987) their presence in an unknown landscape, asking permission for the use of resources from unknown inhabitants or as a means of symbolic exchange with these unknown others (or even spirits) who might inhabit this new landscape (Woody *in press*). The unintended consequences of this advertisement was to transform certain

12 The dating of the earliest immigrants into the New World *circa* 12,000 B.P. has recently been called into serious question with acceptance of evidence from South America (Meltzer *et al.* 1997)

points of the natural landscape into cultural points in the landscape, thereby influencing the actions of later descendants (Chapter 10.3).

We should be careful to not think of the original immigrants to the New World as moving quickly in a straight-line from the point of entry to Tierra del Fuego (an image demanded by the "Clovis-first" chronology of occupation [Whitley and Dorn 1993]). We must instead bear in mind that hunter-gatherers more generally move along paths that circle back, overlap and retrace (see Ingold 1987:165-197). The importance of places in synchronizing movements and meetings, connecting everyday and cosmological cycles, within networks of contact and exchange, similar to that of Arctic groups today, becomes all the greater, with the interpretation and marking of the landscape influencing future activities (Julian Thomas personal communication, January 1996; also see Taçon 1994). Some of these places may have been returned to over many (possibly thousands) of years. The meaning of the place may have been recreated by later groups who were not necessarily directly descended from the original creators, but who nonetheless maintained their own sense of place and self by reference to the past through the rock art. The places themselves would thus have accumulated meaning through time, possibly drawing people to them as the correct location for important social ritual to occur (Deacon 1988:131, 138). Once established, the importance of the place may be transferred through time as one group replaced another (Sundstrom 1996).

In addition, social status or relations which constitute individual and group identity is often defined through access or knowledge of culturally important places. And so, knowledge of these places would likely be experienced differentially according to the status of the observer, with the knowledge of some designs or even the locations being restricted based on such things as age, gender or kin (Tilley 1994:26). The visibility of rock art sites in the

landscape or other contextual indications of site activities will allow an understanding of *who* may have been entitled to view or interact with it.

Tilley (1994:18) suggests that named specific topographic features become "*locales* . . . created and known through common experiences, symbols and meanings . . . invested with meaning and significance," and that these places become crucial in the creation of landscapes. Giddens (1979) too shows how, through this process, the landscape enters into social discourse, creating history and defining social relations. I suggest that rock art sites also can be seen as *places*, as a way of producing a landscape where meaning is created and the identity of self and society are constructed and re-constructed. By marking the landscape, like naming or creating *architectural space* (Tilley 1994:17), people may have been warned or reminded of the meaning of the place, of events that had occurred there in history or in mythic time and reminded of those who had come before, all within an actively participating landscape. Rock art sites become *places* in the landscape, places which are modified through culturally determined behaviour in order to facilitate social discourse or interaction.

Chapter 4: The Archaeology of Rock Art

Rock art has long fascinated researchers and the general public. Over the last one hundred years various theories have been developed in order to understand its motivations and meanings, including hunting-magic, art-for-art's-sake, structuralism and shamanism. Only those theorisations which have impacted Great Basin studies are reviewed here (hunting magic and shamanism). Because structuralism has not played a significant role in the Great Basin it is not discussed here, and the problems associated with structuralist approaches to rock art have been well discussed by other researchers (see Ucko and Rosenfeld 1967).

The anthropological approaches to symbolism outlined in Chapter 2 pose some significant problems for rock art studies as currently constituted. In particular, rock art approaches past and present have paid insufficient attention to the anthropological observation that the references and exegesis provoked by symbolic systems are determined by their *contexts* – in the fullest sense (Sperber 1975). Consequently rock art's broader archaeological and environmental contexts have tended to be neglected. This neglect is now beginning to be addressed by approaches applying insights from the studies of the cultural role of landscape, discussed in Chapter 3. The archaeological application of this perspective concludes this review of approaches to rock art.

The development of rock art studies worldwide owes much to the study of Upper Palaeolithic European cave art. European parietal art came to be seen as an indication of the very moment in time that fully modern human behaviour 'exploded' into existence (Pfeiffer 1982) or the start of human religious expression (Dickson 1990). This perceived centrality of

European cave art to the issue of the evolution of human cognitive faculties helps explain why the main approaches to rock art have been developed to interpret this body of art, including the currently popular neuropsychological or shamanistic approach (Dowson 1996:65). Approaches to rock art interpretation have tended to be either functionalist, in the sense of revealing a latent practicality to the production and use of rock art (e.g., hunting magic), or cognitive in focus (e.g., neuropsychology and structuralism).

Ethnographic analogy has always played a leading role in the development of interpretative approaches towards rock art. This reliance on ethnography raises many important issues, which I discuss in more detail below, particularly whether it is possible to understand rock art lacking direct 'informed' sources (Taçon and Chippindale 1998:6-7). The use of ethnography, however, should not be confused with the important goal of incorporating the voice of modern Native peoples into rock art interpretations (Woody and Quinlan 1998; Quinlan and Woody 2000a).

4.1 *Hunting Magic*

Since the discovery of the painted caves in Europe, hunting magic has been a dominant interpretation of the art. While this model began to lose some of its support in Europe during the 1950s and 1960s, it remains important in the Great Basin (e.g. Nissen 1995; Gilreath 1997, 1999). Hunting magic has only very recently been strongly challenged outside of Europe with the introduction of the Shamanistic model (see discussion below).

4.1.1 Hunting magic in Europe

The hunting magic model was stimulated by the desire to find a more meaningful explanation than "idle doodling" or "mindless decoration" for European parietal art. The character of European cave art (the restricted content of its imagery and the apparently meaningful selection of locations painted), suggested some significant purpose underlying its production and use. Spencer and Gillen's (e.g.,1899) reports concerning the performance of ceremonies to guarantee and increase the number of animals hunted among Australian Aborigines excited much interest. Reinach (1903) regarded this Australian information as a powerful analogy for the Palaeolithic peoples of Europe since Aborigines were widely seen at that time as the most primitive modern humans and thus relics of the earliest human societies (e.g., Frazer 1922:63).

Reinach characterized Palaeolithic cave art as predominantly representing food animals and being located in areas of caves difficult to gain access to (Ucko and Rosenfeld 1967:124). Believing that non-Western populations commonly believed that it was possible to exert magical control or influence over subjects represented in art or by objects, Reinach interpreted cave art as the remains of sympathetic magic rituals. Cave art functioned to increase the number of food animals and/or to aid in the hunting of them. The theory of hunting magic therefore fitted well with the prevailing conception of hunter gatherer life being one of unremitting struggle and implied what would now be considered a Malinowskian (1925:82-83) view of the use of magic in situations where technology fails. Reinach's interpretation was eagerly adopted by Brueil and Bégouën whose influential position in the study of European

cave art ensured that hunting magic dominated research from the 1920s until the 1950s (Ucko and Rosenfeld 1967:128-129).

4.1.2 Hunting magic in the Great Basin

Prior to the 1960s rock art research in the Great Basin tended be untheoretical in nature and restricted primarily to site recording. However, the first major study of Great Basin rock art was done by Julian Steward in 1929, and in it he speculated about the purpose and function of rock art. He maintained that historic Native American populations knew little or nothing about the petroglyphs and pictographs and "often regarded them with fear," although they were "probably made by the ancestors of the present tribes" (Steward 1929:224). In his opinion, rock art served "some religious or ceremonial purpose" (*ibid*:225) which included both boy's and girl's puberty ceremony, clan symbolism, "guardian spirits, or shaman's powers . . . although it is unlikely that all were made for this purpose" (*ibid*:226). Steward's contribution to rock art research (and to Great Basin anthropology in general) is undeniable, and in one way or another, all later studies have been built on his work.

The publication of Heizer and Baumhoff's (1962) *Prehistoric Rock Art of Nevada and Eastern California,* in addition to synthesizing the existing data, applied a hunting magic perspective to Great Basin rock art. They documented an apparent trend for rock art sites to be located in association with game trails, hunting blinds and hunting equipment (such as projectile points). This was interpreted as evidence that rock art had been made and/or used in relationship to hunting magic. Like the model's European proponents, Heizer and Baumhoff

believed that the difficulty of life in prehistory, especially in the harsh environment of Nevada, would have necessitated some kind of magical device (sympathetic magic) to ensure economic success. The now evident domestic contexts of many rock art locales was overlooked by Heizer and Baumhoff, even though many of their own site descriptions contain abundant references to middens, milling stones and possible house rings (Cannon and Woody *in press*). This denial of the domestic context of many of Nevada's rock art locales is a misconception that persists today (e.g., Whitley 1998a:22, 1998b:41-42).

4.1.3 Critiques of Hunting Magic

Although the hunting magic model remains popular (e.g. Nissen 1995; Matheny, Smith and Matheny 1997) subsequent criticism has concentrated on the lack of anthropological support for its theorization of Upper Palaeolithic sympathetic magic (e.g., Ucko and Rosenfeld 1967; Rector 1985) and its apparent misinterpretation of the archaeology of the European caves (Bahn 1997). The theory was seemingly based on unsound ethnographic analogy and an inaccurate conflation of "sympathetic magic" and totemism (Rector 1985:127). It represented "late nineteenth and early twentieth century notions of how natives were supposed to think" (*ibid*:130), based on prevailing ideas of unilinear evolution. Furthermore, the picture of uncertainty and struggle in the economy of Upper Palaeolithic hunter-gatherers in southern Europe is something not necessarily supported by subsequent archaeological research (Conkey 1981:24).

However, the incorporation of rock art in hunting magic rituals does have some ethnographic documentation. Among the Tukano of Colombia shamans are considered to be

"the direct intermediary between hunters and the Master of Animals" (Reichel-Dolmatoff 1967:109). Their rock paintings "represent a kind of 'shopping list' which the shaman submits to the Master of Animals" (*ibid*:111). The use of magic to aid economic reproduction has been well documented and therefore the hunting magic model is not as implausible as its critics sometimes imply (Woody and Quinlan 1998; Quinlan 2000; Quinlan and Woody 2000a and b).

Archaeological critiques have been more forceful because they have highlighted the misrepresentation of data required to make the hunting magic model 'fit' the evidence of the European caves (Ucko and Rosenfeld 1967:175-195). Breuil's reproductions of the paintings and the engravings of parietal art, despite his best efforts, represent his interpretations of what he *thought* he saw rather than what was actually depicted (e.g., see Ucko and Rosenfeld 1967:206; Bahn 1997:Fig. 10:34 and 10:35). This was a major problem since, due to the difficulty in accessing the caves, researchers have tended to study Breuil's illustrations rather than the actual art itself (Conkey 1981:21). In addition, the evidence garnered to support the hunting magic interpretation of the European caves was sometimes incomplete or selective (Ucko and Rosenfeld 1967:175-195), a fault shared by hunting magic approaches to Great Basin rock art (Cannon and Woody *in press*). Leroi-Gourhan (1965:134, 173) noted that even if all of the purportedly "wounded" animals depicted were actually connected in some way to hunting activity, the number would still be less than ten percent of the total. Some of these "wounds," all of which are somewhat ambiguous, seem to have been painted on non-lethal areas, such as ankles and at other times "arrows" appear to be "about to, or have already just, 'missed' an animal" (Ucko and Rosenfeld 1967:187).

It is now clear that the animals most often depicted in European cave art were not those exploited in any great number, as evidenced by faunal assemblages (Ucko and Rosenfeld 1967:181-182). This discrepancy between the art and faunal assemblages has been explained by proponents of the hunting magic model in terms of the art depicting either "preferred" food animals or the most "feared" food animals (Rice and Paterson 1985:98). Therefore, the animals most frequently portrayed in Palaeolithic cave art would be those of higher symbolic status and not necessarily the animals that provided the bulk of the diet. In a similar vein, dangerous animals would have been depicted in order to render them harmless. In fact, looking to the specific imagery of rock art itself is unlikely to resolve whether or not its production and/or use was motivated by hunting magic rituals. It will always be possible for the model's proponents (or those advocating any other model for that matter) to find representations that can be interpreted as supporting their theoretical construct. European cave art has now become a symbolic record, and as discussed above, like all forms of symbolism, is capable of evoking an unlimited number of interpretations which may be mutually irreconcilable.

4.2 *Hunting Instruction*

Although the hunting magic model is now somewhat out of favour, there are current interpretative models that are clearly variations on it. One such case is the idea that rock art was used in the acquisition of hunting knowledge (Mithen 1988, 1990, 1994, 1998). This hunting instruction model regards European cave paintings as a means of allowing young hunters to "learn how to learn about the environment and its resources" through instruction and observation of "information laden" animal and environmental cues (Mithen 1990). Mithen

(1990:246) regards many characteristics of Palaeolithic art as depictions of such cues which aid in the cognitive development of "search behaviours" in children. He also tracks the process of decision making as it applies to hunters individually and in groups and how those decisions allow them to become more successful in their pursuit. His "eco-psychological" approach, based on information and optimal-foraging theory, is largely related to maximizing returns for minimum investment of energy. Hunting skills are not simply passed on to others via the paintings in an archival or narrative sense, but instead "place the art into its ecological context and the hunting into its social and cognitive context" (Mithen 1990:198). This approach has recently been adopted by Matheny, Smith and Matheny (1997) in the Great Basin to suggest that aspects of bighorn sheep ecology are represented in the rock art of Nine Mile Canyon, Utah.

Clearly, this model reproduces the logic of rock art functioning as a means of securing hunting success which lies at the heart of hunting magic. It suffers from the idea that rock art is somehow a formal part of the training of children. This may reflect the bias of researchers from societies where cultural information and practical knowledge are largely transmitted in highly formalized social contexts (schools and universities) and through the medium of language. In most non-industrial societies learning, even very highly skilled practices, is not transmitted through explicit tuition, but is acquired via imitation and tentative participation (Bloch 1998:7). This model fails to consider why information should be transmitted this way when practical consciousness is largely developed in the routines of daily life (Giddens 1984; Bourdieu 1977).

4.3 *The Neuropsychological model*

Currently one of the most important and influential approaches to rock art is the neuropsychological or shamanistic model. The origins of this model can be traced back to Reichel-Dolmatoff's innovative research (1972, 1978) on the relationship between Tukano art and hallucinations. It is chiefly the work of Lewis-Williams and Dowson (1988, etc.), however, which has made the neuropsychological model the leading approach in current rock art interpretation.

4.3.1 Shamanism in the Rock Art of the Old World

The neuropsychological model argues that rock art contains certain motifs intended as representations of visual imagery (phosphenes or entoptic phenomena) experienced during altered states of consciousness (ASC). Clinical studies of induced vision imagery suggest that subjects perceive entoptic phenomena as geometric forms of varying degrees of complexity

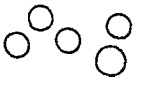
Grid	Sets of lines	Dots	Zigzags	Catenary Curves	Filigree
					

Table 1: *Basic entoptic forms defined by the neuropsychological model (after Lewis-Williams and Dowson 1988:202-203).*

(Knoll and Kugler 1959; Siegel 1977:134-135). Drawing on this and other clinical research, Lewis-Williams and Dowson (1988:202-203) isolated six primary entoptic forms whose presence in rock art indicates an association with ASC (Table 1).

Entoptic phenomena and hallucinations are perceived by subjects in a number of ways, of which the most common seven "principles of perception are replication, fragmentation, integration, superpositioning, juxtapositioning, reduplication and rotation (Lewis-Williams and Dowson 1988:203).[13] Three stages in the progression of mental imagery during ASC are identified, although each can be experienced alone or in combination with the others. In the first stage, entoptic phenomena are experienced alone. In the next stage, subjects mentally elaborate entoptic forms into iconic forms as they try to make sense of them. In the third stage, marked changes occur as iconic imagery becomes predominant, although entoptics still persist. These principles governing the experience and perception of vision imagery also explain the process by which entoptic imagery is elaborated or construed into iconic images (Lewis-Williams and Dowson 1988:208, 210-213 and Figure 4). For example, Lewis-Williams and Dowson discuss depictions of bighorn sheep in Coso rock art as being construals of a basic entoptic form (*ibid*:210, Figure 5). The identification of abstract imagery which resembles entoptic phenomena, or iconic motifs incorporating them, supposedly demonstrates the art's association with ASC (*ibid*:205). It is this relationship with ASC that leads adherents of the neuropsychological model to associate the production and use of rock art with shamanistic activities, since for them "the most important and overriding feature of shamanism . . . [is] altered states of consciousness" (Lewis-Williams and Dowson 1988:204; Lewis-Williams

13 It is interesting to note that these principles are the same used in the structure of many designs (Anderson 1961; Proctor 1969)

1997:323), a somewhat essentialist perspective. Why shamans would make rock art is something that has only been addressed more recently. A number of explanations have emerged, principally that shamans made rock art:

1. To record important vision experiences (Whitley 1994c:5).
2. To relate their experiences to non-shamans (Dowson 1994b).
3. To legitimate the shaman's ascendant political role (Dowson 1994b).
4. To stimulate trance states (Lewis-Williams and Dowson 1990:11-12).

Recently however, Lewis-Williams (2000) and Dowson (1999) have both independently suggested that the presence of entoptic imagery is not sufficient to indicate ASC, but without suggesting alternative means of identifying trance related arts.

4.3.2 Critiques of the Neuropsychological Model

Although the neuropsychological model has enjoyed considerable popularity, a number of problems have been commented upon since the publication of this very influential paper (Lewis-Williams and Dowson 1988) which have never been adequately addressed. Clearly some feel uneasy with a model that assumes an inevitable connection between rock art and trance states. As Layton (1988:226) noted, "While altered states of perception may induce universal images, they do not inevitably produce rock art." The model's reliance on such basic geometric forms as indicators of an art's connection with ASC has also provoked much criticism (e.g., Bahn 1988; Davis 1988; Layton 1988). So elemental are these basic entoptic forms that "their extreme simplicity suffices to explain their vast distribution" (Le Quellec 1999:28). Hence the model "attach[es] the greatest weight of evidence to simple forms . . . which contain [the] least visual information" (Layton 1992a:212). Consens (1988:221) points

out that of thirty known phosphine categories, only six are included in Lewis-Williams and Dowson's (1988) formulation, implying that entoptic phenomena less supportive of the model were simply excluded from analysis. Bahn (1988:217) states quite correctly that "the theory cannot fail simply because . . . in any collection of nonfigurative art there are bound to be lots of marks that look like some or all of the six entoptic categories presented." Further, by regarding iconic imagery as potential construals of entoptic elements "anything and everything can be interpreted as a permutation of one of the rather casually defined entoptic 'types'" (Davis 1988:223).

Indeed, it is open to question whether or not the six basic entoptic forms defined by Lewis-Williams and Dowson (even if they are subjected to the "seven principles of perception") inevitably refer to ASC when they appear as motifs in rock art. As Lewis-Williams and Dowson themselves admit (1988:202), these fundamental entoptic forms can be stimulated by "psychoactive drugs . . . fatigue, sensory deprivation, intense concentration, auditory driving, migraine, schizophrenia, hyperventilation, and rhythmic movement." Such phenomena are even stimulated by rubbing one's eyeballs and ordinary sleep (Oster 1970:83-84, 85). How, then, can the non-trance sources of entoptic-resembling imagery be distinguished from that with its origins in shamanistic practices?

Dronfield's (1993, 1995, 1996) attempts to define motifs diagnostic exclusively of trance imagery demonstrates quite clearly that such analytical precision is simply not possible. A comparison of arts known to have been produced to record induced vision experiences with those known to have no association with trance states (Table 2) led Dronfield to conclude that

of trance and non-trance derived imagery, it was only possible to identify motifs diagnostic of *non-trance* imagery. Triangles, squares and rectangles are identified as motifs whose presence in a body of art indicates that it was *certainly not* associated with ASC (Dronfield 1993:186-189, 1996:386-388).

Arts known to be derived from ASC	Arts presumed to be derived from ASC	Arts with no association with ASC
Clinical Subjects	Chumash rock art	Chikat blankets
Tukano crayon drawings	Huichol art	Roman mosaics
		Nubian house decoration
		Nuba body art
		Benin plaques

Table 2: *Art traditions used by Dronfield (1993; 1995; 1996) to define motifs diagnostic of trance and non-trance arts.*

But even this conclusion seems somewhat unconvincing since these very motifs occur in the arts selected by Dronfield to characterize those produced as the outcome of ASC. The triangle is one of the common basic shapes seen by the Tukano after ingesting *Banisteriopsis* (a hallucinogenic plant used in collective rituals and for purposes of divination and medical practices [Reichel-Dolmatoff 1978:293]). Triangles, squares and rectangles are all present in Chumash rock art (see Grant 1965: Plates 1-4, and Figures 69, 70, 71, 76) and in Huichol arts (see Berrin 1979:143-204; Lumholtz 1900:223). Further undermining the apparent utility of these motifs as indicators of non-shamanistic arts is their presence as decoration on shamans' drums among the Baraba Turks of the western Siberian Baraba steppe and the Teleut of southern Siberia (Hoppál 1998), although it is not mentioned whether or not the drums are painted by the shamans. Whether or not shamans create their own ritual objects is variable among Arctic peoples ("the shamanic zone par excellence" [Le Quellec 1999:28]); some do,

while others either use family-owned objects or commission paraphernalia to be produced by specialists (Czaplicka 1969:203-223).

Much of the neuropsychological model's appeal stems from its apparent ethnographic support. Lewis-Williams and Dowson have consistently argued that their shamanistic interpretation of Southern African rock art is strongly supported by /Xam (San or Bushmen) ethnography. These data are records compiled by the German linguist Wilhelm Bleek during the nineteenth century, including descriptions of the way of life, rituals, myths and beliefs of the Bushmen at the time of contact.[14] South Africa has a very long rock art tradition, with fragments of painted stone recovered from the Apollo 11 shelter which may be as much as 26,000 years old (Lewis-Williams 1983:26).[15] Although the modern /Xam themselves have no tradition of rock art, they do know of it from other areas, and believe that "God put the paintings there" (*ibid*:14). The makers of the spectacular paintings have been gone for a long time, but in Bleek's work "a record of Bushman life and thought . . . was compiled in the 1870s and is thus contemporary with the last artists" (*ibid*:12). Lewis-Williams believes that because "many of the most important concepts and beliefs still persist among the Bushman groups which survive in the Kalahari Desert" (*ibid*:12), interpretations of the prehistoric rock paintings can be made based on this linguistic work. The reliance on ethnography for interpretation has become the hallmark of Lewis-Williams and Dowson in the years since the

14 It is interesting to note that Lewis-Williams and Dowson (1988) examined the rock art from the Drakensburg, not the area where these linguistic data were derived.

15 The Brandenberg area is known to have paintings at least 2,700 years old (Personal Communication, Paul Bahn, November 1999); at Steenbokfontein Cave painted slabs fallen at least 3,600 years ago are now claimed to be the oldest datable parietal art in South Africa (Jerrardino and Swanepoel 1999).

publication of their influential study, and remains central to the many others who use the neuropsychological model as the foundation of their research (Chapter 4.33).

This reliance on ethnography in the construction of the model, however, was also criticized from the beginning, and there has been growing criticism within South African circles as to the reliability of the Bleek journals and the "metaphorical" reading of those works (e.g. Solomon 1997), as well as more general criticism of methodologies (Skotnes 1991). Furthermore, it is important to remember that the direct and even the implied reference to rock art in the San ethnography are rare (e.g. see Solomon 1998).

Of course the use of analogy in archaeology is almost unavoidable (Wylie 1985), in spite of the notorious arbitrariness of human cultural signs (Layton 1992a:212). Besides the traditional types of functional or technological analogies that have been used, the use of ethnography as a *starting point* of analysis is fully appropriate in certain situations, especially where there is reliable cultural continuity or in the rare instances where rock art was still being produced until very recently (e.g., Australia). Even in those cases, however, the ethnographic sources for rock art are so few that it is hard to derive from them a sense of change over time (Quinlan and Woody 2000b). It is extremely risky, however, where there has been cultural replacement in the relatively recent past (as has likely occurred in the Great Basin) or if the rock art itself is potentially very ancient. To use historic or modern exegesis for rock art that is thousands or many thousands of years old not only imposes the present onto the past (Hodder 1992:148-149), but also mythologises Native peoples, assigning to them a timeless or unchanging, romantic quality that further denies their humanity. As Lippert, herself from the Choctow Nation and a professional archaeologist, puts it "This benevolent, though misguided, viewpoint again places Native Americans in a category other than human. At times

it seems easier to contend with clear-cut ignorance rather than well-intentioned romanticization" (Lippert 1996:59).

The neuropsychological model does not address why rock art occurs where it does in the landscape, suggesting only that it should occur at places in the landscape where supernatural power might be accessed. The engraved or painted surface may well have been seen as a "veil" between this world and the spirit world (Lewis-Williams and Dowson 1990), but the full context is not examined. As mentioned above (Chapter 1), while most archaeological materials are portable objects which have moved about the landscape, rock art is fixed in place. Locational operations are a strong starting point for study, and one has cause to be cautious of analytic results incompatible with the realities of rock art location in the landscape (Chippindale and Nash *in press*). The placement of rock art in the Nevada landscape further demonstrates that places of supernatural power are not inevitably marked by rock art.

Likewise, the shamanistic model focuses very little on the ways that imagery takes on social meaning, although that is the goal of many researchers who follow the shamanistic model, but it is the social role only of the shaman that seems to be of interest (e.g., Dowson 1994a and b;1996; Whitley 1994a; 1998a). In some cases rock art localities in Nevada were returned to over what may have been many thousands of years, and rock art produced and re-produced, at least intermittently (possibly in the same sort of "outbursts" Taçon [1993] has identified in Australia). This re-use may well indicate that the rock art had become an indicator of power, not because one who visits there might have a vision, but because the rock art itself was the mark of an ancestor or powerful spirit. This view may be a potentially important means of understanding the role that visual imagery may play in structuring the social world, although it must be borne in mind that "It is the arrangement of social relations that gives structure

rather than repeated use of locations over time" (Root 1983:205). I will argue that the occasional re-use of sites and in some cases the way the imagery itself is reproduced, may have been one way of legitimizing access to both ecological and social resources by constructing links with the past and with others with whom those resources may be shared.

4.3.3 The Problem of Shamanism and Great Basin Rock Art

The shamanistic model has been gaining strength in the United States since the 1970s, and recently has been most notably championed by David Whitley who uses it as the foundation for his research of rock art of the far western United States. He follows Lewis-Williams and Dowson (1988) in hypothesizing that rock art is the product of male shamans[16] who record their visions experienced during altered states of consciousness (ASC). This would however seemingly be unimportant in a non-literate society where song was the main vehicle of encoding important information. It may simply be biassed attention to visual imagery as a means of documentation from researchers who are themselves a part of visually oriented societies.

Whitley's work shares the same theoretical problems discussed above for the general Shamanistic Model. In particular, entoptic imagery is cited as support for his shamanic narratives which are based on ethnography and present a static view of prehistoric cultures. His recent work however has drawn a great deal of interest and attention from rock art specialists, as well as by avocational and professional archaeologists, and in many ways his

16 It is interesting that Whitley insists that only males were shaman, however, historically only the Kawaiisu (a Great Basin group in southeast California) restricted shamanism to only men (Driver 1937:102)

voice has come to dominate Great Basin rock art research. Internationally, Whitley's work has been used to support the development of the general shamanistic model; so a review of his work is appropriate here.

It should first be noted however, that this review of a single author from the Great Basin is not in any way intended as an *ad hominem* attack, but rather an acknowledgment of the fact that most of the recent innovative work in the region has been the product of a single person and his immediate collaborators. Furthermore, I would be the first to acknowledge the important contributions he has made in bringing rock art research to the forefront of American archaeological research. In some ways it is not unlike Heizer and Baumhoff's (1962) contribution to rock art (although I feel confident that Dr Whitley would not appreciate the comparison), where although I do not agree with the theoretical approach, I can acknowledge the interest in the field this work has spawned. In any event, criticisms made here cannot diminish Whitley's contribution to rock art research.

Although Whitley has used the theory of the neuropsychological model to support his research by identifying entoptic imagery and imagery seemingly metaphoric of trance imagery (e.g., 1998b:40, 1998d:154 etc), ethnography has been the most important source of evidence used to support his interpretations (e.g., Whitley 1992; 1994a; 1994b; 1994c; 1998a; 1998b; Whitley, Simon and Dorn 1999). He correctly avoids relying exclusively on imagery that resembles entoptic phenomena to support his arguments, and therefore avoids simply labelling rock art as "shamanistic" based only on the character of its imagery. However, because rock art images are "clearly derived from the mental imagery of altered states" (Whitley 1998d:154), and because imagery resembling entoptic phenomena "cannot be readily explained by any other

hypothesis" they "serve as important independent evidence" of a shamanistic interpretation (Whitley 1998c:40).

The reliance on historic ethnography is somewhat surprising, however, since previous researchers (e.g., Steward 1929; Heizer and Baumhoff 1962) were struck by the almost complete absence of ethnographic information concerning the use and meaning of rock art in Nevada and the Great Basin more generally. It has been argued that informed sources (i.e. historic ethnography) relating to rock art were overlooked since anthropologists were insensitive to the metaphoric nature of consultant information (Whitley 1994b:81-82). Metaphoric re-analysis of the ethnographic record for the Great Basin is argued to reveal that Native consultants cryptically confirmed that rock art was made by shamans to record their visions and was used in their vision quests (Whitley 1992; 1994a;1994b; 1994c; 1998a, 1998b). However, critics have suggested alternatives to the view of Great Basin and California ethnography which underpins Whitley's shamanistic understanding of Nevada's rock art (see Monteleone 1998; Quinlan *in press*; 2000), others question the accuracy of his representation of ethnography and other research (Hedges 2000).

One significant problem that the shamanistic approach shares with its hunting magic predecessor in the Great Basin is its denial of rock art's associated archaeology. It is often argued that there is little or no associated archaeology at rock art locales in the Great Basin (e.g., Whitley 1998a:13). However, the wealth of domestic materials from rock art sites suggests that a broad range of activities took place (Ricks 1996:132; Gilreath 1997:15) and these sites were used by households, not solely by shamans. Gilreath (1999:35), for example, defines a Coso Complex which includes "rock shelters and caves, open-air habitation sites, chipping stations, milling slicks, cairns / dummy hunters, hunting blinds, and rock rings" in

addition to rock art. These archaeological associations suggest that a variety of activities were conducted at rock art sites.

Such associations are obvious in some situations (e.g., grinding surfaces directly on or below rock art) but are dismissed, suggesting that "unlike Euro-American culture, Native Americans made no separation between sacred and profane space" (Whitley, Simon and Dorn 1999:16). Whitley argues that because the occupations were seasonal, vision questing occurred when the site was unoccupied. Ironically, this statement implies that a distinction *was* made between sacred and domestic space since vision questing is theorized as possible only when rock art locales were not being used domestically. And it is conceded that at least historic populations in the Great Basin regarded certain specific places as being particularly powerful (Whitley 1998a:21), demonstrating again that some distinction was made. It is further detrimental to Whitley's model that these places of recognized power very rarely incorporate rock art (Monteleone 1998). A "win-win" situation is carefully constructed, by suggesting alternatively that sacred places do not have rock art associated with them, yet at the same time rock art sites are the locales of vision quests where power could be sought (Whitley 1998a:22). But in any case, neither of these contexts (sacred locales or locales where power could be intentionally sought) in Nevada at least, tend to have rock art associated with them. The exception to this is the very small number of "Medicine Rock" sites (Chapter 10.3), although "these rocks seem to have been used more to cure illness and to grant favours rather than for a person to receive doctoring power" (Fowler 1993:178).

Alongside issues of the accuracy of Whitley's understanding of Great Basin ethnography (Chapter 5.2), is an important temporal issue. It is argued that some rock art is extremely old (Whitley 1987; Whitley and Dorn 1993; Dorn 1998:Table 2; Whitley, Simon and

and Dorn 1999:17-24), but at the same time, recent historic ethnographies are used to elucidate its meaning. The essence of the problem is the attempt to explain *all* rock art across such a vast area (from California to Wyoming), through an extremely long period of time, through the insights of a limited historic ethnography. It is difficult to accept that there were no fundamental changes or differences across space throughout the history of the desert west (Monteleone 1998). If these interpretations were limited to the contact period and to the time and places addressed by the ethnography, the argument might be stronger.

This reliance on recent historical ethnography for rock art interpretation is justified by supporters who argue that the Great Basin exhibits cultural continuity over a very long period of time, and by treating the subjects of historic ethnographies as culturally homogenous. This again is difficult in an area, such as the Great Basin, with an exceedingly complex history of occupation. While respecting the religious beliefs of Native Americans,[17] most archaeologists agree that cultural replacement has occurred at least once in the past, it is only the timing and source of the replacement that is debated (see Grayson 1993:258-271; Madsen and Rhode 1994).

Historically the Great Basin was occupied by populations speaking languages related to the Numic language family. Bettinger (1994) suggests that pre-Numic populations exploited only high-quality resources such as bighorn sheep while Numic populations were more dependent on small mammals and seeds which allowed for, among other things, higher populations. The earlier emphasis on bighorn sheep by pre-Numic populations may explain the

17 The origin story of most Great Basin peoples teaches that they did not migrate to the New World, but were rather created there, although most also suggest that they came to where they currently live from another place (Hultkrantz 1986:638-639). And see Fowler 1992:228-242 for review.

high numbers of motifs which resemble bighorn in the southern Great Basin (where most of Whitley's research is done), but again making use of Numic ethnography for interpretation is questionable with regards to this rock art.

What evidence supports the cultural continuity that is so critical to such a broad application of historic ethnography? Firstly, continuities in the technology of petroglyph manufacturing tools is cited as evidence of cultural continuity (Whitley, Simon, Dorn, Rechtman, Whitley 1999; Whitley, Simon and Dorn 1999). Traces of quartz have been found inside engravings, sealed below rock varnish, at several locations in south central California (Whitley 1998d:162; Whitley, Simon, Dorn, Rechtman, Whitley 1999: 228; Whitley, Simon and Dorn 1999:20-22). It is suggested that the triboluminescence of quartz (when two quartz crystals are rubbed or struck together a light is generated) was recognized as an internal power in the stone, explaining why quartz was selected as a pecking tool. The use of quartz hammer stones to make petroglyphs known to be very old and those which are very recent is argued to constitute clear evidence of cultural continuity. Some of these "engraving tools" have apparently been found at the base of rock art panels (Whitley 1998d:111), something not noted in Nevada.[18] And additional unmodified quartz cobbles have been found wedged into cracks in the rock at rock art sites which are thought to be offerings (Whitley, Dorn, Simon, Rechtman, Whitley 1999:226 and Figure 5), again something not known to occur in Nevada.

Yet, is the putative long-term continuity in the choice of material for pecking tools a sign of long-term cultural continuity? After all, in the Great Basin obsidian is the usual material

18 Pecking tools have been recovered in Nevada but none reported are quartz, see below, Chapter 6.2, although quartz crystals are sometimes found at rock art sites, none have been recorded as pecking tools.

is the usual material for mundane stone tools, but few would use this to argue for a basic cultural continuity spanning some 10,000 years or longer. A much less elaborate explanation is also equally possible, one that does not equate technological continuity with cultural continuity, but it is rejected (Whitley, Simon, Dorn, Rechtman and Whitley 1999:235). Quartz is very common in the desert west, and it is also an extremely hard stone (7 on the Mohs scale) compared to the basalt (6 on the Mohs scale) on which many petroglyphs were made (although in California a number of rock art sites are on granite–where quartz and quartz grains occur naturally. Quartz makes an excellent engraving tool simply because of its hardness. That fact and its widespread distribution is sufficient to explain its presence at settlement and rock art sites, rather than hypothesizing that culturally distinct groups shared a homogenous belief-system for some ten millennia (Amy Gilreath, personal communication, July 1999).

The most intriguing argument presented in support of cultural continuity is site re-use and iconographic similarities over very long periods of time (Whitley, Simon and Dorn 1999:19-22; Whitley, Dorn, Simon, Rechtman and Whitley 1999:237-240). I will argue below (Chapter 10.2.3) that in some cases the reuse of sites, the repetition of motifs and "renewing" of older ones is one of the ways that social groups legitimate their own presence in the landscape and access to resources. Such re-use establishes a link with the past in the places where ancestors left their mark, creating a link through the place and the imagery found there, and in doing so, create their own identities and history (Connerton 1989:48). However, re-use of sites need not imply cultural continuity, once created monuments exert a pull even on subsequent populations which do not share a cultural relationship with them (Bradley 1993). This idea of connecting with the past or creating a new sense of place through the rock art is

generally not addressed by shamanistic authors, because the place is not what is important, only that the presence of rock art indicates shamanistic activity.

Lastly, the presence of historic motifs is also used to support the idea of cultural continuity, and this does indicate clearly that the practice of rock art production continued into historic times (Whitley 1982:8-9 and Figure 65;1998d:138-139) or was revived by the colonial experience (Quinlan and Woody 2000a). Historic imagery is dated by its content and takes the form of such things as cowboys on horses or wagons and occurs sporadically in Nevada and the Desert West more generally (Chapter 10.2.3). It is suggested that some abstract imagery is of the same date as depictions such as horses or cowboys, since there are similarities in the degree of patination (Whitley 1994b:84). This, however, disregards the significance of striking discontinuities in the content of rock art imagery and that degree of patination is an unreliable guide to age (Whitley *et al* 1984:24).

While one can understand how abstract images resembling entoptic phenomena can be cited as evidence that rock art records vision experiences, one is left to wonder in what sense depictions of cowboys and horses are vision imagery. It seems more likely that historic imagery was intended as a straightforward recording of unusual or potentially dangerous encounters, something documented elsewhere in the world (e.g., Layton 1992b:89-113). The scattered nature and very low numbers of rock art sites in Nevada with historic motifs (only 27 out of 1037 sites; Chapter 7.2), suggests that possibly its production was idiosyncratic and individual, and not related to significant cultural institutions (Woody and Quinlan 1998). One suspects that Native consultants who told anthropologists that some rock art had been made recently "just for fun" (e.g., Stewart 1942:321), were referring to such imagery. However, as a large-scale cultural practice the use and production of rock art had died out and memory of it had been

lost by the time the earliest ethnographies were written (Woody and Quinlan 1998). Or, as I will suggest, the re-use of an ancient tradition (rock art) during catastrophic times (historic contact) may have been an attempt to deal supernaturally with dangerous intruders (Chapter 10.2.3). It becomes a problem of essentialism, where rock art is seen as 'representative of' rather than as I argue 'constitutive with' the relations between people.

The ethnographic material also raises serious doubts about a shamanistic approach to Nevada's rock art. There is very little or no direct ethnographic information supporting a shamanistic interpretation, despite arguments to the contrary. Ethnographic sources are drawn primarily from groups in California and groups peripheral to the Great Basin (Monteleone 1998). This information is then directed to Great Basin groups as if the Desert West was culturally identical to California. As noted earlier, the general ethnographic silence regarding rock art is interpreted as a sign that anthropologists were insensitive to the full references of their consultants' information; instead, consultants cryptically informed anthropologists about the shamanistic basis of rock art (Whitley 1992:97, 1994b:82, 1994c:3, 1998d:144). This reticence to discuss rock art is argued to stem from such things as fear of shamans, taboos on naming the dead, and a disinclination to discuss religious matters with outsiders (Whitley 1994b:82, 1994c:3, 1998b:36, 1998d:144). But in fact ethnographers recorded a huge amount of information regarding religious beliefs (Bettinger and Baumhoff 1982:494; Siskin 1941, 1983); and several extensive monographs are devoted exclusively to the topic of shamanism (Kelly 1936, 1939; Park 1938; Hultkrantz 1987). Further, taboos on naming the dead would have prevented consultants specifying by name individual shamans as the authors of rock art, not rock art's connection with shamanism (Quinlan *in press*). In addition, Whitley is unable to

satisfactorily account for the fact that it was far more common for consultants to directly deny that rock art was made by shamans (Quinlan *in press*).

It also needs to be recognized that the Native people whom ethnographers enlisted as consultants were courageously facing the threat of cultural genocide and were principally motivated by the desire to preserve their heritage and the memories of their ancestors. I would argue that rather than attempting to mislead, they usually freely and fully shared the history and practices of their people so that they would not be lost forever, even if their own voices were silenced (Wheat 1967:vii).

As noted above, Whitley tends to apply culturally specific ethnographic information very broadly, consistently using ethnography peripheral to, and outside of, the Great Basin, to typify Great Basin cultural practices, and ignoring significant regional cultural variations. The South African shamanic approach (Chapter 4.3) presupposes a consistency across space and time of Bushmen knowledge; similarly, the far western United States hypothesis depends on a view of an unvarying and static "Numic" culture, implying 10,000 years of cultural stagnation across much of the desert west (Monteleone 1998:25). Because historically Great Basin populations spoke languages belonging to the Numic language family, it is assumed that significant cultural differences did not exist. It is argued for example that "Numic people as a whole shared the same culture" and that "Numic culture was thus a widespread phenomenon that extended beyond individual languages, filling up a significant part of native North America" (Whitley 1998b:31). In the enthusiasm for the shamanistic model, the large quantity of ethnographic and archaeological evidence is overlooked that does not support this position.

In the process, significant cultural diversity of the Great Basin is ignored, as are the significant variations in shamanistic practices (Monteleone 1998; Quinlan *in press*, 2000).

In some ways insensitivity to Native American cultural diversity "is a true conundrum because any form of Indian identity is better than none, yet it leads to the sacrifice of local culture" (Vrooman 1997:9). Native Americans who are working hard to rebuild traditions and self respect (especially among the younger members of their communities) are concerned about the pervasiveness of the growing "pan-Indian" culture where "youth are growing up relating to a national, popular identity, rather than one of local tribally-specific identity" (Vrooman 1997:9). And, as explained by Root (1996:102), for non-Indians this generic and often victimized (although often heroic) image, may only serve to provide a symbol with which disillusioned members of the dominant society can identify, and "appropriation can function as an ostensible mark of sensitivity to another culture."

Proponents of the shamanistic model tend to produce research on Native American rock art that contributes to this "pan-Indian" image, although some do not (e.g., Hedges 1976, 1983a, 1985, 1987). On the one hand these ideas are creative and provocative and have successfully carried rock art research onto the centre stage of worldwide symbolic archaeology. But on the other hand it requires the compression of at least ten thousand years of Native American history (what Conkey [1985:301] calls "spatiotemporal collapse") into an a-historical, spatially un-anchored amalgam that is so homogenized that it no longer bears any resemblance to the distinctive and unique cultural groups who inhabited the prehistoric Great Basin. And by portraying an image of seamless cultural continuity, it is implied that the cultural

devastation endured by Native peoples never occurred, certainly an unintended injustice to those whose art we seek to understand.

Both hunting magic and shamanistic interpretations share common failings. Both ignore the simple fact that the images themselves are not what produce meaning, and that focussing on the images alone will not necessarily allow understanding. It is rather, as discussed above, the contexts of use and production which impart meaning into any symbolic form, and which must be examined for understanding. While hunting magic at least attempts to situate rock art into its environmental context, both models, it and the shamanic model, are universal explanations and therefore ignore the specific contexts of Nevada's rock art shaping the interpretations placed upon it. Neither address questions regarding the broader social functions of the art or the relationships between the art and the natural or cultural environments in which it is found. The places where rock art is located should be seen in a new way, not as the locale of individualistic ritual, but rather as socially constructed points of articulation in time and space. Through these places in the landscape people structured their lives and created social identities and relationships, using a symbolic medium anchored to those places.

A review of rock art studies which have drawn upon the approaches to landscape discussed in Chapter 3 may shed light on a more productive approach. By looking at both the imagery and the contexts in which it occurs we may come closer to understanding rock art's broader social functions.

4.4 *Landscape approaches to Rock Art*

A number of studies have sought to explicate rock art in terms of its environmental context. As the above discussion on the anthropology of symbolism makes clear, since context determines the references of symbolic systems, such approaches are to be welcomed since potentially they can recover one significant dimension in the construction of indigenous exegesis of rock art. These approaches are also particularly important since by its very nature rock art remains in the context in which it was intended to be interacted with.

In general landscape approaches to rock art recognize the significance of places in the landscape in the construction of identity and the feeling of attachment that people often feel for the landscape in which they and their ancestors dwell. It is through places and the landscape itself that many individuals and societies structure their lives. As Sack (1980: 177) puts it, "The place and the people are conceptionally fused. The society derives meaning from the place, the place is defined in terms of social relationships." The landscape in a sense creates "the people who are of that place" (Tilley 1994:26).

This powerful connection to the land is not the product of romantic spiritualism, but rather the very intimate relationship between human beings and the land which provides their physical and spiritual needs (Taçon and Faulstich 1993:81). Tuan (1974) describes this feeling of reverence for the land as *topophilia*, a sense that one has sprung from and been nurtured by the soil of one's homeland. Recounting significant events in the past tie specific places cosmologically to oneself and one's kin through mythology and oral histories, with the material locations of these events acting as mnemonic devices for social history (Basso 1996, Fowler

1992). Place names are pictures made with words that allow many traditional stories to be remembered in detail. The landscape becomes a constituent part of the sense of self among many Native people and guides behaviour, and to be unconnected to place is to be without a sense of self. For example, among the Apache, one who acts in ways counter to social norms is said to be "losing the land" (Basso 1996:62). Among the Aborigines of Australia a similar sentiment is found when those who do not protect the ceremonial songs and sacred objects of the country which allow one to take care of the *ngura* (camp or country) "gives the country away" (Layton 1995:223). Among the Wamira, a small group of around 450 people in Papua New Guinea, "to be without a place is to exist humiliatingly outside the bounds of sociality" (Kahn 1996:180).

Very early in the study of Australian Aboriginal art it was understood that meaning was intimately connected to the place where the paintings were located (Taçon and Faulstich 1993:81; Mowaljarlai and Malnic 1993; Morphy 1995). Taçon (1993, 1994) for example has examined the long term implications of increased regionalisation with regards to concomitant increases in senses of 'ethnic' identity and visual communication of knowledge in Arnhem Land, northern Australia. He explores the implications of a more general model developed by Layton (1991b) which correlated collective hunting strategies at predictable locations and homogeneity of rock art styles in both Australia and western Europe. In this model Layton (*ibid*:170) suggests that uniformity of style over large areas indicates that rock art did not play a role in differentiation of groups, which would be more likely in situations where resources are dense but patchy. Layton and others (e.g., Weissner 1984; Smith 1992) suggest that homogenous styles indicate an attempt at integration rather than distinction.

Taçon has been able to correlate recent rock paintings and certain linguistic groups in Arnhem Land which allows insights into the relationships between the art and language, ceremony, traditional knowledge of the landscape and other aspects of culture. He suggests that production occurred in "outbursts of art production over time rather than a continuous, non-varying output" (Taçon 1993:113), separated by periods of relatively little rock art production. The first, 'Dynamic period' may have occurred very early and is relatively homogenous stylistically across the landscape. The style is generally what might be called "representational" and the painted figures seem to be in motion. The material culture depicted reflect adaptations to an arid environment, typical of the Pleistocene environment of that area, and is very different from items of more recent times. In addition, traditional Aborigines of the area confirm that their ancestors did not make the paintings, but rather they were done "by the Mimi, who now exist only as spirits" (*ibid*:114).

This affirmation is quite similar to that made by the native peoples of Nevada, who often explain that much of the rock art of their land was created by Coyote (Wheat 1967), other mythic beings (Riddell 1978; Kelly 1932:137) or by "old time Indians" (Stewart 1941:218), but not their own ancestors. This explanation is supported by Clarence DeGarmo, of the Fort Bidwell Northern Paiute tribe (personal communication, February 2000), who explains that there were two earlier "races" who lived in the northwestern part of Nevada who were responsible for the rock art in his area, prior to the arrival of his people. This is a common practice among indigenous peoples to explain things in the landscape which are not a part of their own cultural heritage, but which must be dealt with and which in some way shapes their own relationships to the land and to others with whom it is shared.

It should also be clearly acknowledged that whether rock art or any other product of the past is a living part of the culture of modern Native peoples is not at issue. I will discuss below (Chapter 10.3) cases where rock art has been incorporated into the culture of modern peoples. And in an equally important sense, the past itself has become sacred to many modern Native Americans. It is certainly true that understanding this process is just as important as understanding the 'original' intent of the rock art.

Australia's original immigrants, like those who came to the New World, entered a landscape where no other human being had ever walked. "Signs of a variety of animals would have been visible but there would have been nothing to indicate purposive or even incidental human activity" (Taçon 1994:117). Taçon argues that like all people, these earliest Australians would have had a cultural sense of identity and relatedness which would likely have been expressed through visual art. He suggests that their experience of the landscape "for the first time" would have created future landscapes with knowledge passed down to succeeding generations via (among other things) marks created on the land. Through time these marks became layered allowing the identification of distinct periods, the oldest of which may have "began to be attributed to ancestors who now are associated with landscapes as spirits" (Taçon 1994:118). Taçon seems to assume, however, that these first Australians would somehow know that they were "the first" and alone in a landscape without other human beings. I would argue that the opposite could be true, and that signalling to unknown (but expected) others may have been one original motivation for rock art, in addition to the functions of construction and communication of social identities.

A second period of rock art production in Australia ('yam style') may correlate with "a relatively rapid rise in world sea-levels about 8000-6000 years ago," (Taçon 1993:114) which is considerably more diverse and regional. This is followed by a more recent 'freshwater period', which "exhibits pronounced regionalism and is associated with great diversity and elaboration" (*ibid*:114). This period is distinct from others in subject matter, form, use of colour and symbolic content and appears for the most part to have been produced during the last 1400 to 3000 years, and is also characterized by a number of sub-styles which can be well correlated with linguistic territories (*ibid*:114). Similar increases in diversity and regionalism are also noted elsewhere in Australia (e.g. Morwood 1984).

Taçon is able to correlate changing environmental and social contexts with rock art production because of the relative wealth of direct dating that has been done on Australian rock paintings which provide at least a starting point for analysis. This is unfortunately not currently the case in Nevada, although there is growing interest in direct dating of certain sites (see White 1999 for an overview of dating methods and test cases in Nevada). Additionally, direct dating of petroglyphs (the most common type of rock art in Nevada) remains controversial (e.g. Beck *et al* 1998; Dorn 1997; Watchman 1997), although significant progress continues to be made (Chapter 11.1).

The relationships between rock art and the landscape have also been fruitfully examined in other parts of the world. Tilley (1991:10), for example, provides a very interesting study of the rock art of Sweden, which he claims strays "beyond the permitted bounds of discourse." He moves from a strictly empiricist framework, in which it is "assumed that nothing is related unless it can be proved" (*ibid*:12), to a structural analysis which allows him to explore multiple

possible interpretations of a specific rock art site, the motifs themselves and the river rapids beside which they are found. After a detailed examination of the motifs and the relationships between them, he turns to the physical location of the site, because it also "constitutes part of their meaning and their ambiguity" (Tilley (1991:78). One of the interesting ideas suggested is that the site is "fluid" both metaphorically and physically, with certain motifs being visible only part of the time when not covered by water, but at the same time static because the location and imagery do not change. There seems to be no rank-order-type of correlations, nor any typological or developmental sequence (*ibid*:79-80). The motifs are repeated time and time again, but other than the obvious time required to carve the images themselves, there is no sense of chronology in the engravings, and what we have today is simply the "'completed' and subsequently eroded carving surfaces" (*ibid*: 86). This is quite different than the development of a "mythogram," where time is neglected in spite of its apparent presence, demonstrated by superpositioning of imagery. Engravings at this site are not superimposed, but based on geomorphological considerations, the carvings are thought to have been produced over a period of around 1500 years.

Tilley then proceeds (*ibid*:172-177) with an open-ended discourse ranging between structural analysis and cosmological meaning and power, at the end of which he engages in a conversation (with himself?) regarding the fruitfulness of his alternative readings and the validity of his lack of a 'final solution.' Tilley insists that he does believe that there is a real past, but since there cannot be a single meaning to the carvings themselves, the best approach is to suggest alternative meanings as he has done, certainly a valid and important textual strategy. I believe that the most important point made in the final "discussion" is that the site itself no longer exists, having been destroyed by a power plant. Ironically, this also highlights

the importance of the earlier work of Hallström (1960) in documenting the site, whom Tilley reviews so negatively.

Bradley (1991; 1993; 1994; 1997; Bradley, Criado Boada and Fábregas Valcarce 1994) develops a series of somewhat more satisfying analyses of the rock art of Atlantic Europe by again assuming that rock art contains information. He makes the important point that in Europe at least "rock art seems to be a feature of the period in which mobility remained important and animals, both wild and domesticated, played a significant role in the economy . . . When that way of life changed, rock art generally went out of use" (Bradley1997:7).[19]

Following Ingold (1987), Bradley (1991, 1993 1994) suggests that rock art played a role in patterns of land tenure based on paths, places and viewpoints rather than a territorial system, and that cultural features can take the place of natural features to "map the world of mobile peoples" (Bradley 1991:77).[20] In such a system, as discussed above, rock art may have served as a means of communication between groups who share access to resources, but who are not in regular contact (as suggested by Ingold 1987). This is potentially important for understanding hunter-gatherer rock art where, by and large, populations were highly mobile, with a few exceptions in areas of relatively richer resources. In Nevada, for example, rock art does occur extensively in areas of lesser mobility, but it is generally of a very different character (Chapter 7 and Chapter 11). So unlike Atlantic Europe, where territoriality may not have included the use of rock art, it may have in Nevada, and the differences in social and

19 It should be pointed out that in North American at least there were sedentary farming populations who did produce rock art (e.g. Hopi), as well as some groups in southern and eastern Nevada.

20 Although some suggest that the locations of useable stone may also have played a role in site selection (Chippindale 2000).

economic systems may be identifiable stylistically or by differences in motif assemblages. Bradley (1991:92-93) also suggests that rock art can be seen as sources of information of lesser or greater complexity, and found that increased complexity of rock art seemed to be related to potentially higher population densities and greater fertility of surrounding areas. This too may not have been the case in Nevada, where areas of higher population seem generally to have less motif diversity and are often dominated by human or animal motifs (Chapter 8.1.5).

Researchers in the United States have also taken up the issue of localities and contexts of rock art sites. Hartley (1992) has developed a quantitative measure of information content in rock art and then explained the placement of rock art panels in the landscape in relation to the amount of information contained within it. He suggests that the information contained in rock art panels varies with situational context. Detached boulders, cliff faces and rock shelters were examined and the information content for each measured. Variation was explained as a product of site function and social contexts of production (*ibid*:115), which might be expected. Hartley (1992) maintains that rock art offers "raw information about the presence of human activities to observers moving through the landscape" (Hartley and Vawser 1998:189) which can be used as a means of navigation or "proprietary rights" (*ibid*:206). Higher redundancy (or reduced diversity) of motifs minimizes mistakes in reception, producing a less ambiguous message which they suggest was one of access restriction or ownership (*ibid*: 201), stressing recent challenges to density-dependent models of resource competition. This may also explain the above described rock art which is found in areas of generally higher population, and which is also in areas where farming was practised.

Sundstrom (1990) also takes a contextual approach and examines the rock art of the southern Black Hills area, and establishes a series of interaction spheres through stylistic analysis. Her primary aim is to "demonstrate that rock art is directly related to other aspects of culture and that as static remnants of extinct cultures, rock art data can be directly applied to the central concerns of archaeology" (*ibid*:4). She also (*ibid.*,1996, 1997) examines the process by which sacred locales remain sacred through time, in spite of changing populations.

> Old traditions were modified to fit the new physical and conceptual landscapes in which groups found themselves. This process of borrowing sacred locales and the traditions associated with them took place despite major linguistic, economic, and religious differences among the original and immigrant groups [Sundstrom 1996:187].

Although like elsewhere, those sacred places rarely had rock art associated with them.

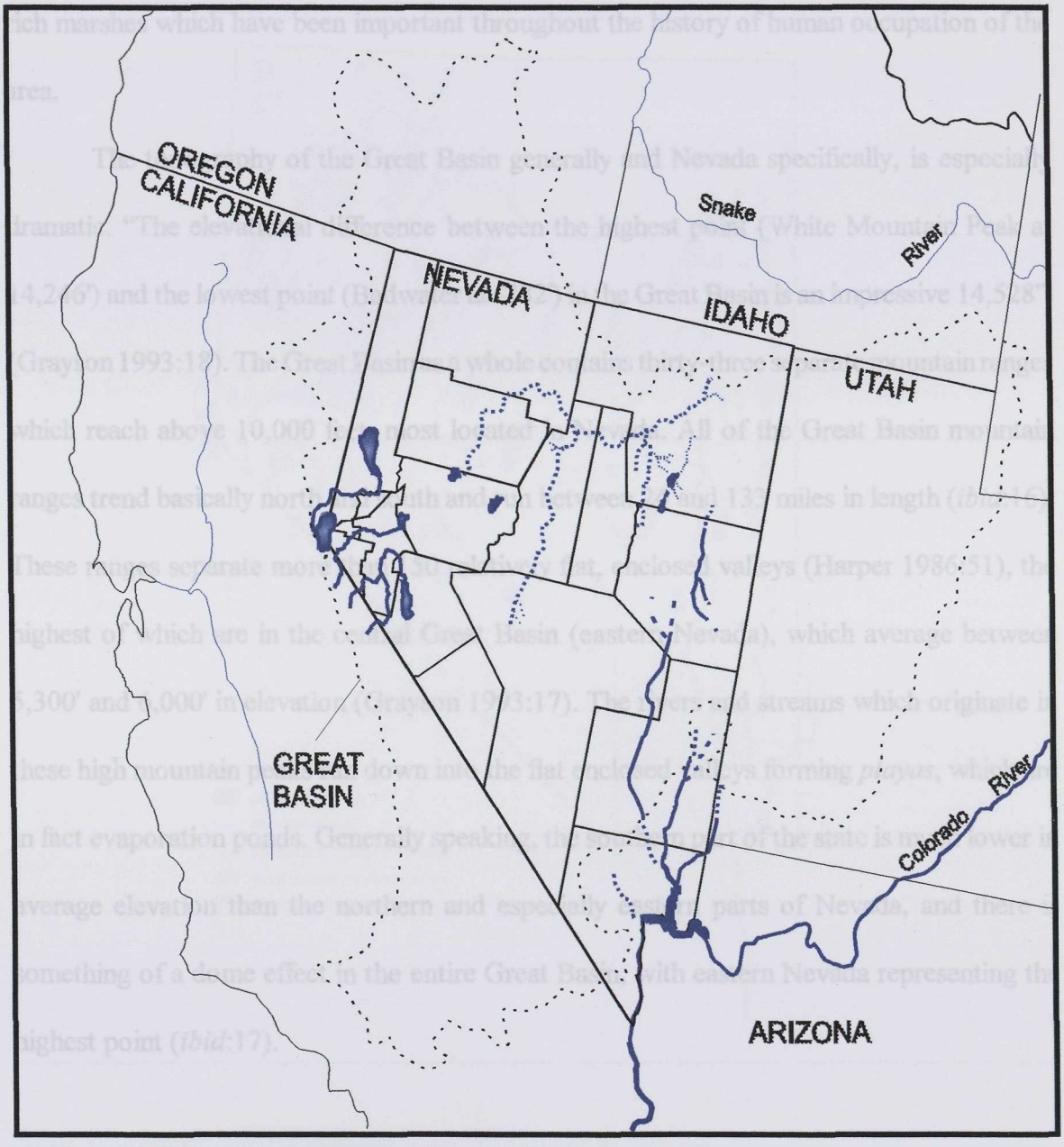
Each of these studies provides important understandings of the role that landscapes play in the construction and maintenance of social systems. From these it is clear that the landscape and *places* are important sources of meaning and as such a significant factor to be considered when examining the rock art of indigenous peoples. In the sense of mutuality suggested by Gibson (1986:8), rock art is embedded both physically and symbolically into the places where it is situated and in the contexts of its production, and these places also take on new meaning because of the presence of the rock art. To overlook this is to risk losing one access point to understanding at least some of rock arts many meanings.

Chapter 5: The Rock Art of Nevada - a contextual study

5.1 *Physical context*

The subject of this case study is the rock art of Nevada, a state in the Desert West of the United States (Map 2), an area of approximately 109,806 mi^2. The state is almost entirely contained within the Great Basin with only very small portions of the northern and southeastern parts of the state outside of the boundaries of the hydrographic Basin. The Great Basin itself can be defined in several ways (Grayson 1993:Chapter 2; d'Azevedo 1986a:6-14). Here the "hydrographic" definition is used as a matter of convenience and because it is a well recognized unit of analysis among most researchers (Grayson 1993:11). Simply put, the hydrographic Great Basin is that area of the western United States which drains internally. It covers an area of approximately 165,000 square miles, and is bounded in the west by the Sierra Nevada mountains and the southern Cascades, which separates Nevada from California, and encompasses also south-central Oregon. Moving eastward, across the entire state of Nevada and into central Utah to the crest of the Wasatch Mountain Range, is the eastern boundary of the Great Basin. The Columbia River forms the northern boundary and the Colorado River the southern boundary. In addition to the state of Nevada, small parts of eastern California, south-central Oregon, southeastern Idaho and adjacent Wyoming, and western Utah, are also included within the hydrographic Great Basin.

Precipitation (in general less than five inches per annum) is in large part the product of winter snows in the high mountain ranges, but this moisture does not flow outward to the



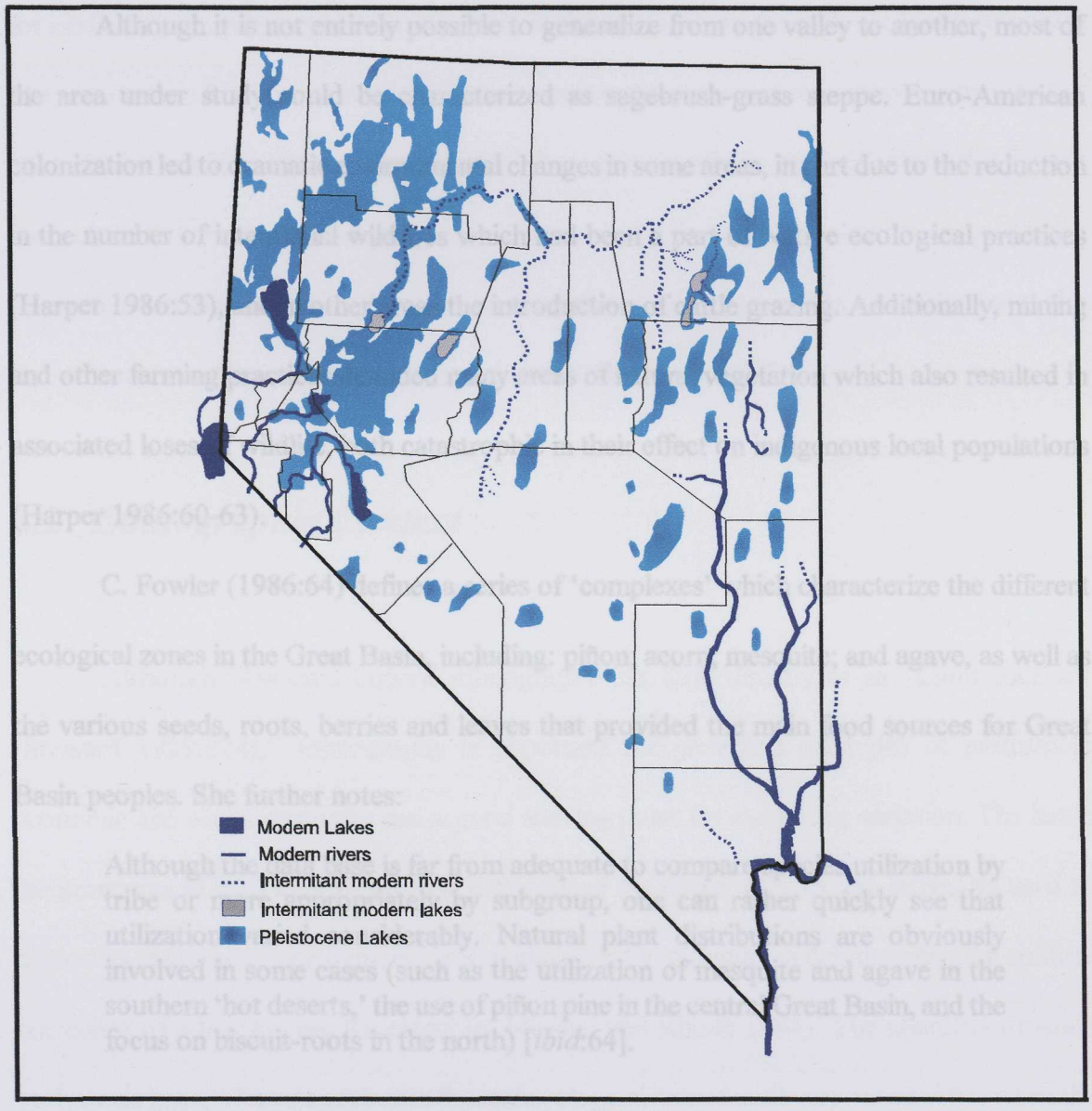
Map 2: *Western United States with the Great Basin indicated by dotted line.*

ocean. Instead, runoff accumulates "into streams that empty into low, saline lakes or that simply disappear by evaporation and absorption into the ground" (Grayson 1993:11) within the boundaries of the Great Basin. There are, however, several streams (some relatively large), a few very large lakes (mainly remnants of enormous Pleistocene lakes) and areas of resource

rich marshes which have been important throughout the history of human occupation of the area.

The topography of the Great Basin generally and Nevada specifically, is especially dramatic. "The elevational difference between the highest point (White Mountain Peak at 14,246') and the lowest point (Badwater at -282') in the Great Basin is an impressive 14,528'" (Grayson 1993:18). The Great Basin as a whole contains thirty-three separate mountain ranges which reach above 10,000 feet, most located in Nevada. All of the Great Basin mountain ranges trend basically north and south and run between 24 and 133 miles in length (*ibid*:16). These ranges separate more than 150 relatively flat, enclosed valleys (Harper 1986:51), the highest of which are in the central Great Basin (eastern Nevada), which average between 5,300' and 6,000' in elevation (Grayson 1993:17). The rivers and streams which originate in these high mountain peaks run down into the flat enclosed valleys forming *playas*, which are in fact evaporation ponds. Generally speaking, the southern part of the state is much lower in average elevation than the northern and especially eastern parts of Nevada, and there is something of a dome effect in the entire Great Basin, with eastern Nevada representing the highest point (*ibid*:17).

In some parts of Nevada specific environmental contexts have changed quite dramatically over the period of human occupation (at least 10,000 - 12,000 years), mostly a result of the dessication of the enormous Pleistocene Lakes (Map 3), and changes in weather patterns beginning around 10,000 years ago (Mehringer 1986:34). Those changes have been gradual in some areas and much more abrupt in others (see Grayson 1993). In spite of this,



Map 3: *Modern and Pleistocene lakes and rivers in Nevada*

immediate environmental contexts in many locales have changed little over the last several thousand years. The Great Basin generally and Nevada specifically is ecologically quite varied and complex, and a good review of vegetation, climate and fauna is provided by Grayson (1993).

Although it is not entirely possible to generalize from one valley to another, most of the area under study could be characterized as sagebrush-grass steppe. Euro-American colonization led to dramatic environmental changes in some areas, in part due to the reduction in the number of intentional wildfires which had been a part of Native ecological practices (Harper 1986:53), and in other areas the introduction of cattle grazing. Additionally, mining and other farming practices denuded many areas of natural vegetation which also resulted in associated loses of wildlife, both catastrophic in their effect on indigenous local populations (Harper 1986:60-63).

C. Fowler (1986:64) defines a series of 'complexes' which characterize the different ecological zones in the Great Basin, including: piñon; acorn; mesquite; and agave, as well as the various seeds, roots, berries and leaves that provided the main food sources for Great Basin peoples. She further notes:

> Although the data base is far from adequate to compare species utilization by tribe or more appropriately by subgroup, one can rather quickly see that utilization varied considerably. Natural plant distributions are obviously involved in some cases (such as the utilization of mesquite and agave in the southern 'hot deserts,' the use of piñon pine in the central Great Basin, and the focus on biscuit-roots in the north) [*ibid*:64].

In addition to the most common plant foods, C. Fowler also discusses the most common mammal, bird, fish, insect and reptile species exploited in the region (*ibid*:64-92). While this is not the place for a complete review, it is noteworthy that each ecological zone had a specific variety of food sources. Piñon, for example, was a primary and nutritious food source for many of Nevada's indigenous inhabitants, and while readily available (or within walking distance) in some areas, it was not available in others and so played a less important role. Likewise, roots played a major role in the north western area (where piñon was generally

not available), but were much less important in the south where the soils are less favourable. The same is true for other non-plant food sources, and in most respects, variation may be the most characteristic trait of the Great Basin. There is currently no analysis of whether or not the rock art in Nevada (or the rest of the Great Basin for that matter) occurs in any patterned way in relation to vegetation, elevation, or any other ecological variable, primarily due to the lack of contextual data in most site records (see Chapters 6 and 7).

5.2 *Ethnographic Context*

Although Nevada's historic ethnography has little directly to say about rock art (Steward 1929:224),[21] ethnography is important for providing analogies of prehistoric economic and social strategies and a good starting point for examining variation. The harsh environments of the Great Basin have constrained the range of economic strategies used to exploit its resources, something evident, perhaps, in the difficulty in defining material cultural correlates of ethnicity (see for example, Madsen and Rhode 1994). The identities of some prehistoric groups remain unclear in the archaeological record until very recent times when the direct ancestors of historic occupants inhabited the area. And it is entirely possible that many different groups passed through different areas in the more distant past without leaving any recognizable footprint.

[21] Whether or not the historic ethnographies of the Great Basin are more informative regarding rock art if read "metaphorically" as argued by Whitley (1992, 1994c, 1998b) is a matter of some considerable debate (see Quinlan *in press*, 2000; Monteleone 1998).

Julian Steward is one of the most well known and respected of the early anthropologists to describe cultural practices of Great Basin people (Bettinger and Baumhoff 1982:494; Clewlow 1981:80), although whether his descriptions accurately represent pre-contact society has been challenged (Stewart 1939; 1980; Service 1962; Clemmer, Myers and Rudden 1999). Service (1962) pointed out that the populations described by Steward were ones who had been devastated by both Europeans and by other Native peoples who had adopted the horse (as early as 1776 on the eastern edge of the Great Basin and by around 1805 in the north). Service argued that the social systems and cultural practices described by Steward represented a system in disarray, not ones which had existed prior to European colonization. There is no question that this is true, and D. Fowler (1986:29) has even suggested that John Wesley Powell, who did the bulk of his research in the Great Basin between 1868 and 1873, "was the last anthropological observer in the Great Basin to see aboriginal lifeways in operation. Thereafter, data increasingly derived from 'memory culture,' not 'functioning culture.'"

Steward may well have assumed that his reconstructions reflected aboriginal practices to a much greater extent than they could have done, but clearly he and other ethnographers of the day were well aware that they were practising a kind of 'salvage ethnography,' hoping only to reconstruct the 'ethnographic present' or cultures at the point of contact, not necessarily a complete history (Arkush 1999:50-51; Fowler *et al* 1999:59). This does raise significant questions regarding to what extent archaeological issues can be addressed through the ethnographic record in the Great Basin specifically and more generally.

Additionally, it should be noted that the type of research conducted by Steward and others in the early part of this century was not 'ethnography' in the traditional sense of long-

term participant observation. The focus of anthropological interest was pre-colonial Native American life-ways, a subject that participant observation could not address some 50-90 years after White settlement. Instead, extensive interviews with elderly Native American consultants produced 'culture element distribution lists' which recorded traditional, pre-contact cultural practices (Arkush 1999:50-51). Kelly (1964:iii) described the approach used as "unabashedly, how-it-was-in-your-grandfather's-time," and a check-list of presence or absence of certain culture elements was produced.

Regardless of these limitations, Steward's work in the 1930s, and that of others from the University of California Culture Element Distribution Survey, forms the basic framework for most of what is known of historic aboriginal practices in the Great Basin. "The single most influential study of Great Basin peoples" (D. Fowler 1986:29) was Steward's 1938 work on aboriginal socio-political organization. In it he described a general set of characteristics of a gathering and hunting economy, focussed on widely scattered and often unreliable resources, with limited material possessions, and very low population densities due to the restraints of the environment. Diet included a fairly wide variety of gathered plant foods, in addition to small and some larger game, some of which was hunted communally. Political organization did not extend beyond families except for temporary task-specific positions which developed when a communal hunt or large social gathering needed to be organized. These roles of leadership were temporary and dissolved when the specific function was over. This situation may have changed more generally when Euro-Americans arrived and there was some consolidation of tribal organization as a means of dealing with the European intruders, as has been noted among the Washoe (d'Azevedo 1986b:469).

Technology was similar among all of the groups, with chipped and ground stone tools utilized for acquiring and processing foodstuffs, both plant and animal. Basketry was one of the most important technologies available to prehistoric and historic peoples of Nevada and the Great Basin, where various plant fibres were abundant and skills of manufacture were honed to the highest degree. Basketry functioned in a variety of tasks including gathering, cooking and processing food, storing food and possessions, and transporting both possessions and infants. The introduction of pottery came to Nevada only much later, around AD. 700, and was only used in limited areas of the southern and eastern parts of the state, although pottery was much more common in the eastern Great Basin (Utah) from as early as AD. 500.

Steward (1938) believed that this was a common pattern among all the groups that occupied the Great Basin, with just a few distinctive exceptions, such as in the Owens Valley (eastern California) and Reese River (north central Nevada). It is generally believed that the same pattern had applied throughout the entire period of human occupation of the Great Basin (Jennings 1957, 1964; Aikens 1978; Cressman 1942; Thomas 1973) although the importance of environmental variability and cultural diversity has become increasingly acknowledged (Jennings 1964, C. Fowler 1982a).

Steward's consultants (and those of other ethnographers at the time) suggested to him that they and their immediate ancestors did not have anything to do with the creation of the rock art found locally, and had no knowledge of who had created it or why (Steward 1929:224). In some cases they attributed the art to Coyote, or other mythical beings (Steward 1929:224, 1968:viii; Kelly 1932:137; Cressman 1937:73; Driver 1937:86; Stewart 1941:417, 418 and 1942:321). These statements have been recently challenged (see Chapter 4), but as Bettinger and Baumhoff have suggested:

> . . . in view of the other kinds of information willingly forwarded by knowledgeable native hunters [cf. Steward 1934:425-432], it is unlikely that a secret of such importance would have been so thoroughly kept by so many across an area the size of the Great Basin, and thus escape anthropological detection [Bettinger and Baumhoff 1982:494].

Figure 1: *Typical historic imagery (photograph courtesy of Mr Alvin R. McLane).*

Whatever the case may be, it remains very difficult to assign authorship to most of the art that is found engraved or painted on the boulders and cliff faces in Nevada. The exception to this is the historic imagery (Figure 1) that is occasionally found. This imagery is dated by its content alone, and must have been produced during the historic period. Historic imagery has been examined by most researchers as a means of dating the rock art (e.g., Grant 1967:50). Whitley (1982:8-9 and Figure 67) has however emphasized the contradiction between the obviously historic nature of this imagery and the lack of knowledge regarding its production and meanings[22] by historic Native Consultants (see Chapter 10.3). It should however be noted that whether or not these images were produced by Native Americans or by Euro-Americans cannot be conclusively

22 This lack of knowledge regarding the production and meanings of rock art seems to have been shared with other Native Americans in other parts of the United States and was commented upon as early as the 1880s by Mallery (1893:31)

resolved, although the assumption here (as elsewhere) is that it was produced by Native Americans.

It is of course equally difficult to assign 'meaning' to the imagery exclusively from the ethnographies of potentially unrelated historic peoples. Cressman (1937:73) for example cautioned that "[A] quality of sacredness may have been imposed upon petroglyphs by tribes in the region who were as ignorant of their original meaning as we are." The same problem is more recently discussed by Trigger (1995) who cites the art historians Panofsky (1939, 1960) and Goodenough (1953-1968) who "demonstrated that continuity in material symbols does not always imply continuity in their meaning. As beliefs change, 'iconographic disjunction' may occur as a result of existing symbols being invested with new meaning" (cited in Trigger1995:454). But he adds (citing Lewis-Williams and Dowson 1988) that there may be some possibility of identifying universal patterns.

5.3 *Aims and research methodology of the Nevada Rock Art Contextual Study*

This study provides the first synthesis of available data for the rock art found in the state of Nevada since Heizer and Baumhoff's seminal study (1962), something long overdue (Monteleone 1998:20). To begin on an optimistic note, the results of this study and the database constructed during research will provide a framework and starting point for future rock art research in the area. It is important to bear in mind that the existing record for the rock art of Nevada could best be described as inadequate, and this study is an important first effort toward consolidation and synthesis of existing data, and as such is a critical first step. Unlike other types of archaeological research, rock art studies in Nevada have been infrequent

and generally superficial (with some notable exceptions e.g., Nissen 1982; Green 1987; Monteleone 1994; Woody 1997).

In the 1930s Steward (1937:406) noted that "when competent archeologists can be enticed to set aside their spades long enough to ponder petroglyphs, we may expect a much better understanding of this interesting subject." Sixty years later competent archaeologists may not yet be throwing away their trowels, but there is growing interest in rock art from within the archaeological community, in Nevada and elsewhere. Although somewhat neglected by mainstream archaeology for a number of years (Clewlow 1981:79; Schaafsma 1985:267-268; Whitley and Dorn 1987:150; Whitley and Loendorf 1994:xii; Nissen 1995:73), professional archaeologists are catching up with veteran avocational researchers who have thus far provided the bulk of rock art research and documentation.

For this study I examined 1037 rock art site records in the state of Nevada and constructed a relational database for analysis using Microsoft Access. Archaeological site records for the state are housed either at the Nevada State Museum (in Carson City, Nevada) or at the Harry Reid Centre (University of Nevada, Las Vegas), with a small number also housed in the various land management agency offices across the state. While each agency is required by law to provide copies of archaeological site documentation to the State Museum for archival storage, in practice this is not always be done quickly, but in general the rule is eventually followed. I feel confident however, that only a small percentage of Nevada's rock art sites are not included in the current database as the number of new sites discovered recently has dropped dramatically.

From the official state records, all available information regarding the surface on which the rock art was produced, type of rock art, associated archaeological materials (including chronologically diagnostic materials if any or other types of associated material culture), and location, was recorded. Motif information, if available, was also recorded and seventy-seven separate motif types (Appendix 1) were defined and classed into six categories (Appendix 3). In addition, site numbers (many sites have inadvertently been assigned more than one official site number, these have been consolidated in this study), published references and any environmental information noted was also recorded.

It is notable that most records lack any information regarding either environments or motifs, often simply noting the presence of petroglyphs or pictographs without description of the rock art or the context in which it is found. Those that do record motif information (n=409) form the basis of the motif analysis in this study (Appendix 2). It should also be noted that often, if site records mention motifs at all, it is generally when they are recognizable forms (e.g., 'human' or 'bighorn sheep'). There is considerable variation among even these more easily 'recognizable' types of motifs and although some research has attempted to explore anthropomorph variation (Rusco 1973; Stoney 1992; McLane 1998), variation in other motifs has not been researched.[23]

In addition to this archival research, eighty-five sites were visited (Appendix 4), photographs taken of the rock art and general observations made regarding site contexts (all photographs in this thesis were taken by the author unless otherwise stated). Privately held photographs and records of other rock art researchers were also examined and motifs noted,

23 Because this study is based on existing records, most of which have no detailed descriptions of motifs, it was not possible to do this kind of analysis on individual motifs, although that should be one area of future research.

as well as any other contextual information. I am greatly indebted to Mr Alvin R. McLane, Nevada's pre-eminent rock art enthusiast, for making the results of his personal research available to me.

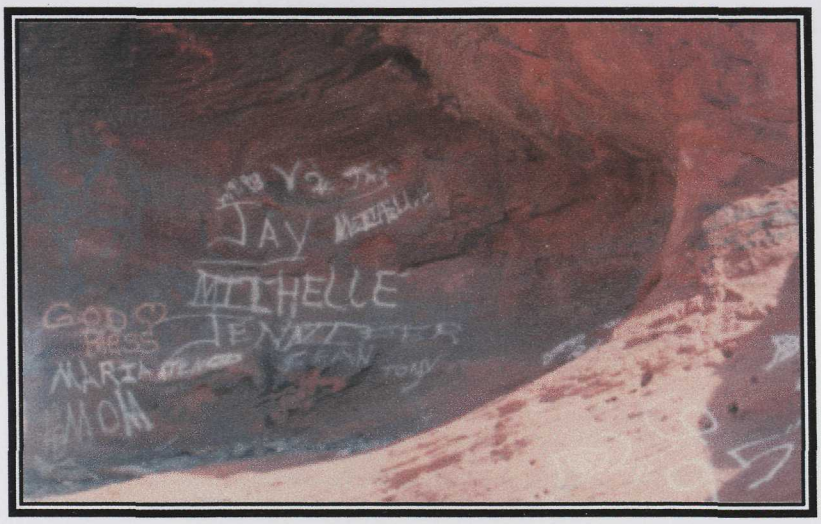


Figure 2: *Vandalism at Snyder Canyon; Clark county; Southeastern region.*

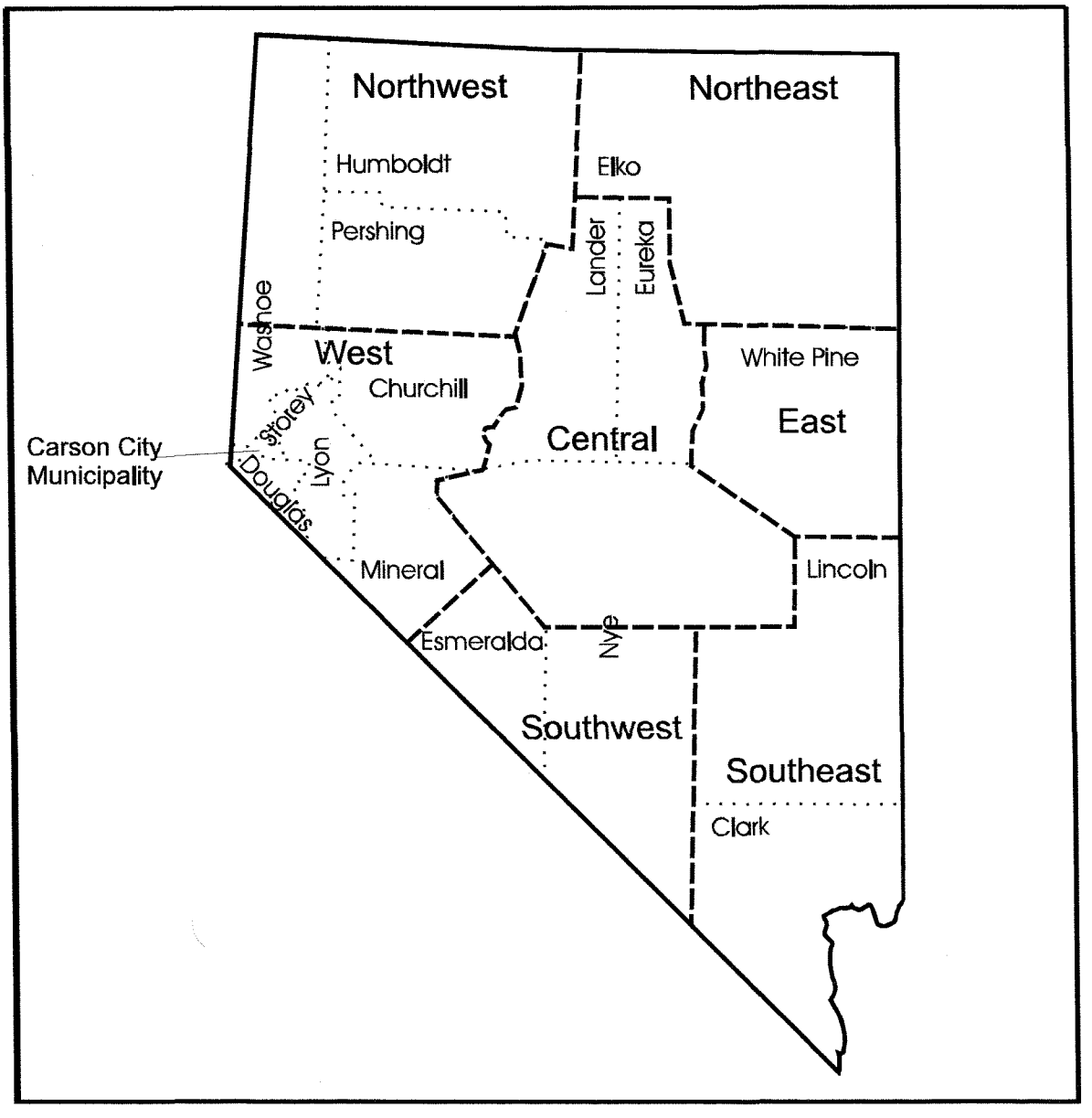
An alarming number of sites included in Nevada have been destroyed through construction or vandalism (Figure 2), while others are deteriorating from natural processes such as exfoliation, weathering, erosion or deposition. In some cases, the records made in the past, while imperfect, are all that remain of rock art sites that are now destroyed and of course many more been destroyed without having been recorded. A current and future priority of rock art research is therefore recording and this study will contribute significantly to that objective. Standardization of recording procedures has proved difficult, simply because of the variety of conditions at rock art sites, what works or is needed at one site may not fit the conditions at another. The limitations of state and federal funding means that any future recording project will of necessity have to draw on the enthusiasm and resources of avocational researchers. The author is currently involved in the planning and organization of a group whose aim is to establish such a statewide recording project (Nevada Rock Art Documentation Project) which will bring together interested

professional and avocational archaeologists. It is hoped that such a project will result in improved site records and fulfill the important goal of public education.

Chapter 6: Analysis of Site Locations and Distributions

Analysis was done at several levels ranging from the most specific (individual motifs) to the most general (stateside distributions). Even in recent site records motif descriptions, drawings or photographs are rare, and as noted in Chapter 5 only 39.4% (n=409, Appendix 2) of the total site records for the state (n=1037) studied have information regarding motifs. The motif descriptions from the site records also formed the basis of the motif classifications (77 types [Appendix 1], classed into 6 categories [Appendix 3]), although the vast majority of Nevada's rock art motifs simply defy classification because of their abstract, idiosyncratic nature.

Every site in Nevada can be assigned to a county because county name is incorporated into the official Smithsonian Institution's trinomial site number even if the exact location of the site is not known (e.g. 26DO25, where '26' refers to the state of Nevada, 'DO' refers to the county and '25'refers to the sequential site number within the county). Those site records which have not yet been assigned an official Smithsonian trinomial generally have agency numbers (or in the case of Mr McLane's site records, his own numbering system is used which is based on the date of discovery, and most of his sites were also included in analysis). Counties were grouped into larger regional units based on general size and environmental similarities (Map 4). This was done to facilitate analysis based on broad environmental similarities due to the lack of information on more specific site environments. Site and motif distributions were further analysed by county and by region.



Map 4: *Nevada's Counties and Rock Art Regions*

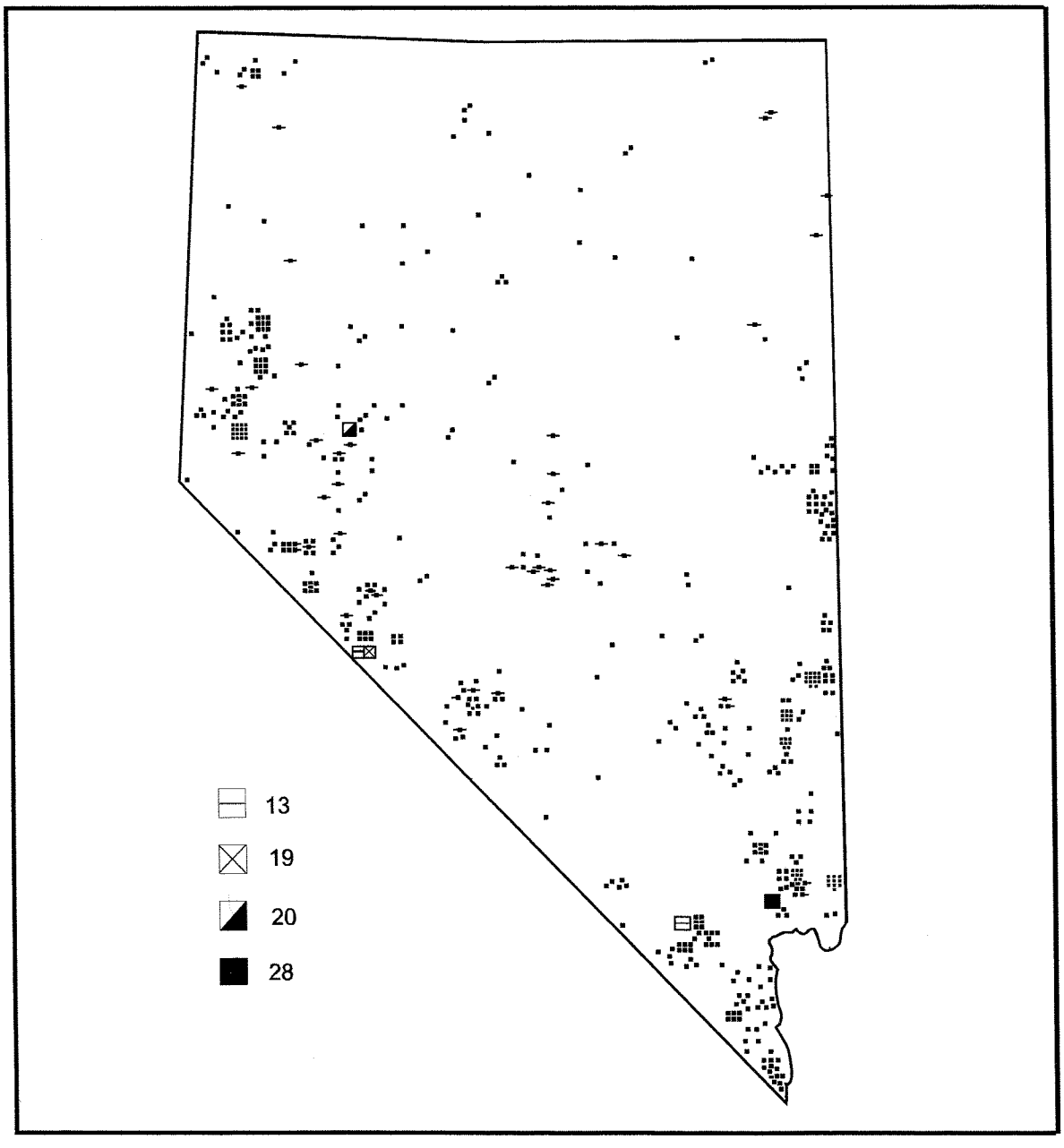
Nevada's sixteen counties were grouped into seven regions with somewhat distinct topography and environments, whose boundaries generally follow county lines. Two fairly large counties (Nye county in the central and southern areas and Washoe county in the western

and northern areas) were split in half and each half incorporated into the appropriate region (i.e. northern Washoe county was placed in the Northwestern region and the southern portion into the Western region; the northern portion of Nye county was placed in the Central region and the southern portion into the Southwestern region). This was done to make the regions as similar in general environments and overall size (in order to compare site densities) as possible, although the Eastern region is the smallest (8,876.6 mi^2). The Eastern region consists only of White Pine county and it was decided that it could not logically be fitted into the Northeastern region above it, the Southeastern region below it or the Central region to the west of it because of significant environmental differences between regions.

<table>
<tr>
<td rowspan="2"><u>Northwestern region</u>:
18,828.7 mi^2
- Humboldt County
- Pershing County
- Washoe County (above T25N)</td>
<td rowspan="2"><u>Western region</u>:
14,824.4 mi^2
- Storey County
- Lyon County
- Douglas County
- Mineral County
- Churchill County
- Washoe County (below T25N)</td>
<td><u>Northeastern region</u>:
17,181.6 mi^2
- Elko County</td>
</tr>
<tr>
<td><u>Eastern region</u>:
8,876.6 mi^2
- White Pine County</td>
</tr>
<tr>
<td><u>Central region</u>:
18,743.1 mi^2
- Lander County
- Eureka County
- Nye County (above T3N)</td>
<td><u>Southwestern region</u>:
12,662.3 mi^2
- Esmeralda County
- Nye County (below T3N)</td>
<td><u>Southeastern region</u>:
18,545.4 mi^2
- Lincoln County
- Clark County</td>
</tr>
</table>

Table 3: *Nevada Counties and Regions*

Some sites (n=116, 11%), however, could not be assigned to a larger region because they are located in one of the two counties which were split when forming regions and lack



Map 5: *Rock Art Site Distributions in Nevada*

enough information to plot the site precisely into the appropriate region. A fairly significant number of sites (37.8%, n=392) do not in fact have any information concerning location other than vague descriptions of roads travelled or landmarks by which to orient. These landmarks sometimes include such things as water troughs or fence lines that have long since disappeared.

Those familiar with the scenic byways of Nevada know that even roads change, sometimes with the season, because most are unpaved, and landmarks other than mountains are sometimes significant for only a few years at best. Those site records with the most basic locational information (within a 36^2 mile area, in the Township and Range mapping system, 62.2%, n=645) were plotted on a distribution map of the state (Map 5).[24]

The largest number of sites are located in Clark county, with almost as many in Washoe county, followed by Mineral county and Lincoln county (Table 4).

County	Total	% of T	County	Total	% of T
Churchill	47	4.5	**Lincoln**	101	9.7
Clark	239	23.0	**Lyon**	33	3.2
Douglas	6	0.6	**Mineral**	116	11.2
Eureka	13	1.3	**Nye**	79	7.6
Esmeralda	47	4.5	**Pershing**	14	1.4
Eureka	2	0.2	**Storey**	44	4.2
Humboldt	28	2.7	**Washoe**	208	20.1
Lander	12	1.2	**White Pine**	48	4.6

Table 4: *Rock art site totals by county and percentage of state total (T)*

It should be noted here that Clark county is now the most densely populated county in Nevada, with 70% of the entire state population (estimated at 1,746,898 in 1998) currently living in the greater Las Vegas area (population estimated at 1,162,129 in 1998). This higher

24 5.8% of the total number of sites in the state (n=60) have UTMs only; while 40.2% have both UTM and T/R data (n=417), 22% (n=228) have T/R only.

population will introduce bias into the record simply because there will have necessarily been more construction and hence more survey done in Clark county, and so more rock art sites will have been reported. A similar bias is likely for Washoe county, where the second largest city in the state (Reno) is located in the southern part of that county. But an equally, if not more significant, source of bias for southern Washoe county is that Reno is the home of one of Nevada's most active rock art researchers, Mr Alvin R. McLane, a retired archaeologist, whose passion is discovering new rock art sites. He pursues this avocation mostly in southern Washoe county but also makes forays elsewhere (in fact it is likely that he has visited more rock art sites in Nevada than any other single person), especially in nearby Mineral and Storey counties. The contribution of Mr McLane's labours to rock art research in Nevada is illustrated by the fact that nearly one third (around 300) of the total sites for the state included in the database (n=1037) were discovered and reported by him.

In addition to the simple bias introduced through differential survey, another important factor which introduces bias when examining simple numbers of sites is how a 'site' is defined. For example, in one part of southern Washoe county more than one hundred sites have been identified (by Mr McLane) which are located in an area of less than eight square miles[25] (personal communication, Alvin McLane, November 1999). Some researchers define a rock art site as a continuous area of rock art and designate a separate, new site after any break in rock art of more than a few metres. This drives the overall site count higher, whereas another researcher might define a larger area as a single site, with rock art or other activity loci within it, which would reduce overall numbers and site densities. These factors have been considered

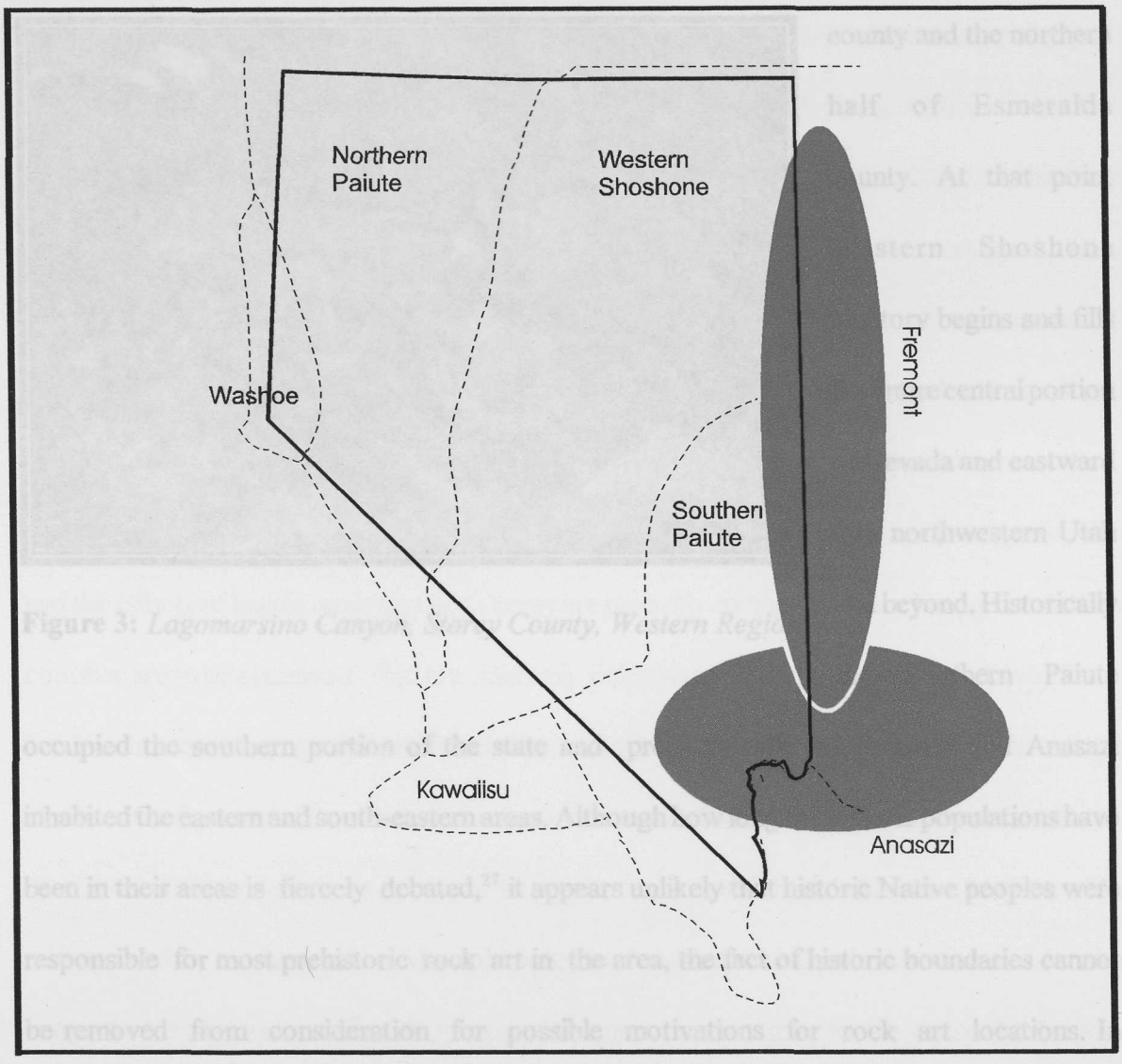
[25] Sites discovered in this area by Mr McLane are not all included in the database because the area is currently under investigation by him, although the previously recorded sites there have been included.

in the following analysis but cannot be entirely removed. It should also be remembered, however, that it may also be the case that the higher numbers or densities that are seen in some areas are the real product of increased activity in the past. Each situation must be evaluated individually and judgements made as to the validity of observable patterning.

Most of the counties in Nevada are large in areal extent but sparsely populated, now and in the past. Although actual numbers of rock art sites is relatively high (n=1037), rock art site densities by county are generally low and eleven out of the sixteen counties have less than one site per square mile (Appendix 5).[26] The five counties which are exceptions to this are Esmeralda and Lyon counties (with only slightly more than one site per mile^2), Clark and Mineral counties (with slightly more than three sites per mile^2), and Storey county (with an astonishing sixteen sites per mile^2). While Storey county is one of the smallest in terms of area (263.5 mi^2), it has the highest density of rock art sites in the state (16.698 per mile^2), probably simply due to the concentration of Mr McLane's exploratory efforts there.

Storey county provides the perfect example of the complexity of determining the extent of bias in the rock art record in Nevada. Its high site density could be viewed as the product of the county's small areal size and/or the intensive archaeological exploration it has enjoyed. Some of this county's sites comprise only a very small number of motifs or are very close to other sites, possibly close enough to warrant combining them, thereby reducing the overall number of sites. But on the other hand, it is also an area that is environmentally rich (relatively well watered, abundant game and plant resources including piñon) and in addition, lies in a

[26] It should also be noted that if this represents 10,000 years of activity, that one rock art site was made in Nevada only every ten years!



Map 6: *Historic and Prehistoric Tribal Boundaries (note that the Fremont filled much of Utah).*

topographic boundary area (just east of the foot of the Sierra Nevada mountains), and an area that was also a boundary (at least historically) between the Washoe and the Northern Paiute (Map 6).

The Washoe generally inhabited the Sierra mountains and eastern foothills, and the Northern Paiute occupied the rest of western Nevada southward through what is now Mineral

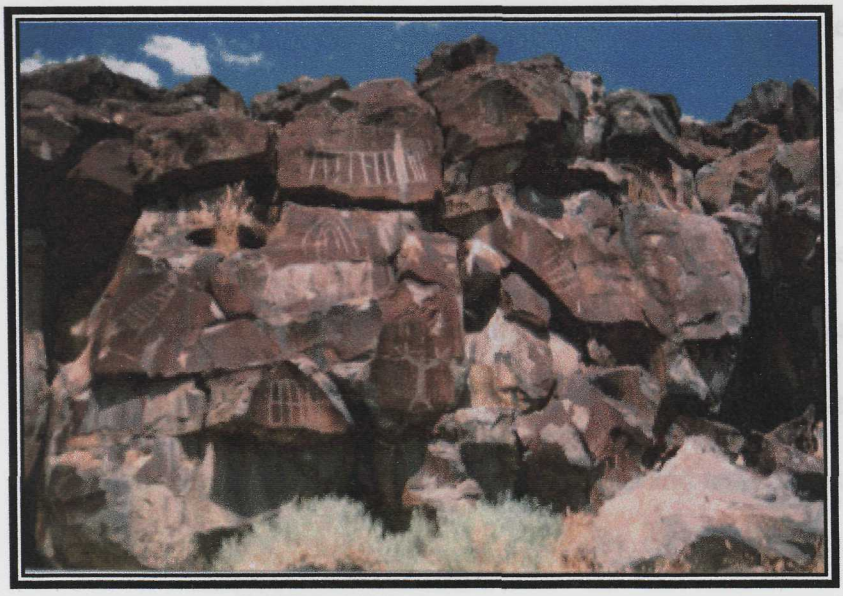


Figure 3: *Lagomarsino Canyon, Storey County, Western Region*

county and the northern half of Esmeralda county. At that point Western Shoshone territory begins and fills the entire central portion of Nevada and eastward into northwestern Utah and beyond. Historically the Southern Paiute occupied the southern portion of the state and prehistorically the Fremont and Anasazi inhabited the eastern and south-eastern areas. Although how long the historic populations have been in their areas is fiercely debated,[27] it appears unlikely that historic Native peoples were responsible for most prehistoric rock art in the area, the fact of historic boundaries cannot be removed from consideration for possible motivations for rock art locations. In addition to high site densities, Storey county is also the location of one of the largest rock art sites in western Nevada (Figure 3)[28]. Lagomarsino was seemingly made and used over a very long period of time (based on differential patination or visible revarnishing of motifs, admittedly a problematic approach to dating [Whitley *et al.* 1984]). This important rock art site

27 The Washoe may have inhabited their historic homeland for around 6000 years (Elston 1971:10-11), but currently it is undecided whether or not the Northern Paiute have been in western Nevada for that long (Madsen and Rhode 1994).

28 This site has recently been claimed by the Washoe tribe based on the presence in the rock art of what they believe to be traditional basketry designs.

has a cluster of smaller sites nearby, and is associated with a semi-permanent spring and evidence of habitation. One is therefore faced with the problem of deciding whether or not the extremely high density of sites in this area is due to the undeniable bias in survey and interest of local residents, or if the densities are truly reflective of increased rock art production possibly stimulated by multiple cultural and environmental boundaries or environmental richness. Based on the analysis presented here, it seems most likely that the higher rock art production occurs in locations of richer resources and multiple cultural boundaries.

Clark, Mineral and Washoe counties all have greater than three sites per square mile and the effects of bias in recording and survey are probably strong here also, but again all three counties are in environments that are relatively rich in resources. As mentioned above, Clark and Washoe county (especially in the southern portion of Washoe county) probably have high site densities because of the relatively high modern population densities in these areas, and both Washoe and Mineral counties are favoured areas of exploration for Mr McLane. In Esmeralda county, slightly to the south of Mineral county and environmentally similar to it, site density drops to 1.3 per square mile. Here again inadequate survey may be the cause for the low density, which is surely the case in Elko and Eureka counties, both of which have very low site densities in spite of relatively rich resources including sharing one of Nevada's only more-or-less permanent water sources, the Humboldt River. The same lack of survey may also account for the low site densities in Humboldt, Lander and Pershing counties in spite of being relatively rich environmentally. Nye county, in contrast, also has low site density but it is an area where there is little water and appears to have always been sparsely populated except during a sort of population 'boom' during the Middle Archaic (between approximately 3500 BP and 1500 BP, Elston 1986:142-146).

Lower site densities are more difficult to explain in both Churchill (0.9434) and Lincoln (0.9497) counties. However, much of Churchill county was under water until the enormous Pleistocene lakes of western Nevada began to recede around 12,000 years ago (Map 3). This might suggest that low rock art site density is related to the lack of available surfaces during this early period. This then would imply that at least some rock art was produced above lake level before the lakes began to disappear around twelve thousand years ago. It is true that some of the most important sites in Churchill county seem to be related to marsh adaptations or shoreline occupations, and appear to have been created very early judging by the extremely high levels of revarnishing (Figure 4).[29]

Low site density in Lincoln county seems to be a meaningful pattern, although it is somewhat surprising. A great deal of archaeological survey has been done in this county and it has also had human occupation for at least as long as ten thousand years (Aikens and Madsen 1986:154). The very distinctive Fremont people (sedentary, semi-agriculturalists) occupied the area for around 900 years before AD1300, and they left behind equally distinctive rock art. Because of

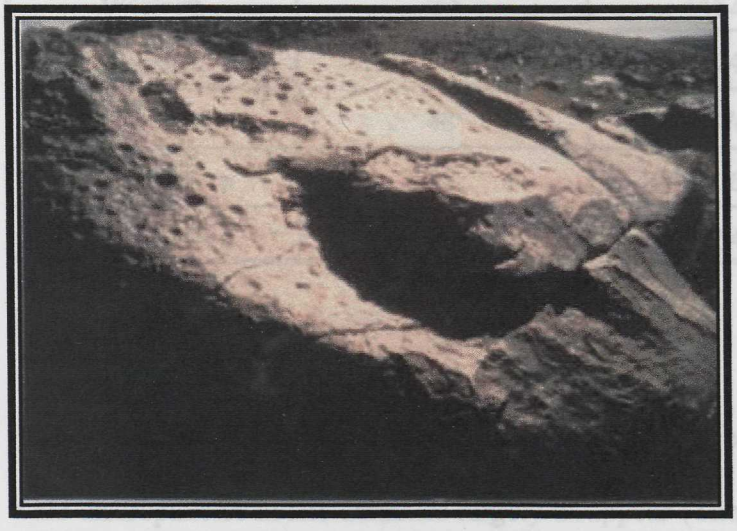


Figure 4: *Cupules at Grimes Point; Churchill County; Western region.*

29 A rock varnish dating project is in progress by the author and Dr Alan Watchman that includes Grimes Point as well as several other sites (Chapter 11.2).

the intensity of research in the area, it is likely that most (if not all) of the rock art sites there have been found, and in spite of a rich environment and long period of occupation, rock art sites are not as ubiquitous as one might expect. This might be explained by the fact that in this area a less mobile mode of production was utilized, which would indicate generally more sedentism. If populations were less mobile they may have had less reason for signalling or less ritual negotiation of social relations if 'others' were less commonly encountered, until the advent of the Fremont when an agricultural economy would have prompted new modes of ritual (Woody and Quinlan 1998).

Region	Number of Sites	Total Area	Density / Mi^2
Northwestern	58	18828.7	0.308
Northeastern	13	17181.6	0.076
Western	334	14824.4	2.253
Central	40	18743.1	0.213
Eastern	48	8876.6	0.541
Southwestern	88	12662.3	0.695
Southeastern	340	18545.4	1.833

Table 5: *Site densities by region*

When rock art sites are grouped into regions, rather than counties (Appendix 5), the wide discrepancies in site densities largely disappear (Tables 5 & 6). Only two regions have densities of more than one site per square mile (Western and Southeastern). Since the regions are broadly similar in areal extent the site densities derived for them are perhaps more meaningful than those for counties.

Region	Total	% of T
None	116	11.2
Northwest	58	5.6
Northeast	13	1.3
West	334	32.2
Central	40	3.9
East	48	4.6
Southwest	88	8.5
Southeastern	340	32.8

Table 6: *Rock art sites totals by region and percentage of state total (T)*

A simple examination of distributions also shows quite clearly that there is far less rock art north of the Humboldt River (especially in the northeast or Elko county, n=13, 1.3%) than elsewhere in the state, an observation made by Heizer and Baumhoff (1962:205-6), as well as many other archaeologists and rock art researchers. It should again be noted that this is no doubt in part the product of limited modern investigation in the rugged and sparsely populated northern part of the state. At present, however, the greatest concentrations over all of rock art in Nevada clearly occur in two regions, the Southeast and the West.

The greatest numbers and highest densities of sites is the Western region (Churchill, Mineral, Lyon, Douglas and Storey counties and the lower half of Washoe county), an area typically associated historically with the Washoe and the Northern Paiute. If the rock art was produced by either of these historically known groups one might suspect that differences would

be distinguishable, but this is not currently the case and in fact the rock art in both regions is very similar (Chapter 8).

The Southeastern region (Clark and Lincoln counties) has the second highest number of sites (n=340). The sites in the Southeastern region tend to cluster in dense concentrations rather than being dispersed consistently across the landscape. Technically, parts of the Southeastern region lie outside of the hydrographic Great Basin because the White River and Meadow Valley Wash flow southward into Lake Mead, which is a part of the Colorado River drainage. The southeast is typically associated historically with the Southern Paiute and the prehistoric Anasazi in the south, as well as the prehistoric Fremont in the east along the modern border with Utah and around the Colorado drainage (Map 6). The Anasazi and Fremont occupation is reflected in the rock art imagery in this region (and in the Eastern region, White Pine county), and is discussed below.

In addition to the overall high numbers of sites in these two regions, Map 5 also shows that sites cluster in the west along the foothills of the Sierra and in the east throughout the Colorado River drainage, whereas the Central and northern regions have fewer significant clusters. It should again be noted that like other unintentional biases, this may be a product of the type and location of surveys completed. The central area is even today sparsely populated, no doubt due to the lack of water. Differential survey is a problem which can only be overcome with time, and with a more thorough field survey of the state and recording. There are however, in addition to general site clustering in the West and Southeast, significant clusters in both of these regions having more than ten sites per 36 mi^2 section, some of which have more than twenty sites per section (Map 5).

6.1 *Environmental Contexts*

Since this study is based on information from previously recorded rock art sites, many of which were recorded prior to the 1960s, information is often lacking regarding the environmental and archaeological context of the site. Indeed, many records simply state the presence of 'petroglyphs' without noting anything further concerning the motifs present or any description of environmental contexts. For example, a large number of site records (n=566, 54.58% of the state total) do not describe the type of surface on which the rock art is found (although 471 records, 45.42% of the total for the state do have such information and are used in the discussion below; only 248 records have both surface and motif information, which is nearly 61% of the number of sites with motif information, n=409).

Surface	Boulder	Bedrock	Cliff	Shelter	Mixed
Number	161	10	132	153	15
% of Total	34.18	2.12	28.03	32.48	3.18

Table 7: *Total known surface types (T=471)*

6.1.1 Surface Types (Appendix 6 and 6a)

In spite of the fact that slightly less than half of the site records examined have information regarding surface type, it is clear that of those which do have such information, boulders, shelters and cliff faces dominate, while bedrock and mixed contexts are relatively rare (see Table 7). Of those that occur on bedrock outcrops (n=10), half are found in White Pine

county (n=5, Eastern region), one of which is a combination site (that is both petroglyphs and pictographs). Three bedrock sites occur in Clark county (Southeastern region, all petroglyphs) and one each is found in Washoe and Mineral counties (Western region, both petroglyphs).

A small number of rock art sites occur in mixed contexts (n=15, 3.18%), that is on boulders and/or cliff faces in association with shelters or on boulders associated with cliff faces. Again, Lincoln county has the highest number (n=6, three combination sites and three petroglyph sites), Esmeralda county has two (both petroglyphs), and seven other counties have one site each recorded as occurring in a mixed context (Churchill and White Pine each have one pictograph site; Clark, Lyon and Mineral each have one combination site; and Lander and Washoe have one petroglyph site each). These extremely low and varied distributions do not seem to suggest any meaningful patterns, although perhaps the higher numbers of mixed contexts in the Eastern region should be expected because high numbers of shelters occur there. The relatively high percentage of bedrock sites (half of the state total) is also of some interest if one considers rock art a system of visual communication. One might expect it to be placed in situations where it could be seen more easily, whereas when it is on bedrock or other horizontal surfaces a viewer would need to be nearly on top of the rock art to see it at all (the same is true of rock art inside shelters).

Nearly 95% of all rock art sites in Nevada (where surface information is recorded) occur on either boulders, cliff faces or in shelters, and in fairly even numbers. Boulder contexts are slightly more frequent (n=161), usually sites are petroglyphs (n=146, 90.67%). They are present in nearly every county (fifteen of the sixteen counties), Storey county only has one site with surface type recorded as a mixed context of both boulders and cliff face. This is likely to be a product of bias in the record and it is quite certain that Storey county also has rock art on

boulders alone). Pictographs are rarely found on boulders (n=12), eight of which are a combination of both petroglyphs and pictographs (three of which occur in Clark county and one each in Churchill, Lincoln, Mineral, Nye and Washoe counties), four sites are comprised of only pictographs (two in White Pine, one in Mineral, and one in Washoe county). Four boulder sites do not have the type of rock art recorded.

Slightly fewer rock art sites are recorded from shelters (n=153) and more than half (52.29%) of those are pictograph sites (n=80), 24.18% are petroglyphs (n=37) and 15.03% are combination sites (n=23). Eleven site records do not include what art type is present and two sites could not be assigned to a region due to lack of locational information.

Cliff faces are described in 28.03% of the sites records (n=132) which discuss surface information, but of these only 66.67% have detailed motif descriptions (n=88). Petroglyphs are again most commonly described (n=103, 78.03%) as occurring on cliff faces and are found in all counties except Eureka (but again this may be due to incomplete recording in that county). Nearly all of the rock art sites on cliff faces described as a combination (n=16, 12.12%) are found in the Southeastern region (eight in Clark county and six in Lincoln county, n=14, 87.5%). One is found in the Northwestern region in upper Washoe county and one is found in the Western region (Mineral county) which is a vulviform site.

Site records which describe pictographs on cliff faces are also much less frequent (n=11, 10.68%) than petroglyphs, but are found in all counties except Storey and Douglas. Somewhat surprisingly Lincoln county (n=6) and White Pine county (n=2) contain few pictographs on cliffs. Pictographs on cliff faces elsewhere include one each in Churchill and Clark counties, and one in Pershing county (26Pe9) which is described as a Medicine Rock, where salt was 'licked from the surface' as a means of healing (Gale 1912:19 [Chapter 10.3]).

Some interesting patterns emerge when these surface types are examined by region (Appendix 6). In the Southeastern region nearly half of the sites with surface information recorded (n=62, 41.06%) occur on cliff faces, a slightly smaller number occur in shelters (n=47, 31.13%) and around half as many are described as occurring on boulders (n=32, 21.19%). In each of these cases the numbers are distributed fairly evenly between the two counties (Clark and Lincoln) which make up this region (cliff faces: 32 Clark, 30 Lincoln; shelters: 27 Clark, 20 Lincoln; boulders: 15 Clark, 17 Lincoln). Only in mixed contexts is there some difference between counties where Lincoln county has six sites while Clark county has only one, and in bedrock sites with Clark county having all three recorded for the region.

But while cliff faces are the most often recorded surface used for rock art in the southeast, in the Eastern region (White Pine county) rock art sites with this information recorded (n=45) appear to be predominately located in shelters (n=26, 57.78%). One additional site in White Pine county is described in a mixed context (26WP69, Katchina Cave), but it is a painted shelter site with Fremont style rock art also occurring on the cliff face and boulders outside the shelter. Only 11.11% (n=5) of the sites with this information recorded occur on cliff faces alone (the same number as occur on bedrock outcrops) and only 17.78% (n=8) occur on boulders alone. Of the six remaining sites with such information recorded, five are on bedrock (11.11%, four petroglyph and one combination) and one is a pictograph in mixed context (2.22%).

The use of shelters is not surprising in the Eastern region because they occur quite commonly in the limestone formations, yet cliff faces are equally common but are used for rock art much less frequently. Further, of the shelters in the Eastern region with rock art reported, nearly all of them are pictographs (n=24, 92.31%). As will be discussed below, pictograph sites

do occur most often in shelters throughout the state, which of course raises the issue of differential preservation. But in the Eastern region pictographs occur on cliff faces nearly as frequently as petroglyphs, so the preference for painted shelters in this area may reflect more choice than differential preservation. The preference for shelters seems to continue into the Northeastern region (Elko county) also, where nearly all of the known rock art sites which describe surface information (n=10) occur in shelters (n=7, 70%), but of those only two are petroglyph sites. Only one site each is recorded on boulders (a *cupule* site), cliff face (a *vulviform* site) or on bedrock (one of only two sites in the state with what appears to be the representation of a bison, Figure 5), and all are petroglyphs.

Figure 5: *Bison petroglyph, Elko County, Northwestern Region.*

In the Southwestern region sites are, like in the Southeast, more evenly distributed among cliff faces (n=13, 31.7%), shelters (n=11, 26.84%) and boulders (n=15, 36.58%). A small number of site records indicate that rock art is found in mixed context (n=2, 4.88%, both in Esmeralda county) and none are located on bedrock outcrops. But farther to the north in the Western region more than half of all rock art sites (n=163) with surface data (n=93, 57.06%) occur on boulders. Only 44 sites (26.99%) occur in shelters, and of these half (n=24, 54.55%) are pictographs and only around one quarter (n=10, 22.73%) are petroglyphs, while slightly fewer

sites located in shelters are a combination of both pictographs and petroglyphs (n=7, 15.9%). A small number of site records for rock art sites in shelters in the Western region do not specify rock art type (n=3, 6.8%). For those, it is most likely that they are petroglyphs because pictographs are somewhat less common in this area generally and so their presence usually attract attention. Cliff faces appear also to be not the preferred surface for the placement of rock art in the Western region, with only twenty sites recorded (12.27%) as occurring there. Of these, over half (n=13, 65%) are in Mineral county, the southernmost county in the Western region.

Of the remainder four are in Washoe county (all petroglyphs, e.g. Figure 6), two in Churchill county (one pictograph and one petroglyph), and one in Lyon county (petroglyph). An additional four sites (2.45%) in mixed contexts also occur in the Western region (one combination site each in Mineral and Lyon counties, one pictograph site in Churchill county and one petroglyph site in Storey county [Figure 3]). Only two sites are recorded on bedrock (1.23%, one in Washoe county and one in Mineral county). This might suggest something of a north::south split in regards to the use of cliff faces, except that in the Northwest region 50% of site records which contain information on surface are described as being on cliff faces

Figure 6: *Griffin Canyon, Washoe County, Western Region.*

(n=12). One of these is the above mentioned Medicine Rock in Pershing county (pictograph), four are in Humboldt county (all petroglyphs) and seven are in Washoe county (all petroglyph sites except one combination site). Of the remaining sites in the Northwestern region, 29.17% occur on boulders (three in Humboldt county, two in Pershing county and two in Washoe county, all petroglyphs). The remaining 20.83% occur in shelters, one combination site in Humboldt county, two sites in Pershing county (one petroglyph and one pictograph) and two sites in Washoe county (one of which is a pictograph, while the rock art type of the other is not defined, but is probably a petroglyph). Uplifted basalt fault blocks dominate this part of Nevada and so cliff faces are also ubiquitous, so perhaps this preference is more opportunistic than anything else.

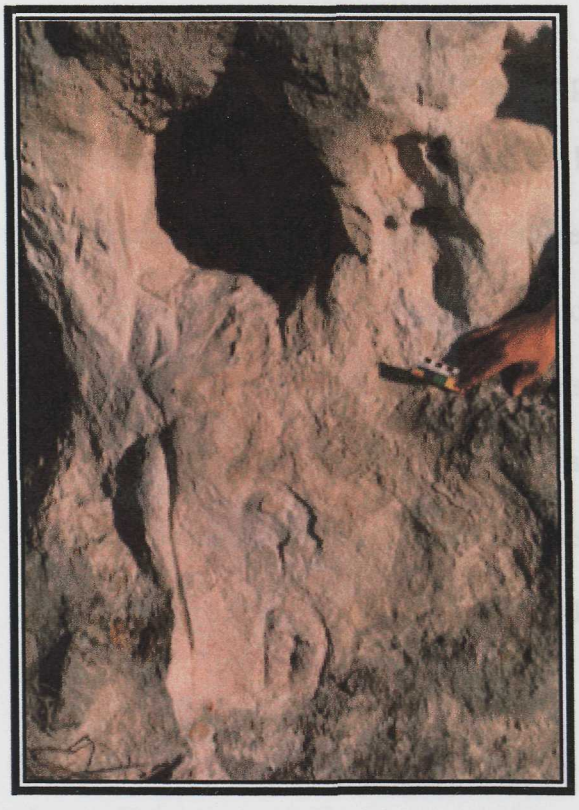


Figure 7: *X Marks the Spot, Nye County, Central Region.*

Site records for the Central region which contain surface information suggest that nearly half are placed on cliff faces (n=13, 44.83%), all of which are petroglyphs and all but two are on soft, light coloured tuff (see below). Nine of those eleven sites found on this rock type are vulviform sites (Figure 7).

Nearly as many sites in the Central region are located in shelters (n=11, 37.94%), eight of which are pictographs, and only one each of petroglyphs, combination and rock art type unknown. Records with surface information suggest that rock art in the

Central region occur much less on boulders (n=4, 13.79%; one in Lander county and three in Nye county) or on mixed surfaces (n=1, 3.44%; a 'scratched' site, see below, which is on both boulders and cliff face).

Rock Type	Number	% of Total	Rock Type	Number	% of Total
Basalt	137	41.14	**Sandstone**	68	20.42
Granite	20	6	**Tuff**	65	19.52
Limestone	28	8.4	**Tufa**	15	4.5

Table 8: *Rock Type (T=333)*

6.1.2 Rock Types

While the Central region shares high percentages of rock art sites in shelters with the Eastern and Northeastern regions, it also has higher numbers of rock art on cliff faces like the Northwest and the Southeast. The most interesting feature of Central region rock art is not the selection of surfaces, but rather the more specific selection of rock type (Table 8) for use with specific motif types. In particular, vulviform sites are almost always located on tuff, which is a very soft, light coloured stone. However, it should be remembered that only 32.11% (n=333) of the total number of site records includes this basic contextual information, making it difficult to evaluate the selection of rock types overall.

Igneous rock is very common throughout Nevada (basalt and granite in particular, but also tuff), as are sedimentary rocks, especially in the south and east (sandstone and limestone). In addition there is another interesting rock type, algal tufa (usually simply called 'tufa'), a calcium carbonate sedimentary rock deposited from solution in the waters of ancient Pleistocene lakes in western Nevada.

Basalt

Basalt is the most commonly reported rock type for rock art sites (n=137, 41.14%), no doubt due to its ubiquity in the landscape. However, the unique properties of basalt certainly also contributed to it being a preferred medium for petroglyphs. Basalt very frequently develops a sometimes very dark coating (either by chemical action within the rock called 'patina' or by interaction with the environment called 'varnish' or 'desert varnish'). When this surface, which is sometimes quite thin (Figure 8) is removed, the lighter interior rock material is exposed, producing a sometimes quite striking visible contrast.

Figure 8: *Desert varnish or patina on basalt.*

Rock art located on basalt is reported for all counties except Eureka (no doubt due to the limited number of sites reported there), and somewhat more interestingly, White Pine county (Eastern region). Here, 14 of the 20 sites with rock type specified are made on limestone. These are predominantly pictographs in shelters, and only one is a petroglyph site on bedrock and one a pictograph site in a mixed context (shelter, cliff face and boulders). The six other site records for White Pine county which note rock type indicate that the rock is granite (one combination site on bedrock; two pictograph sites on boulders and three petroglyph sites on boulders). Basalt is much less common in the area but not completely absent, so the lack of rock art on basalt in that area is interesting.

For the rest of the state it should be noted that when rock art was produced on basalt (n=137), it was usually as petroglyphs (87.59%, n=120), and of these 88.33% are on boulders (n=106). Only three sites occur in combination contexts (one of which is the important site of Lagomarsino, Figure 3 above, which includes cliff faces and talus, or boulder slope), two occur in shelters, three are on bedrock outcrops and six do not specify surface type. Although rock art sites on basalt boulders are the most commonly reported sites, these are reported from only four of the seven defined regions, Western (n=66, 80.49%), Northwestern (only one site in northern Washoe county), Southwestern (n=9, 10.98%) and Southeastern (n=6, 7.32%). Clearly the Western region is dominated by rock art sites on basalt boulders, occurring in every county except Storey. But as mentioned above this is probably the result of biassed recording for this county, and in fact, only one of the records for Storey county (n=44) specifies rock and surface type.

Sandstone

A distant second as medium for rock art is sandstone, with 20.42% (n=68) of the site records noting its use. Obviously the distribution of sandstone will determine the number of occurrences at least in part, and although rock art on sandstone is recorded in six of the sixteen counties, all except four sites are in Clark (n=56, 82.35%) and Lincoln (n=8, 11.76) counties. One site is recorded in both Esmeralda and Humboldt counties (both petroglyphs on a cliff face) and one again for Elko and Washoe counties (both petroglyphs in a shelter).

The majority of sandstone sites (n=56) in Clark county are on cliff faces (n=19, 33.92% of the sandstone sites), with nearly as many (n=13, 23.21%) in shelters. Of the sandstone sites on cliff faces only one is a pictograph site and only four are combination sites, with the majority (n=14) being petroglyphs. Sandstone boulder sites account for 14.86% (n=8) of the sandstone sites in Clark county and fifteen site records (26.79%) which specify sandstone do not indicate what type of rock art is present. None of the sites in sandstone shelters are pictographs, with petroglyphs (n=7) and combination sites (n=5) only in that context, although one site record indicates rock art in a sandstone shelter but not the art type present. This is not entirely surprising because the number of pictograph sites generally in Clark county is somewhat less than expected (see below), but it seems unlikely that recording bias can account for this low number of pictographs on sandstone simply due to the relatively greater construction survey in that county. The percentages of sandstone sites found in Lincoln county (n=8) are also quite low, but like Clark county seem somewhat credible due to extent of survey, although here too the number seems suspiciously low. In that county, 62.5% of the sites (n=5) on sandstone are on cliff faces, with two pictographs, two a combination of pictographs and petroglyphs and one

petroglyph only. Only two sites occur in sandstone shelters (one pictograph and one petroglyph) and one petroglyph site is described as occurring on a sandstone bedrock outcrop.

Limestone

Limestone rock art sites are also somewhat limited in distribution, and are only reported in six of the sixteen counties. Like sandstone sites, limestone sites in the Southeastern region are rarely reported, but this may be a product of overlooking the obvious when recording. Only one pictograph shelter is reported for Lincoln county, while in Clark county three shelters (two with a combination of petroglyphs and pictographs, and one with petroglyphs only) are reported. Nearly as many are reported for the Southwestern region (n=3), all of which are in southern Nye county (two pictograph and one combination). One is also reported from northern Nye county, which is in the Central region. Not surprisingly no limestone sites are reported for the Northwestern region, and only one is reported for the Western region (in Churchill county), a tufa encrusted limestone cave (Figure 32, Salt Cave). Three limestone sites are also reported for Elko county (Northeastern region), all

Figure 9: *Red Hand Cave, Elko County, Northeastern Region.*

pictograph sites in shelters (Figure 9). Half of the reported limestone rock art sites are in the Eastern region (White Pine county, n=14) as would be expected because of the relative abundance of this rock type in that area. Of these nearly all (n=12, 85.71%) are pictograph shelters, while one pictograph occurs in a mixed context (in this case shelter and cliff face) and one petroglyph site is recorded as occurring on limestone bedrock.

Tuff

The next most commonly reported rock type is tuff (n=65). The highest number of rock art sites on tuff are in the Western region (n=24, 36.92%), most of which are in southern Washoe county (n=20). Of these only four are on boulders (all petroglyphs), while most (n=16) are in shelters (seven are petroglyphs, five are pictographs and four are combination sites). Mineral county (Western region) has only four sites on tuff, all on cliff faces (two petroglyphs, one combination and one without rock art type described) and two of these are vulviform sites (see below).

The Central region (n=17, 26.15%) has nearly as many rock art sites on tuff and as mentioned above many (n=11, 64.71%) of those are vulviform sites (Chapter 10.2.1). Nearly all of the Central region's tuff rock art sites occur in northern Nye county (n=13, 76.47%), one of which comprises petroglyphs on a boulder, three are in shelters (one pictograph, one petroglyph and one combination) and nine are on cliff faces (all petroglyphs and all except one is a vulviform site). Also in the Central region are four tuff rock art sites in Lander county, two of which are petroglyphs on cliff faces (both vulviform sites), one multicolour pictograph cave (Figure 10) and one petroglyph boulder.

Figure 10: *Toquima Cave; Lander county, Central region*

Nearly as many rock art sites on tuff are found in the Southwestern region (n=12, 18.46), all except two in Esmeralda county are on tuff and all except four of these are vulviform sites. All of those rock art sites on tuff in Esmeralda county are petroglyphs, only one of which is a boulder and the remaining nine are cliff faces. The two sites in the Southwestern region that are located in Nye county are on boulders (one petroglyph vulviforms and one is a combination). Fewer sites in the Southeastern region are on tuff (n=7, 10.77%), and all of those are in Lincoln county. Nearly all (n=6) are on cliff faces (five petroglyph, two of which are vulviform sites and one pictograph site) with one site in a combination context and with a combination of rock art. Only two other rock art sites are reported on tuff, one in the Northwestern region (Humboldt county, a shelter with a combination of petroglyphs and pictographs) and one in the Northeastern region (Elko county, a cliff face with petroglyphs which is also a vulviform site. No tuff sites are reported for the Eastern region, however this is likely to be bias in recording since less than half (n=20, 41.67%) of its reported sites have rock types noted.

Granite

Figure 11: *Medicine Rock with feather offering on left; Mineral county, Western region; boulder on right is granite*

Granite is also quite common in the southeastern and eastern part of the state, where most of the rock art sites that are reported on granite (n=20) are found. Only five sites made on granite occur outside the Eastern and Southeastern regions (four in the Western region: one pictograph site in mixed context in Churchill, one pictograph boulder in Washoe county and two petroglyph boulders in Mineral county, one of which is a well known Medicine Rock [Figure 11; Chapter 10.3]) and one site in the Northwestern region (a petroglyph boulder in Washoe county). Most of the granite rock art sites are found in the Southeastern region (n=9, 45%), but one is in Lincoln county (a petroglyph site in mixed context). The remaining eight sites are in Clark county, two petroglyph sites on granite cliff faces, three shelters (one of which is petroglyphs and two are a combination of both petroglyphs and pictographs), and three boulders (two with petroglyphs and one which does not include rock art type). The rest of the granite rock art sites are in the Eastern region (n=6), five of those on boulders (three with petroglyphs and two with pictographs), and one on a granite bedrock outcrop (with a

combination of petroglyphs and pictographs). Granite weathers rapidly in some environments and it is not entirely surprising that few petroglyph sites are known from granite surfaces.

Tufa

Tufa is a rare rock type whose use is restricted to the Western region because of its very limited distribution. Only two sites outside the Western region, in Pershing county (Northwestern region), are made on tufa. Of those in the Western region (n=11, 73.33% of all tufa sites reported), one is reported for Lyon county (a petroglyph boulder). Churchill county has five (four of which are shelters, three pictograph and one combination, and one petroglyph boulder which is a vulviform site). Washoe county also has five sites reported on tufa, two on boulders (one petroglyphs and one combination) and three in shelters (one petroglyphs and two with a combination of petroglyphs and pictographs, one of which is a vulviform site.

Little can be said about selection based on rock type except for the observation made earlier regarding the apparent association between vulviform sites and soft light coloured rock, especially tuff in the Central region, which will be examined in more detail below (Chapter 10.2.1). In regards to other rock types it seems as if basalt may have been selected for the contrast provided by the desert varnish for petroglyph production, since pictographs account for such a small number of total sites on basalt (n=13 including combination sites, 9.49%), less than ten percent of the site records which include rock type. This inference is supported by the fact that where most basalt rock art sites are reported (the western half of the state) is also the

area where there are slightly fewer pictograph sites overall (see below) and where basalt is ubiquitous, implying that basalt was avoided for making pictographs on.

6.1.3 Site elevations

One other piece of environmental data recorded with some regularity is site elevation (Figure 12) and 41.08% of the total site records for the state (n=426) include this information.

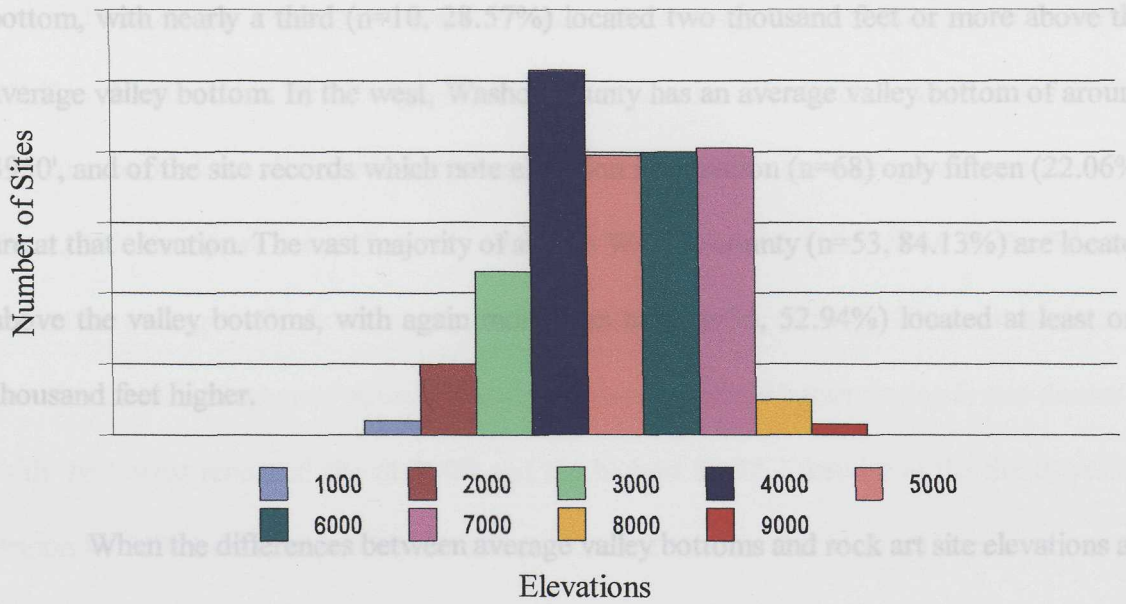


Figure 12: *Site Elevations*

Elevations were recorded for sites in all counties except Douglas, ranging from 1450' in Clark county to 9560' in White Pine county. As can be seen sites are generally located between 4000 and 5000'. For each county the differences in the highest sites and the lowest are dramatic. In Clark county (where all the sites below 3000' are found and where valley bottoms average

around 2000') elevations range from 1450' to 5200'. But nearly half (n=31, 47.69%) of the total number of sites in that county (n=65) that have elevations noted are above 4000', and 20% (n=13) have elevations of one thousand feet above the average valley bottom. Only a little more than one third (36.92%, n=24) are at (or below) the elevation of the average valley bottom.[30]

White Pine county has the highest average valley bottoms (around 6000') and rock art site records noting elevations indicate that they range from 5560' to 9560'.[31] Again, slightly more than half (n=18, 51.43%) are located at least one thousand feet above the average valley bottom, with nearly a third (n=10, 28.57%) located two thousand feet or more above the average valley bottom. In the west, Washoe county has an average valley bottom of around 3950', and of the site records which note elevation information (n=68) only fifteen (22.06%) are at that elevation. The vast majority of sites in Washoe county (n=53, 84.13%) are located above the valley bottoms, with again more than half (n=36, 52.94%) located at least one thousand feet higher.

When the differences between average valley bottoms and rock art site elevations are examined by region, a similar pattern is seen throughout the state, except in the northeast (Elko county) where only one site is located more than one thousand feet higher than the average valley bottom (5500'). Two sites are below this average elevation, but the majority of sites (n=8, 72.73%) are located between 5500' and 6500', that is within one thousand feet of the

30 The valley bottom averages used here are derived from Grayson (1993:17).

31 There is also a rock art site known by Mr McLane to be on Wheeler Peak at around 11,000', but this site is not currently included in the database because it has not been officially recorded.

average valley bottom. The Southeastern region also has a smaller number of 'high elevation' sites, although the separation between highest and lowest rock art sites is again quite dramatic, where the lowest recorded site is 1450' and the highest is 6800', a separation of 5350 feet. In this region, only 16.13% (n=15) sites are more than one thousand feet above the average valley bottom (approximately 3800'). But 43.01% of the sites are located within one thousand feet of the valley bottom and 40.86% (n=38) are located below the average valley bottom elevation. This presents an interesting contrast with the rest of the state where nearly half of the sites actually lie far above the average bottoms.

For example, in the Northwestern region, the average valley bottom is approximately 4000' in elevation, and 70.83% (n=17) of the site records with elevation information (n=24) indicate that rock art sites are located one thousand feet above the average valley bottom. Of those, 25% (n=6) are more than two thousand feet above the valley floor. In the Western region the average valley bottom is around 3900', but 64.52% (n=140) of the rock art sites are one thousand feet higher or more. The elevation range in the Western region is also dramatic, with the lowest recorded site at 3800' and the highest 8080'. Likewise in the Southwestern region 84.36% (n=27) sites with elevations recorded indicate that rock art sites lie above the average valley bottom elevation (5000'), more than half of these (n=15) are located one thousand feet above or more. In the Eastern region, 51.43% (n=18) of the rock art sites with elevations noted are located more than one thousand feet above the average valley bottom (6000'), and here too the separation between the lowest site (5560') and the highest site (9560') is a striking four thousand feet. And finally in the Central region, where the average valley bottom is around 5600' in elevation, 57.14% (n=8) of the site records with elevation information indicate that the site is more than one thousand feet above the valley floor, only

five sites are located within one thousand feet of the valley floor, and none are recorded below that average. In every region except the Northeast and the Southeast, more than half of the rock art sites have elevations that suggest that they are more than one thousand feet above the average valley bottom, and a significant number are more than two thousand feet above the average valley bottom. This might suggest something of a tendency toward 'high altitudes' for rock art throughout most of Nevada (*contra* Whitley 1998a:22-23).

6.2 *Associated Archaeological Materials and Features*

So few site records include environmental information such as vegetation or distance to water, that any attempt to evaluate patterns regarding such information was abandoned. It is however a commonplace that rock art is often located near water, and in a desert environment it is most likely that this is simply where people gathered. But there is a possibility that rock art provided a type of 'owners mark' or indicated which groups had rights to the water.

Analysis of associated cultural materials or features is also based on a very small number of site records (n=244, 23.5%). But because such materials are potentially chronologically or culturally diagnostic, it was decided that these were important enough to examine even with limited information. In the future, as the record improves, many of the observations made here will need to be re-examined.

There are rock art sites where no other archaeological materials can be detected, but those are in fact quite rare, although that is not the impression gained by perusal of the existing site record and published discussions, which makes rock art seem to be isolated in the context

of its occurrence (e.g., Whitley 1998a:13). This has long been a problem in Great Basin rock art research, with rock art considered epiphenomenonal compared to other more easily understood material remains of past human behaviours. When recorded at all, rock art was often simply noted in the area while other cultural materials have been painstakingly described (Cannon and Woody *in press*). If the rock art itself was recorded, even more recently, it has often been done separately from the site within which it is situated. The justification for this has always been that because of the inability to directly date rock art, it has been considered impossible to correlate the rock art with other activities and materials which co-occur (a problem that also occurs in other parts of the world, eg. Kinahan 1999:336-337). This has been in spite of the fact that a great deal of other types of materials can also not be directly dated (especially in the Great Basin where much of the archaeology is 'on the surface', [Grayson 1993:250]). But because it has been thought that other materials could provide some information (e.g. sources for raw materials in the case of obsidian debitage) which contributed to overall site interpretations, these things were worthwhile to record. Since rock art was thought to be unable to provide any useful information (since it could not be dated or 'read'), it was not considered to be worthwhile recording. This view is of course changing and rock art is now being recorded as a part of the overall site context.

FISH	4	**LITHICS**	188
BIRD	2	**DIAGNOSTIC**	16
MAMMAL	23	**GROUNDSTONE**	114
WOOD	13	**POTTERY**	59
TEXTILES	19	**FEATURES**	47
BURIALS	7	**HISTORIC**	7

Table 9: *Associated archaeological materials*

Various associated archaeological materials are described in only 23.53% (n=244) of the site records (Table 9). This is without doubt an inaccurate number and a page by page search of all the site records in the state (approximately 100,000 archaeological sites are currently on file) would unquestionably turn up more rock art sites, more rock art sites with associated materials and more archaeological sites that also have rock art noted in association. But from the small number currently known to have such information, some interesting and potentially important patterns can be detected.

6.2.1 Lithics

The general category of 'lithics' is most commonly reported in association with rock art sites (n=188, 77.05% of those with associated materials described). Very rarely are these 'lithics' further described and are most likely the same as the sparse debitage scatter that covers much of the Great Basin. Lithic scatters are reported at rock art sites in every county except Douglas and Eureka. For the other counties the number of rock art sites with associated lithic scatters is generally proportional to the number of sites in the county. For example, the four counties with the highest number of sites (Clark, Lincoln, Mineral and Washoe) are also the four counties with the highest number of site records that note the presence of 'lithics.'

But within these there is a very small number of sites with temporally diagnostic projectile points described (n=12 sites [17 separate diagnostic points]), and although this is not an appropriate means by which to date the rock art, it does begin to suggest possibilities for

periods of site utilization.[32] Archaeologists in Nevada rely heavily on projectile point chronologies to "tell time" (Grayson 1993:250), and while recognizing that there are far too few temporally diagnostic points described at rock art sites to make any general statements, and that there is no way at present to tie the points directly to the rock art, it is simply interesting to note that nearly all of those that are noted are generally thought to be between two and eight thousand years old. As with other information reviewed thus far, this too may be a product of bias, because people may be more inclined to record older points than younger ones, or since younger points are generally smaller than older ones, they may be more easily overlooked.

Of the seventeen diagnostic projectile points described in Nevada's rock art site records, 82.35% (n=14) of them are Elko series or older (Elko series point types are generally thought to be between eight and two thousand years old [Jennings 1986:117 provides the most widely accepted Great Basin projectile point chronology]). In fact nearly half of the projectile points recorded are Elko series (n=7), or one of the other point types thought to be roughly the same age (one each of Humboldt and Pinto – both also generally thought to be between 8500 and 2500 years old). Five other points which are considered to be even older than those just mentioned include stemmed points (n=3), generally thought to be between eleven and eight thousand years old, and crescents (n=2), generally thought to be around nine thousand years old). Only three points are recorded that are much more recent in time and include Desert Side Notch (n=2, up to 1500 years old, but still in use until around the time of contact) and Cottonwood Triangular (n=1, up to 500 years old, but also used up until historic times). Both

32 This is also not the place for a discussion of the presumed validity of projectile point typologies and chronologies.

of these recent projectile points are associated with the introduction of the bow and arrow around 1,700 B.P., where it finally replaced the earlier atlatl by 1,300 B.P. (Grayson 1993:253). There is some reason to believe that these also mark the presence of Numic speaking populations in Nevada, while the earlier projectile points may indicate the presence of an earlier population (Bettinger and Eerkens 1999).

6.2.2 Groundstone

The next most commonly reported artifact at rock art sites is groundstone, present at 46.72% (n=114) sites. As with projectile points, it is not currently possible to determine whether groundstone and rock art are directly associated and it is possible that rock art and the materials found at its locales reflect different, unrelated phases.[33] Groundstone, while present, is rare in early Holocene sites generally in the Great Basin, but by the time that the Pleistocene lakes and the shallow-water habitats associated with them had disappeared (i.e. after around 7,500 years ago), groundstone becomes extremely common. Groundstone was used for a variety of activities, such as grinding bone or even processing paint, but most archaeologists agree that it marks the introduction of seeds into the diet, which remained relatively important until White contact.

While one should not automatically assume a direct correlation between women and groundstone (men could certainly use these 'women's' tools in the same way that women

33 William J. Cannon, district archaeologist for the Bureau of Land Management, Lakeview District (Oregon) however has indicated that both groundstone and rock art exhibit comparable levels of revarnishing at one important rock art site in the northern lobe of the Great Basin (personal communication, March 1998) which has been dated to prior to 7800 BC by the presence of a distinctive and well dated volcanic ash (Cannon and Ricks 1986:12).

could use and produce 'men's' lithic tools), the presence of groundstone does represent domestic debris in the broadest sense. This indicates habitation, however limited, which also implies the presence of a household (which logically would include women, men, children and elders) at a good many rock art sites. Seventy-six site records indicate the presence of both lithics and groundstone, thirty-eight indicate groundstone without lithics and fifty-six indicate lithics without groundstone. Twenty-two records mention the presence of other types of domestic debris (e.g. middens and/or 'rock rings', as opposed to 'hunting blinds,'[34] possibly the foundations of habitation structures).

6.2.3 Pottery

Fifty-nine sites list pottery, not surprisingly all except eight are from the southern half of the state (n=46 Southeastern region, n=5 Southwestern region, n=4 Eastern region and n=1 Northeastern region). Of those rock art sites with pottery, 50.85% (n=30) occur in association with groundstone and three have historic motifs described (two in Clark county and one in Lincoln county).

34 Hunting blinds are mentioned in only three site records, two in Washoe county and one in Mineral county. The Mineral county site is the fairly well known Pistone (or Black Mountain) site where cleared depressions in the very large talus slopes at this site may be related to hunting bighorn sheep which tend to run up talus slopes when frightened. There are sheep represented at the site as well as a possible bison.

6.2.4 Other Materials

Only seven sites list historic debris (e.g. glass trade beads), and of those only two also indicate that historic rock art is present (both in Lincoln county). Possible engraving tools are mentioned at only two sites (in Esmeralda and Lincoln counties), one of which is identified as chert and the other does not mention rock type, although the use of quartz as specialized engraving tools has been suggested by other researchers (Whitley, Simon and Dorn 1999:20-22; Whitley 1998d:162). A total of sixty-one sites indicate the presence of organic materials (bone, wood, or textiles) and may or may not necessarily indicate habitation. Seven rock art sites are associated with human burials (or possible burials, the problem of burial site looting is an old one in the Great Basin).

6.3 *Summary*

From the foregoing discussion, it is clear that the rock art sites in Nevada do not occur randomly, but are patterned by region in location, surface and rock type and in associated materials. Rock art sites are most numerous in the Western and Southeastern Regions, both areas of important environmental boundaries. In addition sites tend to occur in relatively high elevations, generally at least one thousand feet above the average valley bottom. And associated materials suggest a strong domestic context which conflicts with currently popular models (e.g. Shamanism and Hunting Magic).

Chapter 7: Imagery

In addition to other types of basic information missing from Nevada's rock art record, of the 1037 sites examined for this study, 39.2 % (n=406) do not even include whether or not the rock art present is painted (pictograph), engraved (petroglyph, scratched or historic) or a combination of both (Table 10). More than half of the site records however (n=631, 60.8%) do contain these data and it is these records which provide the bulk of the subsequent analysis.

Pictographs	Petroglyphs	Combination	Not Recorded
111	458	62	406
10.7%	44.2%	5.9%	39.2%

Table 10: *Site totals by art type*

7.1 *Art Types*

7.1.1 Petroglyphs

Esmeralda, Storey and Mineral counties are much better represented than the other counties with fairly high percentages of total site records with detailed information (Table 11; Regional data are found in Appendix 7). Elko, Lyon and Lander counties are also fairly well represented, while Douglas Eureka, Humboldt, Lincoln, Pershing and White Pine counties are roughly equal in number of sites with and without detailed site information. Churchill and Nye counties are slightly less well represented, but both Clark and Washoe counties, the two counties with the highest numbers of rock art sites overall, have the lowest percentages of sites with detailed data.

COUNTY	TOTAL	W/DATA	%	COUNTY	TOTAL	W/DATA	%
Churchill	47	14	29.79	**Lincoln**	101	41	40.59
Clark	239	40	16.74	**Lyon**	33	21	81.82
Douglas	6	3	50	**Mineral**	116	90	77.59
Elko	13	9	69.23	**Nye**	79	19	24.05
Esmeralda	47	40	85.11	**Pershing**	14	7	50
Eureka	2	1	50	**Storey**	44	36	81.82
Humboldt	28	14	50	**Washoe**	208	41	19.71
Lander	12	7	58.33	**White Pine**	48	25	52.08

Table 11: *Number of rock art sites and with motif data by county*

This discrepancy may be due to several factors. First in Washoe county, McLane often finds large numbers of sites, but does not record them in detail during his initial explorations of an area. Generally he assigns a temporary site number (using his own system based on the date), and then moves on to find more sites, although he does sometimes summarize motifs present. If recording is done, it follows when there is sufficient time, but in many cases these sites are not further recorded. In Clark county a similar situation exists but probably due to the fact that most of the rock art sites in that county were recorded many years ago during survey for construction projects. Rock art at that time was often simply noted and assigned a number. This situation is currently being addressed by a number of dedicated rock art researchers and enthusiasts in the southern areas, but will of course take time. The problem is further complicated in the south by continuing rapid population growth and associated construction. Many sites in Clark county are under threat from vandalism (Figure 2) and construction which often accompanies population growth, particularly the expansion of the city limits of Las Vegas.

Petroglyph sites occur throughout the state and outnumber both pictograph sites or sites with a combination of both petroglyphs and pictographs. This observation in itself is not particularly revealing, but a more interesting pattern emerges when distributions are compared

with the distribution of pictographs and combination sites (discussed below). It is likely however that the substantial number of site records which do not record art type are petroglyphs, simply because painted sites are less common and so would be more likely to be reported because they are somewhat unusual.

The most important fact to be gleaned from the petroglyph data alone is to reinforce again the poor state of the record. A large portion of petroglyph site records (n=186, 40.61%) do not have any information regarding motif types or other data beyond the presence of engraved rock art (Table 12; regional data are found in Appendix 8). It must again be acknowledged that the lack of such basic information is a clear indication of the need for more complete recording procedures.

County	Total	% of T	w / R	% of R	County	Total	% of T	w / R	% of R
CH	18	3.93	7	2.57	**LN**	50	10.92	26	9.56
CK	70	15.28	20	7.35	**LY**	22	4.80	12	4.41
DO	3	0.66	2	0.74	**MN**	95	20.74	77	28.31
EK	6	1.31	3	1.10	**NY**	33	7.21	16	5.88
ES	23	5.02	22	8.09	**PE**	7	1.53	6	2.21
EU	1	0.22	0	0.00	**ST**	39	8.52	34	12.50
HU	7	1.53	2	0.74	**WA**	64	13.97	33	12.13
LA	6	1.31	5	1.84	**WP**	14	3.06	7	2.57

Table 12: *Petroglyph sites by county, % of state total (T=458) and % with records (R=272) by county*

7.1.2 Pictographs

Only 44 (39.64%) known pictograph sites on record (n=111) have motif information. Pictograph sites occur in every county except Douglas, Humboldt and Storey (Table 13). Their absence in Humboldt county is probably a result of the lack of survey in this very rugged area. While the county itself is quite large (*ca.* 9,648 square miles), it has only one notable town (Winnemucca) where nearly all of the county's population (12,844) live. The population density for the county is little more than one (n=1.3) person per square mile, nearly the same as estimates of Native American population densities at the time of contact.

The lack of pictograph sites in Douglas and Storey counties is somewhat more puzzling because 27.93% (n=31) of all recorded pictograph sites are in the Western region which includes these counties. More than half of those are in Churchill county (n=16), an area that has recently become extremely important in Great Basin archaeology because of the very early dates obtained from the Spirit Cave burial (Tuohy and Dansie 1997).

County	Total	% of T	w / R	% of R	County	Total	% of T	w / R	% of R
CH	16	14.41	5	11.36	**LN**	18	16.22	7	15.91
CK	5	4.50	2	4.55	**LY**	1	0.90	0	0
DO	0	0.00	0	0	**MN**	4	3.60	3	6.82
EK	6	5.41	5	11.36	**NY**	12	10.81	1	2.27
ES	2	1.80	2	4.55	**PE**	2	1.80	1	2.27
EU	1	0.90	0	0	**ST**	0	0.00	0	0
HU	0	0.00	0	0	**WA**	12	10.80	0	0
LA	2	1.80	1	2.27	**WP**	30	27.00	17	38.64

Table 13: *Pictograph sites by county (T=111 and w/R=44)*

Most of the remaining pictograph sites in the Western region are in southern Washoe county (n=12), concentrated in the area around the southern end of Pyramid Lake. Also in the Western region, Lyon county has only one officially recorded pictograph site, although it has no data regarding motifs and Mineral county has only four recorded pictograph sites, three of which have these data.

Region	Number	% of T	Region	Number	% Of T
Northwest	3	2.70	Northeast	6	5.41
Central	9	8.11	Western	31	27.93
Southwest	8	7.21	Eastern	30	27.03
Unknown	1	0.90	Southeast	23	20.72

Table 14: *Pictograph sites by region (T=111)*

Figure 13: *Calf Canyon; Elko county, Northwestern region; Fremont style motif top centre.*

More than half (53.15%, n=59) of all recorded pictograph sites are located in Clark (n=5, 4.5%), Lincoln (n=18, 16.3%), White Pine (n=30, 27%) and Elko counties (n=6, 5.4%), on the eastern side of the state. Of these clearly the majority are found in White Pine county (Eastern region) and Lincoln county, but a surprisingly small number are found in Clark county (which together make up the Southeastern region). There is a surprisingly high percentage of pictographs found in Elko county (the Northeastern region) where, although actual recorded site numbers are low (n=13), nearly half of these are pictograph sites (n=6). Many of these eastern pictograph sites reflect the influence of

Fremont populations in that area (Figure 13), such as the characteristic anthropomorph with triangular body (Schaafsma 1986:217, 223-225).

The surprisingly small number of pictograph sites in Clark county appears at first to be a factor of recording since only 41.42% (n=99) record the type of rock art present. Of these site records which do contain this information, only five are described as pictograph sites (and of these only two have motif data), but 24 sites are described as combination sites (see below), that is with both pictographs and petroglyphs. Adding these combination sites would bring the overall pictograph total more in line with other eastern counties (or 12.13% of the total for the county). Of the remaining 140 sites in Clark county it is currently unknown how many of these are pictograph sites or combination sites, although it seems very likely that at least some of them are.[35]

Figure 14: *Gatecliff Shelter; Nye county, Central region*

The low numbers of pictograph sites in Clark county however may reflect a more basic east :: west split in pictograph densities. While one might expect there to be higher numbers in the Southwestern region also, there are in fact only a small number (n=8, 7.21%) of pictograph sites in that region. The Central region has only one more (n=9, 8.11%), and of these six form a cluster in northern Nye county. One of these is Gatecliff Shelter, which has played an important role in Great Basin archaeology (Figure 14).

[35] Steven Stoney reports that only 5% of the sites in Clark county currently have pigments, roughly the same number recorded for this study. He suggests, however, that in the past that number might have been higher because the known pigments are weathering very quickly (Steve Stoney, personal communication, November 1999). It is possible that pigment is weathering more rapidly in that county than others because of increasing levels of pollution due to population increases, something that has not been explored.

Figure 15: *Toquima Cave 'projectile points' outlined in white in centre, Lander County, Central Region.*

Figure 16: *Lagomarsino projectile points, Storey County, Western Region.*

Slightly farther north in the Central region (in Lander county[36]) is another important pictograph site, Toquima Cave (Figure 10).

The dates for Toquima Cave (AD 600 - 1300) were based in part on the interpretation of certain triangular images as depictions of projectile points and date ranges for these points were assigned to the paintings (Figure15). Paint pigments were analysed for source materials but organic materials in the pigment could not be directly dated at that time (Thomas and Thomas 1972:68). Although there are some motifs elsewhere that certainly do look like diagnostic projectile points (e.g., Figure 16) this seems an unacceptable way to date rock art. Even if motifs really are representations of temporally diagnostic artifacts, those dates can only serve as an estimated maximum. While the rock art may not be any older than the points represented, they could have been produced at any point in time after that.

36 Both of these sites are in the Monitor Valley which is also the location of another clustering of vulviform sites which will be discussed below (Chapter 10.2.1).

With the exception of those pictograph sites that occur in a fairly tight cluster in the far Western region, overall pictograph numbers are relatively low in the western half of the state. For example, in spite of the relatively high numbers of rock art sites in Mineral county (n=116, 11.19% of the state total) only a very small number (n=4, 3.48% of the county total) are pictograph sites. The distribution of pictograph sites is slightly different from that of rock art sites in general, however, whereas the Western and Southeastern regions dominate in overall numbers of rock art sites, the Western and Eastern regions have the highest numbers of pictograph sites. Churchill county and the southern portion of Washoe county (around the lower Pyramid Lake area) stands out as exceptional in the Western region with regards to pictograph distributions.

The relationship between petroglyphs and pictographs is not well understood in terms of sequence, chronology, or authorship. Those sites (n=62, 5.98%) which contain both forms may be the most important in helping to sort out this relationship. By careful examination of superposition and content, differences in sequence of production may become clearer. As will be discussed in more detail below, pictograph and petroglyph imagery appears to be generally similar throughout the state, which is why they have not been separated as different "styles" for analysis in this study.

Figure 17: *Horned Anthropomorph on Pilot Peak; Elko county, Northeastern region.*

While one might expect a high percentage of combination sites in Elko county based on the high percentage of pictograph sites (n=6, 46.15% of the county total), there are none, although

at one site (Chalk Spring) there is a red pigment smear associated with at least one *vulviform* motif. It is tempting to suggest that pictograph sites are associated with Fremont populations based on distinctive motifs, but motifs possibly associated with the Fremont (Figure 17) also occur as petroglyphs in the Northeastern region. This implies again that there may be no real distinction between petroglyph producing and pictograph producing groups.

Most of the combination sites (n=49, 79.03%) are located in just three counties: Clark (n=24, 39.3%), Lincoln (n=14, 22.9%) and Washoe (n=11, 18%), although the biasses for all of these areas should be borne in mind. Again Washoe county stands out with an unexpectedly high number of combination sites. This is especially true in the area around southern Pyramid Lake where eight of the nine sites in southern Washoe county (Western region) recorded as having both petroglyphs and pictographs are found. There are again quite high overall numbers of sites in this area and the forthcoming analysis of rock art around the Pyramid Lake by Mr Don Tuohy (recently retired Curator of Anthropology at the Nevada State Museum) may help to understand this complex area more fully.

High numbers of combination sites in Lincoln county are generally to be expected, because a relatively high percentage (n=18, 16.2%) of the total number of pictograph sites in the state occur here. Nearly half of the total number of sites for Lincoln county (n=101, 9.74% of those in the entire state) are described as petroglyphs only (n=50, 49.5%). But there are nearly as many sites in Lincoln county with a combination of both petroglyphs and pictographs (n=14, 13.86%) as there are with pictographs alone (n=18, 17.82%). This is nearly the same number (n=19, 18.81%) of site records which do not describe which type of rock art is present.

As noted earlier, Clark county has the highest number of combination sites in the state (n=24, 57.5% of site records in the county with details). Consequently painted rock art (n=29)

County	Total	% of T	w / R	% of R	County	Total	% of T	w / R	% of R
CH	2	3.23	1	2.86	**LN**	14	22.58	9	25.71
CK	24	38.71	14	40	**LY**	1	1.61	1	2.86
DO	0	0	0	0	**MN**	4	6.45	4	11.43
EK	0	0	0	0	**NY**	4	6.45	2	5.71
ES	0	0	0	0	**PE**	0	0	0	0
EU	0	0	0	0	**ST**	0	0	0	0
HU	1	1.61	1	2.86	**WA**	11	17.74	2	5.71
LA	0	0	0	0	**WP**	1	1.61	1	2.86

Table 15: *Combination sites by county (T=62 and w/R=35)*

frequently co-occurs with engraved rock art (n=24, 82.76% of the county total for painted rock art and 24.24% of the total sites in the county which have rock art type information). This is typical of the wide variety of site types and contexts in that county. Not only is Clark county bounded on the east by the Colorado River and relatively well watered, but also includes the Mojave Desert and is bounded on the west by southeastern California. The entire area has been populated for at least 11,000 years, and from at least A. D. 1200 by Numic speaking Southern Paiute populations, made up of fifteen separate bands (four of these in Nevada). It is clear that there has been intensive interaction right across southern Nevada from New Mexico and Arizona to the California coast for a very long period of time. Some parts of Clark county also supported farming for a short time prior to the arrival of Euro-Americans into the area (Kelly and Fowler 1986:371), as did a few other parts of southern Nevada and the Central region in the area of the Reese River.

Region	Number	% of T	Region	Number	% Of T
Northwest	2	3.23	Northeast	0	0
Central	1	1.61	Eastern	1	1.61
Southwest	3	4.84	Western	15	24.19
Unknown	2	3.23	Southeast	38	61.29

Table 16: *Combination sites by region (T=62)*

7.2 *Motif Analysis*

Figure 18: *Typical Basin and Range Tradition rock art; Nye county, Central region*

The smallest scale of analysis done for this study focussed on individual motifs. While most of Nevada's rock art simply defies classification (Figure 18), as mentioned above motif types were defined (n=77, Appendix 1) based on the 409 site records (39.4% of the total state records, Appendix 2) which contain these data. To facilitate analysis very specific categories of motifs were grouped into broader categories (n=6, Appendix 3). Motif types range from what might be called 'representational' to what might be called more purely 'abstract forms'.

Representational motifs types include all of those motifs which can be described as basically 'human' (or anthropomorph) in morphology (n=11) and those types which can be

described as basically 'animal' (or zoomorph) in morphology (n=13). The motif types which fall within these basic categories are equally subjective and were defined according to simple morphological characteristics.

HUMAN (11 types)

anthropomorph
male
female
vulviform
paper dolls
shield figure
archer
katchina
horned
footprint
handprint

ANIMAL (13 types)

zoomorph
deer tracks
turtle
snake
bison
animal track (paws)
deer
sheep
dog
lizard
fantastic (bugs)
bird
bird tracks

The more abstract motif types are also subjectively defined based on simple morphology and include two categories, those whose constituent parts are basically *circular* (n=27) and those whose constituent parts are basically *geometric* (n=24).

CIRCULAR (27 types)

cupules
arcs
nested arcs
joined arcs
dumbbell
dots
dot row
field of dots
tailed dot
dotted circle
circle
clustered circle
connected circles
joined circles
rayed circles
concentric circles
rayed concentric
spoked circle
horned circle
bisected circle
divided circle
sectioned circle
tailed circle
chain
spiral
atl atl
filigree

GEOMETRIC (24 types)

shields
grid
grill
parallel lines
netting
back to back rake
ladder
tally marks
zig zag
wavy line
undulating line
fish bones
sectioned square
rake
diamond
diamond chain
triangle
double dash
2 sided rake
chevron
asterisk
plant
tree
grooves

It may be noted that these categories fall into the same general classification scheme for petroglyphs as the much criticized system of Heizer and Baumhoff (1962) -'curvilinear', 'rectilinear' and 'representational.' The only real difference being that I have chosen not to separate pictographs as a separate category, because for the most part, motif types are consistent in both petroglyphs and pictographs in each region. This classification system is not ideal, but may be the most practical possible. These are the most basic distinctions that can be

made which allows variation in distributions to be addressed. Furthermore, in spite of recognized and understood difficulties with these subjective and broad terms (Hedges 1982), most rock art researchers continue to use them (e.g., Ricks 1996; Loubser *et al* 1999; White and Orndorff 1999).

It is important to note again that less than half (39.44%, n=409) of the site records utilized here had any motif data at all and many of these are often vague at best. Furthermore, the counts presented in the following analysis represent simple presence / absence counts only. In addition, yet another bias is at work on the records which do describe motif types. When motifs were described in site records, it is likely that these descriptions are biassed towards the most easily identifiable types, especially motifs that 'look like' humans or animals. The great majority of abstract motifs that cannot be easily described seem to have not been mentioned when a site record was made. Site records with motif data predominantly describe *human* or *animal* motifs (n=250; 61%). Two hundred twelve records note the presence of *human* motifs and 133 the presence of *animal* motifs. There is a significant association between these two motif types since they frequently co-occur (n=95; 38% of the sites with motif *human* or *animal* motif data). *Animal* motifs are more likely to co-occur with *human* motifs, since 71% of *animal* motifs co-occur with *human* motifs, in contrast to the 55% (n=117) *human* motif sites recorded without *animal* motifs present.

But in spite of the tendency to record 'recognizable' imagery, those motifs which are not 'recognizable' clearly do represent the majority of rock art in Nevada. This can be seen when a simple 'representational vs non-representational' comparison is made by region, when the differences (especially between north and south) become quite clear. Non-representational motifs dominate the northern and western parts of Nevada, while in the Central region representational motifs are recorded nearly as often as non-representational, but this is due to the classification of vulviforms as 'human.' In the southeast and east however a dramatic difference is clearly seen and in fact the occurrences of 'representational vs non-

representational' motifs is reversed, with human and animal motifs dominating the assemblages in these regions (Figure 19, county data are found in Appendix 9).

Because of the inconsistency in recording methods and standardization of terminology, little can be said regarding specific distributions of all but a few of the most easily identifiable motifs. Unfortunately this again results in observations that are skewed toward representational motifs and away from the non-representational ones which are actually the most common, a fact that may be finally becoming more clear to analysts from outside of Nevada (Loubser *et al.* 1999:72).

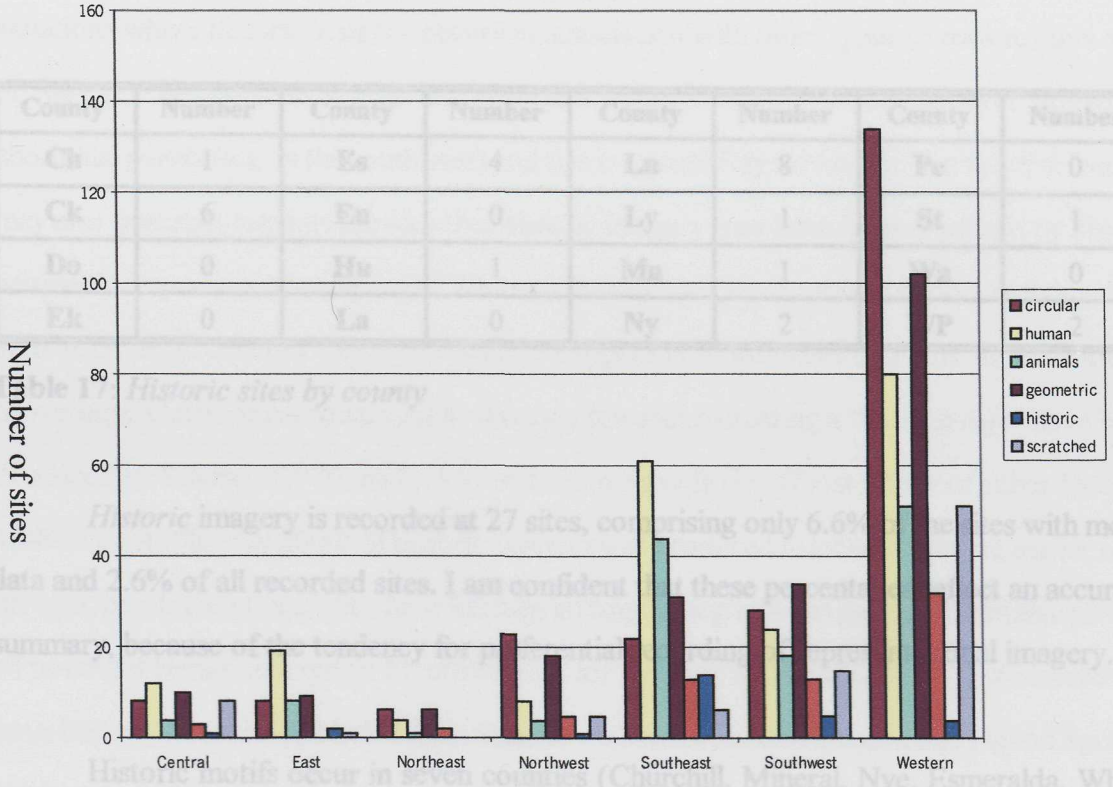


Figure 19: *Motif categories by region*

7.2.1 Historic

Historic rock art constitutes a single motif type, which was determined solely on the basis of content and includes such things as horses, cowboys or writing (other than modern graffiti). It remains to be demonstrated whether other types of motifs are historic in age. Many motifs throughout the state appear to have similar levels of patination as historic imagery, but of course this is not grounds to assume a similar age. Revarnishing and patination are exceedingly complex processes and vary by region, site and even by surface within individual sites (see Beck 1994 for review). The only motifs that are without question historic in age are those which depict historical subjects. There are cases where a motif may 'look like a horse,' but if the identification was questionable then it was simply classed as 'zoomorph.'

County	Number	County	Number	County	Number	County	Number
Ch	1	**Es**	4	**Ln**	8	**Pe**	0
Ck	6	**Eu**	0	**Ly**	1	**St**	1
Do	0	**Hu**	1	**Mn**	1	**Wa**	0
Ek	0	**La**	0	**Ny**	2	**WP**	2

Table 17: *Historic sites by county*

Historic imagery is recorded at 27 sites, comprising only 6.6% of the sites with motif data and 2.6% of all recorded sites. I am confident that these percentages reflect an accurate summary, because of the tendency for preferential recording of representational imagery.

Historic motifs occur in seven counties (Churchill, Mineral, Nye, Esmeralda, White Pine, Lincoln and Clark), but are clearly concentrated in the southern part of the state, especially the southeast.

Region	Number	Region	Number
Central	1	Southeast	14
Eastern	2	Southwest	5
Northeastern	0	Western	4
Northwestern	1	None	0

Table 18: *Historic sites by region*

The southern part of the state is very actively mined for mineral extraction (although mining occurs throughout the state), and historic motifs sometimes occur along roads to mining operations. There is no *a priori* reason to assume that these images were produced only by Native Americans and they could just as easily be the product of Anglo-American miners or settlers. In the cases where there is no other imagery, this may be the case, but in those situations where historic imagery occurs in association with other types of rock art this may or may not be the case. There are examples where non-Native peoples have added to aboriginal panels (e.g. in the southwest) and this is a possibility in Nevada. But the distribution may also generally support the idea that historic imagery may have been produced by Native peoples in response to the coming of Whites (Chapter 10.2.3), as a means of documenting their arrival or in an attempt to rid the land of dangerous newcomers in a sort of Revivalistic Movement. Outbursts of ritual activity directed towards recreating a "Golden Age" have been described by Wallace (1970) and are known from Nevada (i.e. Ghost Dance of either 1869 or 1889; e.g. Stoffle *et al* 2000). If historic imagery was produced in locations where earlier rock art was found, then it may also have been an attempt to tap into the power of a mythic past or of powerful beings thought to be responsible for the rock art. In addition, some researchers have been able to identify Native Americans as authors of historic images, e.g. Pigeon Springs (Valentine 1999).

While the imagery itself can be enough to assign an historic age, it should be noted here that the reverse is somewhat more problematical. There have been claims for great antiquity

for certain panels because it is thought that they represent extinct Pleistocene animals (e.g. Whitley, Simon and Dorn1999:18). I firmly support the suggestion that rock art in the New World should be expected to be as old as the period of its initial occupation (Woody 1999), however under closer scrutiny such interpretation is generally revealed to be erroneous or simply imaginative (Castleton 1984:194) and careful examination is needed to verify their content.

7.2.2 Scratched

Scratched art is the final general category, and refers not to a specific type of motif but rather a distinctive mode of production. This category is somewhat distinctive in content, being mostly geometric motifs (such as grids or crosshatching), although there are some examples of representational motifs as well, while circular motifs rarely occur in a scratched format. The vast majority of Nevada's engraved rock art appears to have been done with an object which produced a mark that is relatively broad and low in relief, although of course the variation is great in terms of width and depth of lines. Scratched rock art, however, appears to have been made by a relatively sharp and thin object. This should not immediately be thought to imply that the imagery was engraved with a metal tool, as demonstrated by experiments done by Mr Oyvind Frock (of Reno, Nevada; personal communication, April 2000). A variety of stone scratching implements were tested and using a chert flake he was able to produce distinct and controlled scratched petroglyphs on a variety of surfaces (i.e., basalt, granite, sandstone). Also, in Lander county there is a scratched site where what are thought to be basalt engraving tools were located near the panels.

Because of this, the automatic assumption that scratched rock art must have been produced by a sharp metal object is not supported. Scratched rock art should therefore not be automatically assumed to be recent in age, and there remains considerable disagreement on this issue. Bettinger and Baumhoff (1982) suggested that the very distinctive nature of scratched

rock art may indicate that it was produced by a different population from that which had produced other rock art, which might represent the arrival of Numic speaking populations. This was based on their opinion that scratched art was generally lighter in colour and was superimposed on earlier rock art in an attempt to obliterate the earlier art, and in California this seems to be generally the case (Robert Bettinger, personal communication, June 1998). Ritter (1994) however has made a detailed analysis of scratched sites in Nevada and feels that scratched art may have greater antiquity than earlier thought, as does McLane (personal communication, May 1999). This may not alter the idea that it is the product of a different population, since scratched rock art is so radically different from other petroglyphs. It could suggest an earlier date of arrival than normally thought for Numic populations. However, it might seem older because of scratched art's tendency to revarnish much more quickly than other types of rock art (Alan Watchman, personal communication, July 1999).

Scratched rock art is found in eleven of the sixteen counties and in every region except the northeast (Elko county, Table 19 and 20). Far more scratched sites are recorded for Mineral county (n=33, 38.37%) than any other county, with Esmeralda a distant second (n=12, 13.95%), followed by Lyon county (n=11, 12.79%). Lander and Nye counties each have six scratched sites (6.98%), Storey and Washoe counties each have five scratched sites (5.81%), Clark and Lincoln counties each have only three (3.49%), Humboldt county has only two (2.33%) and White Pine has only one (1.16%). These numbers surely reflect a certain amount of bias because scratched rock art has become a special interest of Mr Alvin Mc Lane, and the area of his exploration is often Mineral and Esmeralda county, and Lyon county is quite near to his home.

County	No of Sites	County	No of Sites	County	No of Sites	County	No of Sites
Ch	0	Es	12	Ln	3	Pe	0
Ck	3	Eu	0	Ly	11	St	5
Do	0	Hu	2	Mn	33	Wa	5
Ek	0	La	6	Ny	6	WP	1

Table 19: *Scratched sites by county*

Scratched sites are not recorded for Churchill, Douglas, Elko, Eureka, or Pershing counties, probably because of the lack of survey or low site numbers, except for Churchill county, which has a relatively high site density and has had fairly thorough survey. Equally difficult to explain is the low number of scratched sites in Clark, Lincoln and White Pine counties, especially if one assumes scratched rock art to be historic (since high numbers of historic rock art are found Clark and Lincoln counties).

Region	Scratched Sites	Region	Scratched Sites
None	1	Central	8
Northwest	5	Eastern	1
Northeast	0	Southwest	15
Western	51	Southeast	6

Table 20: *Scratched sites by region*

7.3 *Non-Representational motifs*

7.3.1 Circular Motifs (Appendix 10 and 10a)

Essentially *circular* motifs are the most common non-representational elements, and these motifs are found in every county (only one site in Eureka county has motif information and that is a cupule site). Within this broad category there are twenty-seven motif types, the

most commonly reported being *concentric circles* (n=66). This common motif type is not reported for Douglas and Eureka counties,[37] not surprisingly, but is also absent from site records for Elko and Humboldt counties, both of which have a variety of other motif types reported.

The least commonly reported motif type is *joined arcs* (n=4, or 'sheep horns') and these are reported only in the Western region (Lyon county, n=1; Washoe county, n=1 and Storey county, n=2). Sixteen motif types are described in twenty-four or less site reports. These comprise: *horned circles*, n=6; *atlatl*, n=7; *tailed dots*, n=8; *divided circle*, n=9; and *joined arcs*, n=4. Motif categories represented in less than twenty sites comprise: *dots*, n=13; *spoked circle*, n=16; *circle chain*, n=17; *dot row*, n=19 and *rayed concentric circles*, n=19, and six are described in twenty-four or less site records (*dot field*, *dumbbell* and *arc* are all described in twenty-one site records; *joined circles*, n=22; *circle cluster*, n=23; and *spiral*, n=24). Like rock art sites in general, these rare motif types are reported most often from the Western and Southeastern regions.

Eleven circular motif types are reported in 29 or more site records, including *concentric circles* (n=66), *connected circles* (n=52); *tailed circle* (n=45); *sectioned circle* (n=39); *bisected* and *dotted circle* (n=37 for both); *circle* and *cupules* (n=36 for both); *filigree* (n=35); nested *arcs* (n=33) and *rayed circle* (n=29).

7.3.2 Geometric motifs (Appendix 11 and 11a)

Geometric motifs (n=24) are reported slightly less frequently, the most common being the simple *wavy line* (n=75), with *chevron*, *double dash* and *diamond* each only reported

37 Douglas county has only six sites currently on record, a number which is sure to grow due to a large recording project currently underway there. Three of these have motif data, two are cupule sites and the third no longer exists (26DO35) but purportedly had a star shape (or asterisk). Eureka county only has two known rock art sites, one a pictograph site without motif data and a cupule boulder.

twice. *Wavy lines* are reported for every county except Douglas, Eureka, Lander and White Pine. The latter two counties have a variety of other motif types reported and it is puzzling why something as simple as a *wavy line* would be missing, but possibly it is the simplicity which causes this motif to be overlooked. *Parallel lines* (n=71) are reported for every county except Douglas and Eureka, *grid* (n=50) is reported for every county except Douglas, Eureka and White Pine, *zig zag* (n=47) not reported in Douglas, Eureka, Churchill, Lander and Pershing counties, and *two sided rakes* (n=40) also not reported for Douglas, Eureka or Churchill county. Other less common geometric motif types are included in Appendix 11 and 11a.

Both circular and geometric motifs, like rock art sites in general, are most often reported in the Western and Southeastern region, and in some cases nearly all of the motifs are reported from these two regions. For both categories, the southwest has relatively high numbers which most likely reflects the recording biasses discussed above. The high numbers in both regions do indicate however a greater diversity of motifs (see below), which would be more or less expected, simply due to the higher site numbers. The Eastern region (White Pine county) generally has less motif types represented than the other regions with high site numbers, which reflects a reduced motif diversity in that region. There may also be a north::south distinction in motif types, with the northern part of the state having slightly higher numbers of circular motifs and the southern part having slightly higher frequencies of geometric motifs, but because of the uncertainties due to bias this observation may not be completely valid.

7.3.3 Cupules

Of all the non-representational motifs only *cupules* are really distinctive enough to track distributions effectively. There are only a relatively small number of sites with these motifs (n=36) and interestingly, the county with the highest percentage of sites with motif details that has *cupules* is White Pine county (n=5, 20%), while the highest numbers overall are from Washoe county (n=8). *Cupules* are found in ten other counties (in relatively even but low numbers), however they are not reported for Humboldt, Lander or Lincoln counties.[38]

Cupules have been the subject of great interest for some time (e.g. Heizer 1953; Hedges 1983b; Parkman 1986, 1995; Price 1998), at least, in part, because they seem to have a nearly global distribution and may be among the earliest rock art anywhere in the world (Grieder 1982:35). In most cases in the desert west of the United States, cupules also appear to be among the oldest rock art motifs at any given site (Heizer and Baumhoff 1962:234), although there is some indication that *cupules* were being produced into historic times elsewhere (Heizer and Baumhoff 1962:237; Mc Gukian, McLane and Clewlow 1996:35). Originally termed 'Pit and Groove' (Baumhoff, Heizer and Elsasser 1958:14-15) these rather unique petroglyphs have been described as not involving 'actual imagery or designs' (Schaafsma 1986:216) because panels generally consist of apparently random pits which have been ground into the surface of the rock forming bowl shaped depressions. Most researchers now conclude that *cupules* are much more common than previously thought and Mc Gukian, Mc Lane and Clewlow (1995:36) suggest that their distribution is patterned especially with respect to canyon derived streams. The number of known cupule sites has grown but the distribution remains very similar to the results of earlier studies with the majority in the Western region and interestingly the Eastern region as mentioned above.

38 One cupule site is known for Lander county (the Callaghan Village site, Mc Guckian, Mc Lane and Clewlow 1996:38) but because locational information and motif details are not available, this site is not included in this discussion.

Figure 20: *Winnemucca Lake, Churchill County, Western Region.*

Figure 21: *Chalk Springs, Elko County, Northwestern Region.*

Two sites (one in the Western region and one in the Northeastern region) are particularly interesting with respect to the pattering of the engravings of cupules. Both of these sites have deeply carved bowl-like depressions, both are on vertical surfaces and both exhibit very defined patterns (Figures 20 and 21).

7.3 *Representational Motifs*

In the past, motifs have been classified in site records as 'anthropomorph' which in fact are often nothing more than a few lines that come off of a vertical line in places that might be vaguely reminiscent of the location of human limbs. The same is true for motifs classified as 'zoomorph.' I suspect that Reichert's (1998:103) comments regarding 'finding solace in the familiar' are especially pertinent here. Most people struggle to find something in rock art images that they think they can recognize, which can make them feel as if they understand what the person long ago intended the image to represent. Mostly the things that people 'see' are humans and animals, but sometimes they also see 'medicine bags' or 'atlatls,' 'snakes' or 'shields.' The rock art site records for Nevada, just like those of other places, have been made by people trying to 'see something' in the images that they could document or describe,

something to which a label could be applied. With this proviso, I will proceed to a discussion of 'representational' imagery.

7.3.1 Human Motifs

Anthropomorphs

Representational motifs are classed into two basic categories, *human* and *animal*, with eleven motif types in the *human* category and thirteen in the *animal* category. Within the *human* category, *anthropomorphs* (sex not indicated and/or without sex, headgear or weapons) are described far more often than any other type. These occur in 35.7% (n=146) of the sites which have motif data, and are described in thirteen of the sixteen counties (except Douglas and Eureka counties, and Lander county, which has only one site with *vulviforms* and one with *hand prints*, both from the *human* category, but not classified as *anthropomorphs*). *Anthropomorphs* (Table 21) are common in Clark (n=24, 60% of the sites in Clark county with motif data) and Lincoln (n=24, 58.5% of the sites in that county with motif data) counties. *Anthropomorphs* also occur in high numbers in White Pine county where they are described in 72% (n=18) of the sites with motif data. These three counties (from the Southeastern and Eastern regions) account for nearly half of all the site records which include *anthropomorphs* (n=66, 45.21% of the total number in the state). Also in the southern portion of the state is Esmeralda county (Southwestern region) which has ten site records which include *anthropomorphs*, only 6.8% of the total for the state, but 25% of the sites in that county with motif data. But southern Nye county (which makes up the remainder of the Southwestern region) has only two site records which include *anthropomorphs*.

Nearly ten percent (8.9%) of the total number of *anthropomorphs* are found in Washoe county alone, where they are found at 31.7% (n=13) of the sites with motif data (n=41). The

County	Shield Fig	Archer	Anth	Vulviform	Male	Female	Katchina	Paper Dolls	Horned	Footprint	Hand print
Ch	0	0	7	1	0	0	0	0	1	0	0
Ck	3	2	24	2	9	9	9	1	3	5	5
Do	0	0	0	0	0	0	0	0	0	0	0
Ek	0	0	31	0	0	0	0	0	1	1	1
Es	0	0	10	12	1	1	0	0	2	3	4
Eu	0	0	0	0	0	0	0	0	0	0	0
Hu	0	0	3	0	0	0	0	0	0	0	0
La	0	0	0	1	0	0	0	0	0	0	1
Ln	0	0	24	2	0	1	5	0	2	4	2
Ly	0	0	9	2	0	0	0	0	1	0	1
Mn	0	0	23	19	3	2	0	1	1	6	9
Ny	0	0	4	13	0	2	0	0	0	0	3
Pe	0	0	2	0	1	0	0	0	1	0	1
St	0	0	6	3	0	0	0	1	2	3	2
Wa	0	1	13	5	0	0	0	0	0	0	1
WP	0	0	18	0	0	1	3	0	0	0	2

Table 21: *Anthropomorphs by county*

total for the county is split with three site records which describe *anthropomorphs* in the northern half of the county (Northwestern region, two others for the region are from Pershing county and three from Humboldt county), and ten in the southern half of the county (Western region). The Western region again has a large percentage of the site records which describe *anthropomorphs* (n=52, 35.62% of those in the state). In addition to those in Washoe county, Storey county has six sites (16.6% of the sites in that county with motif data), Churchill county seven sites (50% of the sites in that county with motif data) and Lyon county has nine sites with *anthropomorphs*, 42.8% for the county, but only 6.1% for the state. Mineral county

completes the Western region[39] with relatively high numbers of sites with *anthropomorphs* (n=23), although the percentage in that county is much lower (25.5%).

Region	RT	w/A	%RT	%ST	Region	RT	w/A	%RT	%ST
NORTHWEST	30	8	26.67	5.48	NORTHEAST	9	3	33.3	2.05
WEST	189	52	27.5	35.6	EASTERN	25	18	72	12.33
SOUTHWEST	45	12	26.7	8.22	SOUTHEAST	81	48	59.3	32.88
CENTRAL	19	2	10.5	1.37	None	10	3	2.59	2.05

Table 22: *Anthropomorphs by region (RT=region total with motif information; w/A=number in region with anthropomorphs; ST=state total=146)*

If the distribution of *anthropomorphs* is examined more closely by region (Table 22), again it appears that there is something of an east::west split, with more than half of those motifs found in the eastern half of the state, but also some higher amounts in the Southwest (especially in Esmeralda county, n=10, 25%). While overall numbers in the Western region are higher, nearly half of these (n=23, 44.23%) are in Mineral county (the southernmost county in that region) where they represent 25.56% of the site records in the county which have motif information (n=90). In the Eastern region (White Pine county) however, 72% of all rock art sites with motif information recorded have *anthropomorphs* described as present. Percentages are also high in the Southeastern region, where twenty-four site records include *anthropomorphs* in

Figure 22: *Rattlesnake Canyon, Mineral County, Southwestern Region; note stick figure centre top.*

39 Douglas county has no anthropomorphs recorded.

where twenty-four site records include *anthropomorphs* in each of the two counties that make up that region (60% of the site records with motif information for Clark county and 57.14% in Lincoln county). The Northeastern region (Elko county) also has a relatively high percentage of sites with *anthropomorphs* described (two of which are pictograph sites and one is a petroglyph site).

Two final comments should be made regarding the occurrences and stylistic variation found across the state in *anthropomorph* forms. First, noting the presence or absence of *anthropomorphs* in each site or total numbers in a region does not indicate the real differences that are found between them. *Anthropomorphs* not only occur in high numbers in the southern and eastern parts of the state, but they also occur in greater numbers at each site. While high numbers are reported for the Western region, in many cases they occur singly or in small numbers at individual sites, whereas in the Southeastern and Eastern regions in particular each site might have very large numbers of *anthropomorphs*.[40] By noting simple presence or absence of the motif, this marked difference in magnitude is overlooked. To fully appreciate the differences in frequencies of motifs a complete recording for every site is necessary.

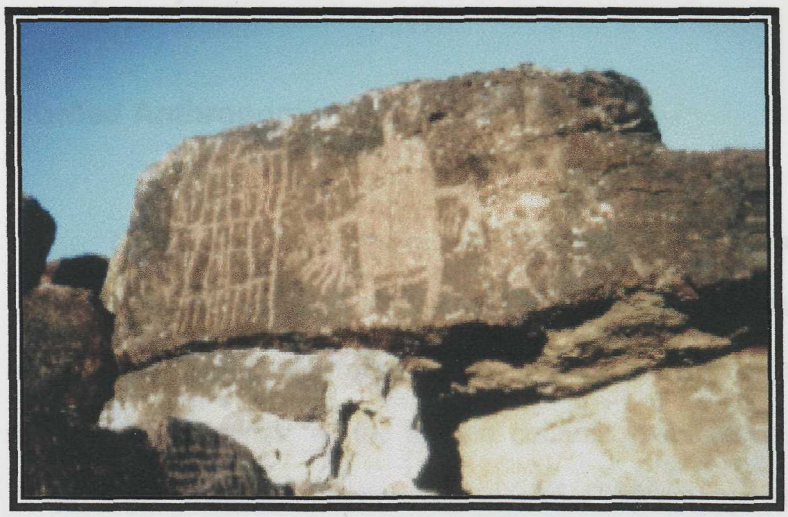


Figure 23: *Pahranagat Man, Lincoln County, Southeastern Region.*

Secondly, the character of *anthropomorphs* is subject to marked regional variation. While most of the Western region's *anthropomorphs* are 'stick figures' (Figure 22) (although

40 This same thing is true for *sheep* and will be discussed below.

are quite elaborate. The most obvious example of this is the 'Pahranagat Man' (Figure 23) found only in the Southeastern region and only in the area of the Pahranagat Range in Lincoln county. These figures are particularly distinctive and occur in such a restricted area that most researchers in Nevada now believe they warrant classification as a separate style (contra Shaafsma 1986:218).[41] But elsewhere in the east Fremont style *anthropomorphs* are found, and further south the *anthropomorphs* are not stick-like in any way. Such diversity is completely masked when motifs are discussed simply in terms of single motif types such as *anthropomorphs*.

Horned Anthropomorphs

Nine other motif types are included into the human category, with *horned anthropomorphs* the next most commonly described. Although this is the second most commonly reported, only fourteen rock art site records include horned anthropomorphs. They are described in nine of the sixteen counties, with the highest numbers recorded, not surprisingly, in the Southeastern region (n=5, Clark county=3 and Lincoln county=2), but also the Western region (n=5, one each for Churchill, Lyon, and Mineral counties, and two in Storey county). Two site reports include *horned anthropomorphs* in the Southwestern region (both in Esmeralda county) and one site each in the Northeast and the Northwest. The only surprise in the distribution of these motifs is the complete lack of their mention in the Eastern region (White Pine county) where they would be expected because they are frequently associated with Fremont rock art (Schaafsma 1986:226).

41 William White and Steven Stoney are currently engaged in defining this style; Ben Swartz and Linda Krause are also actively researching Lincoln county. In addition to the Pahranagat style, other areas have rock art thought to be distinctive enough to warrant style definition (e.g. Grapevine Style [Christensen and Dickey 2000]).

Figure 24: *Female figures; Horseshoe Canyon (the Amphitheatre), Lincoln County, Southeastern Region.*

Female and Male Figures

In addition to the very general *anthropomorph* motif type are other more elaborated human figures. Basic figures that can be identified by sex (simply based on genital depiction, Figures 24 and 25) are classed as either *female* or *male*. These motifs are generally quite rare, with only five *male* motifs and seven *female* motifs described in the entire state, and only one site record with motifs which may be *male* and *female* both present (Chapter 8.1.4). *Male* motifs are recorded in Mineral (n=3), Esmeralda (n=1) and Pershing (n=2) counties, while *female* motifs are recorded in Mineral (n=2, one of which is also a *vulviform* site), Nye (n=2, one of which is also a *vulviform* site), and one each in Lincoln and Esmeralda county, with another in White Pine county which is also a *vulviform* site.

Figure 25: *Male figure; Rattlesnake Canyon, Mineral County, Western Region.*

Other Anthropomorph Motifs

Katchina motifs (n=8; with earbobs, fancy head gear, etc.) are all described not surprisingly in Lincoln (n=5) and White Pine (n=3) counties, where they are generally assumed to be the product of the Fremont people who occupied that region between around AD 400 and 1300. Only three of these are petroglyphs (all in Lincoln county) while the remaining five are pictographs. *Archers* are even more rare, and are found only in Clark (n=2) and Washoe counties (n=1). *Paper dolls* are also very rare and are described at only three sites, one each in Clark, Mineral and Storey counties. Also rare are *shield figures* (n=3), all of which are from Clark county. One might have expected these figures to be described for sites in Lincoln and White Pine counties, because of their assumed association with Fremont rock art, and so their general absence is a bit surprising. It is likely that other *shield figures* will be described from these areas in the future.

Three other motif types are included in the *human* category that are actually only parts of human bodies (*footprints*, *handprints*, and *vulviforms*). *Footprints* (n=22) are found in only six of the sixteen counties, but like most rock art in Nevada are most commonly reported in the Western region (n=9) and the Southeastern region (n=9). For the Western region, most are found in Mineral county (n=6) and the remaining are reported from Storey county (n=3). In the Southeastern region five site records from Clark county include descriptions of *footprints* while four are described in Lincoln county. Three other sites are reported in the southwest (all in Esmeralda county) and only one is reported from the northeast. *Handprints* are fairly common (n=32) and are described as pictographs, petroglyphs and combinations, although most are petroglyphs (n=22).

Vulviforms

Vulviforms are the next most commonly described motif type (n=61) in the *human* category except for *anthropomorphs*. These particular motifs inspire much debate regarding whether they are or are not representations of female genitalia. Bahn (1986) makes the point that only those that are in anatomically correct position are beyond question, all others are a matter of speculation. It is true however that such has been the conjecture for quite some time and although some motifs have no doubt been incorrectly labelled as such, for the most part they are quite distinctive and easily identified, in anatomically correct position or not.

Vulviforms are reported from twelve of the sixteen counties, with none reported from Douglas, Eureka, Humboldt, or Pershing counties. Most of these motifs (72.13%) are described from Mineral (n=19), Nye (n=13) and Esmeralda (n=12) counties, with lesser numbers from Washoe county (n=5, all in the Western region), Storey (n=3, also in the Western region), two site records each in Clark, Lincoln (Southeastern region) and Lyon (Western region) counties, and one site record each from White Pine (Eastern region), Churchill (Western region), Elko (Northwestern region) and Lander (Central region) counties.[42]

Figure 26: *Split Rock; Nye County, Central Region (photograph courtesy of Mr Alvin R. McLane).*

Two points should be made with

42 There is a cluster of sites around the southern end of Pyramid Lake which also have vulviforms on tufa (both painted and engraved), but because locational and detailed motif information were not available they have not been included in this analysis.

regards to *vulviforms* in general. First, as has been briefly discussed above, is the seemingly purposeful selection of a specific rock type for this motif. More than half of the site records (n=22, 52.38%) that have information on this motif type and rock type (n=42), record that the rock type is tuff. Tuff is in general a very soft, light coloured rock and the *vulviform* motif is often engraved very deeply into the rock surface. The next most commonly reported rock type is basalt (n=14, 33.33%, all except four in the Western region). Three sites (all in the Southeastern region) are reported on sandstone and two sites are reported on tufa (in the Western region).

In addition to the selection of rock type, another very interesting observation regarding *vulviforms* is the density and domination of these motifs at the sites where they occur. While there are sites where *vulviforms* occur in association with other elements (sometimes in approximately even numbers as other motifs), many sites have far greater numbers of *vulviforms* than any other motif and sometimes no other motifs at all (Figure 26). This redundancy of motifs in concentrated contexts suggest a possible signification of sacred space (Renfrew and Bahn 1996), or as Bloch (1974:76) suggests emphasis is achieved through repetition. There is no other single motif type which is reproduced in this way, except possibly *sheep* in the Southeastern region (which will be discussed below). I would suspect that if one is looking for a ritual context, where "formalized, repetitive, rule-bound systems for the creation of material forms, and formalized, repetitive rule-bound contexts for the use of these forms are those features most likely to characterize material ritual communication" (Conkey 1985:305), then the *vulviform* sites on light coloured tuff would be such a place.

7.3.2 Animal Motifs (Appendix 12 and 12a)

Zoomorph

The final general representational category is *animal*, and like the *human* category, most of those in the *animal* category are unspecified *zoomorphs* (n=62, 15.16% of the site records with motif details). These occur in thirteen of the sixteen counties, with none reported in Douglas, Eureka and Lander which describe *zoomorphs*. By far the highest numbers of records with *zoomorphs* are found in Clark (n=18, 29.03%) and Lincoln (n=11, 17.74%) counties or the Southeastern region. White Pine county (the Eastern region) has the next highest number of *zoomorphs* reported (n=8, 12.9%). These three counties account for 59.68% of the total number of site records which describe *zoomorphs*.

Although the Western region has a large number (n=13, 20.97%), no single county in that region has as many site records which include *zoomorphs* as Clark, Lincoln or even White Pine county. Washoe county, which usually has very high numbers of motifs recorded, has only five records which include *zoomorphs*. The remaining sites in the Western region are distributed quite sparsely between Churchill county (n=4, 6.45%), Lyon county (n=3, 4.84%), Mineral county (n=2; 3.23%) and Storey county (with only one site record which includes *zoomorphs*, 1.61%). The Southwestern region has nearly as many *zoomorphs* as the Western region (n=6, 9.68%), most of which are reported in Esmeralda county (n=5, 8.06%) and only one in Nye county (1.61%). One site record each describes *zoomorphs* for Humboldt and Pershing counties (Northwestern region) and for Elko county (Northeastern region).

Sheep

The next most commonly reported motif in the *animal* category is *sheep* (n=45; these are the representations which resemble bighorn sheep), but again the distribution is mainly

restricted to the Southeastern region where nearly half (n=21, 46.67%) are reported. But in this region, *sheep* are reported for only six sites (13.33%) in Clark county while most of the site records which describe *sheep* occur in Lincoln county (n=16, 35.56%). Based on this extremely high concentration one might expect equally high numbers in the Eastern region (White Pine county), but there is only one site record which describes sheep (2.22%). This might be explained due to biassed recording (always a potential source for error), or the fact that White Pine county lies generally outside of the Colorado River drainage system which is where most representations of *sheep* appear to be concentrated, along with what might be called "fantastic anthropomorphs" (Monteleone and Woody 1999:61).

A fairly high number of site records for the Western region also describe *sheep* (n=13, 28.89%), as the Western region does often include a larger number of motif types than other regions due to the various biases discussed above. But even here, Washoe county has only seven records which describe the presence of *sheep* (15.56%), with the rest located in Mineral (n=3, 6.67%), Storey (n=2, 4.44%) and Lyon (n=1, 2.22%) counties. The Southwestern region has only eight site records which describe *sheep* (seven of those in Esmeralda county, 15.56%, and only one in Nye county, 2.22%). The remaining site records with *sheep* described are from Pershing county (n=2, 4.44%), the only ones in the Northwestern region.

Bird Tracks

Unlike *sheep*, *bird tracks*[43] (n=23) are most commonly reported for the Western region where more than half (n=12, 52.17%) are spread among Lyon (n=2, 8.7%), Mineral (n=4, 17.39%), Storey (n=4, 17.39%) and Washoe (n=2, 8.7%, one more in Washoe county could not be assigned to region) counties. No *bird tracks* are reported for either Churchill or Douglas counties, both also in the Western region. *Bird tracks* are also reported in fairly low numbers in Clark (n=3, 13.04%) and Lincoln (n=2, 8.7%) counties (Southeastern region) and

43 This motif type is called 'bird track' simply by convention. It could just as appropriately been classed as a 'trident' and placed into the 'geometric' category.

in Nye (n=4, 17.39%) county (Central region) where all four are located at *vulviform* sites. One additional site record which includes *bird tracks* is located in Esmeralda county (Southeastern region).

Lizards

Lizards also appear to be mostly concentrated in the Western region, where eleven of the twenty-one reported for the state (52.38%) are located (seven of these are in Mineral county, 33.33%; and two each are reported for Storey and Washoe counties, each 9.52%). Only one *lizard* is reported for each of the Southeastern region (Clark county) and the Northwestern region (Washoe county), while the remaining 38.09% are in the Southwestern region (Esmeralda county, n=7; Nye county, n=1). There are no *lizards* reported in ten of the sixteen counties, although it is possible that this absence is due to biassed recording.

Paws

Paws (or animal tracks, mostly 'bear paws,' but one site report describes 'mountain lion paw prints') are the only other motif in the *animal* category that is reported more than ten times in the entire state. All except two are petroglyphs (one each in Clark and Mineral county both described as 'combination' sites), and all except three are reported for the Western region (n=8, 72.73%). Mineral county has the highest number (n=4, 36.36%), followed by Lyon county (n=2, 18.18%) and one each in Storey and Washoe counties (9.09% each). Of the remaining site records which include *paws*, only two are reported from Clark county (18.18%) and one from Esmeralda county (9.09%).

Other Animal Motifs

Deer are reported from only nine sites and all are from the Southeastern region. Lincoln county has the highest number (n=7, 77.78%), all of which are petroglyphs except one which is described as a 'combination' site. Clark county has only two (22.22%), also both petroglyphs. The concentration of *deer* images in Lincoln county is reminiscent of the high occurrence of *sheep* which also occur at every site where *deer* are reported.

Dogs are reported from eight sites, all petroglyphs and found in four of the seven regions, although half are reported from Clark county (n=4, 50%). One each is reported from the Northeast and the Southwest, and two are reported from the Western region. With the prominence of Coyote in the stories of Great Basin people, it seems a little surprising that images that resemble coyotes or dogs, are not more common, but they occur only half as often as do images that resemble bugs, or *fantastic creatures* (n=8; Figure 27). Again, half of these are reported from Clark county while the remainder are from Mineral (n=2) and one each in Storey and Washoe counties. *Snakes* might also be expected to be fairly common simply because the live variety are quite common in the entire region, although it is entirely likely that many of the *wavy lines* discussed above could just as easily have been called *snakes*. They are however only reported from six sites statewide, with two each in Washoe and Lyon counties and one each in Esmeralda and Lincoln counties. *Birds* are recorded even fewer times (n=5) with only two reported for Lincoln county, and one each from Churchill, Clark and Mineral counties.

Figure 27: *Horshoe Canyon, Lincoln County, Southeastern Region.*

Turtles are reported only twice (although some sectioned or divided circles, or shield motifs could also be interpreted as turtles, but without legs or head), one in Clark county and one in Nye county. *Bison* are also only reported twice, on opposite sides of the state, one in Elko county (Figure 5), and one slightly less realistically represented in Mineral county. *Deer tracks* are only reported once in the Northwestern region (Washoe county), although that is the term sometimes used in the past for *vulviforms* (e.g. T. Thomas 1976).

In the *animal* category, what might be more interesting than what is represented is what is not represented. As others have suggested, it seems strange that a wider variety of animals are not depicted, or that the ones that are depicted are done so rarely. There are no representations of rabbits or other small mammals, in spite of their dietary importance. *Sheep* are the most commonly depicted animal, but their distribution is far more restricted to the Southeastern region than presence :: absence counts seem to indicate (as are *deer*), concentrated in the area of the Colorado River drainage. Like elsewhere in the world, animal motifs in Nevada's rock art seem to have little to do with major food sources or even the mythological characters of historically known Native Americans (Steward 1968).

In addition, although I have given the labels *plant* and *tree* to two motif types, either one of these could have been just as easily called something else, and the fact remains that except for a very small number of sites in the extreme southeast, there are also no clear depictions of plants, again in spite of the importance of plants to Great Basin peoples, at least for the last eight thousand years. So like elsewhere the selection of motifs present is somewhat baffling.

7.4 *Conclusions*

From the foregoing discussion, it is clear that motif types vary by region in Nevada. The south and east have greater numbers of representational motifs than the north and west,

but in general, non-representational motifs are found throughout the state. Basin and Range Tradition rock art is the predominant style and is found at nearly every site in the state. Historic motifs are found primarily in the southern half of the state and scratched motifs occur primarily in the western half of the state. In the next chapter I summarize the salient characteristics of Nevada's rock art by region. This provides the background for the following comparison of interpretive approaches in Chapter 9.

Chapter 8: The Regional Properties of Nevada's Rock Art

Despite the poor state of knowledge regarding Nevada's rock art, it can still provide important information regarding past social and ritual practices, as well as address issues of ethnicity and historical process. In this chapter, I draw together the various threads of discussion presented in the Nevada case study with a brief characterization of each region. This is followed by a discussion of specific characteristics of a number of specific rock art sites which will demonstrate how important this sort of detailed information is to our understanding of the rock art found at these sites, and of associated behaviours. I argue that only a perspective which is informed by the anthropology of symbolism (discussed in Chapter 2) and an understanding of the importance of places in the landscape to hunter-gatherer populations (discussed in Chapter 3), can re-situate rock art into the cultural landscape and of which it played a constituting role. This discussion is followed by chapters exploring diachronic variation in the uses and significance of the places in the landscape marked by rock art. I argue that rock art first played a significant role in socializing a new landscape and thereafter influenced the lives of the descendants of the first Americans.

8.1 *Regional Overview*

The rock art of Nevada is as varied and distinctive as the landscapes in which it is located, and each of the seven regions defined above (Chapter 6) can be characterized both topographically and by the rock art. Generalizations should not be treated as rigid descriptions since there will always be rock art which does not fit with the general descriptions made here,

although each region is relatively distinctive. Beneath the distinctiveness of each region, however, there is an underlying style of rock art which is spread across the entire state, and in fact extends far beyond the modern (artificial) boundaries of the state of Nevada. This has recently been called the "Great Basin Tradition" (Whitley 1998a:12), or "Basin and Range Tradition"[45] and was formerly called the "Great Basin Archaic" or "Great Basin Abstract." This style is found across the entire desert west of the United States and into Central and even South America, and is in fact similar to abstract traditions from throughout the world. It generally follows the characteristics of open social systems, such as large areas of open space, repetition of relatively simple geometric shapes and a lack of borders or indications of the ground or space (Fischer 1961:79-93). Also, like most rock art, there seems to be no directional indicators and rather than being 'read' as if it were a type of writing (or a static representation of sign language),[46] each panel appears to have been intended to be engaged as a whole and there are none of the regularities of writing. Basin and Range Tradition rock art is primarily (if not exclusively) non-representational in nature, consisting of sometimes simple individual motifs, and other times more complex combinations of motifs.

In some cases this style appears to be earlier than other rock art that might be present at a site, but often in some regions it is the only style of rock art at a particular site and may appear to be relatively more recent. This is the rock art that is most characteristic of Nevada, it is found at nearly every site, regardless of the presence or not of other more recognizable imagery. The oldest Basin and Range Tradition rock art may have been the product of the

45 The name Basin and Range Tradition has recently been selected by a gathering of Great Basin rock art specialists.

46 Furthermore, because sign language is based not just on the shape produced by the hand, but also on speed and direction of movement to impart meaning, static rock art could not be intended to represent a sign language, as has been noted long ago (Kroeber 1958).

area's first inhabitants and may have played an important role in socializing the landscape by communicating with unknown others or by claiming certain places in the landscape. That which is more recent (as indicated visually by lighter revarnishing, though this is an unreliable guide to age [Whitley *et al* 1984]) was likely the product of later groups of people who continued to follow a transhumant, hunter-gatherer way of life and rock art continued to be utilized to communicate and negotiate social relationships in relation to places in the landscape.

8.1.1 Northwestern Region

In the Northwestern region, Basin and Range Tradition rock art dominates with nearly 61% (n=17, 60.714%) of the sites in that region exclusively non-representational. Only two sites have only representational imagery described and nine have a combination of representational and non-representational motifs. The landscape is predominantly displaced or uplifted fault blocks separating smaller basins which were the locations of small pluvial lakes (Cressman 1986:120). Basalt cliffs are the most common surface on which rock art is found which suggests an open, public purpose for its production. Rock art sites are also commonly found in association with a variety of resources such as root plants which formed a staple part of the diet. The region is a part of the northern lobe of the Great Basin which has a long history of occupation, dating back at least as far as 12,000 years (Cressman 1986:121). Also found in the Great Basin's northern lobe (in southern Oregon) is the Long Lake site. This site has rock art which extends below a layer of Mazama Ash, which indicates quite clearly that it is at least 6,800 years old (Cannon and Ricks 1986:12). In the Northwestern region there are other sites which strongly resemble the art at Long Lake, which has been called 'Great Basin

Carved Abstract,'[47] and is characterized by very deep engravings, much denser designs (or an "absence of 'white space'" [Ricks 1993:51]) and complete revarnishing. Diagnostic artifacts found in the Northwestern region include recent materials such as a Rosespring projectile point, probably associated with the bow and arrow, as well as older types such as Elko, Humboldt and Crescents, which range in time back to around nine thousand years ago. There are few pictographs found in this region, only three sites and an additional two sites which have both pictographs and pictographs, although pictographs are somewhat more common to the north in southern Oregon (Ricks 1996:58). Petroglyphs clearly dominate this region, as they do throughout most of the state. The relationship between petroglyphs and pictographs is not clear, and should be the focus of further research (see Chapter 11.1), with questions directed toward understanding whether one is older than the other, if the motifs are the same and only the method of manufacture is different, or if they might be considered the product of different people.

8.1.2 Northeastern Region

Moving eastward across the state to the Northeastern region, limestone shelters become the surface of choice rather than open cliff faces, and 70% of the reported sites are found in the context of limestone shelters. This is in keeping with the general archaeological record in the region, which also is primarily derived from excavations of caves and rock-shelters (Aikens and Madsen 1986:150). The region is very well watered, at least by Great

47 Originally the style of rock art at Long Lake was called "Long Lake Carved Abstract" but the name was subsequently changed when the style was found outside of the Long Lake site (Ricks 1996:54).

Basin standards, by the Humboldt River and stored winter moisture from surrounding mountains (Aikens and Madsen 1986:149). Also found in this region is a wide variety of both plant and animal species which have been exploited by people from as early as 11,000 years ago (*ibid*:154). It is also higher in elevation than the western and southern parts of the state, with valley bottoms averaging above 5000' and mountain ranges over 11,000' (Grayson 1993:15-17).

It should be noted that there are few sites recorded in that region,[48] although more are known to exist in the lands administered by the National Forest Service, which have not all been integrated into the official record. Of those which are a part of the official record however, there are several characteristics which distinguish this region. As mentioned above, the majority of sites are in shelters, but there are also as many pictograph sites as there are petroglyph sites, whereas in most regions petroglyph sites outnumber pictograph sites by at least 2 to 1, and often more.[49] Differential preservation is probably the reason for this pattern and the durability of

Figure 28: *Chalk Springs, Elko County, Northeastern Region.*

48 Heizer and Baumhoff (1962:205) even suggested that "The peoples of northeastern Nevada evidently did not make petroglyphs at all."

49 The only exception is the Eastern region which also has many sites in protected contexts (i.e. shelters).

pigments should be examined in more detail (see Chapter 11.1). Also unlike other regions in the western part of the state, geometric and human forms dominate motif assemblages in the Northeastern region. This represents an east :: west split in motif types which continues in the Eastern region as well. Few animal motifs or circular motifs are known in the Northeastern region, although there are of course striking exceptions to this, such as the beautiful and unusual Chalk Springs site. This site is dominated by vulviforms but also has a number of extraordinary motifs which might be considered large patterned cupules on a vertical tuff cliff face (Figure 28 and 21).

8.1.3 Western Region

In the Western region, basalt dominates, but unlike the Northwestern region the preferred surface is not cliff faces but rather is boulders. Basalt predominates as the preferred surface for rock art and is four times more frequent than the next most numerous rock types (tuff and tuffa). The selection of basalt may have to do with it being so commonly found in the western part of the state, but it also makes an excellent surface which to engrave because the inner material is generally much lighter than the surface which is scraped away during petroglyph manufacture. The region is generally comprised of the eastern front of the Sierra Mountains and large basins which were the bottoms of enormous Pleistocene Lakes. The Sierras in the extreme west, rise quite dramatically to more than 11,000' from valley floors which average around 4,000' (Grayson 1993:17). This area is again relatively well watered with several flowing rivers and considerable winter accumulation of moisture in the Sierras. Further east into Churchill and south into Mineral counties, there is somewhat less water,

although the remnants of Pleistocene Lake Lahonton can still be found in the Lahonton reservoir and Walker Lake. Human beings have been in this region for at least 10,000 years, as has been recently dramatically demonstrated (Kirner *et al* 1997; see Chapter 9).

Here petroglyphs also far outnumber pictographs and again, the Basin and Range Tradition is dominant. Only twenty sites are reported as exclusively representational, while ninety sites are reported as exclusively non-representational. Nearly as many sites (n=77) are reported as a combination, but nearly half of those are vulviform sites. Groundstone is found at more than a third of sites, but this is probably the result of under-reporting of groundstone. Only seven diagnostic projectile points have been reported at rock art sites (also probably due to under-reporting), including crescents and stemmed points (both considered to be around 9,000-10,000 B.P.), Elko and Side-Notched points which range from around 8,000-9,000 B.P. to as recently as 1,000-3,000 B.P., and Martis points (often made of basalt and generally associated with the Washoe) dating from around 3,000 B.P. to around 1500 B.P. It is fairly likely that more recent points are also associated with rock art sites, but these are often not reported because they are smaller and easily overlooked. But the reported diagnostic materials do suggest old dates, although of course we cannot currently directly associate projectile points or other materials to rock art at the same site (see Chapter 11).

8.1.4 Central Region

The Central region is the heart of Nevada and is overall the region with the least water (only the Reese River) and the least diversity of plant and animal species. The region also has a number of mountain ranges that reach nearly 11,000'; (Grayson 1993:16-17), and is relatively

high in average elevation, roughly 5,600' in the valley bottoms. The average elevation of rock art sites is quite high (5814'), and 86% (n=12) of the sites with motif information are even higher than this average. The whole state tends towards 'high altitude' rock art sites (see above, Chapter 6), and this region markedly so. The area was, and is, sparsely inhabited but has the most distinctive rock art sites of the state. As elsewhere, petroglyphs dominate although there are a small number (n=9) of pictographs, but only one site which is recorded as having both petroglyphs and pictographs. Nearly all of the sites in this region are on tuff (n=17, 71%) and most occur on either cliff faces (n=13, 45%) or in shelters (n=11, 38%).

Figure 29: *Possible male and female motifs at Barley Creek; Nye County, Central Region.*

There is only one site which is exclusively non-representational (although an additional three sites comprise vulviforms only, however these are classified as *human* motifs). There is also a single site which is exclusively representational (a single turtle motif), but usually sites combine both types of motifs (n=9, 64%). Eleven of twelve sites in this region which are recorded with *human* motifs have *vulviforms* and two of these sites have representations of *females*, one of which also has a possible *male* figure (Figure 29). Other vulviform sites in this region also have a large number of hand prints associated with *vulviforms*. *Hand prints*, like *vulviforms*, have been considered to be associated with the puberty ritual of girls (Monteleone 1993, 1994; see Chapter 10.2.1).

In any event, the vulviforms do show a strong correlation with volcanic tuff and often occur in great numbers and often to the exclusion of other motifs. Nowhere in Nevada is there such strong patterning between rock type and motif, and nowhere else is there such domination by a single motif.

8.1.5 Eastern Region

The Eastern region shares many characteristics with the Northeastern region. Most sites are located in shelters and there is an unusually high number of pictographs. In fact pictograph sites (n=30) outnumber petroglyph sites (n=14) by more than 2 to 1, while there is only a single site reported which combines both. Limestone is the most commonly utilized rock type and it often erodes to form deep shelters and caves, where many of the area's most important archaeological sites are located. Like the West and Northeast, the Eastern region is relatively well watered and its animal and plant resources are among the most diverse in North America (Aikens and Madsen 1986:149). No diagnostic projectile points have been reported in association with rock art in this region, but there is strong support for occupation of the area from as early as 11,000 B.P. These inhabitants followed a hunting and gathering lifestyle until around 1600 B.P., when "a number of features characteristic of settled horticultural village life" began to appear (*ibid*:160). Also included were technological shifts from the spear thrower (atlatl) to bow and arrow, and by around A. D. 400 or 500 pottery and maize were introduced, although hunting and gathering continued to constitute an important part of the subsistence base. But by A. D. 800, settled horticultural villages indicate that the Archaic period was over and Fremont cultures had developed (*ibid*:160).

Also of interest in the Eastern region is the dramatic shift toward representational imagery, with *human* motifs most common (n=19; including three which are the very distinctive Katchina figures often associated with the Fremont, and one motif described as a *female*). This continues the east :: west split in motif types seen in the Northeastern region, with the eastern part of the state having a much higher number of human motifs and representational motifs in general. Additionally, fully half of the sites (n=13) with motif information are exclusively representational (including both human and animal motifs, but curiously only one of these animals is a bighorn sheep), while only five sites are non-representational and eight are a combination of both. Groundstone and pottery are found at only two sites and pottery alone is found at one more site, an absence that is somewhat unexpected and may be a product of under reporting.

8.1.6 Southwestern Region

The Southwestern region is also fairly dry, with no major rivers in the area (although there are some rivers just outside of the state), and the region is typically subarid, with an annual evaporation rate that is higher than precipitation (Warren and Crabtree 1986:183). Only the White Mountain range (whose highest peak is over 14,000', which lies just outside of Nevada in California) is located here and valley bottoms average around 4,000', while the average elevation for rock art sites is 5,971' and nearly half are above that elevation. Again, the high altitude nature of Nevada's rock art is clearly demonstrated. Like elsewhere occupation of the area extends back for a very long time (as much as 12,000 years), but the Shoshonean period (Numic) is generally considered to have begun around 1000 to 800 years

ago, which is marked by diagnostic projectile points (the Desert Side-Notch, one of which was found at a rock art site) and pottery (found at only three sites, two of which also had groundstone, groundstone alone appears at five additional sites).

In the Southwestern region we also to see a north :: south split in rock art which is very similar to the east :: west split previously mentioned. Petroglyphs dominate assemblages, and these are distributed more or less evenly on basalt (n=14), tuff (n=12), and boulders (n=15), cliff faces (n=13) and shelters (n=11). The thing that is most striking in comparison to the more northern regions is that even though exclusively representational sites (n=7) are only half as common as those with non-representational images (n=14), sites with both motif types are frequent (n=23). This increase in the number of sites with representational imagery is in striking contrast to the northwestern and western parts of the state where these make up a much smaller percentage of sites. Human figures appear at more than half of sites which record motif information (n=24; 53%) and bighorn sheep (n=18; 23%) appear in higher numbers as well. The numbers of sites with non-representational imagery remains high, but these are no longer the dominant type of imagery.

8.1.7 Southeastern Region

Much of the Southeastern region actually lies outside of the hydrographic Great Basin, and is dominated by the drainage areas of the Colorado River, which includes the Muddy and Virgin Rivers (themselves fairly large). It is fairly low in elevation, averaging around 2,700' in the valley bottoms, but like elsewhere in Nevada, high mountain peaks can still be found such as Charleston Peak at 11,912' (Grayson 1993:16-17). The climate is subarid (like the

Southwestern region) and the area is generally classified as a part of the Mojavian biotic province. Like elsewhere in Nevada, occupation appears to have begun sometime around 12,000 years ago. Pottery began to appear in the area at around A. D. 500-700, known as Western Anasazi, which was restricted to the Virgin and Moapa Valleys of southeastern Nevada, followed by Paiute-Shoshone pottery between A. D. 700 and 1000 (Shutler 1961). Pottery is found at eighteen rock art sites, the same number that have groundstone, while thirteen sites have both pottery and groundstone. The presence of pottery at rock art sites indicates clearly at least *the use* of rock art sites by more recent peoples, but does not address the issue of the rock art's authorship. This area also has the highest numbers of rock art sites which contain *historic* imagery of all the regions in the state. These motifs are especially important in identifying the presence of historic populations, and are discussed in more detail below (see Chapter 10.3).

In the Southeastern region, we see a continuation of both the east :: west and north :: south splits that have been seen in other regions. Like the Eastern and Northeastern regions, *human* motifs are found in high numbers (n=61) and here *animal* motifs are also very high (n=44), and nearly half of these are big horn sheep (n=21). This region has the second highest density of sites (1.833/mi^2) and more sites which have exclusively representational rock art (n=42) than any other region. Only eight sites are reported to be exclusively non-representational and twenty-eight are a combination. And again, like the Southwestern region, geometric motifs (n=31) outnumber circular motifs (n=22). Petroglyphs dominate this region, unlike the Eastern region, and the majority of rock art is produced on sandstone (n=64, 75.29%), while cliff faces (n=62, 41.06%), shelters (n=47) and boulders (n=32) are also

commonly used. This might suggest a variety of both public and private functions for rock art in this region.

8.2 *Regional Diversity*

Clearly, the greatest numbers of rock art in Nevada occur in two regions. First, in the Southeast: Clark and Lincoln counties, which are areas typically associated with the Anasazi around the Colorado drainage and later the Southern Paiute, as well as the Fremont along the modern border with Utah (Map 6). Motif diversity for each region was calculated by dividing the total number of rock art sites by the number of motif types represented at those sites. This showed that the motif diversity in the Southeastern region is the second highest in the state (Table 23; diversity data by county Appendix 13). This is primarily due to Clark county, which alone has the highest individual county diversity (6.83). Lincoln county has a relatively low diversity (3.33), but less than half (40.6%, see Table 11) of the records for that county have motif data. Once that information is more complete for Lincoln county, the variety of motifs there may rise. Only two regions have less than the average motif diversity (4.31), three have very close to the average, while only two (Southeast and Southwest) have substantially higher diversities.

Somewhat unexpectedly, the region with the greatest motif diversity is in the Southwest (5.62), with relatively even numbers of all motif types (Appendix 9). While Nye county has the second highest individual county diversity (6.00), it is generally the northern

part of that county, which falls into the Central region, which has the greatest variety of motifs. Esmeralda county makes up the other half of the Southwestern region and also has relatively

Region	# of Motif Categories	# Sites w/Records	Motif Diversity Measure
Northwest	145	30	4.83
Northeast	31	9	3.44
West	851	189	4.50
Central	82	19	4.32
East	59	25	2.36
Southwest	253	45	5.62
Southeast	412	81	5.09

Table 23: *Motif Diversity by region*

high diversity (4.95) and this may be in part because this area is one of Mr McLane's favourite areas of investigation. In Esmeralda county, slightly higher then 85% of the site records have motif data, the highest percentage in the state. This may account for the high diversity found there and suggests that when more motif data is recovered for other regions, diversity of motif types may rise in those as well. But of the other counties with high percentages of records with motif data (50%), five have more than the average diversity of 3.98, while six have lower than that average, so the diversity of each region represented here may be accurate.

The Southeastern region has the second highest motif diversity, and the rock art there is very distinctive, with bighorn *sheep* and *anthropomorphs* found in high numbers (both the human and animal motif categories have very high numbers [Appendix 9]). Although bighorn

sheep petroglyphs have been called characteristic of Great Basin rock art (Whitley 1998a:13), they are in fact relatively rare in other parts of the state. The stylistic quality of the *anthropomorphs* and *sheep* also varies in this area from the rest of the state where there seems to be more attention to what we might call "realism." Again Heizer and Baumhoff (1962:204) correctly noted that their "Representational" style was distinctly lacking outside of the southern regions. In addition, the anthropomorphs are often very elaborate with clothing or patterning in the area of the torso (e.g. Pahranagat Man motifs; Monteleone and Woody 1999).

The second region of the state with the highest numbers of rock art sites is in the West: Churchill, Mineral, Lyon, Douglas and Storey counties, Carson City Municipal area, and the lower half of Washoe county. This area is typically associated with the Washoe and historically the Northern Paiute. Unlike the Southeastern and Eastern regions, the Western area is characterized more typically by complex motifs which are without identifiable representations, although more representational types of elements do of course occur, but in very small percentages (Appendix 9). In spite of relatively large numbers of rock art sites however, the diversity of motif types found in this region (4.50) is only slightly higher than the average (4.31). This may of course be a product of biassed recording simply because the nonrepresentational motifs which dominate the assemblage in this region are more difficult to classify.

The Central region, historically occupied by the Western Shoshone, shows much less density of sites than other regions. The motif diversity for this region is slightly higher than the average (4.32) but the most interesting thing about this region is that it contains a surprisingly

large number of *vulviforms* (Chapter 10.2.1). This region has relatively even numbers of circular, geometric and human motifs, with the number of human motifs slightly greater (Appendix 9), most likely due to the fact that *vulviforms* are classified as human.

The Northwest also has higher than average motif diversity (4.83),and like the Western region, nonrepresentational motifs are the most common (Appendix 9). Both circular and geometric motifs occur more than twice as often as either human or animal. The Northeast has the second lowest diversity (3.44) for the entire state, but has fairly even numbers of circular, geometric and human motifs, while animals are only recorded at one site and neither historic nor scratched are found there.

Quite surprisingly, the region with the lowest motif diversity is the Eastern region, in spite of the fact that slightly more than half of the records for this region have motif data (52.1%; see Appendix 7). This region falls well within the territory of the Fremont and the rock art there does often reveal that influence, but as mentioned above there is a surprising lack of *horned anthropomorphs, sheep* and *shield figures* in the area. White Pine county does have relatively large numbers of *zoomorphs* (n=8, 12.9%), but again not as many as Clark and Lincoln counties. *Katchina* motifs are also described in White Pine county (n=3), but fewer than in Lincoln county (n=5), again something of a surprise. As would be expected in the territory of the Fremont, White Pine county has the highest number of pictographs (n=30, 27%) in the state. But also quite unexpected is the relatively high percentage of *cupules* in White Pine county (n=5, 20%), while the highest numbers overall of *cupules* are from Washoe county (n=8) which is more expected.

The Eastern region does have the highest percentage of sites with *anthropomorphs*, with 72% of all rock art sites with motif information recorded in that region having *anthropomorphs* described as present. Because the Fremont were horticultural people, perhaps this is an attempt to situate the ancestors into the landscape as a means of legitimating possession of the land, something fairly common among horticultural groups (Woody and Quinlan 1998). Next, in Chapter 9, I offer a more in depth interpretation of the social characteristics which may account for the dramatic differences between this region and others in the state.

PART III: DOING THINGS WITH PETROGLYPHS: NARRATIVES OF EXPLANATION

Chapter 9: A Contextual Approach to Nevada Rock Art

The rock art of Nevada and elsewhere can be analysed in relation to whatever theoretical model one wishes to utilize, but the rock art itself must be tested against the expectations of the model. For both of the currently dominant models (hunting magic and shamanism) there is a single explanation for rock art, either it is a product of a ritual to ensure success in the hunt or produced by a shaman at the conclusion of her / his trance,[50] although recently the concession has been made that there may have been non-shamanistic motivations for rock art production (e.g. Loubser *et al* 1999:54-63). The test of the hunting magic model is the presence of rock art at hunting locales. But in Nevada, very few rock art sites are actually in what might be considered good hunting locations, while a large percentage occur at what appear to be habitation sites, a pattern repeated elsewhere in the Great Basin (e.g. Ricks and Cannon 1993; Ricks 1996; Cannon and Woody *in press*). For the shamanistic model the presence of 'entoptic' imagery which are reproduced following the 'seven principles of perception' (Loubser *et al* 1999:73) indicates that it represents the vision experiences of a shaman.[51] It is notable that 'entoptics' are the most basic geometric shapes and that the 'seven principles of perception' are more or less the same principles used in visual design traditions everywhere, so these forms are likely to be associated with any visual design tradition and in any event are not diagnostic of trance imagery (Dronfield 1993, 1996).

---

50 As noted above, it is often argued that rock art producing shamans were exclusively male (Whitley 1996) in spite of the fact that both men and women were shamans in every group except the Kawaiisu (Driver 1937:102), a California group.

51 And as noted above (Chapter 4), both Lewis-Williams (2000) and Dowson (1999) have recently suggested that the presence of entoptics does not indicate that imagery is trance related, which leaves one to question exactly how the relationship between trance and rock art is to be tested.

Neither actually addresses specific environmental and cultural site contexts or even variations in the imagery itself as a part of analysis. The approach advocated here rejects universalist explanations and moves the focus of research away from imagery alone and focuses instead on the context of the site (both environmental and cultural) for clues as to the meanings or functions of the rock art. In this chapter, I explore varying contextualist interpretations of rock art locales that can be generated from considering sites in isolation, followed by looking at regional distributions of sites. In the next chapter I focus more specifically on introducing a more temporally aware contextualist interpretation of rock art locales.

I begin with an examination of the important Grimes Point site, located in the Western region (see Chapter 6 and Figure 4), which is called *Si?imasada*, ('basalt' + ? [Fowler 1992:40]) by the Northern Paiute, who inhabited the area historically. They were generally fearful of the site because of burials which were known to be in nearby caves. The petroglyphs at this site are called *Iza?a t#onnu*, 'Coyote's writings,' indicating that it was made by the well-known trickster figure during 'The Time When Animals Were People' (Fowler 1992:180).

One critical, although very simple, piece of contextual information regarding this site is its elevation and relationship to several Pleistocene shorelines, as well as to other archaeological materials in the immediate area. The main part of the site is located between 3960' and 4000' above sea level (Nissen 1982:41) and would have been covered by Pleistocene Lake Lahonton during much of the last 26,000 years. The only periods when the area would

have been exposed was prior to 26,000 years ago, and for a brief time between around 11,000 and 9,000 years ago, when lake levels are less well understood. This time period however, may be especially significant because of dates of associated burials (see below). The lake also dropped sufficiently for the shorelines where the rock art is located to be exposed after around 8,000 (Mehringer 1986:34-35), with the driest period between around 6,900 and 4,500 years ago (Kenneth Adams, personal communication, January 2000). Morrison (1965:281) suggested that the lake's water would have been directly offshore from the petroglyph area around 5,000 years ago, but some of his dates appear to be in conflict with other researchers in the area (Mehringer 1986:35).

The lake finally disappeared (except for an area north and west of Grimes Point which remains today at Stillwater Marsh) around 4,000 years ago and has remained dry since that time. This site is uniquely suited to direct dating attempts (see Chapter 11.1) precisely because of its environmental context (Alan Watchman, personal communication, June 1998). It is a part of a large complex that includes not only other rock art sites, but also dry cave sites, some containing burials such as Spirit Cave which has recently been dated to 9400 BP (Kirner *et al.* 1997). It is interesting to note that this is one of the periods during which the shorelines where the Grimes Point petroglyphs are situated would have been exposed.

The Native Americans who created the rock art at Grimes Point were presumably drawn by the very productive marsh that developed when the lake waters became more shallow. In any case, fish and wildlife would have been available whatever the depth of the water. Not all of the rock art would have faced the lake, but rather faced in all directions. The

Figure 30: *Grimes Point, Churchill County, Western Region.*

site is dominated by cupules, which like the petroglyphs, are now darkened by revarnishing to the point of near invisibility (Figure 30). But when produced, the engravings would have stood out from their dark basalt background and would no doubt have been quite visible. Judging by its location and associated archaeological evidence, this site would have been a largely public place. The rock art may have served as a mark of ownership by those who frequented this part of the lake or even what Ingold (1987) has called 'signalling,' with rock art created in to announce the presence of its makers. If it was made during the one thousand year period when the Spirit Cave Man (see Chapter 10) was present, these may have been among the first people in the area and the rock art meant as an attempt to contact others for permission to partake of the resources or claim the location for their own.

Another example where attention to context adds significant information is also found in the basin of this same ancient lake as the Grimes Point site. On the opposite side of the Lahonton basin is Salt Cave (Figure 31), a pictograph site. Another unnamed and unpainted cave is nearby (approximately 50' south) and another cave that is smaller yet is located around 5000' away. If these sites are compared by the way they regulate access (Gibson 1986), the

Figure 31: *Salt Cave; Churchill County, Western Region.*

differences are striking. Salt Cave is quite large (58' deep, around 21' wide and 10' high at the opening), with enough room to accommodate a relatively large number of people. The ceiling and walls are more or less evenly covered by red pictographs, painted on bulbous outcrops of tufa, with extensive smoke blackening on the ceiling toward the back of the cave. The pictographs are primarily dots and circles, but also include a small number of possible human stick figures and possible animals.

Without the benefit of direct dates on the pigment, it is not possible to estimate the age of the pictographs, although the cave was cut by wave action, probably between 11,000 and 10,000 years ago when the lake was at its highest level during the Lahonton Beach period (Mehringer 1986:34). Based simply on the degree of weathering, however, all of the pictographs appear to be more or less contemporary, possibly even produced as a single event. The soot indicates the presence of fires in the past, and the bones of a large animal were recovered by guano miners in 1939. There may be midden deposits in the cave, but no formal excavations have thus far been conducted. Several cultural artifacts however were recovered from the neighbouring cave. Recovered from this smaller unpainted cave are such things as a

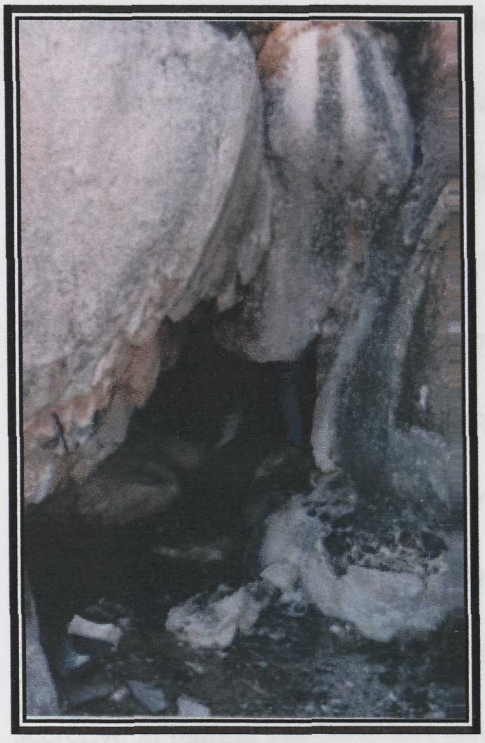


Figure 32: *Near Salt Cave; Churchill County, Western Region.*

worked greasewood stick, a grinding stone and debitage (site form on file at the Nevada State Museum).

In sharp contrast is the very small cave around 5000' feet away which has only enough room inside for a single person (Figure 32). There is no midden discernible, but the ceiling of this very small cave also appears to have smoke blackening. Since there is no sign of a hearth in the floor of the cave (and certainly no room for one unless the person inside the cave were standing in it), it seems most likely that the soot was produced by the flames of a hand held torch. Little light penetrates the small opening of the cave and once inside it becomes quite dark. But with the help of a flashlight, one single non-representational red pictograph can be seen (Figure 33). The pictograph inside this very small cave, a simple geometric pattern, is not repeated at Salt Cave, whose imagery tends to be circular (although there are a very few linear geometric motifs such as

Figure 33: *Near Salt Cave; Churchill County, Western Region.*

zig zags). Excavations at both sites would reveal much more information, but based on context alone it seems likely that these two are very different types of sites. As Thomas (1993a) suggests, the simple difference in visibility and size may suggest who could participate in the activities which took place there. The fact of size alone implies that access to the smaller cave site was restricted, while at the very much larger Salt Cave, the opposite is most likely. Salt Cave might have been the site of larger scale public rituals or those associated with daily domestic routines. These may have even included the people who inhabited the cave beside it, as well as others who might have come to this place for such a gathering. But the very small site clearly must have been the location of activities which were much more esoteric and secretive in nature. As Gibson (1986) has suggested, the physical context of the site itself shapes access to it, and in this case restricts both access and movement, hence shaping perception of it. Consideration of this contextual aspect of these sites allow a more richly textured understanding of them.

Clusters of sites also occur at a larger scale, and can be identified through simple locational analysis. As mentioned above (Chapter 6), several large clusters exist throughout the state where up to twenty or more sites are located within a single 36^2 mile area. One such cluster of twenty-eight sites is located just to the north-east of Las Vegas in Clark county (Southeastern region). This area technically lies outside of the Great Basin, as it is within the drainage system of the Colorado River. More than half of the sites (n=16) in this section are located within a single elevated valley (Hidden Valley) in the Muddy Mountains. Hidden Valley is a relatively well watered locality, and all sixteen rock art sites are situated within an area of

1500 x 3000 metres. This area is described by Green (1987:174) as an "extensive occupation area with numerous rockshelter loci and rock art displays." Excavations were conducted in the valley and produced cultural materials 3500 years old from lower aceramic levels, and mixed ceramics in the upper levels. Ceramic types are diagnostic of Anasazi, Fremont, Lower Colorado and Southern Paiute wares by methods of manufacture, morphology and surface designs (Blair 1986; Jenkins 1982; cited in Green 1987:174).

Green further notes that the rock art of the area is also mixed, "reflecting Puebloan images but fewer types" than in other areas, "with some probably but yet undefined affiliations to the California-Great Basin and Newberry-Eldorado stylistic patterns" (*ibid*:174). She illustrates two panels (*ibid*: Figures 11 and 13), both of which depict bighorn sheep, as would be expected in this area near the Colorado River drainage where such images dominate (Monteleone and Woody 1999). But the mix of ceramic types indicates that various distinctive groups utilized this valley through time and the various rock art styles could also no doubt be related to these various groups. The presence of what she calls the 'California-Great Basin' style refers to the very common non-representational rock art that is found commonly throughout Nevada and the desert west, the Basin and Range Tradition (Eileen Green, personal communication, January 2000). The other styles might have been produced by other groups in the area in an attempt to claim the relatively rich valley by introducing their own marks of ownership or signalling. As will be discussed more fully below (Chapter 10.2), rock art may be a sensitive indicator of ethnic identities and Hidden Valley a good example of how these various groups might be identified.

If rock art is ever to play a significant role in archaeological analysis, then archaeological issues need to be addressed through rock art. A means of identifying specific groups in the Great Basin is an extremely important, although somewhat controversial, issue (see Madsen and Rhode 1994). As this example indicates, rock art may prove to be one sensitive means of group identification (Woody and Quinlan 1998).

Figure 34: *East Walker River; Lyon County, Western Region.*

Another interesting comparison of rock art sites can also be made within a single region if individual motif types are examined rather than interpreted as hunting magic or vision imagery, which ignores patterned variation in imagery. Again, sites from the Western region serve well to clarify this issue. Grimes Point and East Walker River (located approximately 50 miles to the south) were both extensively recorded by Karen Nissen (1982) so that the way in which imagery was classified at these two sites is broadly similar. Grimes Point contains only a single representational image (a possible lizard) whereas East Walker River is known for its relatively high number of images of bighorn sheep (n=33, Figure 34) and other representational motifs, including humans (n=6), dogs (n=3) and even one which resembles a deer (all relatively unusual for this region). In all

there were 133 panels photographed at the site as a part of this study, and all of the panels that could be identified from Nissen's record were examined. Of these, twenty-one panels (15.79%) include imagery which might be considered representational. When the motif assemblage at East Walker River is compared to that at Grimes Point, the differences are striking, although the number of representational imagery is still relatively small. For example, at another site in the Southeastern region (Mouses Tank, discussed below) representational images occur in more than 90% of the panels at the site (n=19), often to the exclusion of other motif types.

Both the East Walker River and Grimes Point sites lie in historic Northern Paiute territory, and like Grimes Point, East Walker River appears to be a habitation site based on the presence of rock rings, groundstone and lithics. Both sites were associated with water, although Grimes Point is approximately one thousand feet lower in elevation than East Walker, and the lake on which it was situated is now dry, while the East Walker River still flows. The most obvious environmental differences between these two sites is that East Walker River is quite near the eastern foothills of the Sierra Mountains, whereas Grimes Point is situated in the lowest basin in northern Nevada (Elston 1986:135).

The petroglyphs at Grimes Point appear overall to be very much older than at East Walker, although both have more than one generation of rock art (based on visible differences in patination). Also, the rock art at Grimes Point is more ambiguous, with primarily abstract imagery, while the very distinctive rock art at the East Walker River site has imagery much more specific in addition to more opaque motifs. Grimes Point may have been utilized by a wide variety of early peoples, but when the lake and subsequent marsh were gone or the area

was again covered by water, the site may have lost importance and rock art production stopped. At East Walker River however, production may have continued because the location remained important through time, perhaps due to the river. All of the representational motifs at East Walker are in the most recent generation and may represent another group of people who entered the area later and their attempt to claim the locality for their own. This may have occurred during a period of increased regionalisation when populations began to settle into a specific area and seasonal movements became more scheduled. A similar process is suggested by Taçon in Australia (1993), and he relates changes in land use to stylistic changes in the rock art.

Certainly more work needs to be done (see Chapter 11.1), including a clearer documentation of the site and its surrounding environs. A theoretical approach which allows analysis of differences or similarities in motif types within a single region can allow more specific questions about changes in how Native peoples lived in the landscape to be addressed. If rock art is seen as an integrated part of the lives of the people who created it, the capability of addressing issues of culture change may be possible. Rock art can address such issues when re-integrated into the cultural landscape and analysed within its full cultural and environmental contexts.

Comparing rock art motifs and distributions on a much larger scale allows very broad distinctions to be seen state-wide. As mentioned above (Chapter 8) and as I discuss in more detail below (Chapter 10), there is a definite and clearly patterned variation in the distributions of representational motifs throughout the state. But in addition to this, other important

differences can also be seen statewide in such things as surfaces utilized. For example, in the Southeastern region, cliff faces are used far more frequently (41.06% of the total sites in that region) than any other surface. A simple consideration of differences in surface may also suggest very different motivations for rock art production. Some cliff faces can be seen for a great distance, almost like a modern day billboard and the rock art on such a surface must have been intended to be seen by all, or even to be seen from a distance. This setting may suggest a measure of openness or public performance as opposed to sites with more limited diversity and a restricted access.

Figure 35: *Calendar Fence; Lincoln County, Southeastern Region*

One such cliff face in Lincoln county is known as the Calendar Fence where there is an apparent solar interaction which occurs on the summer solstice (Figure 35), and again at mid-autumn (Burkholder 1994:42). Some rock art researchers consider solar interactions to be an important part of the purpose of some rock art sites. Burkholder (1994) for example documents fifteen such sites in the Southeastern region, one of which is the Calendar Fence. It is situated in an open area of a large river channel cut during the Pleistocene and affords ample room for a large number of participants. Burkholder (1994:7) suggests that the ritual associated with such 'solstice sites,' like those of historic Great Basin ritual or social gatherings, would have

included "dancing and feasting . . . exchanging ideas and playing games of chance." She further notes that in spite of numerous suitable surfaces in the immediate area that the 'ancient artists' selected only this single face where the solar interaction occurs to engrave.

The site was recorded by Heizer and Hester and interpreted from a hunting magic perspective as depicting a diversion fence for game drives, although they admitted being "far from certain about this explanation" (1974:10). While this is a plausible suggestion, in most cases such "drive fences" were merely piles of brush or uprooted sagebrush (Fowler and Liljeblad 1986:439) or in some cases rocks (d'Azevedo 1986b:478), rather than the picket fence that seems to be illustrated.

Some shamanistic authors have vehemently denied that there is any relationship between rock art and seasonal movements of the sun or other Native astronomical beliefs and practices (e.g. Whitley 1998d). The lack of support in the ethnographic record is the primary reason for rejecting the so called 'archaeo-astronomy hypothesis,' although a lack of scientific objectivity and Eurocentricism[52] are also cited as objections (Whitley 1998d:136-137). Other shamanistic authors are less critical and in California even suggest that "artist, shaman and solar observer were one and the same, either as an individual or collectively as members of a cult" (Hudson, Lee and Hedges 1979:52).

Interest in astronomy however is a universal characteristic of human societies, even when the observation of the night sky is the preserve of specialists (e.g., priests or

52 It is suggested that rock art scholars who interpret some rock art motifs as astronomical are attempting to turn "Native Americans into junior scientists and fitting them into our twentieth-century mold" (Whitley 1998d:137).

astronomers). And as McLane (*in press*:1) notes, ". . . the data collected on the *Culture Element Distribution* lists of Great Basin Indians . . . show that most of these groups recognized the solstices, four seasons, and twelve months." There are a growing number of rock art locales reported in Nevada (especially by McLane) as having significant solar interactions and in some cases (like the Calendar Fence) they are quite convincing. Such places in the landscape may have taken on special importance during the seasonal movements of highly mobile peoples, and the Calendar Fence may be a good example of what Thomas (1993a) has referred to as the 'creation of place.' Places created by the modification of the natural environment through the production of rock art to mark significant temporal events (such as the solstice) may have helped to 'add structure to mobile lives' as suggested by Conkey (1987) and Giddens (1979), or as a means of "mapping the world of mobile people" as Bradley (1991:77) puts it. This specific locale may have been selected for gatherings of large numbers of people to communally observe the change of season. Open social systems require such gatherings, when the important business of negotiating new relationships or strengthening old ones can occur, or when the selection of marriage partners can be made. And although the observance of solar events is often assumed to be a normal practice for farming communities, and the Calendar Fence is located in what would have been Fremont territory (who were farmers), I suggest the same would be true of hunter-gatherers simply so that they could keep track of the changing seasons and arrange their travels accordingly.

The placement of rock art on cliff faces is common to other regions and implies that access to it would not have been restricted, but rather was meant to be seen and engaged by

Figure 36: *Multigenerational panel at Massacre Lake; Washoe County, Northwestern region.*

everyone. However, significant regional variations in imagery can be identified, suggesting that the same kind of support was used to transmit different messages. In the Northwestern region, 50% of the sites recorded are on cliff faces and the Massacre Lake site is a good example of such a site. The site is located in an area of abundant plants, the roots of which were an important part of the diet of earlier inhabitants, there is seasonal water and it lies generally in an important travel route connecting two valleys. The motif assemblage is predominantly non-representational (only a small number of scratched human motifs are present) and was seemingly produced over a long period of (although possibly occurring in discrete 'outbursts of production' recognized elsewhere by other researchers [e.g., Taçon, 1994:118]). At least four separate generations of rock art are definable at this site, based on both relative patination and stylistic differences (Woody 1997:54-58). The earliest phase of rock art production may be as old as 11,000 years if temporally diagnostic projectile points at the site are associated with the art (Woody 1997:41-42). Perhaps most importantly, many of the motifs show signs of re-working of earlier motifs (Figure 36), and in some cases older motifs have been enhanced.

The Massacre Lake site appears to have been an important gathering place for a very long time and the rock art is located on open cliff faces. The motifs themselves indicate it was

created by groups with an open social system, with panels and motifs being generally unenclosed and characterized by an abundance of 'empty space' and the repetition of simple elements (Fischer 1961). The rock art is generally ambiguous and frequent re-use or enhancement may indicate that this was a place where rights to resources were legitimated by establishing a symbolic link with the past. Weissner (1989) has suggested that symbolic methods of creating 'sameness' are utilized to create relationships and reduce distinctiveness. The rock art at Massacre Lake may be an example of symbolically creating a shared identity by those who used the site with those who had used the locality before.

Moving along a diagonal transect across the state, cliff faces in the Central region are also utilized for rock art production. Thirteen sites are recorded on cliff faces in this region and all except two are on tuff and all except these same two are *vulviform* sites. As I discuss in more detail below, these *vulviform* sites may have been related to very specific types of ritual activities. One of these sites is the well known Hickison Summit site, and out of the 350 recorded petroglyphs at this site, 193 (55.14%) are *vulviforms* (sometimes previously referred to as 'horseshoes' [Thomas 1976:68]). The petroglyphs are

Figure 37: *Hickison Summit; Lander County, Central Region.*

located in fourteen clusters throughout an area approximately one mile in length. The site is around 6600' in elevation and lies in the piñon - juniper zone and seed bearing grasses are also quite common at the site.

There are some indications of later use (such as scratched rock art) but most of the petroglyphs appear to be fairly weathered. Some of the motifs are in secluded spots (Figure 37) but most others are on open cliff faces. It seems most likely that at least this part of the rock art was for public consumption because it is located in clear view. Like Massacre Lake, there is a clear indication that the area was utilized as long ago as 10,000 years (Bureau of Land Management, n.d.). Thomas (1976:68-70) examined this site using a Hunting Magic approach and identified several 'attack stations' along the migratory trail of animals, with clusters of panels carved into the surfaces which would face the 'oncoming or passing animals.' She also discussed the common interpretation of the vulviform as "a representation of female genitalia," but suggested that the association of fertility and increase rites may be extended to include "the mechanics of a complex and highly productive hunting system" (*ibid*:73).

A shamanistic interpretation of this site would suggest that a shaman had a vision and then carved the imagery s/he had seen into the cliff so as to not forget (e.g., Whitley 1994c:3), the same interpretation as made at other sites. Alternatively it has also been suggested that vulviforms were created by male shamans practising black magic, because of the dangerous and diabolical power of the 'twitching vulva' (Whitley 1996; I discuss an alternative interpretation below, Chapter 10.2.1). But neither model addresses the specific concentration

of a single motif type when compared to other areas or the variation within the site as to location of the panels, whether private and concealed or public and open. Also because of its location in the pass to the north of both the Monitor Valley to the east and Big Smoky Valley to the west, it is not only a migration route for animals, but also a natural travel route for humans. Hickison Summit may also represent a gathering place where puberty ceremonies could have been collectively enacted.

At the end of the diagonal transect across Nevada, in the Southeastern region, motif assemblages are dominated by representations of humans or animals, sometimes in great numbers (although other types do occur, such as the Calendar Fence mentioned above). Hartley (1992) has suggested that redundancy of images reduces mistakes in understanding the messages contained in the imagery, which would also be true of the *vulviform* sites mentioned above and discussed in more detail below (Chapter 10.2.1). If that message is also placed on an open cliff face where it can be readily seen, it also seems most likely that the message being sent was intended for a wide audience. Again, this suggests a very different sort of message than one in which the rock art is produced inside an enclosed shelter, for example. The Southeastern region is dominated by the Colorado River drainage and was densely occupied and farming associated with villages developed very early (around A.D. 300-500, Fowler and Madsen 1986:175). Ownership or rights of exclusive access are very often more important to farming populations or even in areas of abundant resources and high populations. This may be reflected in the more direct message sent as opposed to the more ambiguous messages at Massacre Lake.

Figure 38: *Warshield Canyon; Clark County; Southeastern Region.*

In the Arrow Canyon area in the southeastern region a cluster of rock art is found on the limestone walls in several different loci. Green (1987) included two of these sites in her survey of ecological contexts of rock art, the Big Dune site and Warshield Shelter. Both sites are visible from a distance and both have very distinctive shield figures as an important part of their motif assemblages. At the Big Dune site, among other representational imagery (e.g. *bowman* and *bighorn sheep*) there are two large shield figures, one 150 centimetres in diameter and the other 90 centimetres in diameter, and both "sport feather headdresses" (Green 1987:130). A considerable amount of "lithic waste, ceramic sherds and groundstone mixed with fire-affected rock in a sandy midden" (*ibid*:170) is present. Across the canyon is Warshield Shelter, also dominated by a large shield figure (Figure 38). This site was excavated in the 1920s, when Anasazi, Fremont and Paiute ceramics were recovered, as well as fibre, lithic, faunal and floral artifacts (Shutler 1961).

The shield motifs themselves are most commonly associated with Puebloan[53] groups or the Fremont (Schaafsma 1980:171; 1986:226; Green 1987:128). They are known to date to around A.D. 1350 - 1600 in New Mexico, and may be something akin to clan markers. The Fremont examples would be somewhat earlier (around A.D. 450 - 1300) and may also pre-date similar figures found in the Plains area of the United States (Gebhard 1966:728, cited in Green 1987:128). These very specific images are found in full view, probably intended to be seen by everyone, and may have marked ownership of the area by a specific group.

Using a more contextual approach, which is informed by both the anthropology of symbolism and landscape theory, these examples show clearly that striking differences can be seen statewide, although all may be examples of 'signalling' as suggested by Ingold (1987). This type of communication is especially important when attached to specific places in the landscape utilized by different groups, either shared, as in the Northwest or exclusively, as in the Southeast. While in the Northwestern region the rock art imagery is abstract and ambiguous, in the Southeastern region motifs are representational and specific and in the Central region motif assemblages are dominated by a single motif. Although all occur in more or less open contexts where the rock art was intended to be openly engaged, the differences in motifs types indicate that very distinctive means of communication were employed at each site. The Massacre Lake site may have been visited by a variety of peoples who utilized the resources there and lessened their differences through repetition of opaque symbolic forms.

---

53 The term 'Puebloan' is often used to refer to the at least partially horticultural groups in the Southeastern region who were also characterized by small village sites with semi-subterranean pit houses, surface structures of masonry or adobe and ceramics (Fowler and Madsen 1986:175).

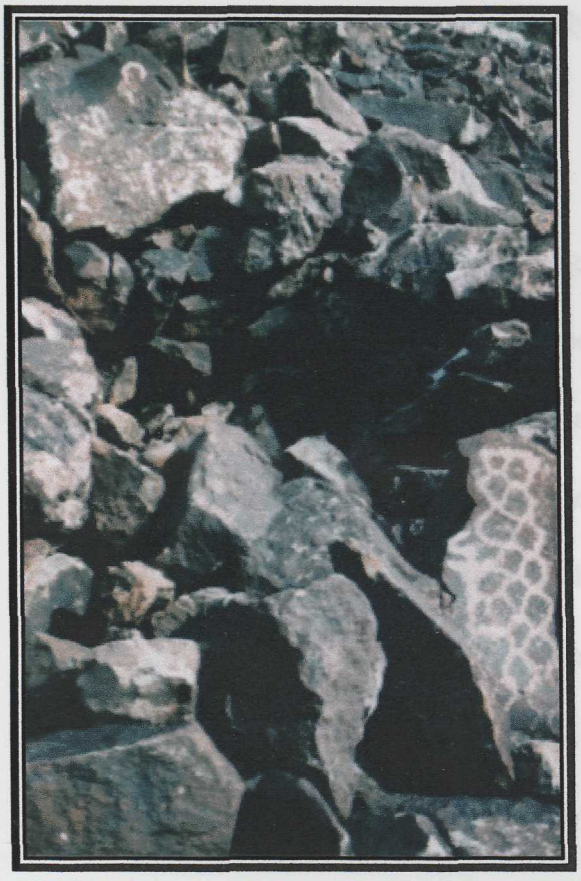


Figure 39: *Hunting blind with petroglyph at the Pistone Site (Black Mountain); Mineral County, Western Region.*

In contrast at Hickison Summit an explicit message was intended and reinforced through redundancy of specific images. And alternatively, at the Arrow Canyon sites (Big Dune and Warshield Shelter) rock art may have indicated ownership and restricted access to clan members or other related groups, through the use of overt images as Schaafsma (1992:14) has suggested was likely for the Anasazi.

While the above descriptions and discussion of rock art is restricted to Nevada, a similar approach would be beneficial in any region or any country where rock art is found. Universalist interpretations extract rock art from its cultural and environmental context and impose meaning onto it without attention to the details of environments, placement or cultural associations. It is important to note here that I am most certainly *not* suggesting that rock art never played a role in ritual associated with hunting, and some rock art does occur in direct association with hunting blinds (Figure 39). Nor am I suggesting that shamans never produced rock art. What I am suggesting is that rather than applying a universal interpretation to all rock art everywhere, each site should be

approached individually and the context analysed to determine the possible purposes of the rock art that is found there.

Rock art will never allow further insight into the ways of life of prehistoric peoples if the analysis of it is not approached with an understanding of symbolic practice and integrated back into the cultural landscape of which it is a part. In the following chapter, I will show how rock can inform archaeological questions. These examples are specific to Nevada, but similar archaeological issues exist in other parts of the world which rock art may be able to inform. First, I discuss the role of rock art in the initial *colonization* of the New World generally and the Great Basin specifically. This is followed by a discussion on how rock art may also help to identify and clarify *ethnicity* and identify prehistoric *ritual* localities in the past and I consider how rock art can speak to issues of the construction of social identities in the present among Native American groups. Finally, I conclude discussing the strength of utilizing alternatives ways of thinking about rock art and suggest future directions in rock art research.

Chapter 10: Rock Art and the Power of the Past

In the previous chapter, I examined specific contextual and graphic rock art data to show that such an approach leads toward a fuller and more detailed understanding of the imagery itself. In this chapter, I seek to illustrate how rock art can be used to address specific archaeological issues. First, I discuss how it may have played an important role in the initial colonization of the New World and prehistoric ethnicity, followed by a discussion of how rock art continues to play an important role in the construction of modern Native American identities.

10.1 *The Initial Colonization of the New World*

In spite of the hopes of some researchers, there has never been any evidence that the New World was occupied by any other species than *Homo sapiens sapiens.* For many years, the "Clovis first" paradigm was accepted by virtually all serious researchers, but has recently been challenged (see Chapter 1). The evidence for early human occupation in the New World has generally been stone tools, some of which have been found lodged in the bones of extinct animals (Meltzer 1991). More recently, at Monte Verde, other materials such as animal skins (thought to have been used as a shelter) and knotted cordage have been dated to around 12,500 years ago (Dillehay 1989; 1997).

In the Great Basin, like elsewhere in North America, stone tools have been the primary evidence of early human occupation, the most well known being the Clovis Point, but also Folsom and in Nevada, Stemmed points and Crescents. These points have been recovered in

buried contexts elsewhere, are found throughout North America (except for the Crescents) and are distinctive enough to be easily identified. Few Folsom points have been found in Nevada, and only around 36 Clovis points, often associated with Stemmed points. Some researchers now think that Stemmed points are as old as Clovis and were simply another part of the Paleo Indian toolkit. Crescents have a very restricted distribution and have been found in some Nevada sites (e.g. Sunshine Well) by the hundreds.

While stone tools are the most common evidence of early human occupation of the Great Basin, there are other artifacts as well. For example, a recently vandalised cave site in northern Nevada yielded a series of sandals which have recently been dated to 10,130 years old (Pat Barker [BLM State Archaeologist]; personal communication, October 2000). But probably the most striking evidence of early human occupation of the Great Basin has been the recent revelations about the age of the Spirit Cave Man. This well preserved mummy was located in a cave that is part of a complex of sites that includes rock art and a series of dry cave sites, some of which contain burials. The Spirit Cave mummy has recently been dated to 9400 BP (Kirner *et al* 1997) and is the oldest mummy in the world, proving without any doubt that people did inhabit this part of the Great Basin at least 9000 years ago. The petroglyphs at Grimes Point are also a part of the complex of sites where the mummy was found and are very near to Spirit Cave. The petroglyphs would have been on the shoreline of Pleistocene Lake Lahonton during the time that Spirit Cave Man was buried in the dry cave (see Chapter 9), and it is likely that he would have been at the very least aware of them. In addition to this, another (less famous) mummy was also found in the northern part of Pyramid Lake (the remnant of ancient Lake Lahonton, see Map 3). This mummy, called the Wizards Beach Man, is nearly as old as Spirit Cave Man (around 9,200 years old) and together they suggest that

western Nevada was populated at least at the end of the Pleistocene (see Tuohy and Dansie 1997 for information on these and other burials).

When the First Americans began to arrive in the New World, they did not travel in a single direction or toward a specific point. These first Americans were not moving purposefully from Beringia in the direction of Tierra del Fuego, but rather they *lived* along the way. The journey would have been made by families with women, children and elders, and they would have required time to interpret and understand the new landscapes that they travelled through. But, as they moved into new territories, I would suggest that they would have expected to encounter unknown others, simply because their own lived experience would not have suggested otherwise.

An important tradition among mobile people everywhere is that they are free to use the critical subsistence resources in any territory – but they need to ask permission from its regular inhabitants (Fowler 1982:113), be they human or spirit. In a new landscape, which I argue would be assumed to be inhabited, how would one ask permission if the inhabitants were unknown and unseen? Ingold (1987) has suggested that hunter-gatherers leave signs to notify regular inhabitants of their presence and rock art might be one means of signalling. It is easily recognized as a non-natural artifact, although it could also easily be interpreted as a supernatural one by those who did not make it, as seems to be the case among the historic inhabitants of Nevada. It is also durable enough to remain where it was placed long enough to be seen. Places where subsistence resources were found would be very important for any new arrival. Rock art sites in Nevada are very often close to water or other critical subsistence resources and may have begun as a material and durable means by which new arrivals could

ask permission for use of resources from unknown inhabitants or powerful spirits who dwelt in the new area.

Figure 40: *Deeply engraved motifs at Massacre Lake; Washoe County; Northwestern region.*

Temporally diagnostic lithic materials noted in association with rock art are far too rare to make any strong generalizations, but what there is appears in large part to be very old. There is also rock art known to be very old, such as the Great Basin Carved Abstract style described by Ricks (1996). The Massacre Lake site in the Northwestern region shares the characteristic of extremely deep engraving (Figure 40) in some of its panels with other very old sites such as Long Lake, along with several other more recent engraving. More recent abstract engravings, while stylistically similar to the older, are generally much more shallow (Bednarik 1995:91).

Researchers such as Steinbring (1993:22, 1999:12), White and Orndorff (1999:13), Whitley and Dorn (1993:637-638), and others have suggested that some rock art in the New World may be very old. Tratebas (1999) for example compares Old World rock art with that in regions of the New World to find possible precedents. In other parts of the New World equally old rock art has been described, such as paintings in Brazil that may be Paleoindian (Roosevelt *et a.* 1996) or even older (Guidon and Delibrias 1986). But in spite of this provocative evidence, there has been some hesitation in assigning great antiquity to the rock

art of North America, and many researchers automatically assign it to the Archaic. The logical argument for an Archaic age for rock art is fairly simple and persuasive. The Archaic was a time of explosive diversity of material culture and behaviours in the New World, and rock art is thought to be just one more example of that diversity (Elston 1986:138). While the term 'Archaic' may be defined simply as 'older' or 'earlier,' in archaeological terms it implies a specific time frame, which varies regionally, but nonetheless is after around six to eight thousand years ago generally. Because of the archaeological specificity of the term, it may not be appropriate to call rock art produced prior to that time by this term (i.e. Great Basin Archaic; [Hedges 1982]) and as mentioned above (Chapter 8) a more appropriate term has recently been coined, the Basin and Range Tradition.

For some reason, it has not been generally thought odd that the First Americans did not bring an artistic tradition with them when they entered the New World. Why should we not expect such a tradition when it is such a conspicuous part of the early archaeological record elsewhere in the world? Gamble (1991) for example has argued that art was not a part of the process of socializing newly occupied landscapes. He compares the lack of art in newly occupied regions of Europe with the lack of art in the earliest occupation periods of the New World, but bases this comparison on Martin's now highly contested model of Pleistocene overkill. Martin (1973) hypothesized that the dramatic extinctions of megafauna which occurred in the New World at the end of the Ice Age were due to immigrant hunters, who thrived in the relatively temperate North American climate and spread explosively across the continent. In his model early Native Americans, following large herds, briefly attained a density sufficiently large to overkill their prey, which led to a population crash (Martin 1973:970). Martin models a wave of advancement across the North and South American continents

suggesting that the "relatively innocent prey was suddenly exposed to a new and thoroughly superior predator, a hunter who preferred killing and persisted in killing animals as long as they were available" (Martin 1973:972). In his scheme, a similar type of overkill did not occur in the Old World because in that area prey animals were more experienced, hence more wary of humans.

Martin was apparently a follower of the then popular Hunting Magic hypothesis, because he suggested that the animal populations were wiped out before there was an opportunity for hunters to portray the extinct species in cave paintings or ivory carvings (*ibid*:972), apparently assuming the art to be an aid to the hunt. More recently, however, researchers have suggested that hunting populations rarely kill animals to the point of extinction, but rather practice various types of selective culling of herds (Nelson 1982:221), and mobility is generally seen as a means of reducing over exploitation of resources (Hunn 1982:17). It has become quite clear that the extinctions of North American Pleistocene megafauna is a much more complex phenomenon than Martin envisioned (Grayson 1993), and it now appears that human populations may have entered the New World long before many of the extinctions occurred (Meltzer *et al.* 1997). Although it could be argued that this simply means that it took longer for Palaeolithic hunters to kill off the large herds of megafauna, Martin's model was dependant on rapid kill-off and unwary animals.

Alternatively Smith (1992:36) sees "no a priori reason why visual communication systems, including rock art, would not have been integral to Pleistocene social structures" and so a part of the colonization process of Australia. The basic homogeneity of Australia's earliest rock art (taken to reflect culturally homogenous Pleistocene populations) is contrasted with

the stylistic and cultural diversity of Holocene populations (Rosenfeld 1991:136). Visual reinforcement of open social networks may have facilitated the colonization process, with heterogeneity of style becoming more common as population density and territoriality increased (Smith 1992:39), a point on which most information exchange theorists generally agree, especially in areas of relatively poor resources (Wobst 1977; Gamble 1982, 1991; Conkey 1984, 1985; Weissner 1984, 1989), like the Great Basin. Alternatively, heterogeneity of style marks closed social systems, more commonly found among groups with higher population densities and/or richer resource environments. I would also argue, similarly to Smith (1992), that the 'signatures of colonization' would not necessarily be just distinctive projectile points as Gamble suggests (1991), but also intentional signalling to unknown others in a new landscape, possibly through rock art. Gamble further suggests that the areas that had been previously occupied in Palaeolithic Europe would have experienced increased symbolic production when re-occupied, which seems very likely. Whenever objects or other markers of an earlier presence were encountered (especially those attached to the landscape itself such as rock art) they would have had to be dealt with, influencing later inhabitants through their presence, and rock art (like other *in situ* artifacts) would have remained in place to be reinterpreted through time (Bradley 1998:17).

When direct dating for rock engravings is perfected, it may be found that rock art is among the first indications of the arrival of human beings to the New World. Through rock art they may have socialized the land, signalled their presence to unknown inhabitants, and developed a sense history and identity around which they could situate their lives through engagement with places in their new landscape (Bender 1993b:1).

Chapter 10: Rock Art and the Power of the Past

The powerful connection to the land felt by indigenous peoples develops through recounting significant events in the past that tie specific places cosmologically to oneself and one's kin through mythology and oral histories, with the material locations of these events acting as pneumonic devices for social history. Rock art sites may have played an important role in Nevada by helping to create social landscapes and relationships between agents actively constructing their landscape and colonizing the land, as they did in Australia (Smith 1992). These relationships would become legitimated by establishing a connection to the place where important events occurred, traditions created and maintained through time by re-enactment or the construction of myth and oral histories. Furthermore, since the First Americans doubtless carried oral traditions and origin stories with them, new places in the landscape may have fitted the descriptions of significant places from their own cosmology, allowing the identification of mythological locales to be made.

Deliberate marking of the landscape by fully mobile people suggests that in spite of their own social and economic mobility, they chose to leave a permanent indication of their presence (Conkey 1987). To argue that they did not intend at least engravings to be permanent would be to imply that they did not understand the qualities of stone, which seems implausible (Taçon 1994:126). Rock art may be the only deliberate attempt to make such permanent marks on the landscape by the earliest people of the Great Basin. They did not construct monuments of other types, they did not farm (although there is some indication that in some areas natural plant resources were 'tended' or burned off to encourage growth), and they did not build permanent living or storage structures (with the typical exception of the later Fremont and Anasazi). But the earliest arrivals in Nevada may have made rock art and through it introduced

a sense of time and history into the landscape (Taçon 1994:126). The social relationships negotiated through rock art would have been naturalized and legitimated through the permanence of the medium and the landscape itself, the legitimacy of the relationships validated by time (Minc 1986:87).

Since only certain locales were selected from the wide choice available indicates the selection of place was purposeful and meaningful. These places would have accumulated meaning through time, and through publicly witnessed rituals where symbols are shared and commemorated, communities recreate themselves (Durkheim 1926; Radcliffe-Brown 1952; Turner 1967, 1969; Cohen 1985; Connerton 1989). Social relationships are mediated through symbols shared or differentiated (Weissner 1989). This social identity and the relationships between the people who share symbols are legitimated through reference to the past (Bloch 1977, 1986). Places where the ancestors had left their mark would become points of articulation between time and space through re-use (Basso 1996:62).

Rock art may have played a role in providing the performative context within which ritual negotiation and legitimation of relationships could occur, locales selected because of an adequate resource base to accommodate the large number of participants (McDonald 1993:85). Through time, these places may have taken on a special importance, the rock art drawing people to it as the locality where important social functions should occur. In this way the rock art and the manipulation of rock art motifs may have been instrumental in the shaping of social relationships through reference to the past and the place. Marks originally created to signal the presence of newcomers or to ask permission for access to resources would become through time the marks of the ancestors and a part of the cultural landscape created by them for subsequent use by their descendants (Taçon 1994:118).

But, based only on visual differences in patination or revarnishing, an admittedly problematic procedure, there may have been an increase of rock-art production at a later point in time. This dramatic increase in production may be linked to other archaeologically observed changes in the very early Archaic, most notably the occurrence of groundstone (believed to evince the introduction of seed exploitation), typically associated with the Paleo-Archaic transition. Changing environmental conditions and possibly growing populations within an increasingly contested landscape, may have created conflict over access to environmental or symbolic resources. This conflict may have been mediated, or social relations negotiated, through symbolic exchange or the manipulation of symbolic capital. Marking specific places in the landscape may have been a form of symbolic communication, in some ways similar to naming and thereby defining a place (Ingold 1987). I would therefore suggest that the First Americans created their own identities and legitimated their relationships with others through the creation of special places in the landscape, sometimes marked by rock art.

10.2 *Rock Art, Ethnicity and Tradition*

Despite its interpretative and terminological difficulties it seems that rock art may be a potentially sensitive indicator of ethnic affiliation (Lee and Hyder 1990) since social identities are typically reproduced through ritual. If rock art is tied to ritual institutions then we should expect its characteristics to vary accordingly, and this may be one area where rock art can contribute significantly to our understanding of past peoples (Woody and Quinlan 1998). In Nevada, within a vast sea of abstract sameness we find pockets of stylistic distinction. What

generally makes these localities distinctive is the relatively greater or lesser frequency of representational imagery, and the distinctiveness of the character of those *human* and *animal* images in different areas.

Quite clearly, Nevada's rock art is concentrated in two regions: the Southeast and the West. While keeping the undeniable biases that exist in mind, one would correctly expect higher populations and site densities in these areas in the past. Both areas have relatively greater amounts of water, making them more hospitable in general and so a simple correlation between numbers of people and numbers of rock art sites is likely. But these are also important natural barriers (i.e. the foothills of the Sierra Nevada mountains in the west and the Colorado River drainage in the southeast), and might also have been important boundaries in the social landscapes of the past. If boundary areas are fraught with peril or are areas of extensive social interaction (Leach 1976:35), one might expect a higher than normal amount of symbolic activity through which to graphically structure and regulate inter-personal behaviour. Weissner (1982) suggests that symbols are shared with groups who wished to establish or strengthen social links between them, but they can also be used to differentiate between 'us and them.' We know that at least historically groups form symbolic relationships of various kinds through marriage or trade. Perhaps for mobile people visible marks left on the landscape served as boundary markers, to establish land tenure or acknowledge a common border between groups who regularly exchange material and cultural resources. Through the manipulation of visual imagery social identities and various social relationships may have been created or maintained.

The region surrounding the Colorado River drainage stands in sharp distinction from the other areas and its rock art assemblages are dominated by mountain *sheep* and *anthropomorphs*. Within this area it may be possible to define separate stylistic areas based on

differing characteristics of these and other motifs (Rusco 1973; Stoney 1992). It is interesting to note also that this area generally had higher population densities and some non-mobile modes of production (e.g. farming). The increase in frequency of representational imagery may be related to more rigidly defined territories, or social conditions resulting in increased conflict and the negotiation of status hierarchies, something which appears to be more common in the southern and eastern parts of Nevada. In areas with more clearly defined social hierarchies and less mobile modes of production one might expect a different type of graphic imagery. Imagery might still be a means of structuring the social landscape, but using a less ambiguous discourse, where more direct messages are intended. Rather than inclusion, the goal may be one of exclusion, where such things as clan membership or land ownership are advertised. This would be likely to create a more heterogeneous visual corpora. Such differences in social systems might be recognizable in the differences in the rock art of the eastern and southeastern regions of Nevada.

Lincoln county and especially White Pine county have less motif types represented than the other counties which also have high site numbers, reflecting a reduced diversity in those areas. Parts of those counties actually lie outside of the hydrographic Great Basin, and these areas are where Anasazi (roughly A.D. 500 - 1100) and Fremont occupations were focussed (roughly A. D. 450 - 1300). These were something of an anomaly for Nevada, in that for that period, foragers were replaced by relatively sedentary horticulturalists who made pottery and built substantial dwellings and storage structures. After A. D. 1300 the final Fremont peoples disappeared, and the Archaic culture they had replaced returned and remained in place until the time of contact in the mid-nineteenth century. Both, but especially the Fremont, left their mark on the rock art of the region, especially in the stylistically distinct *anthropomorphs*, often

depicted with horns or other elaborate headgear (Schaafsma 1980:166), and are very similar in style to unfired ceramic figurines which are a distinctive part of Fremont material culture (Janetski 1994:164). Motifs from the *human* and *animal* categories dominate the region. In White Pine county 96%, and in Lincoln county 95%, of all rock art sites with motif information recorded have motifs from the *human* category described as present (in both cases *anthropomorphs* dominate, but both also have relatively high numbers of *katchina* motifs).

Farming populations often seek to legitimate their claims to the land through reference to the ancestors and making their presence visible is an important activity. The rock art in the eastern and southeastern areas of Nevada may be another example of this more general process, where it is found in high percentages on cliff faces. Cliff faces would seem most likely to be used in cases where rock art is meant to be seen, as advertisement or notification. Whereas, rock art which occurs mostly on smaller boulders in the west, invites a closer look, and in some cases one can pass within a few metres of the rock art without being aware of its presence. To interact with rock art in this type of context, one needs to know where it is and seek it out rather than simply note it while passing as could be done on cliff faces.

The earliest hunter-gatherer populations of the Great Basin may have made rock art to socialize the new environment that they encountered and to legitimate their exploitation of resources (see above). In the southeastern and eastern regions of Nevada and into Utah, however, major changes in ritual forms accompanied the shift from hunter-gatherer economies to ones based largely on horticulture in addition to the harvesting of wild resources. The dramatic changes in style and content of rock art in these areas is accompanied by a continuation of abstract motifs stylistically identical to preceding traditions. This illustrates that

the horticultural groups of these areas were *in situ* developments. However, the references of the rock art may have changed to ones focussed on ancestors, illustrated by the predominance of *anthropomorphs*. But as with the non-farming neighbours of the Fremont, rock art production seems to have ended with the arrival of Numic populations (Woody and Quinlan 1998).

It is important here to remember that identities created symbolically can serve to situate individuals within social groups rather than create a sense of separateness. For many hunter-gatherer societies individual identity is constructed from within the collective group (Ingold 1987), being based on relationships, and the same has been said in relation to certain other types of stratified societies. For example, in parts of Mesoamerica it has been suggested that there was no autonomous *will* at the core of the self, and that every human being was instead a microcosm reflecting the forces that made up the cosmos at large (Carmack, Gasco and Gossen 1996:299). Identities then are constructed very differently than among modern western cultures where the individual is paramount. As opposed to the individual, among some hunter gatherers the corporate identity is most important, and it is from within the group that individuals situate and define themselves.[54] Rock art may have been much more of a group activity which reinforced corporate identity or legitimated group ideology through the public production of culturally meaningful imagery. Most ethnographically known Native Americans' rituals were group in nature, and Durkheim (1926) suggested that *all* ritual is group in nature. Perhaps several people at once or throughout a ritual event collaborated in the production of rock art to augment or objectify important concepts

54 Although the search for active individual agents in the past is important, the search for individual creators of rock art may be misleading and in essence Eurocentric.

In areas of frequent or seasonal food shortages, such as the Great Basin, more open, less stratified and less rigidly defined social systems were required. In those areas relations with others might be negotiated using a deliberately diverse and ambiguous discourse rather than more straightforward signification. In the locales where resources are shared, visual imagery may have been produced to legitimate those relationships by fixing them to the land itself, lending a sense of permanence and correctness. These relationships symbolically constructed may have been with other social groups with whom occasional interaction was necessary, or with the supernatural through the creation of special places in a sacred landscape.

10.2.1 Rock Art and Ritual Places

The opaqueness of much of the rock art of the Great Basin suggests that it functioned as a part of a ritual context, and exegesis would have had to accompany its production and use to clarify its references. The interpretive difficulties of rock art would have served to demonstrate its connection with the supernatural, and by implication those individuals authorized to interpret it (Bourdieu 1991:109 and 111). The emotional force and social power of ritual derives from its connection with the supernatural (Bloch 1974, 1977, 1986). In most other areas of the Great Basin, ritual activities may not be archaeologically visible because, like historic populations, ceremony may have emphasized singing and dancing with little investment in spatial context (Hultkrantz 1987:633-635). But many rock art sites in central Nevada are dominated by a single motif, the *vulviform*, sometimes in isolation and at other times associated with other rock-art (both abstract and representational). Most would agree that these *vulviform* sites meet many of the criteria for archaeologically identifying ritual places,

exhibiting such things as redundancy of imagery, special natural location or conspicuous public display (Davis 1961:238; Renfrew 1985:16,18-20, 23, 24). Although there are also instances of motif redundancy which are not necessarily ritual in nature (e.g. Hopi clan markings), high redundancy has been shown to act as a signifier of sacred space by focussing the attention of participants on the rites to be performed (Renfrew and Bahn 1996:391) The evocation of emotion produced by imagery becomes operational and meaningful within the context of its production and/or reproduction (Turner 1967), and within the specific fixed context in which it is situated (Tilley 1994). Hartley (1992:201) has suggested that higher redundancy of motifs minimizes mistakes in reception, producing a less ambiguous message which they suggest was one of access restriction or ownership, stressing recent challenges to density-dependent models of resource competition.

Little can be said about selection based on rock type except for the observation made earlier (Chapters 7 and 8) regarding the apparent association between *vulviforms* and tuff (a generally soft and light coloured sedimentary stone), especially in the Central region. Nye county, where these sites are clustered, has a relatively low density of rock art sites and it is an area where there is little water. It appears to have been very sparsely populated except during a sort of population 'boom' during the Middle Archaic (between approximately 1500 B. C. and A. D. 500, Elston 1986:142-146). Whether or not it was during this time that the vulviform sites were made cannot be said.

Vulviforms are found elsewhere throughout the state, although in much less density, except for another clustering in the area of Pyramid Lake in the western area. Interestingly, these motifs are sometimes found in isolation from other rock art sites, while at other times

they are integrated into panels containing a variety of other motifs. This implies that the meaning of these specific motifs is, like all symbols, context dependent. Perhaps when found in isolation and to the exclusion of other motifs they identify women's ritual space, but when found in association with other motifs that meaning changes. There is some ethnographic information on girls puberty ritual among Nevada's Native American population, although this appears to have been less important than in other areas (Driver 1941:97). One Native consultant, an elderly woman, has identified at least one vulviform site as a location where girls were instructed in the proper role and behaviours of women. She made this identification in part due to the petroglyphs and partly because of the concentration of groundstone at the site. It is interesting to note that a male consultant from the same tribe explained the petroglyphs as the meaningless actions of children (Arlene Benson [District Archaeologist, Toiyabe National Forest], personal communication, February 2000).

Ritual space may be 'constructed' as in the case of *vulviform* sites, or it may derive from characteristics of the natural landscape. In every region except the Northeast and the Southeast, more than half of the rock art site records that have information regarding elevations suggest that rock art sites are at least one thousand feet above the valley bottom. This might suggest something of a tendency toward 'high altitude' rock art throughout most of Nevada. In addition, some sites are positioned in such a way as to allow for a commanding view. Often these sites do not appear to be appropriately situated for taking game, but rather may have been situated as Bradley (1993, 1994, 1997; Bradley, Boado and Valcarce 1994) suggests to survey the landscape below. Possibly to watch the movements or approach of others or in some cases it must surely have been for the sweeping vista itself.

High places are often associated with high status (Tuan 1977) or important spiritual concepts or mythic events, in the Great Basin like elsewhere. One such high place, *wa'hkaia* (one of only a few unanalyzable Shoshone place names [Miller 1986:103]) can be seen for many miles rising from the floor of Pleistocene Lake Bonneville (where so many of today's land speed records are broken on the perfectly smooth surface). This was an important landmark which guided early Euro-American settlers (Grayson 1993:87) and was also the home of an Indian man who was killed and eaten by early travellers according to a Gosiute story (Sutton 1993:119).

The only known rock art site on that mountain is situated on the horizontal bedrock surfaces above a steep cliff which drops away for several hundred feet. While it is of course dangerous to assume a common phenomenological response to the landscape by people in prehistory, the spectacular view into the valley beyond could hardly have escaped the notice of the people who engraved the images so near to the edge and over so long a period of time (Figure 41). Pilot Peak was a place that was returned to, in spite of a difficult climb, and rock art was produced in the same spot over a very long period of time. But unlike other sites which show signs of extended use, there is little evidence of any other activities in the area around the rock art site or for many miles from it in fact. Perhaps as it did to White

Figure 41: *Pilot Peak; Elko county, Northeastern region.*

settlers, *wahkaia* served as a guidepost to Native peoples to orient travel, or it may also have been a special destination where people went for other reasons which included the spectacular view and the making of rock art.

10.2.2 Rock Art and Daily Life

Such features of the landscape appear to have contributed to significance of the rock art but generalizations are difficult. On a site by site basis one can see how a view may be important, while at others movement is restricted, or decidedly private because only a single person at a time can occupy the space of the site (such as the site described above near Salt Cave, see Figure 32). In many of these sites, what is afforded by the natural landscape is clear, while at others it is less so. Some sites have had multiple episodes of rock art production but others have not. Early expectations, based on modern landscape theory and previous experience in the far northwest of Nevada (Woody 1997), were that extensive rock art site re-use would be common. This however has been shown not to be the case (Chapters 7 and 8). Ideas about 'central places' and the significance of certain, often named, places in the landscapes of hunter-gatherers, would imply more rock-art sites like Massacre Lake or Pilot Peak.[55] While a large number of multi-generational sites, that is, sites with several visually discernible periods of rock-art production, was expected, only thirty-eight site records (3.66%), actually mentions obvious differences in generations of rock art. It is a fairly obvious

55 This may call into question many of the models of historically known hunter-gatherer populations and their relationships with the land, as they may have been simply coping with forced restrictions on movement or even political issues by attaching themselves so strongly to certain places.

characteristic and I would think that when present it would be noticed and would be remarked upon since this is the only real way of estimating relative ages of motifs.

Many sites simply appear to of be only a single generation, but this does not of course mean that these sites were not utilized over extended periods of time. Rock art may simply not have been produced each time the site was visited. Once a place had been adequately 'socialized' there may not have been any further need to add to the rock-art, unlike in some places (e.g. Australia) where re-touch is often required (Layton 1992b:38). The span of time that a site was utilized may also have been shorter than the amount needed for revarnishing of differing levels to become visible, which can be very long in certain environmental contexts (see Whalley 1983). Certainly based on visible differences in varnish alone we cannot expect to have a fine enough resolution to discriminate between rock-art production over an extended period of time (White 1994:50).

There is also the possibility that some sites were visited only once and rock art sites may have been more generally avoided by those who did not produce the rock art. Such avoidance may account for the general lack of knowledge regarding rock art by local ethnographically documented Native American statements (Steward 1937:412), and in general would be in keeping with some Native beliefs regarding potentially dangerous places in the landscape (Steward 1929:229). This avoidance in general disputes expectations that important places should remain important through time, but the attachment of supernatural potency or danger is perhaps the same (Chapter 10.3).

Clearly, the difference in the apparent number of times a site has been utilized suggests that there may have been important differences in the types of behaviours involved in its production. The high numbers of rock art sites in domestic locales (which appear to have had rock art produced only once or over a shorter period of time) suggests yet another social context that should be further explored. Because of the very close association between rock art and food processing tools (i.e. groundstone) or other features (i.e. rock rings), it seems entirely likely that rock art was integrated into daily or even family life. While some rock rings at rock art sites are clearly hunting features (e.g. Figure 39), others are more likely house rings, where, like in the Warner Valley of southern Oregon, rock art appears to be in the living room (Ricks and Cannon 1998:6; Figure 42). But of course it must again be kept in mind that whether or not the rock art and the groundstone are associated with the activities of the same people is not and cannot currently be known. For example, Mr Clarence De Garmo of the Fort Bidwell Northern Paiute tribe explains that his family would sometimes camp at rock art sites because "they were good

Figure 42: *Mr Alvin R. Mc Lane recording petroglyphs inside a house ring in the High Basins; Washoe County, Western Region.*

places because the old timers had been there" (Clarence De Garmo, personal communication, January 2000).

In other areas the very common presence of groundstone at rock art sites has been suggested to indicate the seasonality of site use, since groundstone are commonly thought to relate to the activities of women and rock art is considered to be the exclusive domain of male shamans, whose rituals are a winter event (Whitley 1998b:40). Alternatively, it is suggested that groundstone may have been purposefully placed near rock art so that women (who are of lower status) would be reminded while they worked that the rain which produced the plants they gathered and prepared were brought by the ritual activities of males (who are higher status [Whitley 1998b:58; 1998d:120-121]). These explanations do not explain the presence of other indications of domestic space and I would argue that we should not assume that the two are not the product of the same person or related to daily activities. The tendency is often to assume that rock art was supernatural in character, but that groundstone is not. However, perhaps groundstone in this context is also suffused with power or rock art itself is not necessarily powerful. Rock art may simply be seen as supernatural in nature because there seems to be no obvious utilitarian explanation, while groundstone, found in spatial association is assumed to require only a more mundane explanation. I would argue that the consistent association of rock art with groundstone and other domestic debris might suggest that women, too, could have produced rock art as a part of ritual activity associated with harvesting and processing plants (Monteleone and Woody 1999:59), something often ignored (d' Azevedo 1986b:477). Or possibly, rock art is even related to even the simple, mundane activities of daily life and not only the product of special ritual behaviours.

10.2.3 Rock Art and Historic Process

Whitley (1982:8-9 and Figure 65; 1998d:138) quite correctly points out that some rock art in the Desert West is obviously historic, and pottery is also mentioned in a small number of rock art site records (all occurring within the expected range throughout the southern and eastern margins of Nevada). These rock art sites raise an interesting question because of the apparent antiquity of associated projectile points (see Chapter 6.2) with rock art and the more recent dates for pottery and imagery which depicts historical themes (especially horses, wagons or 'cowboys', Figure 43 and Figure 1). Pottery appears in Nevada at slightly different times in different areas, but the earliest is approximately 1500 B.P. (Madsen 1986:212). More recent projectile points are also discussed in a small number of sites, including Desert Side Notch (up to 1500 B.P., but still in use until around the time of contact) and Cottonwood Triangular (up to 1000 B.P., but also used more recently). Both of these small projectile points are associated with the bow which seems to have arrived in Nevada around 1,700 B.P., but which had only fully replaced the atlatl by around 1,300 B.P. (Grayson 1993:253). There is some reason to believe that these smaller points and the bow may also mark the presence of

Figure 43: *Historic imagery at Stuart Ranch; Clark county; Southeastern region.*

Numic speaking populations in Nevada, the ancestors of the Native Americans who inhabited the state at the time of Euro-American contact, while the earlier projectile points may indicate the presence of an earlier population (Grayson 1993:258; Bettinger and Erkins 1999:231-244).

While it has been suggested that rock art production generally stopped with the arrival of historic inhabitants (Harrington *et al* 1930; Steward 1937; Von Werlhof 1965:116; Nissen 1982;15, 115), scratched rock art has been attributed to populations who spoke a Numic language (Bettinger and Baumhoff 1982). The sites which contain pottery however suggest that in those areas, some rock art sites were at least being used within the last 1500 years. And more importantly historic imagery occurs in a small number of site records, and historic debris (e.g. glass trade beads) also occurs in two of those sites (both in Lincoln county). Quite clearly historic imagery indicates that at least some rock art was being produced at or after contact, in spite of the general denial by Native consultants. Historic imagery is spread fairly widely across the southern half of the state, and it is interesting to note that in spite of general denial of authorship, like historic imagery, the region with the greatest frequency of representational imagery may in fact follow the distribution of the historic Southern Paiute.

This historic imagery is the only rock art in the western Great Basin that was unquestionably produced by the historically known populations, although it is generally an assumption that they were Numic speaking peoples. As such, it is an important record of the impact of White encroachment into native lands, and what attempts may have been made to deal with these unusual and potentially dangerous intruders.[56] Especially interesting is historic imagery that occurs in association with much older rock art. This suggests a continuation or

56 A number of these sites occur in close proximity to mines and both Native and Euro Americans were involved with these operations. It should therefore be mentioned that there is no "proof" that historic imagery was produced only by Native Americans, although that is my assumption.

resurrection of the practice of ritually marking and recreating a link with places in the landscape where there were signs of the more distant past, or possibly attempting to re-establish earlier practices in the face of potential social crisis.

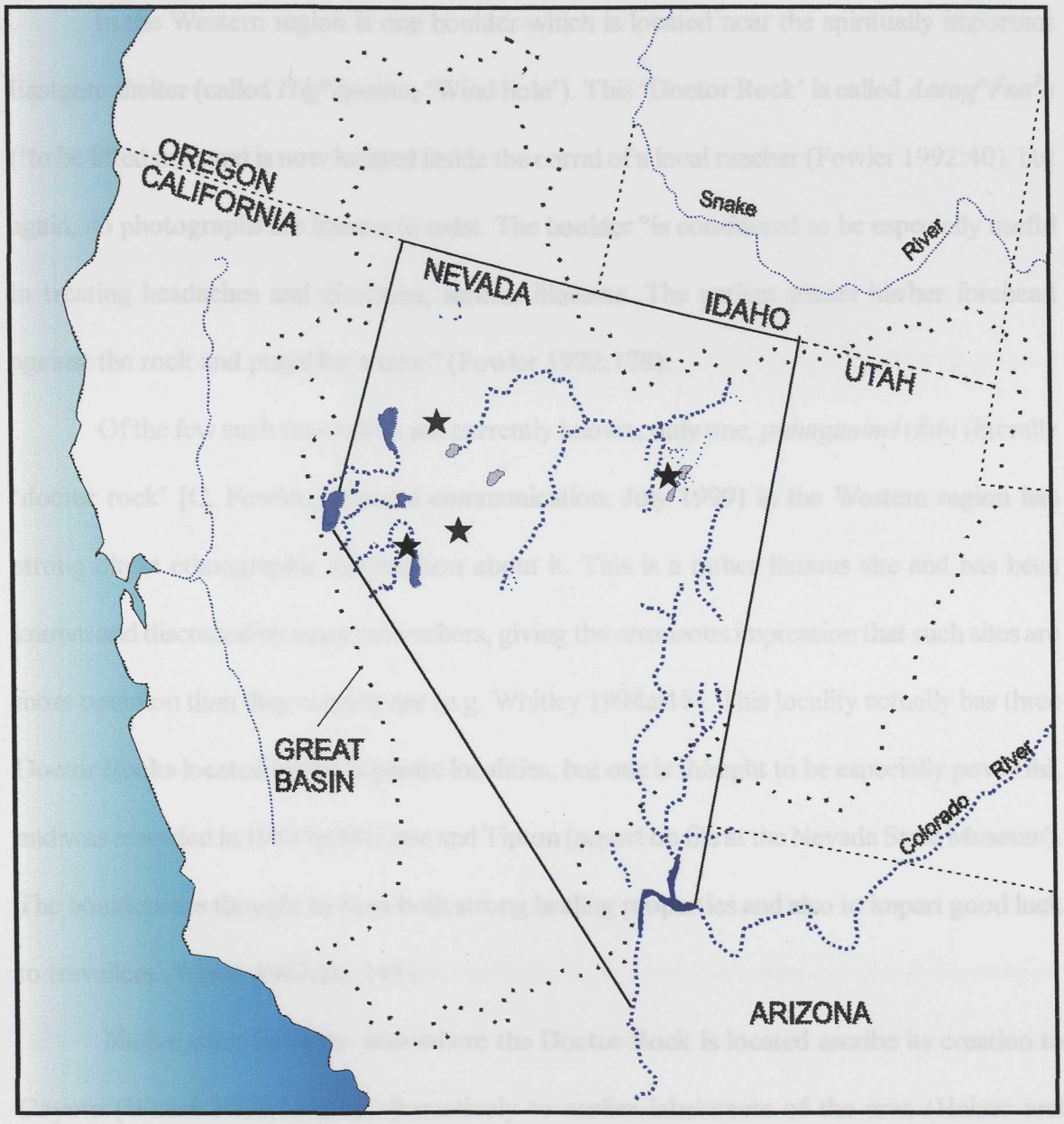
I have suggested elsewhere that a revitalization or millennial movement may have been one possible cause for dramatically increased ritual activity seen in other areas (Monteleone and Woody 1999). Schiffman and Andrews (1982) and more recently Stoffle *et al* (2000) have also suggested that some pictographs were one of the aspects of native culture that was revitalized as a part of the Ghost Dance, the best known example of an historic revitalization movement. A revitalization movement can occur in response to a variety of conditions, such as environmental disaster, epidemic disease, war or invasion, that cause intense and sudden disruption of social patterns. Wiessner (1989) explains how such conditions switch on a strong sense of social group identity as expressed through an intense focus on traditional imagery and the need for cooperation to attain social, political or economic goals. These types of movements are focussed on deliberate and organized attempts to return to a traditional, mythic and perfect past, a 'Golden Age' (Wallace 1970:336). I would suggest that historic imagery may have been a part of a revitalization movement or reverting to ancient methods as an attempt to control a new and threatening situation. Revitalization may also explain why such social anxiety was manifested as rock art production (although probably in association with other traditional ritual activities such as singing or dancing). Older rock art may have been seen as a tangible index of the past and as such a source of power. The resurrection of an ancient ritual mechanism became important as an expression of revitalization while introducing new imagery related to the crisis at hand.

10.3 *Rock Art and the Power of the Past in the Present*

One other situation where rock art may have been considered powerful, but not especially dangerous (as most rock art sites were) are the well known 'Doctor Rocks.' Currently only four Doctor or medicine rocks are known (Map 7),[57] but there is the possibility that there were others in the past. Of the known Medicine Rock sites, one is in the Northeastern region, one in the Northwestern region, and two in the Western region. In the Northeastern region (Elko county) a large boulder (1x2 m) is located on the margin of the beautiful Ruby Valley marsh, an area that has been important to Native peoples for a very long time. This boulder has been known for many years and was described by Patterson (1972:22) as a locality where "prayers and medical healing took place" and more recently it has been discussed by Price (1998). Coins have been noted in the cupules and wedged into cracks in the rock (site form on file BLM, Elko). The Shoshone people who live in the area said that their people had gone to the rock for many years to pray for the return of their health and that sometimes medicines were prepared in the cupules. In return for help from the powerful stone people would leave something of value, usually coins (Patterson 1972:22).

The site in the Northwestern region (Pershing county) also has healing properties but is unlike other known medicine rocks. This site is a cliff face with pictographs rather than a detached boulder with petroglyphs. Nitrate salts form on the surface of the cliff face and these

57 Another "Doctor Rock" or "Power Rock" in southern Nevada in the Fortymile Canyon, has been identified by Native Consultants, but this particular rock does not have rock art on it (Drollinger, Beck and Jones 2000:37).



Map 7: *Location of known Medicine Rocks in Nevada.*

were licked off by local Native Americans for its medicinal properties. These pictographs described by Heizer and Baumhoff (1962) have never been relocated since their survey.

In the Western region is one boulder which is located near the spiritually important Eastgate shelter (called *Hɨg^{w}apatoo*, 'Wind hole'). This 'Doctor Rock' is called *Aatog^{w}ɨ$^{?}$na$^{?}$a* ('to be lifted up') and is now located inside the corral of a local rancher (Fowler 1992:40), but again, no photographs are known to exist. The boulder "is considered to be especially useful in treating headaches and dizziness, serious illnesses. The patient places his/her forehead against the rock and prays for a cure" (Fowler 1992:178).

Of the few such sites which are currently known, only one, *puhagammɨtɨbbi* (literally 'doctor rock' [C. Fowler, personal communication, July 1999) in the Western region has strong direct ethnographic information about it. This is a rather famous site and has been known and discussed by many researchers, giving the erroneous impression that such sites are more common than they actually are (e.g. Whitley 1998a:18). This locality actually has three Doctor Rocks located in two separate localities, but one is thought to be especially powerful, and was recorded in 1985 by McLane and Tipton (report on file at the Nevada State Museum). The boulders are thought to have both strong healing properties and also to impart good luck to travellers (Wheat 1967:20, 115).

Native peoples in the area where the Doctor Rock is located ascribe its creation to Coyote (Wheat 1967:115) or alternatively to earlier inhabitants of the area (Heizer and Baumhoff 1962:48). Either explanation for these and other petroglyphs, called 'Coyote's writings' (*Iza$^{?}$a tɨbonnu* [C. Fowler 1992:40]) is that it had been done long ago, during a mythic time when Coyote and the other animals set the rules of the world into place, 'The Time When Animals Could Talk' (*ibid*:181). Rock art was already a part of the landscape when the ancestors of modern historic groups arrived. This reading also respects the oral histories of local Native people which explains that the Paiute and the Shoshone came to where

they now live from somewhere else. When they arrived, they encountered other people who were already here and they drove them off (Fowler 1992:227-252; Sutton [1993] also reviews some of these oral histories). Although it is also important to note that many Native Americans also believe that they were created in the place where they live now.

These are the only rock art sites considered by the Native Peoples to have healing powers, but unlike other places where power could be sought, among Northern Paiute peoples the Doctor Rock was not used by those seeking doctoring powers for themselves (Fowler 1992:178). This is an important distinction and indicates that the places where power could be intentionally sought were not necessarily the same places which were known to have healing powers in their own right.

One logical means of answering the question of why the Doctor Rocks were not thought to be dangerous like most other rock art, might be to examine the rock art itself. Perhaps the imagery at those sites which were incorporated into local practices held some meaning for historic peoples, while the imagery at other rock art sites did not. If the imagery was incomprehensible it may have been considered dangerous, unknown things are often feared. But on the other hand, if they could identify somehow with the imagery, it might have been considered a benevolent physical manifestation of a mythical past (Barret 1999:26).

A closer examination of the rock art at these sites however does not reveal any noticeable differences in their imagery and that of other rock art sites. At the pictograph site in Pershing county, based on the drawing in Heizer and Baumhoff (1962:Figure 112a) the motifs appear to be primarily circles connected by lines and so are not especially unusual. This site is exceptional however, in being pictographs rather than petroglyphs and it is possible that

the healing power of the salts were known and used prior to the addition of the pictographs which may have been added later to mark the healing power of the place. What the petroglyphs in Churchill county, near Eastgate rock shelter, look like is unknown.

The boulder in Elko is covered by cupules, which are known widely throughout the state and the world (Parkman 1995:1), so these do not appear to ordinarily be particularly powerful. But the most famous of these few sites is the Doctor Rock near Shurz, and again the motifs at this site do not appear to be different in any way from other sites in the area (Figure 44). The boulders are associated with a relatively large number of other rock art panels which are basically circular in form and there may be a few anthropomorphic motifs as well. There is nothing that seems to mark these three boulders as being different in any way from the other motifs at the site or from other rock art more generally found throughout Nevada, at least not to modern eyes.

Figure 44: *Medicine Rock with offerings, Schurz site; Lyon county, Western region.*

Another explanation might be that either historic groups had themselves created the rock art or believed that it had been done by their own ancestors. This might have made these

sites not dangerous like others whose creators were unknown. But as mentioned above, at least in the case of the Doctor Rock near Schurz where authorship of the rock art is well known, this is not the case. This is a very typical explanation given for rock art throughout Nevada, and so the benevolence of the Doctor Rock is not simply because authorship was known and this knowledge diffused the hazardous power of the rock art.

Why then would the rock art at some sites be considered dangerous and at other places to be beneficial when all rock art was thought to have been created in the same way and looks (at least to modern eyes) very much alike? The answer may lie in the simple fact of the location of the benevolent sites near settlements, habitual pathways or in areas of frequently utilized resources. Rock art sites, like other types of non-portable features or monuments, remain *in situ* to be interpreted and re-interpreted through time (Bradley 1998:17). And if the rock art on the Medicine Rock had been made by Coyote, who was by some accounts a great shaman (Sapir 1910:36), then these sites may have come to be associated with healing power. If encountered on a regular basis without harmful effect, it might over time come to be considered a source of beneficial power from the past and so good luck for anyone who passed by and offered a token, slowly coming to be known and used by travellers.

Places in the landscape often have special meanings attached to them by many people, and the same is true of Native Americans. This may be especially true for places in what was unquestionably *their* landscape prior to the arrival of Europeans. Some of these places, such as rock art sites, have become an important part of the cultural identity for modern Native peoples. The Doctor Rock near the Shurz Indian Colony continues to be visited by Native Americans and others, and gifts continue to be given to these celebrated rocks.

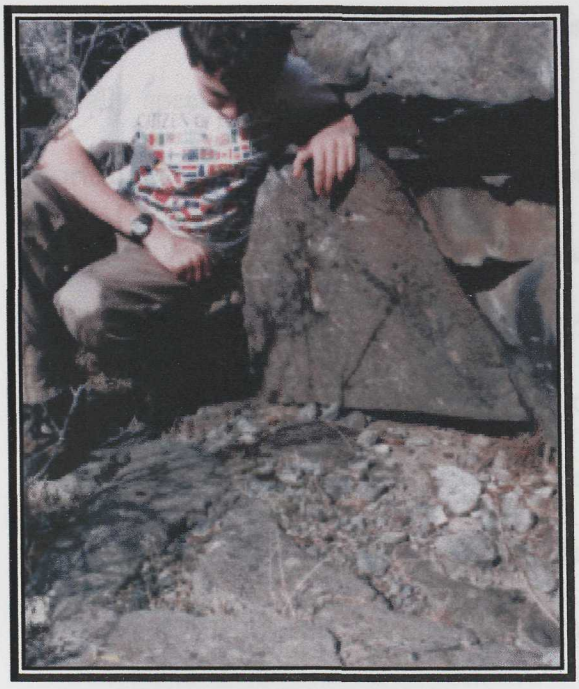


Figure 45: *Coins at the Court of Antiquity; Washoe County, Western Region.*

One final note regarding the Doctor Rocks should be made. In the years since I have been familiar with the Doctor Rocks near Shurz, there have always been a few coins or other things left on them. But in the last year, a noticeable increase in these offerings has occurred. And in addition, other rock art sites are also now being given similar tokens. One example of this is at a site just east of Reno, known as the Court of Antiquity. On a recent visit to this site, coins were noted on a ledge which juts out over the Truckee River (Figure 45). Whether these were placed there by Native Americans, travellers or others is not known. Either way, these offerings may again be a recognition of the power of the past and if done by Native Americans possibly a conscious effort to resurrect an ancient tradition as a means of re-coupling themselves to their own history. I have no doubt that this is in relation to the current spiritual and political dilemma which Native People now face in regards to the treatment of the burial recovered from nearby Spirit Cave, as well as other assaults to Native culture.

Rock art is a particularly striking symbol of a time before the invasion that would so dramatically change the lives of Native peoples, and so is *of course* significant to modern Native Americans in their efforts to re-construct a cultural heritage devastated by Euro-American colonization of their land. In part because of the recent history of treatment of

Native peoples, the past *itself* has become sacred to Native Americans and rock art is an especially spectacular manifestation of that revered past. The attachment of meaning by historic or even modern Native American groups to special places (including rock art sites) in what was unquestionably *their* landscape, is an important part of the ongoing *living* process of building both self and cultural identity. Perhaps as in the past, rock art is again seen as the marks of the ancestors and as such a source of power with which modern Native Americans can negotiate their own sense of identity. Because of the association with the legitimizing power of mythic time, the Doctor Rocks have gained special meaning as a part of Numic tradition and having been legitimately appropriated, are again playing an important role in modern Native American cultural heritage.

Chapter 11: Conclusions

This study provides the first consolidation and synthesis of existing data for Nevada rock art since Heizer and Baumhoff's (1962) seminal study. As such it makes a critical contribution to rock art research in Nevada, but also indicates one way that rock art research more generally can become better integrated into the larger archaeological programme. It establishes a foundation upon which future studies in Nevada can be based and against which higher level analysis can be tested, and provides a model for other regions. It is however, only a first step, and already further enhancements of the database which was built as a part of this study are being made and requested by the various governmental managers of the public lands in Nevada. This database will become an integrated part of the GIS based management system currently being implemented by all federal and state agencies which manage these public lands.[58] In this way a fuller understanding of Nevada's rock art will become possible, where patterns of artifact co-occurrence and recognition of more subtle distributions of motifs or types of rock art will provide a more complete understanding of the function and meaning of the imagery.

As this study demonstrates, accurate and thorough recording of rock art locales must become a priority. Rock art is a form of symbolism and like all symbolic behaviour derives 'meaning' from the context in which it is deployed. This context includes the behaviours, social institutions associated with its production and use, as well as the physical environment in which it was engraved or painted. Thus, an emphasis on thorough recording of rock art locales rather

58 In Nevada, more than 80% of the state is owned by the federal government, either the Bureau of Land Management or the National Forest Service. Not many other places in the United States or other countries have as high a percentage of publically owned lands.

than being an exercise in naive empiricism is in fact essential if context in its fullest sense is to be reconstructed. Fortunately, rock art recording projects are a practicable form of research which can be undertaken despite the restrictions imposed by state and federal budgets for archaeological exploration. Recording can also be done with the aid of willing volunteers and Nevada is fortunate in having a large number of avocational archaeologists interested in rock art. However, the focus on recording imagery needs to complemented with a focus on recording the particulars of the physical environment in which the art was placed.

The study of rock art has been hampered by universalist theorisations, such as hunting magic and shamanism, which have tended to impose interpretations that the imagery itself continues to resist. The contextualized landscape approach advocated here is a useful framework within which to analyse rock art, and further supports Firth's (1951:71) observation that "Primitive art is highly socialized." Although not all people at all times respond in the same way to the landscape or develop significant attachments to places within it, all people do need a sense of community and the simple fact of human sociality might explain why rock art played and continues to play vital role in the construction of Native American identity. As Ricks (1996:42) suggests, "[r]ather than being associated solely with vision quests or hunting expeditions (occupations which involve single individuals or small groups), rock art appears to be associated with activities of larger groups, and serve a function more social than individual." As I have shown, when using a thorough understanding of human symbolic behaviour, rock art can be understood as a means of social negotiation, or of "doing things" in the social world.

Chapter 11: Conclusions

Traditionally regional variation in Nevada's rock art has been underplayed, partly because research has focussed on imagery at the expense of site context. However, as Chapter 8 documents, while some broad variations in style and content can be noted, it is in site context and the 'supports' or 'canvas' selected to bear rock art that certain interesting regional patterns do emerge. In the Northwest, non-representational Basin and Range Tradition rock art dominates. Sites are found commonly on basalt cliffs which suggests an open, public purpose for its production and use. There is strong evidence of very long periods of production in the region, and the rock art may have been a means of signalling to others. Re-use of the site through time and the ambiguity of the imagery may have served to establish shared access to resources. While to the south in the Western region, basalt again dominates, but rock art occurs most commonly on boulders, and again, the Basin and Range Tradition is dominant. Many of the sites are seemingly associated with domestic or camp contexts which suggests a rather different purpose for the rock art, but again there is little stylistic variation. In the Southwest however, there is an increase in the number of sites with representational imagery. This is in striking contrast to the northwest and west where these make up a much smaller percentage of sites. Human figures appear at more than half of the sites in the southwest and bighorn sheep appear in relatively higher numbers as well.

In the Northeastern region, most rock art is found in more secluded situations, in shelters or caves. This no doubt contributes to the large percentage of pictographs found there. Unlike in the West, human forms are common and based on the location may have served as a mark of ownership of the cave or shelter, or some other more esoteric purpose. The Eastern region also has a large number of rock art sites in shelters and again there is an unusually high number of pictographs. But here, pictographs outnumber petroglyphs by more than 2 to 1.

Also similar to the Northeast, in the Eastern region is dominance of *human* motifs most common, and here fully half of the sites have exclusively representational imagery. This dramatic shift towards representational imagery suggests that there is a much stronger attempt at differentiation, possibly between groups of people, with a greater attempt at specific imagery. This emphasis on representation imagery indicates a strong east::west split in motif type. This split continues in the Southeastern region where more sites have exclusively representational rock art than any other region. Also in this area is the highest numbers of rock art sites which contain *historic* imagery of all the regions in the state.

Unlike other parts of the state, the Central region is dominated by a single motif type, the *vulviform*, and most of these are on region are on tuff cliff faces. Again, this location suggests a public purpose. These motifs often occur to the exclusion of other motifs suggesting that they have been produced in order to establish sacred ritual space. The tuff is a very soft rock type which is easily abraded or carved, perhaps it was chosen for this reason so that someone less strong physically could create the motifs, such as young girls as a part of a puberty ritual. Such ritual was known historically, but rock art was not a part of their ritual. However, in southern California, rock paintings were known to accompany puberty ritual.

Because Nevada's rock art has been shown to vary regionally, it can be argued that rock art can be used to differentiate between social groups of the past. It can be seen as a type of very specialized communication which indicates differences in the intentions of those groups. Intentionally ambiguous rock art symbols whose meaning could be easily shared or whose meaning could easily change depending on the situation would in effect symbolically minimizing the difference between social groups, reducing the risk of conflict. Furthermore,

when rock art sites are located in important resource areas, or important places, which were repeatedly utilized by a variety of potentially non-related groups, that imagery tends to be more ambiguous, such as in the west and northwestern part of the state. The re-working of earlier rock art imagery would symbolically establish a relationship between these groups through re-use of past imagery. Alternatively, when more direct or less ambiguous imagery was used then the message was more clear and consistent. The diversity of imagery in the eastern part of the state is markedly reduced, thereby reducing the possibility of misunderstanding. This more distinctive rock art may have played a role in distinguishing oneself or one's own social group from others.

Because rock art imagery becomes a more or less permanent part of the landscape, its creators were in effect creating a socialized landscape for future use. These socially and symbolically constructed *places* in the landscape then helps to develop a sense of individual and social identity either in contrast to or in association with others. Those important places in the landscape maintain their power over time, shaping the movement and perceptions of social agents' experience of them. Gibson (1986) suggests that the physical context of the site itself shapes access to it, and the physical differences in the sites themselves (whether cliff face or cave) suggest differences in who could participate in the activities which took place there. Alternatively, Ingold (1987) has suggested that hunter gatherer peoples 'signal' their presence to others and the permanence of rock art may have meant it to be an attempt to contact others, either to ask permission for use of resources or as a means of claiming the location for themselves. By re-contextualising rock art, we may be able to get closer to understanding the motives of those who created those past landscapes.

In an attempt to do that, various theoretical approaches have been advocated in the past, with hunting magic and shamanism being the most dominant. Both of these models have been important in the Great Basin, as elsewhere, and both have contributed to interesting and important work. But as shown above, both lack the ability to inform specific rock art motifs, sites or distributions. The hunting magic hypothesis does attempt to address the important issue of why rock art was created in specific locations, an issue not generally addressed by the shamanistic model. The hunting magic hypothesis suggests that rock art occurs in hunting locales and one might expect that motifs should depict prey animals. The model however fails in its distributional analysis simply because the association of materials which strongly suggest domestic activities at rock art sites are overlooked. Based on an understanding of symbolism as discussed in Chapter 2, however, it is clear that there is no reason to expect that rock art produced as a part of hunting ritual should necessarily be restricted to only hunting locales. In addition, as I have shown in Chapter 7, the occurrence of prey animals in the rock art of Nevada is relatively rare. But again, the subject matter of Nevada's rock art would also not allow one to support or refute the model because the images themselves may or may not 'mean' what they depict. There simply is no reason to expect only animals related to hunting to be depicted in rock art, even if it were related to hunting ritual. In the end the model simply cannot be supported or denied based on the rock art itself or on the locations where it is found.

Similarly, the shamanistic model cannot be supported or rejected by either the rock art or its location. This model seeks to explain the selection of specific imagery, and not necessarily the selection of locations (however see Whitley 1998a). But it too fails to explain Nevada's rock art because as Dronfield's (1993, 1996) research has shown there is no imagery

that is diagnostic of shamanistic art, and the 'entoptic' motifs are themselves so simple and basic in form that they would surely appear in any art tradition whether shamanistic or not (see Chapter 4). In addition this model ignores site contexts which commonly suggest domestic activities rather than lone "vision questing."

Both approaches are in fact quite similar in that they both provide only the most general universal interpretations and both fall short of identifying relationships between rock art and the landscape in which it is located, or rock art and the social systems of which it was a part. Most importantly, neither examine (or consider relevant) specific site contexts nor are either able to address specific archaeological questions. This is something that I would suggest examining rock art with regard to the power and meaning of *places* within a cultural landscape can do. I would not suggest however, that 'meanings' of images are exclusively related to the *places* where they are found. In fact original 'meanings' may not be recoverable simply because of symbolic mulitvocality and the complexities of status and knowledge of individual producers or consumers of rock art. But as suggested by Layton (2000:170) "the deployment of art in different ways may nonetheless provide clues to its role in culture that do not depend on reconstructions of meaning" and "we can be alert to variation in style, distribution and preferred subjects which arise from the use of art in practical contexts which may have once enabled an authorized reading" (*ibid*:179).

11.1 *Directions for Future Research*

I have noted throughout this thesis that recording rock art must become a priority in Nevada and elsewhere. For this study a database containing information on more than one thousand rock art sites has been built, but of that number nearly half have no information beyond simply noting its existence. The important work of avocational archaeologists must be encouraged and supported and professional archaeologists can no longer afford to simply overlook it. This study is an important first step toward the consolidation of existing data, but there is an enormous amount of detail that could not be included, because it has not been recorded in the past. No doubt it will take a long time for all 1037 rock art sites to be re-visited and intensively recorded, in addition to the new sites that are found on a regular basis (by Mr McLane and others). In order to make this enormous task more useful the rock art sites that are currently known should be prioritized and recorded according to several criteria. First, those sites which are in the greatest risk of destruction by urban sprawl and concomitant vandalism should be recorded first. The most complete methods of recording would include a site map, photographic record, every panel drawn, survey for additional artifacts or features, plant listing, and descriptions of potential impacts. At the present time, there is no standardized recording format and in some cases individual sites may require more intensive recording than others. There are several site records (White and Orndoff 1999; DuBarton and Drollinger 1996; Jones and Drollinger 1997) in the state which are good models, among others done outside of Nevada. One thing that should be included is an indication of variations in generations or periods of production. Once a more complete record of this type of data is built it will aid in establishing a reliable chronology for the state.

Chapter 11: Conclusions

I am currently involved with a large scale recording project at the Lagomarsino site (see Figure 3), in cooperation with the Washoe Tribe Cultural Committee, with funding from the Nevada State Museum and the United States Department of the Interior Western Regional Conservation Department. This site, like many others, has never been recorded in detail. It is hoped that this will be the first in a series of recording projects and I have helped to organize a group of interested individuals (Nevada Rock Art Documentation Project) to that end.

From this fuller record it may be possible to examine variation in motif types by elevation or other environmental variables. Larger sites may allow structural analysis or a test of Bradley's (1991:80) suggestion that motif assemblages would be structurally simple in home territories, but more complex at places where large gatherings would occur. More attention to contexts may allow distinctions between public and private functions of rock art. Differences in motif size or distances between motifs as well as analysis of superpositioning might allow more insight into variation between regions and introduce a greater understanding of cultural identity or a sense of history. Greater detail may help to identify the regional or historical distinctiveness which lies below the surface homogeneity in Basin and Range Tradition rock art, as well as allow more accurate identification of rock art that is associated with known groups (e.g. Fremont).

Secondly, direct dating methods must be refined and tested in a wide variety of environmental contexts. Two such projects are currently underway in different regions of the state. The first is at Grimes Point, which may be among the oldest rock art in the state of Nevada. The rate of re-varnishing however is unknown and may have been accelerated due to the close proximity of water and an extensive marsh over a very long period of time. Varnish

forms on the surface of stone due to a variety of complex processes but a simple explanation is that it is a naturally occurring layer of accumulated minerals (e.g. clay, oxides of manganese and iron) in contact with the atmosphere. So the petroglyphs at Grimes Point may look old because of the extensive revarnishing, but that is not a reliable way of determining age. Furthermore, the colour of the varnish itself is not useful either because that depends on the type of rock and the minerals that have accumulated (Whitley *et al* 1984:24).

I have recently organized a project in cooperation with the Nevada State Museum, the Fallon Paiute-Shoshone Tribe and with funding from the Calhoun Foundation of Reno, Nevada to allow Dr Alan Watchman of James Cook University (Australia) to sample two cupule boulders at Grimes Point and extract any organic materials trapped below the varnish which will be dated using advanced AMS radio-carbon. This method is desirable because only a small amount of materials are necessary and radio-carbon dating is a relatively uncontroversial method. It was decided by the Fallon Paiute-Shoshone Tribe that we should only sample the two boulders which were damaged during earlier dating attempts (Bard *et al* 1979). This project and the resulting dates, will be a significant contribution to rock art research, but also for the archaeology of the region more generally.

Another dating project which is currently in the planning stages, will be conducted by myself and Dr Watchman in collaboration with Dr Eric Ritter of the Bureau of Land Management, Surprise Resource Area, who has provided funding and the Fort Bidwell Northern Paiute Tribe.[59] The three sites included in this project are in the Northwestern region, one of which had been the focus of my own Master's thesis (Woody 1997). This site

59 This project was enthusiastically supported by Mr Clarence DeGarmo (Fort Bidwell Northern Paiute Tribal Consultant), but his untimely death in April 2000 has delayed the start of the project. He was a knowledgeable teacher and a good friend and he will be genuinely missed.

is somewhat unique in that it has clear indication of at least four separate generations of production, possibly dating to 11,000 years ago based on associated diagnostic artifacts. The other two sites are nearby (but currently unrecorded) and also share the characteristics of Massacre Lake and another site to the north which is known to be very old. This project will help to establish whether or not the deeply carved rock art in that region is as old as that found at Long Lake, which is to the north.

Also, the differences in distribution of pictograph, petroglyph and combination sites suggest some interesting areas for future research. Pictograph sites most often occur in shelters, and certainly the problem of differential preservation presents itself. Combination sites (where both petroglyphs and pictographs occur) would seem to be the best means of sorting out the relationships between these different media. I am currently involved with Mr Oyvind Frock of Reno, Nevada in a test of the durability of mineral pigments which are mixed with different binders (including fat, water and blood). In addition to this type of technical analysis, a more simple study of superpositioning of pictographs and petroglyphs would help to establish in a relative way if one type of rock art is older than the other or if they are generally equal in age. These relative ages might vary by region or they may be the same, like many other things this is currently unknown, but might shed light on rock art sequences in other areas of the New World and certainly of the Desert West of the United States.

In addition to these current projects, other types of analysis could be built upon the foundation of this study. For example, the regions defined here should be divided into much smaller units of analysis, such as individual mountain ranges or valleys. This would enable finer

resolution for motif distributions and sites locales, as well as a more complete analysis of variation across the state. Analysis of motif types in different environmental contexts and with or without domestic debris might also be the focus of analysis.

Certainly there is a great deal more work to do to better understand the rock art of Nevada. This thesis is an important first step in that direction and will provide the fundamental data from which to proceed. Much of Nevada's rock art is slowly disappearing through the natural processes of weathering and exfoliation, but some is being more rapidly destroyed by senseless vandalism (see Figure 2). Such acts are not only a federal offense (punishable by both fines and imprisonment), but are also insulting to Native Americans who often consider rock art to be of spiritual significance. It also destroys a unique and irreplaceable part of the history and heritage of all Americans. Nevada's rock art is as beautiful and varied as is found anywhere in the world and is found in an astonishing variety of styles and settings. It is certainly one of the most compelling traces of the past and deserves to have the same attention to detail as that paid to other parts of the archaeological record.

References Cited

Aikens, C. M.

1978 The Far West. In *Ancient Native Americans*, edited by J. D. Jennings, pp. 131-181. W. H. Freeman, San Francisco.

Aikens, C. M. and D. B. Madsen

1986 Prehistory of the Eastern Area. In *Great Basin*, edited by W. L. d'Azevedo, pp. 149-160. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Allison, J.

1999 Self-determination in cultural resource management: indigenous peoples' interpretation of history and of places and landscapes. In *The Archaeology and Anthropology of Landscape: Shaping your landscape*, edited by P. Ucko and R. Layton, pp. 264-283. Routledge, London.

Anderson, D. M.

1961 *Elements of Design*. Holt, Rinehart and Winston, New York.

Arkush, B. S.

1999 Numic Pronghorn Exploitation: A Reassessment of Stewardian-Derived Models in the Great Basin. In *Julian Steward and the Great Basin: The Making of an Anthropologist*. R.O. Clemmer, L.D. Myers, and M.E. Rudden, eds, pp. 35-52. Salt Lake City: University of Utah Press.

Austin, J. L.

1962 *How To Do Things With Words*. The William James Lectures delivered at Harvard University 1955. Oxford University Press, New York.

Bahn, P. G.

1986 No Sex, Please, We're Aurignacians. *Rock Art Research* 3:99-105.

1988 Comments on *The Signs of All Times*, by J. D. Lewis-Williams and T. A. Dowson. *Current Anthropology* 29:217-218.

1997 *Journey Through the Ice Age*. Weidenfeld and Nicholson, London.

Bard, J. C., F. Asaro and R. F. Heizer

1979 Perspectives on Dating of Prehistoric Great Basin Petroglyphs by Neutron Activation Analysis. *Archaeometry* 20:85-88.

Barrett, J. C.

1999 Chronologies of Landscape. In *The Archaeology and Anthropology of Landscape: Shaping your landscape*, edited by P. Ucko and R. Layton, pp. 21-30. Routledge, London.

Barton, C. M., G. A. Clark and A. E. Cohen

1994 Art as Information: explaining Upper Palaeolithic art in western Europe. *World Archaeology* 26:185-207.

Basso, K. H.

1996 *Wisdom Sits in Places: Landscape and language among the Western Apache.* University of New Mexico Press, Albuquerque.

Bateson, G.

1973 Style, Grace, and Information in Primitive Art. In *Primitive Art and Society*, edited by A. Forge, pp. 235-255. Oxford University Press, London.

Baumhoff, M. A., R. F. Heizer and A. B. Elsasser

1958 The Lagomarsino Petroglyph Group (Site 26-St-1) near Virginia City, Nevada. *Reports of the University of California Archaeological Survey* 41:17-33.

Beck, C. (editor)

1994 *Dating in Exposed and Surface Contexts*. University of New Mexico Press, Albuquerque.

Beck, W., D. J. Donahue, A.J.T.Jull, G.Burr, W. S. Broecker, G. Bonani, I. Hajdas and E. Malotki

1998 Ambiguities in Direct Dating of Rock Surfaces Using Radiocarbon Measurements. *Science* 280 (26 June):2132-2135.

Beck, C. and G. T. Jones

1997 The Terminal Pleistocene/Early Holocene Archaeology of the Great Basin. *Journal of World Prehistory* 11(2):161-236.

Bednarik, R. G.

1995 Archaeological Potentials of the Parowan Gap Site, Utah. In *Rock Art Studies in the Americas: Papers from the Darwin Rock Art Congress,* edited by J. Steinbring, pp. 91-97. Oxbow Monograph 45. Oxbow Books, Oxford.

Bender, B.

1993a *Landscape: Politics and Perspectives.* Berg, Oxford, edited by B. Bender.

1993b Introduction: Landscape–Meaning and Action. In *Landscape: Politics and Perspectives*, edited by B. Bender, pp. 1-18. Berg, Oxford.

Berrin, K.

1979 *Art of the Huichol Indians.* Harry N. Abrams, New York.

Bettinger, R. L.

1994 How, When, and Why Numic Spread. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 44-55. University of Utah Press, Salt Lake City.

Bettinger, R. L. and M. A. Baumhoff

1982 The Numic Spread: Great Basin cultures in competition. *American Antiquity* 47:485-503.

Bettinger, R. and J. Eerkens

1999 Point Typologies, Cultural Transmission, and the Spread of Bow-and-Arrow Technology in the Prehistoric Great Basin. *American Antiquity* 64:231-242.

Binford, L.

1962 Archaeology as anthropology. *American Antiquity* 28:217-225.

Blair, L. M.

1986 *A New Interpretation of Archaeological Features in the California Wash Region of Southern Nevada.* Unpublished Masters Thesis, Department of Anthropology, University of Nevada, Las Vegas.

Bloch, M.

1954 *The Historian's Craft*. Translated by Peter Putnam. Manchester University Press, Manchester.

Bloch, M.

1974 Symbols, Song, Dance and Features of Articulation: Is religion an extreme form of traditional authority. *Archives Europeennes de Sociologie* 15:55-81.

1977 The Past and the Present in the Present. *Man* (N.S.) 12:278-292.

1986 *From Blessing to Violence: history and ideology in the circumcision ritual of the Merina of Madagascar*. Cambridge University Press, Cambridge.

1998 *How We Think They Think: Anthropological Approaches to Cognition, Memory, and Literacy*. Westview Press, Boulder.

Boas, F.

1927 *Primitive Art*. Aschehoug, Oslo.

Bourdieu, P.

1977 *Outline of a Theory of Practice*. Cambridge University Press, Cambridge.

1985 Social Space and the Genesis of Groups. *Theory and Society* 14:723-744.

1991 *Language and Symbolic Power*. Translated by G. Raymond and M. Adamson. Polity Press, Cambridge.

Bradley, R.

1991 Rock art and the perception of landscape. *Cambridge Archaeological Journal* 1:77-101

1993 *Altering the Earth: The Origins of Monuments in Britain and Continental Europe*. The Rhind Lectures 1991-1992. Society of Antiquaries of Scotland, Edinburgh.

1994 Symbols and signposts: understanding the prehistoric petroglyphs of the British Isles. In *The Ancient Mind: elements of cognitive archaeology*, edited by C. Renfrew and E. B.W. Zubrow, pp. 95-106. Cambridge University Press, Cambridge.

1997 *Rock Art and the Prehistory of Atlantic Europe: Signing the land*. Routledge, London.

1998 *The Significance of Monuments: On the shaping of human experience in Neolithic and Bronze Age Europe*. Routledge, London.

Bradley, R., F. C. Boado and R. F. Valcarce

1994 Rock Art Research as Landscape Archaeology: A Pilot Study in Galicia, north-west Spain. *World Archaeology* 25:374-390.

Breuil, H.

1952 *Quatre Cents siècles d'Art pariétal*, Centre D'Études et de Documentation Préhistoriques, Montignac.

Brown, P. and S. Levinson

1978 Universals in Language Usage: politeness phenomena.. In *Questions and Politeness: Strategies in Social Interaction*, edited by E. Goody, pp. 56-324. Cambridge University Press, Cambridge.

Bureau of Land Management

n.d. *Hickison Petroglyph Recreation Area. Self Guided Tour*. Pamphlet.

Burkholder, G.

1994 *Perceptions of the Past: Solar Phenomena in Southern Nevada*. Grace Burkholder, Boulder City, Nevada.

Cannon, W. J. and M. Ricks

1986 The Lake County Oregon Rock Art Inventory: Implications for Prehistoric Settlement and Land Use Patterns. In *Contributions to the Archaeology of Oregon 1983-1986*, edited by K. M. Ames, pp. 1-22. Department of Anthropology and University Foundation Occasional Papers No. 3. Portland State University and the Association of Oregon Archaeologists, Salem.

Cannon, W. and A. Woody

in press A Gender Inclusive View of Rock Art in the Northern Great Basin. In *Invisible No More: Women's Roles and Activities in the Archaeological Record of the Great Basin*, edited by K. Lupo and M. Leach. University of Utah Press, Salt Lake City.

Carmack, R. M, J. Gasco and G.H. Gossen

1996 *The Legacy of Mesoamerica: History and Culture of a Native American Civilization*. Prentice Hall, Upper Saddle River, N.J.

Castleton, K. B.

1984 *Petroglyphs and Pictrographs of Utah: Volume One: The East and Northeast* Utah Museum of Natural History, Salt Lake City.

Chippindale, C.

2000 Capta and Data: On the True Nature of Archaeological Information. *American Antiquity* 65(4):605-612.

Chippindale, C. and G. Nash

In press Seeing the Figures in the Landscape. In *Landscapes of Rock Art*, edited by C. Chippindale and G. Nash. Cambridge University Press, Cambridge.

Christensen, D. D. and J. Dickey

2000 The Grapevine Style of the Eastern Mojave Desert of California and Nevada. *American Indian Rock Art*, edited by S. L. Freers and A.Woody, Vol. 26. *In press.*

Clemmer, R. O., L. D. Myers and M. E. Rudden (editors)

1999 *Julian Steward and the Great Basin: the making of an anthropologist.* University of Utah Press, Salt Lake City.

Clewlow, C. W.

1981 Rock Art Research in the Great Basin: Some Historical Comments. *Journal of California and Great Basin Anthropology* 3:78-83.

Cohen, A. P.

1985 *The Symbolic Construction of Community.* Tavistock Publications, London.

Conkey, M. W.

1980 The Identification of Prehistoric Hunter-Gatherer Aggregation Sites: The Case of Altimara. *Current Anthropology* 21:609-630.

1981 A Century of Paleolithic Cave Art. *Archaeology* 34(4):20-28.

1982 Boundedness in Art and Society. In *Symbolic and Structural Archaeology*, edited by I. Hodder. Cambridge University Press, Cambridge.

1984 To find Ourselves: Art and Social Geography of Prehistoric Hunter Gatherers. In *Past and Present Hunter Gatherer Studies*, edited by C. Schrire, pp. 253-276. Academic Press, New York.

Conkey, M. W. (cont'd)

1985 Ritual Communication, Social Elaboration, and the Variable Trajectories of Paleolithic Material Culture. In *Prehistoric Hunter-Gatherers*, edited by T. D. Price and J. A. Brown, pp. 299-323. Academic Press, New York.

1987 New approaches in the search for meaning? A review of research in "Palaeolithic Art." *Journal of Field Archaeology* 14:413-430.

Connerton, P.

1989 *How Societies Remember*. Cambridge University Press, Cambridge.

Consens, M.

1988 Comments on *The Signs of All Times*, by J. D. Lewis-Williams and T. A. Dowson. *Current Anthropology* 29:221-222.

Cressman, L.

1937 *Petroglyphs of Oregon*. University of Oregon, Eugene.

1942 *Archaeological Researches in the Northern Great Basin*. Carnegie Institution of Washington Publication 538, Washington, D.C.

1986 Prehistory of the Northern Area. In *The Great Basin*, edited by W. L. d'Azevedo, pp. 120-134. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Czaplicka, M. A.

1969 *Aboriginal Siberia: A Study in Social Anthropology*. Clarendon Press, Oxford.

Davis, E. L.

1961 The Mono Craters Petroglyphs, California. *American Antiquity* 27:236-239.

Davis, W.

1984 Representation and knowledge in the prehistoric rock art of Africa. *The African Archaeological Review* 2:7-35.

1988 Comments on *The Signs of All Times*, by J. D. Lewis-Williams and T. A. Dowson. *Current Anthropology* 29:222-224.

d'Azevedo, W. L.

1986a Introduction. In *Great Basin*, edited by W. L. d'Azevedo, pp. 1-14. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

1986b Washoe. In *Great Basin*, edited by W. L. d'Azevado, pp. 466-498. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Deacon, J.

1988 The power of place in understanding San rock engravings. *World Archaeology* 20:129-140.

Deloria, V., Jr.

1991 *Sacred Lands and Religious Freedom*. Association of American Indian Affairs, New York.

Dickson, D. B.

1990 *The Dawn of Belief: Religion in the Upper Paleolithic of Southwestern Europe*. University of Arizona Press, Tucson.

Dillehay, T. D.

1989 *Monte Verde: A Late Pleistocene Settlement in Chile: Paleoenvironment and Site Context,* Vol. I. Smithsonian Institution Press, Washington, D. C.

1997 *Monte Verde: A Late Pleistocene Settlement in Chile: The Archaeological Context*, Vol. II. Smithsonian Institution Press, Washington, D. C.

Dorn, R.

1997 Previously Identified Uncertainties in C-14 Dating of Petroglyphs. *Newsletter of the National Pictographic Society* 8(1): 6-7.

1998 Age Determination of the Coso Rock Art. In *Coso Rock Art: A New Perspective*, edited by E. Younkin, pp. 69-96. Maturango Museum Publication No. 12. Maturango Press, Ridgecrest, California.

Dowson, T. A.

1994a Reading art, writing history: rock art and social change in southern Africa. *World Archaeology* 25:332-344.

Dowson, T. A. (cont'd)

1994b Hunter-Gatherers, Traders and Slaves: The 'Mfecane' Impact on Bushman, their Ritual and Art. In *The Mfecane Aftermath: Reconstructive Debates in Southern African History*, edited by C. Hamilton, pp. 51-70. Witwatersrand University Press, Johannesburg.

1996 Comments on *Entering alternative realities: cognition, art and architecture in Irish passage-tombs*, by J. Dronfield. *Cambridge Archaeological Journal* 6:64-65.

1997 Hunter-Gatherers, Traders, and Slaves: The 'Mfecane' Impact on Bushman, their Ritual and their Art. In *Hunters and gatherers in the modern world: conflict; resistance, and self determination*, edited by M. Biesele, R. K. Hitchcock and P. P. Schweitzer, pp. 51-70. Berghahn, Providence.

1999 Shamanism and Archaeology: beyond the bandwagon. Paper presented at the 5th Annual Meeting of the European Association of Archaeologists, Bournemouth.

Driver, H. E.

1937 Culture Element Distributions. VI - Southern Sierra Nevada. *University of California Anthropological Records* 1:53-154.

1941 Culture Element Distributions: XVI Girls' Puberty Rites in Western North America. *University of California Anthropological Records* 6:21-90.

Drollinger, H., C. Beck and R. Jones

2000 *The Petroglyphs of Upper Fourtymile Canyon, Nevada Test Site, Nye County, Nevada.* DOE/NV/11508-50. Cultural Resources Technical Report No. 96. Copies available from Desert Research Institute, Las Vegas, Nevada.

Dronfield, J.

1993 Ways of seeing, ways of telling: Irish Megalithic passage tomb art, style and the universality of vision. In *Rock art studies: the post-stylistic era or where do we go from here?*, edited by M. Lorblanchet and P. G. Bahn, pp. 179-193. Oxbow Monograph 35. Oxbow Books, Oxford.

1995 Subjective Vision and the source of Irish megalithic art. *Antiquity* 69:539-549.

1996 The vision thing: diagnosis of endogenous derivation in 'abstract' arts. *Current Anthropology* 37:373-391.

Du Barton, A. and H. Drollinger

1996 *Results of a Class III Survey at Tub Spring, Reitmann Seep, and Captain Jack Spring, Nevada Test Site, Nye County, Nevada.* Quaternary Sciences Centre, Desert Research Institute, Contract No. DOE/NV/11508-10 UC-702. Copies available from US Department of Energy, Nevada Operations Office, Las Vegas.

Durkheim, E.

1926 [1915] *Elementary Forms of the Religious Life.* 2nd ed. Translated by Joseph Swain. Allen and Unwin, London.

Elston, R. G.

1971 *A Contribution to Washo Archaeology.* Nevada Archaeological Survey Research Papers 2, Reno.

1986 Prehistory of the Western Area. In *Great Basin*, edited by W. L. d'Azevedo, pp. 135-148. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Feyerabend, P. K.

1975 *Against Method: An Outline of an Anarchistic Theory of Knowledge.* New Left Books, London.

Fiedel, S. J.

1999 Artifact Provenience at Monte Verde: Confusion and Contradictions. *Scientific American Discovering Archaeology - Special Report* Nov/Dec 1999.

Firth, R.

1951 *The Elements of Social Organization.* Watts and Company, London.

1973 *Symbols: Public and Private.* Cornell University Press, Ithaca.

Fischer, J. L.

1961 Art Styles as Cognitive Maps. *American Anthropologist* 63:79-93.

Flannery, K.

1973 Archaeology with a capital "S." In *Research and Theory in Current Archaeology*, edited by C. Redman, pp. 47-53. John Wiley and Sons, New York.

Fowler, C. S.

1982 Food-Named Groups Among Northern Paiute in North America's Great Basin: an ecological interpretation. In *Resource managers: North American and Australian hunter-gatherers* edited by N. H. Williams and E. S. Hunn, pp. 113-129. Westview Press, Boulder.

1986 Subsistence. In *Great Basin*, edited by W. L. d'Azevedo, pp. 64-97. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

1992 *In the Shadow of Fox Peak: An Ethnography of the Cattail-Eater Northern Paiute People of Stillwater Marsh*. U.S. Government Printing Office, Washington, D.C.

Fowler, C. S. and S. Liljeblad

1986 Northern Paiute. In *Great Basin*, edited by W. d'Azevedo, pp. 435-465. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Fowler, C. S., M. Dufort, M. K. Rusco and P. Esteves

1999 In the Field in Death Valley: Julian Steward's Panamint Shoshone Fieldwork. In *Julian Steward and the Great Basin: The Making of an Anthropologist*, edited by R. O. Clemmer, L. D. Myers and M. E. Rudden, pp. 53-59. University of Utah Press, Salt Lake City.

Fowler, D. D.

1986 History of Research. In *Great Basin*, edited by W. d'Azevedo, pp. 15-30. *Handbook of North American Indians*. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Fowler, D. D. and D. B. Madsen

1986 Prehistory of the Southeastern Area. In *Great Basin*, edited by W. d'Azevado, pp. 173-182. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Frazer, J. G.

1922 *The Golden Bough: a study in Magic and Religion*. Volume 1. Abridged ed. Macmillan, London.

Frison, G. C.

1994 Afterword. In *New Light on Old Art: Recent Advances in Hunter-Gatherer Research*, edited by D. S. Whitley and L. L. Loendorf, pp. 105-107. Institute of Archaeology, University of California, Los Angeles.

Gale, H. S.

1912 Nitrite Deposits. *United States Geologic Survey Bulletin*, 523.

Gamble, C. S.

1982 Interaction and Alliance in Palaeolithic Society. *Man* (N.S.) 17:92-107.

1991 The Social Context for European Palaeolithic Art. *Proceedings of the Prehistoric Society* 57:3-15.

Gebhard, D.

1966 The Shield Motif in Plains Rock Art. *American Antiquity* 31:721-731.

Gibson, J. J.

1986 *The Ecological Approach to Visual Perception*. Houghton Mifflin Company, Boston.

Giddens, A.

1979 *Central Problems in Social Theory: Action, structure and contradiction in social analysis*. University of California Press, Berkeley.

1981 *A Contemporary Critique of Historical Materialsm, Volume 1: Power, Property and the State*. Macmillan, London.

1984 *The Constitution of Society: Outline of the Theory of Structuration*. Polity Press, Cambridge.

Gilreath, A. J.

1997 *Cultural Resources Inventory in Support of the Coso Rock Art District/Landmark Boundary Study, Volume 1*. Far Western Anthropological Research Group, Davis.

1999 The Archaeology and Petroglyphs of the Coso Rock Art Landmark. In *American Indian Rock Art Volume 25*, edited by S. M. Freers, pp. 33-44. American Rock Art Research Association, Tucson.

Goodenough, E. R.

1953-1968 *Jewish symbols in the Greco-Roman period*. Pantheon Books, New York.

Grant, C.

1965 *The Rock Paintings of the Chumash*. University of California Press, Berkeley.

1967 *Rock Art of the American Indian*. Vista Books, Dillon.

Grayson, D. K.

1993 *The Desert's Past: A Natural Prehistory of the Great Basin*. Smithsonian Institution, Washington, D.C.

Green, E. M.

1987 *A Cultural Ecological Approach to the Rock Art of Southern Nevada*. Unpublished Master's thesis, Department of Anthropology, University of Nevada, Las Vegas.

Grieder, T.

1982 *Origins of Pre-Columbian Art*. University of Texas Press, Austin.

Guidon, N. and G. Delibrias

1986 Carbon-14 dates point to man in the Americas 32,000 years ago. *Nature* 321:769-771.

Halström, G.

1960 Monumental Art of Northern Sweden from the Stone Age. Almquist and Wiksell, Stockholm.

Hamann, D. and K. Hedges

1987 Topographical Distribution of Hohokam Petroglyph Sites. In *Rock Art Papers Volume 4*, edited by K. Hedges, pp. 77-86. San Diego Museum Papers No. 21. Museum of Man, San Diego.

Harper, K. T.

1986 Historical Environments. In *Great Basin*, edited by W. L. d'Azevedo, pp. 51-63. Handbook of North American Indians, Vol. 11. W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Harrington, M. R., I. Hayden and L. Schellbach

1930 *Archaeological Explorations in Southern Nevada: Report of the First Sessions Expedition, 1929*. Southwest Museum Papers 4. Southwest Museum, Los Angeles.

Hartley, R. J.

1992 *Rock Art on the Northern Colorado Plateau: Variability in Content and Context.* Avebury Press, Aldershot.

Hartley, R. and A. M. W. Vawser

1998 Spatial Behaviour and learning in the prehistoric environment of the Colorado River drainage (southeastern Utah), western North America. In *The Archaeology of Rock-Art*, edited by C. Chippindale and. P. S. C. Taçon, pp. 185-211. Cambridge University Press, Cambridge.

Hedges, K.

1976 Southern California rock art as shamanic art. In *American Indian Rock Art Volume* 2, edited by K. Sutherland, pp. 126-138. American Rock Art Research Association, El Paso.

1982 Great Basin Rock Art Styles: A Revisionist View. *American Indian Rock Art Volume* 7/8, edited by F. G. Bock, pp. 205-211. American Rock Art Research Association, El Toro.

1983a The shamanic origins of rock art. In *Ancient Images on Stone*, edited by J. A. Van Tilburg, pp. 46-61. Institute of Archaeology, University of Archaeology, Los Angeles.

1983b A Re-Examination of the Pomo Baby Rocks. In *American Indian Rock Art Volume* 9, edited by F. G. Bock, pp. 10-22. American Rock Art Research Association, El Toro.

1985 Rock Art Portrayals of Shamanic Transformation and Magical Flight. In *Rock Art Papers Volume 2*, edited by K. Hedges, pp. 83-94. San Diego Museum Papers No. 18. Museum of Man, San Diego.

1987 Patterned Body Anthropomorphs and the Concept of Phosphenes in Rock Art. In *Rock Art Papers Volume 5*, edited by K. Hedges, pp. 17-24. San Diego Museum Papers 21. Musuem of Man, San Diego.

2000 Traversing the Great Gray Middle Ground: An Examination of Shamanistic Interpretations of Rock Art. Paper presented at the 27th Annual Meeting of the American Rock Art Research Association, Phoenix, Arizona.

Heidegger, M.

1977 Building dwelling thinking. In *Basic Writings*, edited by D. Krell. Routledge, London.

Heizer, R. F.

1953 Sacred Rain-Rocks of northern California. *Reports of the University of California Archaeological Survey* 20:33-38.

Heizer, R. F. and M. A. Baumhoff

1962 *Prehistoric Rock Art of Nevada and Eastern California*. University of California Press, Berkeley.

Heizer, R. F. and T. R. Hester

1974 Two Petroglyph Sites in Lincoln County, Nevada. *Contributions of the University of California Archaeological Research Facility* 20:1 - 52.

Hobsbawm, E.

1983 Introduction. In *The Invention of Tradition*, edited by E. Hobsbawn and T. Ranger, pp. 1-14. Cambridge University Press, Cambridge.

Hodder, I.

1990 *The Domestication of Europe*. Blackwell, Oxford.

1992 *Reading the Past*. Second ed. Cambridge University Press, Cambridge.

Hood, E. J.

1996 Social Relations and the Cultural Landscape. In *Landscape Archaeology: Reading and Interpreting the American Historical Landscape*, edited by R. Yamin and K. B. Metheny, pp. 121-146. University of Tennessee Press, Knoxville.

Hoppál, M. (editor)

1998 *Shamanism: Selected writings of Vilmos Dioszegi. 6*. Akadémiai Kiadó, Budapest.

Hudson, T., G. Lee and K. Hedges

1979 Solar Observers and Observatories in Native California. *Journal of California and Great Basin Anthropology* 1:38-63.

Hultkrantz, A.

1986 Mythology and religious concepts. In *Great Basin*, edited by W. d'Azevedo, pp. 630-640. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Press, Washington, D.C.

Hultkrantz, A. (cont'd)

1987 *Native Religions of North America: The Power of Visions and Fertility*. Harper and Row, San Francisco.

Hunn, E. S.

1982 Mobility as a Factor Limiting Resource Use in the Columbia Plateau of North America. In *Resource Managers: North American and Australian Hunter-Gatherers*, edited by E. S. Hunn and N. M. Williams, pp. 17-46. Westview Press, Boulder.

Ingold, I.

1987 *The Appropriation of Nature: Essays on human ecology and social relations*. University of Iowa Press, Iowa City.

1993 Temporality of the landscape. *World Archaeology* 25:152 - 174.

Janetski, J. C.

1994 Recent Transitions in Eastern Great Basin Prehistory: The Archaeological Record. In *Across The West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 157-178. University of Utah Press, Salt Lake City.

Jenkins, D. L.

1982 *Cliff's Edge: A Pueblo I Site on the Lower Virgin River*. Unpublished Master's thesis, Department of Anthropology, University of Nevada, Las Vegas.

Jennings, J. D.

1957 Danger Cave. *University of Utah Anthropological Papers* 27, Salt Lake City.

1964 The Desert West. In *Prehistoric Man in the New World*, edited by J. D. Jennings and E. Norbeck, pp. 149-174. University of Chicago Press, Chicago.

Jerardino, A. and N. Swanepoel

1999 Painted Slabs from Steenbokfontein Cave: The Oldest Known Parietal Art in Southern Africa. *Current Anthropology* 40:542-548.

Jones, S., R. Martin and D. Pilbeam (editors)

1992 *The Cambridge Encyclopaedia of Human Evolution*. Cambridge University Press, Cambridge.

Jones, R.

1996 *Phase I of a Cultural Resources Reconnaissance of the Fourtymile Canyon Archaeological Rock Art and Site Research Area, Areas 18 and 30, Nevada Test Site, Nye County, Nevada.* Desert Research Institute. Copies available from NTS Project #9632MA.

Jones, R. and H. Drollinger

1997 *Phase 2 of a Cultural Resources Reconnaissance of the Fourtymile Canyon Archaeological Rock Art and Site Research Area, Areas 18 and 30, Nevada Test Site, Nevada.* Desert Research Institute, SR111296-1 NTS Project #9708MA. Copies available from US Department of Energy, Nevada Operations Office, Las Vegas.

Kahn, M.

1996 Your Place and Mine: Sharing emotional landscapes in Wamira, Papua New Guinea. In *Senses of Place*, edited by S. Feld and. K. H. Basso, pp. 167-198. School of American Research, Santa Fe.

Kelly, I. T.

1932 Ethnography of the Surprise Valley Paiute. *University of California Publications in American Archaeology and Ethnography* 31: 67-210.

1936 Chemeheuvi shamanism. In *Essays in Anthropology presented to A. L. Kroeber in celebration of his sixtieth birthday*, edited by R. H. Lowie, pp. 129-142. University of California Press, Berkeley.

1939 Southern Paiute Shamanism. *University of California Anthropological Records* 2:151-167.

1964 *Southern Paiute Ethnography.* University of Utah Anthropological Papers No. 69. University of Utah, Salt Lake City.

Kelly, I. T. and C. S. Fowler

1986 Southern Paiute. In *Great Basin*, edited by W. L. d'Azevedo, pp. 368-397. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Kinahan, J.

1999 Towards an archaeology of mimesis and rain-making in Namibian rock art. In *The Archaeology and Anthropology of Landscape: Shaping your landscape*, edited by P. Ucko and R. Layton, pp. 336-357. Routledge, London.

Kirner, D. L., R. Burky, K. Selsor, D. George, R. E. Taylor and J. R. Southon

1997 Dating the Spirit Cave Mummy. *Nevada Historical Society Quarterly* 40:54-56.

Klimowitz, J.

1988 *A Structural Analysis of Prehistoric Incised Stones from Southern Nevada.* Unpublished Master's thesis, Department of Anthropology, University of Nevada, Reno.

Knoll, M. and J. Kugler

1959 Subjective Light Pattern Spectroscopy in the Encephalographic Frequency Range. *Nature* 184(4701):1823-1824.

Kroeber, A. L.

1958 Sign Language Inquiry. *International Journal of American Linguistics* 24 (1):1-19.

Kryder-Reid, E.

1996 The construction of Sanctity: Landscape and Ritual in a Religious Community. In *Landscape Archaeology*, edited by R. Yamin and K. B. Metheny, pp. 228-248. University of Tennessee Press, Knoxville.

Küchler, S.

1993 Landscape as Memory: The Mapping of Process and its Representation in a Melanesian Society. In *Landscape: Politics and Perspectives* edited by B. Bender, pp. 85-106. Berg, Oxford.

Kuhn, T. B.

1962 *The Structure of Scientific Revolutions*. University of Chicago Press, Chicago.

Laming-Emperaire, A.

1962 *La Signification de l'art rupestre paléolithique*, Paris.

Layton, R.

1988 Comments on *The Signs of All Times*, by J. D. Lewis-Williams and T. A. Dowson. *Current Anthropology* 29:226-227.

1991 Trends in the hunter-gatherer rock art of Western Europe and Australia. *Proceedings of the Prehistoric Society* 57:163-74.

1992a Ethnographic analogy and the two archaeological paradigms. In *Ancient Images, Ancient Thought: The Archaeology of Ideology. Proceedings of the 23rd Annual Chacmool Conference*, edited by S. A. Goldsmith, S. Garvie, D. Selin, and J. Smith, pp. 211-221. Archaeological Association of the University of Calgary, Calgary.

1992b *Australian Rock Art: A New Synthesis*. Cambridge University Press, Cambridge.

1995 Relating to the Country in the Western Desert. In *The Anthropology of Landscape: Perspectives on Place and Space*, edited by E. Hirsh and. M. O'Hanlon, pp. 210-231. Oxford University Press, Oxford.

2000 Shamanism, Totemism and Rock Art: Les Chamanes des Préhistoire in the Context of Rock Art Research. *Cambridge Archaeological Journal* 10:169-186.

Leach, E.

1976 *Culture and Communication: the logic by which symbols are connected.* Cambridge University Press, Cambridge.

Lee, G. and W. D. Hyder

1990 Relative Dating and the Rock Art of Lava Beds National Monument. *Proceedings of the Society for California Archaeology* 3:195-205.

1993 Symbol and the Importance of Place: The Painted Rock of the Carrizo. *American Indian Rock Art Volume* 12, edited by W. D. Hyder, pp. 47-55, American Rock Art Research Association, Santa Barbara.

Leone, M.

1984 Interpreting Ideology in Historical Archaeology: the William Paca Garden in Annapolis, Maryland. In *Ideology, Power, and Prehistory*, edited by D. Miller and C. Tilley, pp.25-35. Cambridge University Press, Cambridge.

Le Quellec, J. L.

1999 Images of Shamans or Imaginary Shamanism. *Pictogram* 11:20-34.

Leroi-Gourhan, A.

1965 *Treasures of Palaeolithic Art.* Thames & Hudson, London.

1968 *Art of Prehistoric Man in Western Europe.* Thames & Hudson, London.

Levi-Strauss, C.

1955 The Structural Study of Myth. *Journal of American Folklore* 68(1):428-444.

Lewis, G.

1980 *Day of Shining Red: an essay on understanding ritual.* Cambridge University Press, Cambridge.

Lewis-Williams, J. D.

1983 *The Rock Art of Southern Africa.* Cambridge University Press, Cambridge.

1991 Wrestling with analogy: a methodological dilemma in Upper Palaeolithic art research. *Proceedings of the Prehistoric Society* 57:149-162.

1996 Comments on 'Entering alternative realities: cognition, art and architecture in Irish passage-tombs.' *Cambridge Archaeological Journal* 6(1):60-63.

1997 Harnessing the Brain: Vision and Shamanism in Upper Paleolithic Western Europe. In *Beyond Art: Pleistocene Image and Symbol*, edited by M. W. Conkey, O. Soffer, D. Stratmann and N. G. Jablonski, pp. 321-342. California Academy of Sciences, Number 23, San Francisco.

1999 Quanto? The Issue of 'Many Meanings' in Southern African San Rock Art Research. *South African Archaeological Bulletin* 53:86-97.

2000 Methodology: The Principal Dilemma in Upper Palaeolithic Image Research. Paper presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia.

Lewis-Williams, J. D. and T. A. Dowson

1988 The Signs of All Times: entoptic phenomena in Upper Paleolithic art. *Current Anthropology* 29:201-245.

1990 Through the veil: San rock paintings and the rock face. *South African Archaeological Bulletin* 45:5-16.

Lippert, D.

1996 In Front of the Mirror: Native Americans and Academic Archaeology. In *Native Americans and Archaeologists: Stepping Stones to Common Ground.* Altimira Press, Walnut Creek.

Loubser, J. H. N., D. S. Whitley, T. Greiner, D. Leen and J. Simon

1999 *Recording Eight Places with Rock Art Imagery, Lava Beds National Monument, Northern California.* New South Associates Technical Report 604. Submitted to National Park Service. Copies available from National Parks Service, Arcata, California.

Lumholtz, C.

1900 Symbolism of the Huichol Indians. *Memoirs of the American Museum of Natural History* 1(2).

Madsen, D. B.

1986 Prehistoric Ceramics. In *Great Basin*, edited by W. L. d'Azevedo, pp. 206-214. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Madsen, D. B. and D. Rhode (editors)

1994 *Across the West: Human Population Movement and the Expansion of the Numa.* University of Utah Press, Salt Lake City.

Malinowski, B.

1925 Magic, Science and Religion. In *Science, Religion and Reality*, edited by J. Needham, pp. 25-90. Macmillan, New York.

Mallery, G.

1893 *Picture-Writing of the American Indians.* Tenth Annual Report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution, 1888-1889. Government Printing Office, Washington, D.C.

Martin, P. S.

1973 The Discovery of America. *Science* 179:969-974.

Matheny, R. T., T. S. Smith and D. G. Matheny

1997 Animal Ethology Reflected in the Rock Art of Nine Mile Canyon, Utah. *Journal of California and Great Basin Anthropology* 19:70-103.

McDonald, J.

1993 On a Clear Day, You Can See Mount Yengo - Or: investigating the archaeological manifestations of culturally significant foci in the prehistoric landscape. In *Time and Space: Dating and spatial considerations in rock art research*, edited by J. Steinbring, A. Watchman, P. Faulstich and P. S. C. Taçon, pp. 84-91. Occassional AURA Publication No. 8. Australian Rock Art Research Association, Melbourne.

McGukian, P., A. R. McLane and C. W. Clewlow

1996 Northern Nevada Cupule Sites. *Nevada Archaeologist* 14:34-42.

McLane, A. R.

In Press The Star Burst Solar Site, Pah Rah Range, Washoe County, Nevada. In *American Indian Rock Art Volume 26,* edited by S. M. Freers and A. Woody. Tucson, Arizona.

1998 Anthropomorph Rock Art Dates in Northern Nevada. In *Rock Art Studies in the Great Basin*, edited by E. W. Ritter, pp. 68-82. Coyote Press, Salinas, California.

Mehringer, P. J., Jr.

1986 Prehistoric Environments. In *Great Basin*, edited by W. L. d'Azevedo, pp. 31-50. Handbook of North American Indians. Vol. 11, William C. Sturtevent, editor. Smithsonian Institution, Washington, D. C.

Meltzer, D. J.

1991 On "Paradigms" and "Paradigm Bias" in Controversies Over Human Antiquity in America. In *The First Americans: Search and Research*, edited by T. D. Dillehay and D. J. Meltzer, pp. 13-49. CRC Press, Boca Raton, Ann Arbor, Boston, London.

Meltzer, D. J., D. K. Grayson, G. Ardila, A. W. Barker, D. F. Dincauze, C. V. Haynes, F. Mena, L. Núñez, and D. J. Stanford

1997 On the Pleistocene Antiquity of Monte Verde, Southern Chile. *American Antiquity* 62:659-663.

Merleau-Ponty, M.

1962 *The Phenomenology of Perception*. Translated by Colin Smith. Humanities Press, New York.

Miller, W.

1986 Numic Languages. In *Great Basin*, edited by W. L. d'Azevedo, pp. 98-112. Handbook of North American Indians, Vol.11, William C. Sturtevent, editor. Smithsonian Institution, Washington, D. C.

Minc, L. D.

1986 Scarcity and Survival: The Role of Oral Tradition in Mediating Subsistence Crisis. *Journal of Anthropological Archaeology* 3:39-113.

Mithen, S.

1988 Looking and learning: Upper Palaeolithic art and information gathering. *World Archaeology* 19:297-327.

1990 *Thoughtful Foragers: A study of prehistoric decision making*. Cambridge University Press, Cambridge.

1994 The Middle/Upper Palaeolithic Transition. In *The Ancient Mind: Elements of cognitive archaeology*, edited by C. Renfrew and E. Zubrow, pp. 23-29. Cambridge University Press, Cambridge.

1998 Introduction: the archaeological study of human creativity. In *Creativity in Human Evolution and Early Human Behaviour*, edited by S. Mithen, pp. 1-15. Routledge, London.

Molyneaux, B. L.

1977 *Formalism and Contextualism: An Historiography of Rock Art Research in the New World*. Unpublished Master's thesis, Department of Anthropology, Trent University, Peterborough, Ontario.

Momady, S. S.

1974 Native American Attitudes to the Environment. In *Seeing With A Native Eye: Essays on Native American Religion*, edited by W. Capps, pp. 79-85. Harper and Row, New York.

Monteleone, S. A.

1993 Paintings of the Eleana Range and Vicinity, Southern Nevada. In *Rock Art Papers Volume* 10, edited by K. Hedges, pp. 37-47. San Diego Museum Papers No. 29. Museum of Man, San Diego.

1994 *Rock Art in Context: The Pictographs of the Eleana Range Southern Nevada.* Unpublished Master's thesis, Department of Anthropology, University of Nevada, Reno.

1998 Great Basin Rock Art: Numic Tradition or Multicultural Diversity? In *American Indian Rock Art Volume* 22, edited by S. M. Freers, pp. 19-28. American Rock Art Research Association, Tucson.

Monteleone, S. A. and A. Woody

1999 Changing Light on the Cosos. In *American Indian Rock Art*, edited by S. M. Freers, Vol 25, pp. 57-68. American Rock Art Research Association, Tucson.

Morphy, H.

1991 *Ancestral Connections: art and an aboriginal system of knowledge.* University of Chicago Press, Chicago.

1995 Landscape and the reproduction of the ancestral past. In *Between Place and Space*, edited by E. Hirsch and M. O'Hanlon, pp. 184-209. Oxford University Press, Oxford.

Morrison, R. B.

1965 Quaternary Geology of the Great Basin. In *The Quaternary of the United States*, edited by E. B. Wright Jr., and D. G. Frey, pp. 265-285. Princeton University Press, Princeton.

Morwood, M. (editor)

1984 *The prehistory of the central Queensland highlands.* Academic Press, London.

Mowaljarlai, D. and J. Malnic

1993 *Yorro Yorro: Aboriginal Creation and the Renewal of Nature; Rock Paintings and Stories from the Australian Kimberly.* Inner Traditions, Rochester.

Munn, N. D.

1973 *Walbiri Iconography: graphic representation and cultural symbolism in a Central Australian society.* Cornell University Press, Ithaca.

Myers, F. R.

1982 Always Ask: Resource Use and Land Ownership among Pintupi Aborigines of the Australian Western Desert. In *Resource Managers: North American and Australian Hunter-Gatherers*, edited by N. M. Williams and E. S. Hunn, pp. 173-196. Westview Press, Boulder.

Nelson, R. K.

1982 A Conservation Ethic and Environment: The Koyukon of Alaska. In *Resource Managers: North American and Australian Hunter-Gatherers*, edited by E. S. Hunn and N. M. Williams, pp. 211-248. Westview Press, Boulder.

Nissen, K. M.

1982 *Images from the Past: An Analysis of Six Western Great Basin Petroglyph Sites.* Unpublished PhD. Dissertation, Department of Anthropology, University of California, Berkeley.

1995 Pray for signs? Petroglyph Research in the Western Great Basin, North America. In *Rock Art Studies in the Americas: Papers from the Darwin Rock Art Congress*, edited by J. Steinbring, pp. 67-75. Oxbow Monograph 45. Oxbow Books, Oxford.

Oster, G.

1970 Phosphenes. *Scientific American* 222(2):82-87.

Ouzman, S. and L. Wadley

1997 A history in paint and stone from Rose Cottage Cave, South Africa. *Antiquity* 71:386-404.

Panofsky, E.

1939 *Studies in Iconography: humanistic themes in the art of the Renaissance*. Oxford University Press, Oxford.

1960 *Renaissance and renascence's in Western art*. Almqvist and Wiksell, Stockholm.

Park, W. Z.

1938 *Shamanism in Western North America: a study in cultural relationships*. Northwestern University, Evanston.

Parkman, E. B.

1986 Cupule Petroglyphs in the Diablo Range, California. *Journal of California and Great Basin Anthropology* 8:246-259.

1995 California Dreamin': Cupule Petroglyph Occurrences in the American West. In *Rock Art Studies in the Americas: Papers from the Darwin Rock Art Congress*, edited by J. Steinbring, pp. 1-12. Oxbow Monograph 45. Oxbow Books, Oxford.

Pfeiffer, J. E.

1982 *The Creative Explosion: an inquiry into the origins of art and religion.* Harper & Row, New York.

Patterson, E.

1972 *Sagebrush Doctors.* Art City Publishers, Springville.

Price, B. A.

1998 Two Cupule Rock Art Sites in Elko County, Nevada. In *Rock Art Studies in the Great Basin*, edited by E. W. Ritter, pp. 51-66. Coyote Press, Salinas, California.

Proctor, R. M.

1969 *The Principles of Pattern for Craftsmen and Designers.* Van Nostrand and Reinhold, New York.

Quinlan, A. R.

2000 Interpreting Nevada's rock art: the balancing act between ethnography and theory. *Nevada Archaeologist.*

In press The Ventriloquist's Dummy: a critical review of shamanism and rock art in far western North America. *Journal of California and Great Basin Anthropology* 22.

Quinlan, A. R. and A. Woody

2000a Rock Art and the end of Tradition. Paper presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia

2000b Marking Time at Lagomarsino: the competing perspectives of rock-art studies. Paper presented at the 27th Annual Meeting of the American Rock Art Research Association, Phoenix.

Radcliffe-Brown, A. R.

1952 *Structure and Function in Primitive Society.* Cohen and West, London.

Rappaport, A.

1977 Australian Aborigines and the Definition of Place. In *Shelter, Sign and Symbol*, edited by P. Oliver, pp. 38-51. Overlook Press, Woodstock.

Rector, C. H.

1985 Rock Art as Hunting Magic: Anthropological Fact or Fiction? In *Rock Art Papers Volume* 8, edited by K. Hedges, pp. 127-132. San Diego Museum Papers No. 18. Museum of Man, San Diego.

Reichel-Dolmatoff, G.

1967 Rock paintings of the Vaupés: an essay of interpretation. *Folklore Americas* 27:107-113.

1972 The Cultural Context of an Aboriginal Hallucinogen: *Banisteriopis Caapi.* In Flesh of the Gods: the ritual use of hallucinogens, edited by P. T. Furst, pp. 84-113. Praeger, New York.

1978 Drug-induced optical sensations and their relationship to applied art among some Colombian Indians. In *Art in Society: Studies in style, culture and aesthetics* edited by M. Greenhalgh and V. Megaw, pp. 289-304. Duckworth, London.

Reichert, R. X.

1998 Rock Art Styles of the Coso Range: Some Considerations for Their Definition. In *Coso Rock Art: A New Perspective*, edited by E. Younkin, pp. 97-106. Maturango Museum Publication No. 12. Maturango Press, Ridgecrest.

Reinach, S.

1903 L'art et la magie. A propos des peintures et des gravures de l'age de rennes. *L'Anthropologie* 14:257-266.

Renfrew, C.

1985 *The Archaeology of Cult: the Sanctuary of Phylakopi.* Thames & Hudson, London.

1994a Towards a cognitive archaeology. In *The Ancient Mind: Elements of Cognitive Archaeology*, edited by C. Renfrew and E. Zubrow, pp. 3-12. Cambridge University Press, Cambridge.

Renfrew, C. (cont'd)

1994b Hypoctire voyant, mon semblable. *Cambridge Archaeological Journal* 4:264-269.

Renfrew, C. and P. Bahn

1996 *Archaeology: Theories, Methods and Practice*. 2nd ed. Thames and Hudson, New York.

Rhode, D. and D. B. Madsen

1994 Where Are We Now? In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 213-221. University of Utah Press, Salt Lake City.

Rice, P. C. and A. L. Paterson

1985 Cave Art and Bones: Exploring the interrelationships. *American Anthropologist* 87:94-100.

Ricks, M. F.

1996 *A Survey and Analysis of Prehistoric Rock Art of the Warner Valley Region, Lake County, Oregon*. Technical Reports 96-1. Department of Anthropology, University of Nevada, Reno.

Riddell, F. A.

1978 *Honey Lake Paiute*. Nevada State Museum Occasional Papers 3 (1). Nevada State Museum, Carson City.

Ritter, E. W.

1994 Scratched Rock Art Complexes in the Desert West: Symbols for Socio-Religious Communication. In *New Light on Old Art: Recent Advances in Hunter-Gatherer Rock Art Research*, edited by D. S. Whitley and L. L. Loendorf, pp. 51-66. Institute of Archaeology, University of California, Los Angeles.

Roosevelt, A. C., M. L. de Costa, C. L. Machado, M. Michab, N. Mercier, H. Valladas, J. Feathers, W. Barnett, M. I. de Silveira, J. Silva, B. Chernoff, D. S. Reese, J. A. Holman, N. Toth and K. Schick

1996 Paleoindian Cave Dwellers in the Amazon: The peopling of the Americas. *Science* 272 (19 April): 373-384.

Root, D.

1983 Information Exchange and the Spatial Configuration of Egalitarian Societies. In *Archaeological Hammers and Theories*, edited by J. A. Moore and A. S. Keene pp. 193-219. Academic Press, New York.

1996 *Cannibal Culture: Art, Appropriation and the Commodification of Difference.* Westview Press, Boulder.

Rosenfeld, A.

1991 Panaramitee: Dead or Alive? In Rock Art and Prehistory: Papers presented *to symposium G of the AURA Congress, Darwin 1988*, edited by P. Bahn and A. Rosenfeld, pp. 136-144. Oxbow Monograph 10. Oxbow Books, Oxford.

Rowntree, L. and M. Conkey

1980 Symbolism and the Cultural Landscape. *Annals of the Association of American Geographers* 70:459-474.

Rusco, M.

1973 Types of Anthropomorphic Figures in the Great Basin. *Nevada Archaeological Survey Reporter* 7(2): 4-17.

Sack, R. D.

1980 *Conceptions of Space in Social Thought.* Macmillan, London.

Santini, J. D.

1974 A Preliminary Report on the Analysis of Incised Stones From Southern Nevada. Nevada Archaeologist 2(1):4-15.

Sapir, E.

1910 Kaibab Paiute Linguistic and Ethnologic Fieldnotes. Manuscript Number 30 (U. 3), Freeman No. 2643 in American Philosophical Society Library, Philadelphia.

Sapolsky, R.

1997 Testosterone Rules. *Discover*: 45-50.

Sauer, C. O.

1938 *Land and Life.* University of California Press, Berkeley.

Schaafsma, P.

1980 *Rock Art of the Southwest*. University of New Mexico Press, Santa Fe and Albuquerque.

1985 Form, Content, and Function: Theory and method in North American rock art studies. *Advances in Archaeological Method and Theory* 8:237-277.

1986 Rock Art. In *Great Basin*, edited by W. L. d'Azevedo, pp. 215-226. Handbook of North American Indians, Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

1992 *Rock Art in New Mexico*. University of New Mexico Press, Santa Fe.

Schiffman, R. A. and S. B. Andrews

1982 Pictographs of the Ghost Dance Movements of 1870 and 1890. In *Pictographs of the Coso Region: Analysis and Interpretation of the Coso Painted Style*, edited by Robert A. Schiffman, D. S. Whitley, Alan P. Garfinkel, and Stephen B. Andrews, pp. 79-111. Bakersfield College Publications in Archaeology Volume 11, Bakersfield.

Schuster, C.

1968 Incised Stones from Nevada and Elsewhere. *Nevada Archaeological Survey Reporter* 2(5):4-23.

Service, E. R.

1962 *Primitive Social Organization*. Random House, New York.

Shanks, M. and C. Tilley

1987 *Social Theory and Archaeology*. Polity Press, Cambridge.

Shutler, R. J.

1961 *Lost City: Pueblo Grande de Nevada*. Nevada State Museum Papers Number 5. Carson City.

Siegel, R. K.

1977 Hallucinations. *Scientific American* 237(4):132-140.

Siskin, E. E.

1941 *The Impact of the Peyote Cult upon Shamanism among the Washo Indians.* Unpublished Ph.D. Dissertation, Department of Anthropology, Yale University, New Haven.

1983 *Washo shamans and Peyotists. Religious conflict in an American Indian tribe.* University of Utah Press, Salt Lake City.

Skotnes, P.

1991 Rock Art: Is there life after trance? *De Arte* 44:16-24.

Smith, C.

1992 Colonizing with Style: Reviewing the nexus between rock art, territoriality and the colonisation and occupation of Sahul. *Australian Archaeology* 34:34-42.

1999 Ancestors, Place and People: social landscapes in Aboriginal Australia. In *The Archaeology and Anthropology of Landscape: Shaping your landscape*, edited by P. Ucko and R. Layton, pp.189-205. Routledge, London.

Solomon, A.

1997 The Myth of Ritual Origins? Ethnography, mythology and interpretation of San Rock Art. *South African Archaeological Bulletin* 52:3-13.

1998 Ethnography and method in southern African rock-art research. In *The Archaeology of Rock-Art*, edited by C. Chippindale and P. S. C. Taçon, pp. 268-284. Cambridge University Press, Cambridge.

Spencer, W. B. and F. J. Gillen

1899 *The Native Tribes of Central Australia.* Macmillan, London.

Sperber, D.

1975 *Rethinking Symbolism.* Cambridge University Press, Cambridge.

Steinbring, J.

1993 Dating Rock Art in the Northern Midcontinent. *American Indian Rock Art Volume* 12, edited by F. G. Bock, pp. 15-29. American Rock Art Research Association, El Toro.

Steinbring, J. (cont'd)

1999 Early Rock Art of Mid-Continental North America. In *Dating and the earliest known Rock Art: Papers Presented in Symposia 1-3 of the SIARB Congress, Cochabamba, Bolivia, April 1997*, edited by M. Strecker and P. Bahn, pp. 5-14. Oxbow Books, Oxford.

Steward, J. H.

1929 Petroglyphs of California and Adjoining States. *University of California Publications in American Archaeology and Ethnology* 24:47-238.

1937 Petroglyphs of the United States. *Annual Report of the Board of Regents of the Smithsonian Institution for 1936 Publication* 3405:405-425.

1938 *Basin-Plateau Aboriginal Sociopolitical Groups*. Bureau of American Ethnology Bulletin 120. Smithsonian Institution, Washington, D.C.

1968 Foreword. In *Rock Drawings of the Coso Range*, by C. Grant, J. W. Baird and J. K. Pringle, pp. vii-x. Maturango Museum, Ridgecrest.

Stewart, O. C.

1939 Northern Paiute Bands. *University of California Anthropological Records* 2:127-149.

1941 Culture Element Distributions: XIV - Northern Paiute. *University of California Anthropological Records* 4:361-446.

1942 Culture Element Distributions: XVIII - Ute-Southern Paiute. *University of California Anthropological Records* 6:231-356.

1980 Temoke Band of Shoshone and the Oasis Concept. *Nevada Historical Society Quarterly* 23:246-261.

Stoffle, R. W., L. Loendorf, D. E. Austin, D. B. Halmo and A. Bulletts

2000 Ghost Dancing the Grand Canyon: Southern Paiute Rock Art, Ceremony, and Cultural Landscapes. *Current Anthropology* 41:11-38.

Stoney, S. A.

1992 Anthropomorphic Symbolism in Southern Nevada: A study in cultural diversity. In *Rock Art Papers Volume* 9, edited by K. Hedges, pp.57-66. San Diego Museum Papers No. 28. Museum of Man, San Diego.

Strecker, I.

1988 *The Social Practice of Symbolization: An Anthropological Analysis*. London School of Economics Monographs on Social Anthropology No. 60. Athlone Press, London.

Sundstrom, L.

1990 *Rock Art of the Southern Black Hills: a contextual approach*. Unpublished Ph.D. Dissertation, Department of Anthropology, University of Kansas, Lawrence.

1996 Mirror of heaven: cross-cultural transference of the sacred geography of the Black Hills. *World Archaeology* 28:177-189.

1997 The Sacred Black Hills: An ethnohistorical review. *Great Plains Quarterly* 17(3/4):185-212.

Sutton, M. Q.

1993 The Numic Expansion in Great Basin Oral Tradition. *Journal of California and Great Basin Anthropology* 15:111-128.

Taçon, P. S. C.

1993 Regionalism in the recent rock art of western Arnhem Land, Northern Territory. *Archaeology in Oceania* 28:112-120.

1994 Socialising landscapes: the long-term implications of signs, symbols and marks on the land. *Archaeology in Oceania* 29:117-129.

Taçon, P. S. C. and C. Chippindale

1998 An archaeology of rock-art through informed methods and formal methods. In *The Archaeology of Rock-Art*, edited by C. Chippendale and P. S. C. Taçon, pp. 1-10. Cambridge University Press, Cambridge.

Taçon, P. S. C. and P. Faulstich

1993 Introduction: Expressing relationships to the land by marking special places. In *Time and Space: Dating and spatial considerations in rock art research*, edited by J. Steinbring, A. Watchman, P. Faulstich and P. S. C. Taçon, pp. 81-83. Occasional AURA Publication No. 8. Australian Rock Art Research Association, Melbourne.

Thomas, D. H.

1973 An Empirical Test for Steward's Model of Great Basin Settlement Patterns. *American Antiquity* 38:155-176.

Thomas, D. H. and T. C. Thomas

1972 New Data on Rock Art Chronology in the Central Great Basin. *Tebiwa* 15 (1): 64-71.

Thomas, J.

1993a The Politics of Vision and the Archaeologies of Landscapes. In *Landscapes: Politics and Perspectives*, edited by B. Bender, pp. 19-48. Berg, Oxford.

1993b The Hermeneutics of Megalithic Space. In *Interpretative Archaeology*, edited by C. Tilley, pp.73-97. Berg, Oxford.

Thomas, T.

1976 Petroglyph Distribution and the Hunting Hypothesis in the Central Great Basin. *Tebiwa* 18 (2): 65-74.

Tilley, C.

1991 *Material Culture and Text: the art of ambiguity*. Routledge, London.

1994 *A Phenomenology of Landscape: Places, Paths, and Monuments*. Berg, Oxford.

Tratebas, A. M.

1999 The Earliest Petroglyph Traditions on the North American Plains. In *Dating and the earliest known Rock Art: Papers Presented in Symposia 1-3 of the SIARB Congress, Cochabamba, Bolivia, April 1997*, edited by M. Strecker and P. Bahn, pp. 15-28. Oxbow Books, Oxford.

Trigger, B.

1995 Expanding middle-range theory. *Antiquity* 69:449-458.

Tuan, Y-F.

1974 *Topophilia: a study of environmental perception, attitudes, and values*. Prentice-Hall, Englewood Cliffs, New Jersey.

1977 *Space and Place: The Perspective of Experience*. Arnold, London.

Tuohy, D. R.

1985 Notes on the Great Basin Distribution of Clovis Fluted and Folsom Projectile Points. *Nevada Archaeologist* 5(1):15-18.

Tuohy, D. R. and A. Dansie

1997 Papers on Holocene Burial Localities Presented at the 25th Great Basin Anthropological Conference, October 10-12, 1996. *Nevada Historical Quarterly* 40:1-3.

Turner, V.

1967 *The Forest of Symbols*. Cornell University Press, Ithaca

1969 *The Ritual Process*. Routledge & Kegan Paul, London.

1971 The syntax of Ndembu ritual. In *Structural Analysis of Oral Tradition*, edited by P. Maranda and E. K. Maranda, pp. 125-136. Routledge & Kegan Paul, London.

Ucko, P. J. and A. Rosenfeld

1967 *Palaeolithic Cave Art*. McGraw-Hill, New York.

Valentine, D. W.

1999 *Pigeon Scratchings—Historic Native American Rock Art in the Sylvania Mountains, Nevada*. Rock Art Papers 14, edited by Ken Hedges. San Diego Museum of Man Papers 36, San Diego.

Vastokas, J. M. and R. K. Vastokas

1973 *Sacred Art of the Algonkians*. Mansard Press, Peterborough.

Versluis, A.

1992 *Sacred Earth: The spiritual landscape of Native America*. Inner Traditions International, Montreal.

Vinnicombe, P.

1986 Rock Art, Territory and Land Rights. In *The Past and Future of ¡Kung Ethnography: Critical Reflections and Symbolic Perspectives. Essays in honour of Lorna Marshall*, edited by G. L. Biesele, pp. 275-309. Quellen zur Khoisan Forschung 4, Hamburg.

Von Werlhof, J. C.

1965 *Rock Art of Owens Valley, California*, Department of Anthropology, University of California Archaeological Research Facility, No. 65. Berkeley.

Vrooman, N. C. P.

1997 *Songs for Asking: Perspectives on Traditional Culture Among Nevada Indians.* Nevada State Council on the Arts, Carson City, Nevada.

Wallace, A. F. C.

1970 *Culture and Personality.* 2nd ed. Random House, New York.

Warren, C. N. and R. H. Crabtree

1986 Prehistory of the Southwestern Area. In *Great Basin*, edited by W. L. d'Azevedo, pp. 183-193. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Watchman, A.

1997 Some observations on the radiocarbon and cosmogenic isotope dating of petroglyphs, Foz Coa, Portugal. *Antiquity* 72:197-200.

Weissner, P.

1982 Beyond Willow Smoke and Dogs' Tails: A comment on Binford's analysis of hunter-gatherer settlement systems. *American Antiquity* 47:171-177.

1984 Reconsidering the behavioural basis for style: a case study among the Kalahari San. *Journal of Anthropological Archaeology* 3:190-234.

1989 Style and changing relations between the individual and society. In *The Meanings of Things: Material Culture and Symbolic Expression* edited by I. Hodder, pp. 56-63. Allen & Unwin, London.

Whalley, W. B.

1983 Desert Varnish. In *Chemical sediments and geomorphology: precipitates and residuals in the near-surface environments*, edited by S. A. Goudie and K. P. Goudie, pp. 197-226. Academic Press, London.

Wheat, M.

1967 *Survival Arts of the Primitive Paiutes.* University of Nevada Press, Reno.

White, W. G.

1999 *A Model for Establishing Chronometric Age Determinations for Petroglyphs and Pictographs on the Nellis Air Force Range and Adjacent Overflight Lands, Clark, Lincoln, and Nye Counties, Nevada.* Harry Reid Center for Environmental Studies, Marjorie Barrick Museum of Natural History, University of Nevada. Copies available from Contract No. DACA63-95-D-0022 HRC Report 1-8-20.

White, W. G. and R. L. Orndoff

1999 *A Cultural Resource and Geological Study Pertaining to Four Selected Petroglyph/Pictograph Sites on Nellis Air Force Range and Adjacent Overflight Lands, Lincoln and Nye Counties, Nevada.* Harry Reid Center for Environmental Studies. Copies available from Contract No. DACA63-95-D-0022 HRC Report 1-8-19.

Whitehead, A. N.

1927 *Symbolism: Its Meaning and Effect.* Macmillan, New York.

Whitley, D. S.

1982 *The Analysis of North American Rock Art: A Case Study from South-Central California.* Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Los Angeles.

1987 Socioreligious Context and Rock Art in East-Central California. *Journal of Anthropological Archaeology* 6:159-188.

1992 Shamanism and Rock Art in Far Western North America. *Cambridge Archaeological Journal* 2:89-113.

1994a By the hunter, for the gatherer: art, social relations and subsistence change in the prehistoric Great Basin. *World Archaeology* 25:357-373.

1994b Ethnography and rock art in the Far West: some archaeological implications. In *New Light on Old Art*, edited by D. S. Whitley and L. L. Loendorf, pp. 81-93. Institute of Archaeology Monograph 36. University of California, Los Angeles.

1994c Shamanism, Natural Modelling and the Rock Art of Far Western North American Hunter Gatherers. In *Shamanism and Rock Art in North America*, edited by S. A. Turpin, pp. 1-43. Special Publication I. The Rock Art Foundation, San Antonio.

1996 Numic Bands and Headmen Revisited: Social Factors in the Origins of Great Basin Political Differentiation. Paper presented at the 25th Biennial Great Basin Anthropological Conference, Kings Beach, California.

Whitley, D. S. (cont'd)

1998a Finding rain in the desert: landscape, gender, and far western North American rock-art. In *The Archaeology of Rock-Art*, edited by C. Chippindale and P. S. C. Taçon, pp. 11-29. Cambridge University Press, Cambridge.

1998b History and Prehistory of the Coso Range: the Native American Past on the Western Edge of the Great Basin. In *Coso Rock Art: A New Perspective*, edited by E. Younkin, pp. 29-68. Maturango Museum Publication No. 12. Maturango Press, Ridgecrest.

1998c *Following the Shaman's Path: a walking guide to Little Petroglyph Canyon, Coso Range, California.* Maturango Press, Ridgecrest.

1998d Meaning and Metaphor in the Coso Petroglyphs: Understanding Great Basin Rock Art. In *Coso Rock Art: A New Perspective*, edited by E. Younkin, pp. 109-174. Maturango Museum Publication No. 12. Maturango Press, Ridgecrest, California.

2000 Comments on *Ghost Dancing the Grand Canyon: Southern Paiute Rock Art, Ceremony, and Cultural Landscapes*, by R. W. Stoffle, L. Loendorf, D. E. Austin, D. B. Halmo, and A. Bulletts. *Current Anthropology* 41:31

Whitley, D. S., J. Baird, J. Bennett and R. G. Tuck

1984 The Use of Relative Repatination in Chronological Ordering of Petroglyph Assemblages. *New World Archaeology* 6(3):19-25.

Whitley, D. S. and R. I. Dorn

1987 Rock art chronology in eastern California. *World Archaeology* 19:150-164.

1993 New Perspectives on the Clovis vs. Pre-Clovis Controversy. *American Antiquity* 58:626-647.

Whitley, D. S. and L. L. Loendorf

1994 Introduction. In *New Light on Old Art: Recent Advances in Hunter-Gatherer Rock Art Research*, edited by D. S. Whitley and L. L. Loendorf, pp. xi-xx. Institute of Archaeology, University of California, Los Angeles.

Whitley, D. S., J. M. Simon and R. I. Dorn

1999 The Vision Quest in the Coso Range. *American Indian Rock Art Volume* 25, edited by S. M. Freers, pp. 1-31. American Rock Art Research Association, Tucson.

Whitley, D. S., R. I. Dorn, J. M. Simon, R. Rechtman and T. K. Whitley
1999 Sally's Rockshelter and the Archaeology of the Vision Quest. *Cambridge Archaeological Journal* 9(2):221-247.

Williams, N. M. and E. S. Hunn (editors)
1982 *Resource Managers: North American and Australian Hunter-Gatherers*. Westview Press, Boulder.

Williams, N. M.
1982 A Boundary is to Cross: Observations on Yolngu Boundaries and Permission. In *Resource Managers: North American and Australian Hunter-Gatherers*, edited by N. M. Williams and E. S. Hunn, pp. 131-154. Westview Press, Boulder.

Wobst, H. M.
1977 Stylistic behaviour and information exchange. In *For the Director: Research Essays in Honour of J.B.Griffin*, edited by C. Cleland, pp. 317-42. Museum of Anthropology, University of Michigan, Ann Arbor.

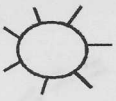
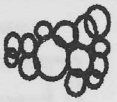
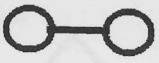
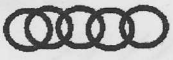
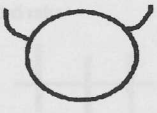
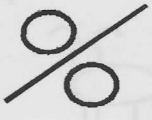
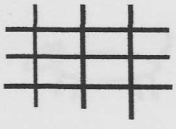
Woody, A.
in press Linking Past and Place: The construction and maintenance of tradition. Paper presented at the 12th International Rock Art Congress, Ripon, Wisconsin.
1997 *Layer by Layer: A Multigenerational Analysis of the Massacre Lake Rock Art Site*. Department of Anthropology Technical Report 97-1. University of Nevada, Reno.
2000 Coming of Age: Rock-art and reconciliation. *Nevada Archaeologist* 18. Edited by W. White, pp. 1-8.

Woody, A. and A. R. Quinlan
1998 Marks of Distinction: Rock Art and Ethnic Identification in the Great Basin. Paper presented at the 26th Biennial Great Basin Anthropological Conference, Bend, Oregon.

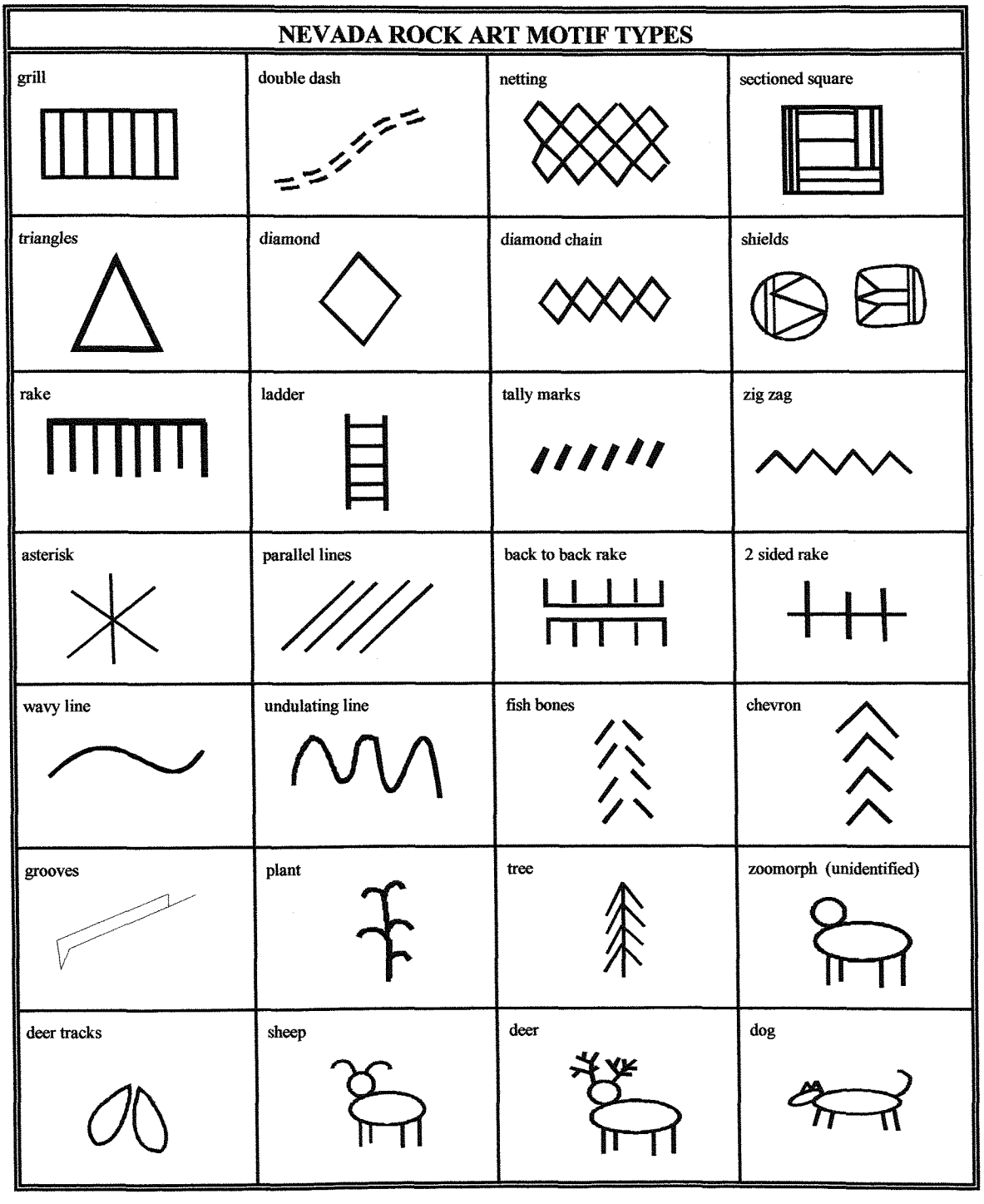
Wylie, A.
1985 The Reaction Against Analogy. *Advances in Archaeological Method and Theory* 8:63-111.
1989 Archaeological Cables and Tacking: The Implications of Practice for Bernstein's 'Options Beyond Objectivism and Relativism'. *Philosophy of Social Sciences* 19:1-18.

Young, M. J.

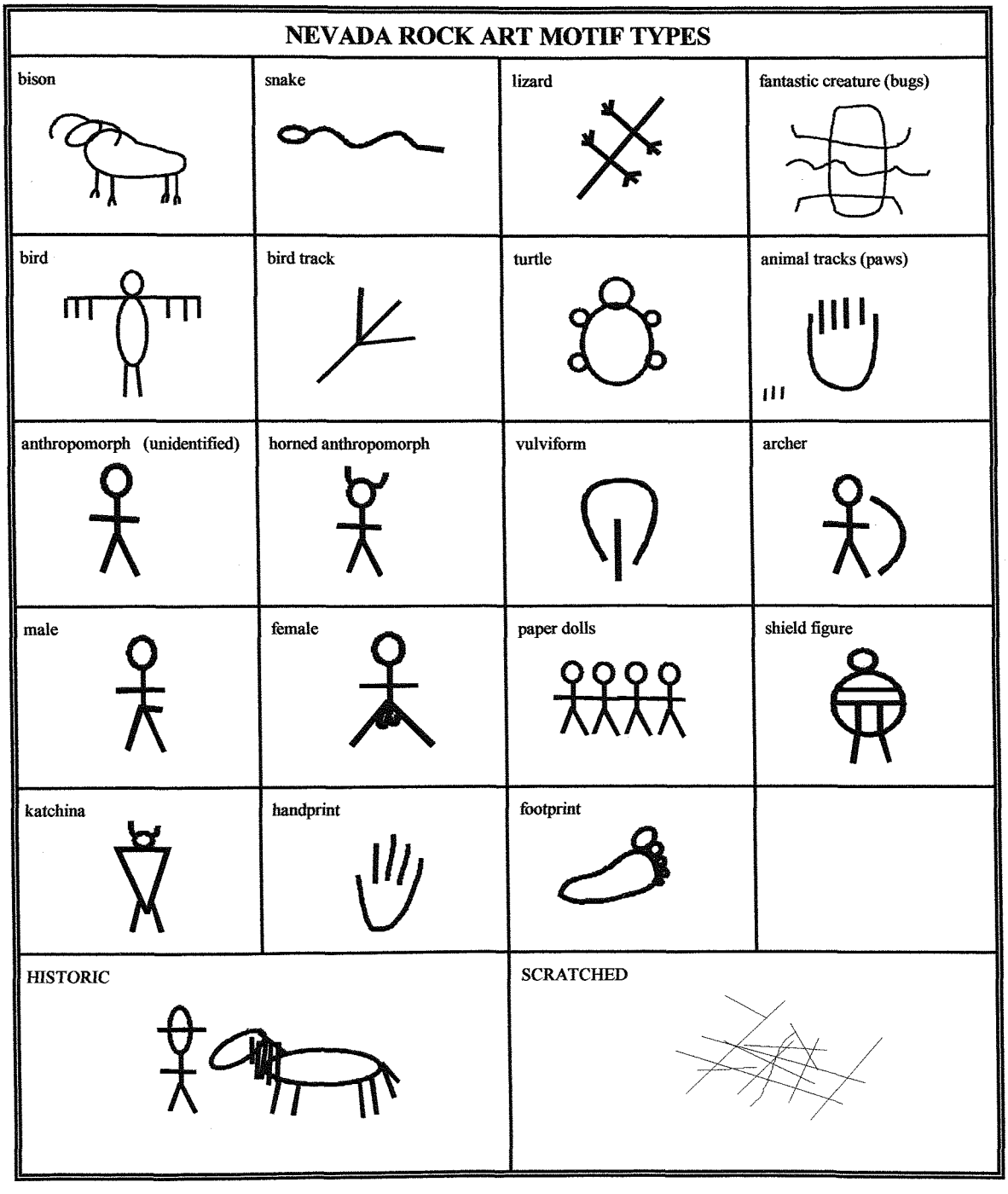
1988 *Signs from the Ancestors: Zuni Cultural Symbolism and Perceptions of Rock Art.* University of New Mexico Press, Albuquerque.

NEVADA ROCK ART MOTIF TYPES			
circle 	rayed circle 	bisected circle 	clustered circles 
tailed circle 	dumbbell 	divided circle 	concentric circles 
spiral 	dotted circle 	connected circles 	joined circles 
rayed concentric circles 	chain 	spoked circle 	horned circle 
dot 	dot row 	field of dots 	tailed dot 
arc 	nested arcs 	joined arcs 	cupule 
sectioned circle 	atl atl 	filigree 	grid 

Appendix 1: *Motif Typology*



Appendix 1 (cont'd): *Motif Typology*



Appendix 1 (cont'd): *Motif Typology*

Appendix 2: *Records with motif data*
(B = boulder; S = shelter; X = mixed; C = cliff; E = bedrock;
u = tufa; s = sandstone; b = basalt; g = granite; t = tuff; l = limestone;
Pe = petroglyph; Pi = Pictograph; Co = combination; Cu = cupules)

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
CH0001	Grimes Point	Western	4000	B	b	Co	1	1	1	1
CH0006	Pictograph/Salt	Western	4500	S	l	Pi	0	1	0	0
CH0015	Cave #6	Western	4002	S		Pi	0	0	1	0
CH0020	Fish Cave	Western	4002	B	b	Pe	1	0	0	0
CH0046	Hidden Cave	Western	4200	B	b	Pe	0	1	0	0
CH0057	Burnt Cave	Western	4000	S		Pi	0	0	1	0
CH0086	Lee (Allen)	Western	4000	B	u	Pe	1	1	0	1
CH0100	Wyemaha Valley	Western	4020	B	b	Pe	1	1	0	1
CH0121	"Cave #5"	Western		S		Pi	0	1	1	1
CH0926	Rawhide Wash	Western	4050	B		Cu	1	0	0	1
CH0986	Lucky Boy	Western	5040	X	g	Pi	0	0	0	1
CH2089	Amoeba Site	Western	4000	B	b	Pe	0	1	1	0
CH2098	See No Grid	Western	4068	B	b	Pe	0	0	0	1
CH7//86-1	Eleven Mile	Western	7720	C	b	Pe	0	1	0	0
CK0002	Warshield	Southeast	1927	S	l	Co	1	1	0	1
CK0003	Hiko Springs	Southeast	2000	C	g	Pe	0	1	1	1
CK0123	Keyhole Canyon	Southeast		S		Pi	0	1	0	0
CK0124	Lower Arrow	Southeast	1800				0	1	1	1
CK0173	Orphan Butte	Southeast		B		Pe	0	0	0	1
CK0207	Atlatl Rock	Southeast		C	s	Pe	1	1	1	1
CK0211	Mouses Tank	Southeast		C	s	Pe	1	1	1	1
CK0224	Red Rock	Southeast				Pe	1	0	1	1
CK0231	Red Rock	Southeast	5160			Pe	0	1	1	0
CK0232		Southeast	5160				1	1	1	1
CK0233	Brownstone	Southeast	4400			Co	1	1	1	1
CK0234	Red Rock	Southeast				Pe	1	1	0	1
CK0236	Red Rock	Southeast				Pe	1	0	0	1
CK0310	Mule Springs	Southeast	4960	B	l	Co	0	1	0	0
CK0329	Petroglyph Site	Southeast	4500	B	s	Pe	1	1	0	1
CK0380	near Buffingtons	Southeast				Pe	0	0	1	0
CK0382	on Quarry	Southeast	2800	C		Pe	0	1	0	0
CK0383	above waterfall	Southeast	2800	S		Pe	1	1	1	0
CK0427	Keyhole again	Southeast		S	g	Co	0	1	1	1
CK0430	Lost Creek	Southeast	4500	C		Co	0	1	0	1
CK0444	Sandune Shelter	Southeast	2250	C	s	Pe	1	1	1	1
CK0445	Warrior Shield	Southeast	2250	C	s	Pe	1	1	1	1
CK0446	Scalloped Rock	Southeast	2250	C	s	Pe	1	1	0	1
CK0447	Warshield	Southeast	2250	S	s	Pe	1	1	0	1
CK0476	Brownstone	Southeast	4500	C	s	Pi	1	1	0	1
CK0479	Yello Sandstone	Southeast	4500	C	s	Co	0	0	0	1
CK0480	Brownstone Cyn	Southeast	4500	C	s	Co	1	1	1	1
CK0481	across the road	Southeast	4500	C	s	Co	1	1	0	1
CK0486	Willow Springs	Southeast	4500	S	s	Co	0	1	0	0

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
CK0496	Dry Lake Basalt	Southeast	2000	B	b	Pe	0	1	0	0
CK0506	Snyder Quarry	Southeast	4400	B	s	Co	0	1	1	1
CK1343	Newberry Mtns I	Southeast	2600	S		Pe	0	0	1	0
CK1424	Lone Grapevine	Southeast	4040	B	s	Co	0	1	1	1
CK1470		Southeast	3840				0	0	0	0
CK1601	Granite Springs	Southeast	1450	C		Co	0	1	1	1
CK1602	Granite Springs	Southeast	1450	C		Co	0	1	1	0
CK1609	EMG #39	Southeast	2200	E	s	Pe	0	1	1	0
CK1880	EMG #12 - Dan	Southeast	2840	B	g	Pe	0	0	1	1
CK2240	WD-1	Southeast					0	1	1	0
CK2621	Sloan Petro Site	Southeast		X		Co	0	0	1	0
DO025	Three Sisters	Western		B	b	Pe	1	0	0	0
DO035	Near	Western		B	b	Pe	1	0	0	0
DO038	Spooner Lake -	Western					1	0	0	0
EK-1234*	Chalk Springs	Northeast	5900	C	t	Pe	1	0	0	1
EK-1235*	Knoll Creek	Northeast	6430	S	s	Pe	0	0	0	1
EK-1236*	Calf Canyon	Northeast	6230	S	l	Pi	0	1	0	0
EK-1237*	Red Hand Cave	Northeast	6120	S	l	Pi	0	1	0	0
EK-1238*	Reynolds	Northeast	6760	B	b	Pe	1	1	1	1
EK0801	Bronco Charlie	Northeast		S		Pi	1	0	0	1
EK2769	Burns Canyon	Northeast	6200	S	l	Pi	1	1	0	1
EK4831	Boulder Creek	Northeast	5600	B		Cu	1	0	0	0
EK9/30/95	Echo Chamber	Northeast	4800	S		Pi	1	0	0	1
ES0001	ALVINS - Fish	Southwest		B	b	Pe	1	0	0	1
ES0002	Cave with	Southwest		S		Pi	1	0	0	1
ES0003	Barlow Site	Southwest		B			1	0	0	1
ES0005	Brickyard	Southwest					1	1	0	1
ES0011	Lida Rock	Southwest	5640	S	c	Pi	0	1	0	1
ES0337-1	Cane Man	Southwest	4600	S	b	Pe	1	1	1	1
ES0337-2	Cane Man 2	Southwest		B		Pe	1	1	1	1
ES0337-3	Cane Man 8	Southwest					1	0	1	1
ES0393	Davis Mtn / By	Southwest	5280	B	b	Pe	1	0	1	1
ES0399	Soldier Pass	Southwest	5700	C	s	Pe	1	1	1	1
ES0680	Tokop Site	Southwest	5940	C	t	Pe	1	0	0	1
ES0681A	Hanging Mesa	Southwest	7470	X	b	Pe	1	0	1	1
ES0681B		Southwest	7440	C	b	Pe	1	1	1	1
ES0681C		Southwest	7460		b		0	0	1	1
ES0681D		Southwest	7240	C	b	Pe	0	1	0	1
ES0789		Southwest					0	0	0	1
ES0982	Lida Wash	Southwest	5580	C	t	Pe	1	1	1	1
ES10//91-1	ALVINS -	Southwest	5920				1	1	0	1
ES10//91-3	Black Lizard	Southwest	6320	C	t	Pe	1	1	1	1
ES10//92-2	ALVINS -	Southwest					0	1	0	0
ES10//93-2	ALVIN - Rock	Southwest		B	b	Pe	0	0	0	1
ES10//93-3	ALVINS	Southwest					1	1	1	1
ES10//93-6	ALVINS	Southwest					0	0	1	0

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
ES10/10/9	ALVINS - PINE	Southwest	6320				1	0	0	0
ES10/30/9	ALVINS -	Southwest	4840				1	1	1	0
ES10/31/9	ALVINS -	Southwest					0	0	0	1
ES1012	Outlier Rock	Southwest	5740				1	0	0	1
ES1029	Triple Date	Southwest	6530	B	b	Pe	1	0	0	1
ES1030	Pigeon Spring	Southwest	6480	C	t	Pe	1	1	1	1
ES1031	Four Snakes	Southwest	6520	B	b	Pe	0	0	0	1
ES5//88-1	Lone Boulder	Southwest	5920	C	t	Pe	1	1	0	1
ES5//88-2	Cane Man Hill	Southwest		X		Pe	0	1	1	0
ES5//88-3	ALVINS - Dog	Southwest					1	0	0	1
ES5//93-1		Southwest		B	b	Pe	0	1	0	0
ES5//96-1	Sams Site	Southwest		C	t	Pe	1	1	0	1
ES5//96-2*	Down Canyon	Southwest		C	t	Pe	0	1	0	0
ES64-7853	Big Spring	Southwest		C	t	Pe	0	1	0	0
ES856	Indian Springs	Southwest	6080				0	1	0	1
ESA-1-2-3	McNamara	Southwest		B	t	Pe	0	0	1	0
EU0001	Dunphy Boulder	Central					1	0	0	0
HU1879	Gooch Lake	Northwest	6000	C	b	Pe	1	1	0	1
HU1880	Big Spring	Northwest	5940	C	b	Pe	1	1	0	1
HU2237	Dahlem Shelter	Northwest	5980	S	t	Co	0	0	1	0
HU5//92-2	ALVINS -	Northwest					0	0	0	0
HU5//92-4	ALVINS -	Northwest					1	0	0	1
HU5//92-5	ALVINS -	Northwest					1	0	0	1
HU5//92-7	ALVINS -	Northwest					0	0	0	1
HU5//92-8	ALVINS -	Northwest					1	1	0	1
HU5//94-2	ALVINS	Northwest					1	0	0	1
HU5//94-3	ALVINS	Northwest					1	0	0	0
HU5//94-4	ALVINS	Northwest					1	0	0	1
HU5//94-5	ALVINS	Northwest					1	0	0	0
HU5//94-7	ALVINS	Northwest					0	0	0	0
HU6//93-1	ALVINS -	Northwest	4700				1	0	0	0
LA0000	Easter Site	Central	6320	X	b	Pe	0	0	0	0
LA0001	Toquima Cave	Central		S	u	Pi	1	1	0	1
LA0009	Hickison	Central	6640	C	t	Pe	1	1	0	1
LA2374		Central		C	b	Pe	0	0	0	0
LA2723		Central		C	b	Pe	0	0	0	0
LA2724	Battle Mtn	Central	5100				0	0	0	1
LA7//91-1	Natural Vulva	Central		C	t	Pe	0	0	0	0
LN0000	Calendar Fence	East		B	c	Pe	0	0	0	1
LN0105	previously	Southeast		C		Pe	0	1	1	0
LN0106		Southeast		C		Pe	0	1	1	0
LN0117		Southeast		C	s	Pe	0	0	0	0
LN0120		Southeast		C		Pi	0	0	0	0
LN0127	Meadow Valley	Southeast		C	s	Co	0	1	0	0
LN0128	more Meadow	Southeast		C	s	Pi	0	1	0	0
LN0151	Buckhorn Ranch	Southeast		C		Pe	0	1	0	0

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
LN0210	Amphitheatre	Southeast	4600	C	t	Pe	1	1	1	1
LN0211	White River	Southeast		C	t	Pe	1	1	1	1
LN0215	Ash Springs	Southeast	3700			Pe	0	1	0	0
LN0220	@ the Narrows	Southeast	4600	C	t	Pe	1	0	0	1
LN0351		Southeast	4000	C		Co	0	1	1	0
LN0355	Logan Springs /	Southeast		B	c	Pe	0	1	1	0
LN0356	Logan Springs	Southeast		B	c	Pe	0	0	1	0
LN0618	Deep Site	Southeast	4160	S		Pe	0	0	1	0
LN0809	Upper	Southeast	3420	B	b	Co	0	1	1	0
LN0847	Wellington	Southeast	4000	C		Co	0	0	1	0
LN1521	Frenchy Lake	Southeast		B		Pe	0	1	0	0
LN1522	N of Hiko Post	Southeast		S	b	Pe	0	1	1	0
LN1523	@White River	Southeast		C	b	Pe	1	1	1	1
LN1524	near White	Southeast		C	b	Pe	0	1	1	0
LN1525	near White	Southeast		C	b	Pe	0	1	1	0
LN1526		Southeast		B		Pe	1	0	1	0
LN1527	Rainbow Canyon	Southeast		C		Pe	0	1	1	0
LN1528	Rainbow Canyon	Southeast		B	b	Pe	0	0	1	0
LN1532	McCrosky	Southeast		C	X	Co	0	1	0	0
LN1535	near Delumes	Southeast		B	b	Pe	0	1	0	0
LN1539	Condor Canyon	Southeast		X		Co	0	1	0	0
LN1540	Condor Canyon	Southeast		B		Pe	0	1	1	0
LN1541	Condor Canyon	Southeast		C		Pi	0	1	0	0
LN1542	Condor Canyon	Southeast		S		Pi	0	1	0	0
LN1544		Southeast		C	b	Pi	0	1	0	0
LN1669		Southeast				Pe	0	0	0	0
LN1703		Southeast	6500	C	t	Pe	0	1	0	0
LN2171	Maynard Lake	Southeast	3160	X	t	Co	0	1	1	0
LN2213		Southeast	5970		b	Pe	0	1	1	0
LN2561		Southeast	5200	S		Co	0	1	1	0
LN2562	Yellow Man	Southeast	5600	S		Pi	0	1	0	0
LN3097		Southeast	6800	S		Pi	0	0	0	0
LN4137	White Rock Site	Southeast	4510	C	t	Pe	0	1	0	1
LY0004	Desert Creek	Western		B	b	Pe	1	1	1	1
LY0009	Medicine	Western	4600	B	b	Pe	1	1	1	1
LY0025	East Walker	Western	5000	B	b	Pe	1	1	1	1
LY0071	by Walker River	Western	5780	B	b	Pe	1	0	0	0
LY0073	by Walker River	Western	5650	B	b	Pe	1	0	0	0
LY0076	by Walker River	Western	4960	B	b	Pe	1	1	0	1
LY0079		Western	4960	B	b	Pe	1	1	0	0
LY0082		Western		C	b	Pe	1	1	1	1
LY0103	Silver City	Western	5225	X	b	Co	0	1	1	1
LY0250	Erickson Point	Western	4800	B	b	Cu	1	0	0	1
LY0361	Pine Grove	Western				Cu	1	0	0	0
LY0363	Pine Grove	Western				Pe	0	0	0	0
LY0364	Lobdell	Western	7810			Pe	0	0	1	0

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
LY0399	4 Towers	Western	5816			Pe	0	1	0	0
LY10//94-	ALVINS-W of	Western	6920				1	0	0	1
LY12//92-	ALVINS	Western				Pe	0	0	0	0
LY2//95-1	ALVINS-No	Western	6880				0	1	0	0
LY2//95-2	ALVINS-Spider	Western	6700				0	1	0	0
LY5//99-1	ALVINS	Western					0	0	0	0
LY5//99-2	ALVINS	Western	6680				0	0	0	0
LY5//99-3	ALVINS	Western	6600				0	0	0	0
MN0001	Rattlesnake	Western	6030	B	b	Pe	1	1	1	1
MN0004	Cottonwood	Western		B	b	Pe	0	1	0	0
MN0005	Whiskey Flat	Western	6000	B	b	Co	1	1	1	1
MN0006	West Shore of	Western	4300	B	g	Pi	1	0	0	1
MN0013	Painted Canyon	Western		S		Pi	1	0	0	1
MN0014	Rattlesnake Well	Western		B	b	Pe	1	1	1	0
MN0017	Dutch Creek	Western		B	g	Pe	0	1	1	0
MN0022	Huntoon Spring	Western	6320	B	b	Pe	1	1	0	1
MN0094	Truman Springs	Western		X		Co	0	1	0	0
MN0097	Ten Vulvas	Western	7240	B	b	Pe	1	1	0	0
MN0098	Barb Wire Site	Western	7120				0	1	0	1
MN0132	Pepper Springs	Western	4100	B	b	Pe	1	1	0	0
MN0484	Huntoon Spring	Western	6120	B	b	Pe	1	0	0	0
MN0512	Dry Canyon -	Western	4400	B	b	Pe	1	1	1	1
MN1//91-1	Taft Spring	Western	6280	B	b	Pe	0	1	0	0
MN1//97-1	Taft Spring	Western		C	b	Pe	0	1	0	0
MN1//98-1	SW of Miller	Western	7180	B	b	Pe	0	0	0	0
MN1/23/9	So of Miller Mtn	Western	7180			Pe	1	0	0	1
MN1/23/9	W of Miller Mtn	Western	7040			Pe	1	0	0	1
MN1/7/97-	Spring @ Table	Western					0	1	0	0
MN10//94	Scratched Hands	Western					0	0	0	0
MN10//94-	Truman Spring	Western	6800	C		Pe	0	0	0	1
MN10//94-	5500 ft Truman	Western	6800			Pe	0	0	0	1
MN10//94-	Power Vision	Western	7120	C	b	Pe	0	1	1	0
MN10/10/	ALVINS	Western	7380			Pe	1	0	0	0
MN10/109	Old Camp	Western	6500			Pe	1	1	1	0
MN10/109	16 Grooves	Western	5120				0	1	0	1
MN10/119	ALVINS	Western	7280			Pe	1	1	0	1
MN10/299	ALVINS	Western	6880			Pe	1	0	0	1
MN10/299	ALVINS	Western	6780			Pe	1	0	0	1
MN10/299	ALVINS	Western	7140			Pe	1	0	0	1
MN10/299	Power Vision	Western	7130			Pe	1	1	1	1
MN10/299	ALVINS	Western	7120			Pe	1	0	0	1
MN10/309	Bear Track	Western	7880			Pe	1	0	1	1
MN10/309	Little Shelter	Western	7800			Pe	0	0	0	1
MN11//90-	Pilot Cone Site	Western	6595	C		Pe	1	1	0	0
MN11/12/	Pilot Cone	Western	6595			Pe	1	0	1	1
MN2001	Black Mountain	Western	7800	B	b	Pe	1	1	1	1

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
MN3/13/9	Giant Vulva	Western					1	1	0	1
MN4/24/0	ALVINS	Western	6600	C	b	Pe	1	1	0	1
MN4/24/9	Sand Flat	Western	6500	B	b	Pe	1	1	0	1
MN5/21/8	Beetle Site	Western				Pe	1	0	0	0
MN5/21/8	Marble Site	Western				Pe	1	0	0	0
MN5/21/8	Stream Junction	Western				Pe	1	1	0	0
MN5/21/8	ALVINS-Willow	Western		B	b	Pe	1	1	1	0
MN5/21/8	Sand Bench	Western				Pe	1	0	0	0
MN5/30/8	On Bluff Site	Western	7420	C		Pe	1	0	0	0
MN5/8/87-	Peach Site	Western	6440	S		Pi	1	0	0	1
MN6//96-2	Chukar Site	Western	5800	C	t	Co	1	1	1	1
MN6/9/96-	Junction	Western	5420			Pe	1	0	1	0
MN6/9/96-	Railroad Spring	Western				Pe	0	0	0	1
MN7067		Western				Pe	1	1	0	1
MN9/1/90-	Barbwire Site	Western	7120			Pe	1	0	0	1
MN9/10/9	Jacks Spring	Western	6580	E	b	Pe	1	1	0	1
MN9/10/9	Jacks Spring	Western	6660	B	b	Pe	1	0	0	0
MN9/11/9	ALVINS	Western	6640			Pe	1	0	0	0
MN9/11/9	Coffee Pot Mesa	Western	6820			Pe	1	0	0	0
MN9/11/9	ALVINS	Western	6800			Co	1	0	1	1
MN9/11/9	Knob Top	Western	6920			Pe	0	0	1	1
MN9/14/9	Grinder Person	Western	6690	R		Pe	0	1	0	0
MN9/15/9	Eagle Feather	Western	6920	B		Pe	1	1	0	1
MN9/2/90-	End of Trail	Western	7260	C	b	Pe	1	1	0	1
MN9/2/90-	NE Truman	Western	7260			Pe	1	0	0	1
MN9/2/90-	NE Truman	Western	7300			Pe	1	0	1	1
MN9/2/90-	NE Truman	Western	7320			Pe	0	0	0	1
MN9/2/90-	NE Truman	Western	7360			Pe	1	0	0	0
MN9/2/90-	Triangle Site	Western	7360			Pe	0	1	1	1
MN9/2/90-	Spoked Circle	Western	7560			Pe	1	0	0	1
MN9/2/90-	NE Truman	Western	7560			Pe	1	0	0	1
MN9/2/90-	NE Truman	Western	7410			Pe	1	0	0	0
MN9/24/8	Nucleated Circle	Western	8080	C		Pe	1	1	0	1
MN9/24/8	ESE McBride	Western	8080	C		Pe	1	0	0	0
MN9/24/8	W McBride Flat	Western	7800			Pe	1	1	0	1
MN9/24/8	WSW McBride	Western	7770	B		Pe	1	0	0	0
MN9/24/8	SW McBride	Western	7800			Pe	1	1	0	1
MN9/3/93-	Little Man Site	Western	6980			Pe	1	1	0	1
MN9/3/93-	So of Little Man	Western	6920			Pe	1	0	0	1
MN9/4/93-	Circle Cluster	Western	7160			Pe	1	0	0	0
MN9/4/93-	ALVINS	Western	7160			Pe	1	0	1	0
MN9/4/93-	ALVINS	Western	7120			Pe	1	1	0	1
MN9/4/93-	ALVINS	Western	7760			Pe	1	0	0	1
MN9/4/93-	ALVINS	Western	7760			Pe	1	1	1	1
MN9/4/93-	ALVINS	Western	7720			Pe	1	0	1	1
MN9/4/93-	Big Circle	Western	7740			Pe	1	0	0	0

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
MN9/4/93-	ALVINS	Western	7660				1	0	0	1
MN9/4/93-	Knoll House	Western	7640			Pe	1	0	0	0
MN9/4/93	4 Circles	Western	7440			Pe	1	0	0	0
MN9/4/93	Lone Hand	Western	7440			Pe	0	1	0	0
MN9/6/93-	Scratched Hands	Western	7800			Pe	0	1	0	0
MN9/6/93-	Rocking H	Western	7800			Pe	1	0	0	0
NY-MV#9	Turtle Rock	Central		B		Pe	0	0	0	0
NY-TY-	White Rock	Central	7600	C	t	Pe	0	1	0	0
NY-TY-	Freight Road	Central	7360	C	t	Pe	1	1	1	1
NY-TY-	X Marks the	Central		C	t	Pe	0	1	0	0
NY00001	Includes Big	Southwest	4760	B	b	Pe	1	1	1	1
NY00002		Southwest	4760	B	b	Pe	1	1	1	1
NY00041	Gold Crater =	Southwest	5275	B	t	Co	1	0	0	1
NY00110	Moores Station	Central		C	t	Pe	1	1	1	1
NY00111	Jumbled Rock	Central		C	t	Pe	1	1	0	1
NY00301	Gatecliff Shelter	Central		S	b	Pi	1	1	0	1
NY00304	Northumberland	Central		C	t	Pe	0	1	1	1
NY00369	Air Force Target	Southwest				Pe	1	0	0	1
NY00924	Barley Creek	Central		C	t	Pe	1	1	1	1
NY01158	Hunts Canyon	Central		S	t	Co	0	1	0	0
NY05670	Blue Jay Mine	None		C	l	Pe	0	0	1	0
NY09307	Split Boulder	Southwest	6640	B	t	Pe	0	1	0	0
NY10//96-	Three Vulvas	None		C	t	Pe	0	1	0	0
NY6//94-1	Pink Butte	Central		C	t	Pe	0	1	0	1
NY8//87-2	Mustard Cliffs	None		S	t	Pe	1	0	0	0
PE000	Star Creek	Northwest				Pe	1	0	0	1
PE0006	Leonard	Northwest	4190	S	u	Pe	1	0	0	1
PE0036	Star Canyon	Northwest	6000	B		Pe	1	1	1	1
PE0040	Painted Cave	Northwest	3900	S		Pi	1	1	1	1
PE0059	Eugene Mtns	Northwest				Pe	1	0	0	0
PE5/10/97	ALVINS-Tufa	Northwest	4400			Pe	1	0	0	1
PE5/19/93	ALVINS	Northwest	5000			Pe	1	0	0	1
ST0001	Lagomarsino	Western	5200	X	b	Pe	1	1	1	1
ST0032	Lousetown	Western	5580			Pe	1	1	1	0
ST0033	Rock Cabin	Western	5640			Pe	1	0	0	1
ST0035	Corral	Western	6020			Pe	0	0	0	0
ST0036	Zig Zag	Western				Pe	0	0	0	0
ST10/19/9	ALVINS-Chalk	Western				Pe	1	0	0	1
ST10/21/9	ALVINS-Horse	Western				Pe	0	1	0	1
ST2/38/88	ALVINS-3	Western				Pe	0	0	1	1
ST3/20/96	ALVINS-The	Western				Pe	0	0	0	1
ST3/26/88	ALVINS-Sunset	Western				Pe	1	1	0	1
ST4/23/88	ALVINS-Water	Western				Pe	1	1	1	1
ST4/25/92	ALVINS-Trailer	Western				Pe	0	0	0	1
ST4/30/89-	ALVINS-	Western	5120			pe	1	0	0	0
ST4/30/89	ALVINS	Western	5080			Pe	1	0	0	1

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
ST4/30/89	ALVINS	Western	5100			Pe	1	0	0	0
ST4/30/89	ALVINS	Western	5160			Pe	1	0	0	1
ST4/30/90	ALVINS	Western	5180			Pe	0	1	0	1
ST4/30/94	ALVINS-	Western				Pe	1	0	1	0
ST4/30/94	ALVINS-Coyote	Western				Pe	1	0	0	0
ST4/9/89-1	ALVINS-	Western				Pe	1	0	0	1
ST5/1/941	ALVINS	Western				Pe	1	0	0	1
ST5/26/96`	ALVINS	Western				Pe	1	0	0	0
ST5/28/88	ALVINS-Flying	Western				Pe	1	0	0	1
ST5/6/89-1	ALVINS	Western	5240			Pe	1	0	0	1
ST5/6/89-4	ALVINS	Western					1	0	0	0
ST5/6/89-5	ALVINS-Ugly	Western	5270				0	1	0	1
ST5/6/89-6	ALVINS-Big	Western				Pe	1	1	0	0
ST5/6/89-7	ALVINS	Western				Pe	1	0	0	1
ST5/8/941	ALVINS	Western				Pe	1	0	0	1
ST5/8/942	ALVINS-Spring	Western				Pe	1	0	0	0
ST6/22/91	ALVINS	Western				Pe	1	1	0	0
ST6/29/96	ALVINS	Western				Pe	0	0	0	0
ST62291-	ALVINS	Western				Pe	1	1	1	1
ST8/23/93	ALVINS	Western				Pe	0	1	0	1
ST9/28/91	ALVINS-Clam	Western				Pe	1	0	0	1
ST9/28/91	ALVINS-TP	Western				Pe	1	0	0	0
WA00	ALVIN - Miller	None					1	0	0	0
WA000	ALVIN -	None					1	0	0	0
WA0002	Court of	Western	5400	O		Pe	1	1	1	1
WA0012	Griffith Canyon	Western	4000	C	b	Pe	1	1	1	1
WA0028	Smokey Flat	None					1	0	0	0
WA0078	Massacre Lake	Northwest		C	b	Pe	1	1	1	1
WA0128	Peavine Mtn /	Western		B		Pe	1	0	0	0
WA0140	ML Site	Northwest	5680	C	b	Pe	1	0	0	1
WA0142		Northwest		C	b	Pe	1	0	0	1
WA0308	Indian Church	Western					1	0	0	0
WA1033	The Natural	Western	6900	B	b	Pe	0	0	0	1
WA11//96-	Alvin - Spanish	Western	6890		b	Pe	0	0	1	0
WA12//89-	Alvin - Standing	None					0	1	1	0
WA12//94-	ALVIN - Big	None		B		Pe	0	1	0	0
WA1604	Olsen Site	Western	5200	B	b	Pe	0	1	1	0
WA1607	Sheep Camp	Western	5200	B	b	Pe	1	0	1	1
WA1609	Deep Grooves	Western	5200	B	b	Pe	0	0	0	1
WA1611	Lizard Man	Western	5240	B	b	Pe	1	1	1	0
WA1612	Crows Nest	Western	5250	B	b	Pe	1	1	1	1
WA1613	Crows Nest	Western	5160	B	b	Pe	1	0	1	1
WA2238	Granite Creek	Northwest	4240	B	g	Pe	1	0	0	0
WA2543	Transmission	Northwest	5670		b		0	1	0	0
WA2847	Shovel Site	Western		B	b	Pe	1	1	1	1
WA2859	Hill House	Western		B	b	Pe	1	0	0	1

Appendix 2 (cont'd): *Records with motif data*

Site	Name	Region	Elev	Surf	Rock	Art	circular	human	animals	geometric
WA3135	Rock Sale #2	Northwest	6020		b	Pe	0	0	0	0
WA3312	Mule Mountain	Northwest	5680	C	b	Pe	1	1	0	1
WA3314	Hobble Springs	Northwest	6000	C	b	Pe	1	0	0	0
WA3329	Winnemucca	Western	3939	B	u	Pe	1	1	0	1
WA4//95-2	South of Falcon	Western		S	s	Pe	1	0	0	0
WA4/20/8	Alvin - AM22 -	Western		B	b	Pe	0	0	0	1
WA4/20/8	Alvin - AM23 -	Western		B	b	Pe	1	0	0	0
WA5//95-2	Alvin - Mass Lk	Northwest		C	b	Co	0	0	0	0
WA6409	Wingfield	Western	4780			Pe	1	0	0	0
WA7/1/95-	Buzz Site	None		C	b	Pe	0	0	1	0
WA7/8/85-	Alvin - Almost	Western		B	b	Pe	1	0	0	0
WA9//90-1	Alvin - Joan	None				Co	0	1	0	0
WA9/29/8	Alvin - Sunburst	Western		B	b	Pe	1	0	0	1
WA9/29/8	Alvin - Jeep	Western		B		Pe	1	1	1	1
WA9/29/8	Alvin - Jabar	Western		B		Pe	1	1	1	0
WA9/29/8	Alvin - Lost	Western		B		Pe	1	1	1	1
WA9/29/8	Alvin -	Western		B	b	Pe	1	0	1	0
WP0001		East		B	g	Pi	0	1	0	0
WP0003	Upper	East	7240	S	l	Pi	1	1	1	1
WP0012	Lower	East	7000	S	l	Pi	1	0	0	1
WP0035	South Fork Big	East	6920	S	l	Pi	0	1	0	0
WP0037	Cedar Cabin	East	7760	S	l	Pi	0	1	1	0
WP0042	Quartz Cave /	East		S	l	Pi	0	0	1	1
WP0056		East		C		Pi	0	1	1	1
WP0068	Baker Creek	East	7020	S	l	Pi	0	0	0	1
WP0069	Katchina Cave	East	5720	X	l	Pi	1	1	0	1
WP0071	Mosien Canyon	East		B	g	Pi	0	1	0	0
WP0134	Raised Spring	East	7250	E	l	Pe	1	1	1	0
WP0135	Mill Creek	East	8000	E	g	Co	1	1	1	0
WP0654	Steptoe Creek	East	8160	S		Pi	0	1	0	0
WP0854	Ohio Spring	East	9280	B		Pe	1	1	0	0
WP10//89-	Honeymoon Hill	East		C		Pe	0	1	0	0
WP1436	Success Summit	East	8400	S		Pi	0	1	0	0
WP1676	Christmas Wash	East	6720	S	l	Pi	0	1	1	0
WP1937	Sepia Shelter	East	6480	S	l	Pi	0	1	0	0
WP1940	Christmas Wash	East	6680	S	l	Pi	0	1	0	0
WP1942	Rogers Ranch	East	6200	C		Pe	0	1	0	0
WP1945	Windy Canyon	East	8740	B	g	Pe	1	0	0	1
WP1946	Lone Deer	East	9560	B		Pe	0	0	1	0
WP1948	Ryans Site	East	6800	E		Pe	1	0	0	1
WP1949	Hendrys Creek	East	5560	S		Pi	0	1	0	0
WP1950	Guilmette	East	5560	S		Pi	0	1	0	0

(27) Circular	(13) Animal	(24) Geometric
- circle (36) - clusters (23) - chain (17) - dotted (37) - connected (52) - joined (22) - rayed (29) - spoked (16) - bisected (37) - concentric (66) - rayed concentric circle (19) - spiral (24) - horned (6) - divided (9) - sectioned circle(shields?)(39) - tailed circle (45) - dumbbell (21) - atlatl (7) - dots (13) - dot row (19) - dot field (21) - tailed dot (8) - arcs (21) - nested arcs (33) - joined arcs (4) - filagree (35) - cupules (36)	- zoomorphs (62) - sheep (45) - deer (9) - dog (8) - bison (2) - snake (6) - lizard (21) - fantastic (bugs) (8) - bird (5) - bird tracks (23) - turtle (2) - paws (animals tracks)(11) - deer tracks (1)	- grid (50) - grill (14) - netting (14) - sectioned square (6) - triangles (22) - diamonds (2) - diamond chain (9) - shield (24) - double dash (2) - parallel lines (71) - back2back rakes (27) - 2 sided rakes (40) - rake (7) - ladder (6) - tally marks (9) - zig zag (47) - wavy line (75) - undulating line (16) - fish bones (3) - chevrons (2) - grooves (18) - plant (7) - tree (17) - asterisk (30)
	(11) Human - anthropomorph (146) - male (5) - female (7) - Katchina (8) - archer (3) - paper dolls (2) - horned anths (14) - shield figure (3) - hands (32) - feet (22) - vulviform (60)	
(86) Scratched		(27) Historic

Appendix 3: *Motif types, counts and categories*

Appendix 4: *Sites visited for this study*

Site	Name
CH0001	Grimes Point
CH0006	Pictograph/Salt Cave
CH0020	Fish Cave (Polished) Cave
CH0046	Hidden Cave
CH0057	Burnt Cave
CH0086	Lee (Allen) Springs
CH0100	Wyemaha Valley Petroglyphs
CK0002	Warshield Rockshelter
CK0124	Lower Arrow Canyon
CK0207	Atlatl Rock
CK0211	Mouses Tank picnic table
CK0224	Red Rock Canyon Area
CK0231	Red Rock Canyon Area
CK0233	Brownstone Canyon area
CK0380	near Buffingtons Pocket
CK0444	Sandune Shelter
CK0445	Warrior Shield Wash
CK0446	Scalloped Rock
CK0447	Warshield Shelter
CK0476	Brownstone Canyon Shelter
CK0479	Yellow Sandstone Roasting Pit
CK0480	Brownstone Cyn
CK0481	across the road
EK-1234*	Chalk Springs
EK-1235*	Knoll Creek Rock Shelter
EK-1236*	Calf Canyon Shelter
EK-1237*	Red Hand Cave
EK-1238*	Reynolds Petroglyph Site
ES0337-1	Cane Man
ES0337-2	Cane Man 2
ES1012	Outlier Rock
ES1029	Triple Date Petroglyph
ES1030	Pigeon Spring
ES1031	Four Snakes Boulder
ES5//88-2	Cane Man Hill
LA0001	Toquima Cave
LA0009	Hickison Summit
LN0000	Calendar Fence
LN0210	Amphitheatre (Horseshoe) Site
LN0211	White River Narrows #2
LN0215	Ash Springs
LN0220	@ the Narrows
LY0009	Medicine Rock/Schurz Site
LY0025	East Walker River
LY0071	by Walker River Site

Site	Name
LY0073	by Walker River
LY0076	by Walker River
LY0361	Pine Grove Cupules
LY0363	Pine Grove Historic
MN0001	Rattlesnake Canyon / Garfield Flat
MN0004	Cottonwood Canyon
MN0005	Whiskey Flat
MN0006	West Shore of Walker Lake
MN0013	Painted Canyon Pictographs
MN2001	Black Mountain (Pistone)
MN6//96-2	Chukar Site
NY-MV#9	Turtle Rock
NY-TY-	White Rock Canyon
NY-TY-	Freight Road Petroglyphs
NY-TY-	X Marks the spot
NY00110	Moores Station #1
NY00111	Jumbled Rock Gulch
NY00301	Gatecliff Shelter
NY00304	Northumberland
NY00924	Barley Creek
NY09307	Split Boulder
NY6//94-1	Pink Butte
PE0006	Leonard Rockshelter
ST0001	Lagomarsino
WA0002	Court of Antiquity
WA0012	Griffith Canyon
WA0078	Massacre Lake
WA1604	Olsen Site
WA1607	Sheep Camp
WA1609	Deep Grooves
WA1611	Lizard Man Ridge
WA1612	Crows Nest
WA1613	Crows Nest Group
WA2847	Shovel Site
WA2859	Hill House
WA3329	Winnemucca Lake
WA4//95-2	South of Falcon Hill
WA7/1/95-	Buzz Site
WA9/29/8	Alvin - Jeep Trail Ridge
WA9/29/8	Alvin - Jabar

County	Total No. of Sites	Total Area	Site Density
Churchill	47	4929.3	0.95
Clark	239	7910.7	3.02
Douglas	6	709.9	0.85
Elko	13	45400	0.03
Esmeralda	47	3588.7	1.31
Eureka	2	4176	0.05
Humboldt	28	9648.3	0.29
Lander	12	5493.5	0.22
Lincoln	101	4435	2.28
Lyon	33	1993.8	1.66
Mineral	116	3756.6	3.09
Nye	79	18147.2	0.44
Pershing	14	6009.1	0.23
Storey	44	263.5	16.70
Washoe	208	6342.5	3.28
White Pine	28	8876.6	0.32
NEVADA	**1037**	**109805.5**	**0.94**

Appendix 5: *Rock art site densities by county and total for the state of Nevada*

Region	Boulder	% T	Cliff	% T	Bedrock	% T	Shelter	% T	Mixed	% T
NW (24)	7	29	12	50	0	0	5	21	0	0
NE (10)	1	10	1	10	1	10	7	70	0	0
W (163)	93	57	20	12	2	1	44	27	4	2
C (29)	4	14	13	45	0	0	11	38	1	3
E (45)	8	18	5	11	5	11	26	58	1	2
SW (41)	15	37	13	32	11	27	0	0	2	5
SE (151)	32	21	62	41	3	2	47	31	7	5

Appendix 6: *Surface types by region*

County	Boulder	% T	Cliff	% T	Bedrock	% T	Shelter	% T	Mixed	% T
Ch (38)	7	14	12	32	0	0	17	45	1	.03
Ck (78)	15	19	32	41	3	40	27	34	1	.01
Ek (10)	1	10	1	10	1	10	7	70	0	0
Es (26)	9	35	12	46	0	0	3	12	1	3.8
Eu (1)	0	0	0	0	0	0	1	100	0	0
Hu (8)	3	38	4	50	0	0	1	13	0	0
Ln (73)	17	23	30	41	0	0	20	27	6	8
Ly (19)	16	84	1	5	0	0	1	5	1	5
Mn (42)	23	55	13	31	1	2	4	10	1	2
Ny (40)	9	23	13	33	0	0	18	45	0	0
Pe (5)	2	40	1	20	0	0	2	40	0	0
St (1)	0	0	0	0	0	0	0	0	1	100
Wa (76)	37	49	13	17	1	1	25	33	0	0
WP (45)	8	18	5	11	5	11	26	58	1	2

Appendix 6a: *Surface types by county*

Region	Total No. Sites	Total w/Motif Data	% w / Motif Data
None	116	10	8.6
Northwest	58	30	60
Northeast	13	9	69.2
West	334	189	56.6
Central	40	19	47.5
East	48	25	52.1
Southwest	88	45	51.1
Southeast	340	81	23.8

Appendix 7: Rock art sites by region and percentage with motif data

Region	Petros	Total	% of T	Region	Petros	Total	% of T
Northwest	24	58	41.38	East	14	48	29.17
Northeast	6	13	46.15	Southwest	36	88	40.91
West	228	334	68.26	Southeast	120	340	35.29
Central	22	40	55				

Appendix 8: *Petroglyph sites by region and percentage of region total*

Region	Circular	Geometric	Human	Animal	Historic	Scratched
None	4	0	4	3	0	1
Northwest	23	18	8	4	1	5
Northeast	6	6	4	1	0	0
West	136	109	80	51	4	51
Central	8	10	12	4	0	1
East	8	9	19	8	2	1
Southwest	28	34	24	18	5	15
Southeast	23	31	61	44	14	6
TOTALS	236	217	212	133	27	87

Appendix 9: *Motif categories by region*

County	Circular	Geometric	Human	Animal	Historic	Scratched
Ch	5	7	8	5	1	0
Ck	17	26	31	23	6	3
Do	3	0	0	0	0	0
Ek	6	6	4	1	0	0
Es	25	30	21	16	4	12
Eu	1	0	0	0	0	0
Hu	10	8	3	1	1	2
La	2	3	2	0	0	6
Ln	6	6	30	21	8	3
Ly	11	8	10	6	1	11
Mn	69	56	41	21	1	33
Ny	10	11	14	7	2	6
Pe	7	6	2	2	0	0
St	27	24	11	6	1	5
Wa	29	18	16	16	0	5
WP	8	8	19	8	2	1
TOTALS	236	217	212	133	27	87

Appendix 9a: *Motif categories by county*

	Nested Arcs	Arc	Joined Arcs	Dumbbell	Dot Row	Dot Field	Dots	Tailed Dot	Circle	Tailed Circle	Connected Circles	Joined Circles	Rayed Conc Circles	Rayed Circles
NW	3	2	1	4	2	4	3	0	0	5	9	2	1	6
NE	1	1	0	0	2	1	0	0	0	0	0	0	0	0
W	16	11	3	9	6	5	4	6	30	24	27	15	10	17
C	2	2	0	0	2	1	0	1	1	0	2	0	1	0
E	2	0	0	0	0	0	2	0	0	0	1	0	1	0
SW	7	4	0	3	3	2	0	1	0	9	7	2	6	3
SE	2	1	0	5	4	8	4	0	5	7	7	3	0	3
NONE	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Spoked Circle	Bisected Circle	Concentric Circles	Horned Circle	Divided Circle	Sectioned Circle	Dotted Circle	Atl Atl	Clustered Circles	Cupules	Circle Chain	Spiral	Filigree
NW	2	4	4	0	1	2	7	1	3	3	2	2	4
NE	0	1	0	0	0	2	0	0	0	2	0	0	0
W	11	17	41	3	6	23	20	2	12	15	5	15	17
C	0	2	2	0	0	1	1	0	2	1	0	0	1
E	0	0	1	0	0	0	0	0	0	5	0	0	0
SW	1	3	9	1	0	3	8	0	1	3	2	3	3
SE	2	10	9	2	2	8	1	4	5	3	8	4	10
NONE	0	0	0	0	0	0	0	0	0	4	0	0	0

Appendix 10: *Circular motifs by region*

	Spoked Circle	Bisected Circle	Concentric Circles	Horned Circle	Divided Circle	Sectioned Circle	Dotted Circle	Atl Atl	Clustered Circles	Cupules	Circle Chain	Spiral	Filigree
Ch	0	0	1	0	0	0	0	0	1	3	2	2	2
Ck	1	8	6	1	1	6	1	3	2	3	7	4	8
Do	0	0	0	0	0	0	0	0	0	3	0	0	0
Ek	0	1	0	0	0	2	0	0	0	2	0	0	0
Es	0	1	8	1	0	1	7	0	0	3	2	3	3
Eu	0	0	0	0	0	0	0	0	0	1	0	0	0
Hu	0	1	0	0	0	2	2	0	1	0	2	0	2
La	0	2	1	0	0	0	1	0	1	0	0	0	0
Ln	1	2	3	1	1	2	0	1	3	0	1	0	2
Ly	1	4	4	0	0	2	2	1	2	3	0	2	2
Mn	6	6	24	2	5	18	14	1	5	2	1	6	3
Ny	1	2	2	0	0	3	1	0	2	1	0	0	1
Pe	0	1	2	0	0	0	2	0	1	2	0	1	0
St	3	3	8	1	1	3	3	0	4	0	1	3	8
Wa	3	6	6	0	1	0	4	1	1	8	1	3	8
WP	0	0	1	0	0	0	0	0	0	5	0	0	0
State Total	16	37	66	6	9	39	37	7	23	36	17	24	35

Appendix 10a: *Circular motifs by county*

	Nested Arcs	Arc	Joined Arcs	Dumbbell	Dot Row	Dot Field	Dots	Tailed Dot	Circle	Tailed Circle	ConnectCircles	Joined Circles	Rayed Conc Circles	Rayed Circle
Ch	1	0	0	1	1	1	0	0	0	0	1	0	0	0
Ck	2	1	0	3	2	6	3	0	5	5	7	2	0	2
Do	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ek	1	1	0	0	2	1	0	0	0	0	0	0	0	0
Es	6	1	0	2	3	1	0	1	0	6	4	0	6	1
Eu	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hu	0	0	0	2	2	2	1	0	0	2	0	1	0	1
La	1	0	0	0	1	0	0	1	1	0	1	0	0	0
Ln	0	0	0	2	2	2	1	0	0	2	0	1	0	1
Ly	2	0	1	1	1	1	1	1	1	5	2	1	2	3
Mn	9	9	0	2	3	1	0	2	19	13	15	8	3	7
Ny	2	5	0	1	1	2	0	0	0	3	4	2	1	2
Pe	1	0	0	2	1	1	0	0	0	0	4	1	0	1
St	3	1	2	2	1	1	1	1	4	5	9	5	1	4
Wa	2	3	1	4	1	3	4	2	6	4	2	2	5	7
WP	2	0	0	0	0	0	2	0	0	0	0	0	1	0
State Total	33	21	4	21	19	21	12	8	36	45	52	22	19	29

Appendix 10a (cont'd): *Circular motifs by county*

	Grill	Grid	Shield	Parallel Lines	Netting	Back to Back Rake	Ladder	Tally Marks	ZigZag	Wavy Line	Undulating Line	Fish Bones
NW	3	2	0	6	0	3	1	2	2	10	1	0
NE	2	0	1	3	0	2	0	0	2	1	1	0
W	25	8	10	28	9	11	1	1	15	43	10	0
C	2	1	0	7	1	0	0	2	1	1	1	1
E	0	0	0	4	0	2	0	1	1	0	0	0
SW	9	0	1	12	3	2	1	0	17	9	2	1
SE	9	3	12	11	1	7	3	3	9	11	1	1
NONE	0	0	0	0	0	0	0	0	0	0	0	0

	Sectioned Square	Rake	Diamond	Diamond Chain	Triangle	Double Dash	2 Sided Rake	Grooves	Chevron	Asterisk	Plant Form	Tree
NW	1	0	0	0	1	0	8	0	0	1	0	0
NE	0	0	0	0	1	0	1	2	0	0	0	0
W	5	4	2	7	11	1	11	5	1	18	2	7
C	0	0	0	0	2	1	2	1	0	2	0	2
E	0	1	0	0	0	0	1	2	0	0	0	0
SW	0	0	0	1	1	0	7	1	1	5	3	2
SE	0	2	0	1	6	0	10	7	0	4	2	5
NONE	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 11: *Geometric motifs by region*

	Grill	Grid	Shield	Parallel Lines	Netting	Back to Back Rake	Ladder	Tally Marks	ZigZag	Wavy Line	Undulating Line	Fish Bones
Ch	3	0	1	1	0	0	0	0	0	2	0	0
Ck	8	2	11	10	1	7	3	2	7	8	1	1
Do	0	0	0	0	0	0	0	0	0	0	0	0
Ek	2	0	1	3	0	2	0	0	2	1	1	0
Es	6	0	1	11	3	2	0	0	14	6	1	1
Eu	0	0	0	0	0	0	0	0	0	0	0	0
Hu	1	0	0	1	0	1	0	2	2	4	0	0
La	1	0	0	2	0	0	0	1	0	0	0	1
Ln	1	1	1	1	0	0	0	1	2	3	0	0
Ly	3	1	0	4	1	0	0	0	1	5	0	0
Mn	11	0	5	14	3	9	0	0	9	18	7	0
Ny	4	1	0	6	1	0	1	1	4	4	2	0
Pe	1	1	0	3	0	0	0	0	0	4	0	0
St	5	3	3	6	3	2	1	1	1	11	2	0
Wa	4	5	1	5	2	2	1	0	4	9	2	0
WP	0	0	0	4	0	2	0	1	1	0	0	0

Appendix 11a: *Geometric motifs by county*

	Sectioned Square	Rake	Diamond	Diamond Chain	Triangle	Double Dash	2 Sided Rake	Grooves	Chevron	Asterisk	Plant Form	Tree
Ch	0	0	0	1	0	0	0	2	0	2	1	0
Ck	0	1	0	1	3	0	8	6	0	3	0	5
Do	0	0	0	0	0	0	0	0	0	1	0	0
Ek	0	0	0	0	1	0	1	2	0	0	0	1
Es	0	0	0	1	1	0	3	1	1	4	3	2
Eu	0	0	0	0	0	0	0	0	0	0	0	0
Hu	1	0	0	0	1	0	3	0	0	0	0	0
La	0	0	0	0	1	1	1	0	0	0	0	0
Ln	0	2	0	0	3	0	2	1	0	1	2	0
Ly	0	0	0	0	0	1	2	2	0	3	0	1
Mn	2	0	1	5	7	0	4	1	1	7	0	3
Ny	0	0	0	0	1	0	5	1	0	3	0	2
Pe	0	0	0	0	0	0	3	0	0	1	0	0
St	2	1	0	0	3	0	5	0	0	4	1	2
Wa	1	3	1	1	1	0	2	0	0	1	0	1
WP	0	0	0	0	0	0	1	2	0	0	0	0

Appendix 11a (cont'd): *Geometric motifs by county*

	Zoomorph	deer track	turtle	snake	sheep	deer	dog	lizard	fantastic	bird	bird track	bison	animal track
Northwest	2	1	0	1	2	0	0	1	1	0	0	0	0
Northeast	1	0	0	0	0	0	1	0	0	0	0	1	0
West	13	0	0	3	13	0	2	11	3	2	12	1	8
Central	0	0	1	0	0	0	0	0	0	0	4	0	0
East	8	0	0	0	1	0	0	0	0	0	0	0	0
Southeast	29	0	1	1	21	9	4	1	4	3	5	0	2
Southwest	6	0	0	1	8	0	1	8	0	0	1	0	1
None	3	0	0	0	0	0	0	0	0	0	1	0	0

Appendix 12: *Animal motifs by region*

County	Zoomorph	deer track	turtle	snake	sheep	deer	dog	lizard	fantastic	bird	track (bird)	bison	animal track
Ch	4	0	0	0	0	0	0	0	0	1	0	0	0
Ck	18	0	1	0	5	2	2	1	4	1	3	0	2
Do	0	0	0	0	0	0	0	0	0	0	0	0	0
Ek	1	0	0	0	0	0	1	0	0	0	0	1	0
Es	5	0	0	1	7	0	1	7	0	0	1	0	1
Eu	0	0	0	0	0	0	0	0	0	0	0	0	0
Hu	1	0	0	0	0	0	0	0	0	0	0	0	0
La	0	0	0	0	0	0	0	0	0	0	0	0	0
Ln	11	0	0	1	16	7	2	0	0	2	2	0	0
Ly	3	0	0	2	1	0	1	0	0	0	2	0	2
Mn	2	0	0	0	3	0	0	7	2	1	4	1	4
Ny	2	0	1	0	1	0	0	1	0	0	4	0	0
Pe	1	0	0	0	2	0	0	0	0	0	0	0	0
St	1	0	0	0	2	0	0	2	1	0	4	0	1
Wa	5	1	0	2	7	0	1	3	1	0	3	0	1
WP	8	0	0	0	1	0	0	0	0	0	0	0	0

Appendix 12a: *Animal motifs by county*

Region	# of Motif Categories	# Sites w/Records	Diversity Measure
Northwest	145	30	4.83
Northeast	31	9	3.44
West	851	189	4.50
Central	82	19	4.32
East	59	25	2.36
Southwest	253	45	5.62
Southeast	412	81	5.09

Appendix 13: *Motif diversity by region*

County	Total Motif Categories	# sites with motif data	Diversity Index
Ch	44	14	3.14
Ck	273	40	6.83
Do	4	3	1.33
Ek	31	9	3.44
Es	198	40	4.95
Eu	1	1	1.00
Hu	43	14	3.07
La	26	7	3.71
Ln	140	42	3.33
Ly	103	21	4.90
Mn	417	90	4.63
Ny	114	19	6.00
Pe	41	7	5.86
St	167	36	4.64
Wa	186	41	4.54
WP	59	25	2.36

Appendix 13a: *Motif diversity by county*

SOUTHAMPTON UNIVERSITY LIBRARY

USER'S DECLARATION

AUTHOR: WOODY, ALANAH J TITLE: HOW TO DO THINGS WITH PETROGLYPHS: THE ROCK ART OF NEVADA

DATE: 2000

I undertake not to reproduce this thesis, or any substantial portion of it, or to quote extensively from it without first obtaining the permission, in writing, of the Librarian of the University of Southampton.

To be signed by each user of this thesis

DATE	SIGNATURE	ADDRESS