THE WORK OF ART:

ROCK ART AND ADAPATION IN THE LOWER PECOS, TEXAS ARCHAIC

A Dissertation

by

CAROLYN ELIZABETH BOYD

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 1998

Major Subject: Anthropology
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December 1998

Major Subject: Anthropology
ABSTRACT

The Work of Art:

Rock Art and Adaptation in the Lower Pecos, Texas Archaic

Carolyn Elizabeth Boyd, B.A., Texas A&M University

Chair of Advisory Committee: Dr. Harry J. Shafer

This dissertation presents a study of prehistoric, hunter-gatherer rock art in the Lower Pecos River Region, located at the northeastern reaches of the Chihuahuan Desert within the southwestern United States and northern Mexico. The primary objectives of the dissertation are as follows: 1) demonstrate that prehistoric art can be explained through scientific methods, 2) synthesize rock art explanations generated using scientific methods to address issues regarding hunting and gathering lifeways of the lower Pecos Archaic, 3) demonstrate that rock art production was a mechanism for social and environmental adaptation, and 4) demonstrate that the art and artists of the lower Pecos were active agents in the social, economic, and ideological business of the community.

A formal analysis of five rock art panels in the region revealed recurring themes or "motifs." Using ethnological data, hypotheses were formulated to explain three of the motifs identified during the analysis. The hypotheses were tested against the lower Pecos material record and neuropsychological behavior associated with altered states of consciousness, and considered within the context of the social and biophysical environment of the region.
Results of the analysis contributed to the reconstruction of lower Pecos prehistory. The rock art was a vehicle through which intangible assets were shared—individual knowledge became group knowledge. Produced within an egalitarian society in which direct instruction was considered inappropriate, rock art facilitated the “indirect” dissemination of information necessary for successful exploitation of the hunting and gathering niche — information regarding the bio-physical environment, animal behavior, and ecological relationships. Additionally, art and artist were active agents in maintaining, reproducing, and challenging social relations. Artists communicated information regarding the structure of their cosmos, messages from the supernatural realm, and prescriptions for rituals through the art. Production of rock art was an adaptive behavioral response to variable environmental conditions and was ingrained in the technological, social, and ideological business of the hunting and gathering community within which it was produced.
Dedicated with love to my mom and dad,
Jody and Walker Boyd
ACKNOWLEDGMENTS

But they that wait upon the Lord shall renew their strength: they shall mount up with wings as eagles . . . Isaiah 40:31.

There are so many people that have been a part of this dissertation that I hardly know where to begin. I have been truly blessed with supportive family, friends, and faculty; all of which have contributed to the pages that follow. My family — Phil, Jeff, Noah, and Audrey — deserve a standing ovation for their patience, understanding, and enduring love throughout the entire process. What we have achieved as a family over the past several years is far greater and more meaningful to me than having received a Ph.D.

I have also been very fortunate to have been the child of two incredible, inspiring, and talented individuals, Jody and Walker Boyd. I cannot thank them enough for all they have done. Another very significant influence in my life has been my grandmother, Novella Calvin; a brilliant light in my life. She has walked the canyons with me in spirit and will now walk the stage with me in spirit. I miss her very much.

I would also like to thank Harry Shafer, my committee chair, friend, and fellow artist. His encouragement and enthusiasm meant more to me than he will ever know. Other members of the faculty — Vaughn Bryant, Gentry Steele, Alston Thoms, Lee Cronk, Kathy Dettwyler, Jeff Cohen — and numerous others, have also been especially supportive; I owe each one a great deal of gratitude. And, of course, I could not have survived without the support of the office staff — Becky Jobling, Joyce Bell, Karen
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I also thank the Texas Archaeological Society Donor’s Fund for the financial support which made the summer 1997 field season a possibility. A very special thanks to the Texas Archaeological Society Rock Art Recording Task Force for all they have done and continue to do to document Texas rock art. Their work will benefit researchers throughout the years ahead. I have never known a more dedicated, hard-working, and talented group of volunteers. I am proud to know them.
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CHAPTER I
INTRODUCTION

Art is the expression and communication of man's deepest instincts and emotions reconciled and integrated with his social experience and cultural heritage. While the framework of laws, governments, and empires decays and disintegrates, the social attitudes and values that the art of a people records . . . remain vivid and eloquent for all time [Mukerjee 1971:i].

This dissertation presents a study of prehistoric, hunter-gatherer rock art in the lower Pecos River region, located at the northeastern reaches of the Chihuahuan Desert in the southwestern United States and northern Mexico. My primary objectives are as follows: 1) demonstrate that prehistoric art can be explained through scientific methods, 2) synthesize rock art explanations generated using these methods to address issues regarding hunting and gathering lifeways of the lower Pecos Archaic Period, 3) demonstrate that rock art production was a mechanism for social and environmental adaptation, and 4) demonstrate that the art and artists of the lower Pecos Archaic Period were active agents in the social, economic, and ideological business of the community.

Scholars, in particular art historians, have long recognized that art of ancient societies serves as an enduring record of intellectual and spiritual expression, a unique source for deriving inferences about the past. As professional archaeologists, however, we have been reticent about our ability to access the information afforded within prehistoric art. The professions attitude has been, and in many cases still is, that research

This dissertation follows the style and format of American Antiquity.
geared towards the interpretation of art cannot be accorded a scientific status, and therefore, should not be the subject of archaeological study. As noted by Renfrew and Bahn, "... for the prehistoric period, where written sources are entirely absent, earlier generations of archaeologists tended in desperation to create a kind of counterfeit history, 'imagining' what ancient people must have thought or believed" (Renfrew and Bahn 1991:339).

Although archaeologists are reluctant to integrate art with archaeological data, "beautiful" rock art images frequently serve as decoration for the cover of professional archaeological reports and texts. Rarely, however, do these documents include any discussion on rock art. The art has been appropriated by Western society — decorating homes, coffee mugs, paper weights, and archaeological reports — and interpreted in ways that further the stereotype of the "simple primitive" or "noble savage."

When explaining human behavior, most American anthropologists and archaeologists distinguish between things that people do of their own free will (stylistic behavior) and things people do in order to survive (functional behavior) (Dunnell 1978, 1980). Contemporary Western conceptions of art as non-utilitarian objects of aesthetic beauty produced by individuals acting on their own free will (Staniszewski 1995), have resulted in art being dismissed as the product of "mere" stylistic behavior. Marvin Harris, influenced by Western conceptions of art as superfluous, decorative, and distinctively "cultural," considered art so unessential to human adaptation as to place it within the rubrics of the behavioral superstructure, along with other "recreational, sportive, and aesthetic products and services" (Harris 1979:52). As adaptively neutral,
art is considered by Dunnell, and most other materialist archaeologists, to be beyond explanation in terms of evolutionary principles (Dunnell 1978:199).

Art is a very problematic term and represents a difficult phenomenon to define. Definitions of art have been disputed for ages, from Plato to the present, and yet no consensus has been reached. In non-Western societies, however, "art" objects are often considered essential and powerful instruments — not passive props, not afunctional, not products of stylistic behavior as defined by Dunnell, but active participants in the socio-cultural system within which it was produced.

In the following chapters, I argue that the art and artists of the lower Pecos were active participants in the social, economic, and ideological business of the community and an integral part of lower Pecos hunter-gatherer adaptation. More specifically, I demonstrate that the rock art was a mechanism for social and environmental adaptation, i.e. part of an "adaptive strategy." Adaptive strategies, as defined by evolutionary ecologists, are "fitness enhancing behavioral responses to different environmental states (assuming that these states have been recurrent within the evolutionary history of the organism's lineage and the responses fall within its norm of reaction)" (Boone and Smith 1998:144). I suggest that the rock art of the lower Pecos region is a visible product of a fitness-enhancing behavior.

Evolutionary ecology holds that people have evolved to make adaptive adjustments — short-term, developmental, or long-term changes in their behavior. These problem-solving capabilities allow individuals greater flexibility in responding to variable environmental challenges in ways that enhance survival and reproduction.
(Boone and Smith 1998). I will demonstrate that lower Pecos rock art served as a vehicle through which the shaman/artist could indirectly communicate information necessary for successful adaptation in a variable social and natural environment. I also suggest that the shamans/artists of the region could manipulate the imagery to their own ends thereby challenging social relations and instigating change. The sum of these behaviors constitutes a fitness-enhancing response to particular environmental conditions.

Archaeological research in the lower Pecos River region has produced an unusually rich collection of material culture; yet many questions about the region's inhabitants remain unanswered. Researchers have either failed to recognize the contribution that rock art studies can make towards the reconstruction of this prehistoric cultural system or have recognized its value, but have lacked the empirical methods necessary to access the information afforded in the art. As a result, the prehistoric rock art of the region has been a neglected source of information. I suggest that this information may relate to areas as diverse as hunter-gatherer land use, subsistence, technology, social organization, worldview, cosmology, and ritual activity. In this dissertation, I seek to demonstrate that the rock art of the lower Pecos serves as a window into all components of this prehistoric sociocultural system: technological, social, and ideological.
CHAPTER II
THE LOWER PECOS RIVER REGION

The lower Pecos River region is located at the northeastern reaches of the Chihuahuan Desert within southwestern Texas and northern Mexico (Figure 2.1). Three major rivers in the area — the Pecos, Devils, and Rio Grande — and their tributaries dissect the arid landscape. The region extends approximately 150 km north and south of the confluence of the Pecos River and the Rio Grande. The east-west axis roughly follows the Rio Grande from Del Rio, west to Langtry, Texas. Near the confluence of the Pecos River with the Rio Grande, the terrain is incised by deep canyons and arroyos. Wind and water erosion acting on the limestone substrate have produced thousands of rockshelters, solution cavities, and rock overhangs; many of which contain rock art.

BIOLOGICAL ENVIRONMENT

Ecological diversity characterizes the lower Pecos region. It is situated at the boundary of three major vegetation zones in North America: the Tamaulipan Thorn Shrub of northeastern Mexico and southern Texas, the Edwards Plateau Oak-Juniper Savannah, and the Sotol-lechuguilla Chihuahuan Desert Scrub of Trans-Pecos Texas and north-central Mexico. Vegetation is governed locally by position in the landscape. The flora in the area is dominated primarily by xeric plants such as lechuguilla (Agave lechuguilla), sotol (Dasylirion texanum), and prickly pear (Opuntia lindheimeri,
Figure 2.1. Lower Pecos River Region. The southern limits of the Lower Pecos cultural area are undefined. (After Turpin 1995:542).

*O. greggii*, and *O. leptocaulis*). The uplands contain short grasses and microphyllous shrubs, including mesquite (*Prosopis glandulosa*), blackbrush (*Acacia rigidula*), whitebrush (*Aloysia lycioides*), guayacan (*Porteria angustifolia*), Texas persimmon
(Diospyros texana), and several members of the buckthorn family (Rhamnaceae) (Dering 1979).

Other prominent members of the upland vegetation include the arid evergreen rosette Liliaceae, the yuccas (Yucca sp.) and sotol (Dasylirion texanum). Typical canyon rim vegetation, especially along the very shallow soils and disintegrating bedrock outcrops includes the evergreen rosette lechuguilla (Agave lechuguilla), leatherstem (Jatropha dioica), coyotillo (Karwinskia humboldtiana), and wild oregano (Lippia graveolens). The relatively mesic conditions within the canyons and on the river terraces often support a low canopy composed of little leaf walnut (Juglans microcarpa), Texas mountain laurel (Sophora secundiflora), Gregg ash (Fraxinus greggii), Mexican buckeye (Ugnadia speciosa), oaks (Quercus spp.) and Texas mulberry (Morus microphylla). Springs, seeps, and river bank overflow ponds occur in the deeper canyons and support a variety of plants that include the grasses tanglehead (Heteropogon contortus) and common reed (Phragmites communis), and sedges such as Scirpus sp. and Cypres sp. (Dering 1979).

The fauna in the area consists of a wide variety of mammals, reptiles, fish, and birds. Ditton and Schmidly (1977) compiled a list of 60 species of mammalian vertebrates, including raccoons (Procyon lotor), rabbits (Lepus californicus, Sylvilagus floridanus, S. audoboni), fox (Vulpes fulva, V. macrotis, and Urocyon cinereoargenteus), coyote (Canis latrans), Javelina (Dicotyles tajacu), cats (Felis sp.), and deer (Odocoileus virginianus). Reptiles in the area include a large number of
lizards, snakes, turtles, toads, and frogs. Fish are also plentiful due to the continuous water supply provided by the rivers and streams in the area.

CLIMATE

The climate of the lower Pecos River region is highly variable. It is positioned at two climatic crossroads of the North American continent. The first crossroad is the sharp dividing line between the humid east and the arid west, and the second is the division between seasonal mid-latitude regimes to the north and the winter-less tropical climes to the south (Norwine 1995:140). As a result, the region encompassing southern Texas and northeastern Mexico has a semi-arid, subtropical climate with mild, dry winters and long, hot summers. The average annual temperature is 70°F, ranging from a low of 51°F in January to a high of 86°F in July. Annual rainfall in the area decreases east to west from 48 cm on the Devil's River to below 38 cm just west of the Pecos River. Most of the precipitation occurs in two week peaks, one in the spring (April-May) and the other in early fall (September-October). The lower Pecos River region has a higher interannual variability in precipitation than any other savannah in the world, except for Venezuela. Most of the rainfall occurs from thunderstorms at the frontal boundaries fed by moisture from the Gulf of Mexico (Norwine 1995). The driest times of the year are the winter months of November through March and the summer months of June through August (Dering 1998b; Office of the State Climatologist 1987).
PALEOENVIRONMENT

The paleoenvironmental history of the lower Pecos River region has been described using pollen, macrobotanical, and geomorphological data and is limited to general trends over periods of millennia. Bryant and Holloway (1985), have interpreted falling pine pollen frequencies as indicators that the region was slowly drying throughout the Holocene which began approximately 10,000 years ago. A brief mesic interval, occurring around 2,500 years ago, was identified by Bryant (1969) on the basis of a rise in pine pollen frequencies and, as indicated by deposits from Arenosa and Bonfire Shelters, a return of bison to the region.

Although pollen frequencies provide a regional view of vegetation, macroplant analysis of archaeological deposits recovered from the dry rockshelters in the region affords an in-depth view of prehistoric locally available plant resources. Macroplant assemblages from Hinds Cave indicate that the vegetation which is common to the lower Pecos today, such as the major woody and evergreen rosette plants, were present in the region by 9000 B.P. Dering notes, however, that “despite the continuity of plant species in the record, the manner in which the vegetation was distributed across the landscape probably changed often during the last 8,000 years. The region is known to be a savannah/grassland, an area of tension between woody and herbaceous plants, therefore the physiognomic expression changed as the availability of effective moisture increased or decreased” (Dering 1998b:19).

Patton and Dibble’s analysis of geomorphic data from the lower Pecos River region indicates alternating sequences of frequent, gentle overbank flooding, followed by
irregular, catastrophic floods. The catastrophic floods that occurred between 4,700 and
3,700 B.P. have been interpreted as dry periods. The gentle overbank flooding, which
occurred around 9,500 B.P. and between 3,700 and 2,700 B.P., has been interpreted as
somewhat mesic periods with comparatively reliable rainfall (Patton and Dibble 1982).

CULTURAL ECOLOGY

The lower Pecos River region was inhabited prehistorically by hunters and
gatherers. Although we are not yet certain about the ethnic identity of the prehistoric
inhabitants of the region, we are able to draw inferences about their way of life from
Spanish descriptions of hunters and gatherers of northern Mexico and southwestern
Texas, as well as ethnographic literature of foraging societies in arid environments from
other parts of the world.

The dominant social unit of hunters and gatherers is the band. Band size among
foragers varies from single family groups to as many as 150 to 200 people. The number
of people constituting a band depends on several factors, such as population size and
availability of resources. Shafer (1988) suggests that due to the nature and quantity of
the available resources, the living space available in rockshelters, and a nomadic or semi-
nomadic way of life, band size among the lower Pecos hunters and gatherers was
probably limited to about 25 to 30 individuals with smaller family-sized bands of 10 to
15 individuals being more economic during the winter or lean seasons. Band mobility in
the lower Pecos may have been seasonal, however, home bases would likely have been
established around continuous water sources in the area (Shafer 1986).
Wild plant foods and small animals provided the majority of the caloric intake for the hunter-gatherers of the lower Pecos. Although larger game, such as deer, provided a large amount of protein, they were not always available and, therefore, were not a regular part of the diet. Instead, overall nutrition relied heavily on the stable resources of the region, which included xeric evergreen rosette plants — lechuguilla, sotol, beargrass, several species of yucca, and various cacti, oaks, and grasses, as well as small game, such as fish, rabbits, and rodents. In addition to providing nutrients, desert succulents were used in making basketry, sandals, netting, and textiles, as well as for fuel, bedding, and as floor covering.

ARCHAEOLOGICAL SITES

Archaeological sites in the region consist mainly of rockshelters, open-air sites, and caves. Rockshelters, which were one of the first site types identified in the area, have received the majority of archaeological attention and have produced the bulk of information on subsistence and material culture for the lower Pecos River region. Rockshelters served as habitation sites for groups ranging in size from small family units to multifamily aggregates (Bement 1989; Shafer 1988). Periodic occupation of the rockshelters left behind a well-preserved archaeological record. Excavation of these permanently dry deposits have yielded an assemblage of skeletal and faunal remains, botanical debris, and lithic artifacts that span the Holocene from approximately 10,000 years ago to after the time of European contact. Reconstruction of intrasite patterning,
such as latrine, living, and activity areas, has also been accomplished through the excavation of the lower Pecos rockshelters. Although isolated interments of individuals have been identified in dry rockshelter deposits, the predominant form of burial appears to have been placement of the deceased in caves. Excavations of horizontal and vertical shaft caves in the region have produced numerous interments (Bement 1989, 1994; Turpin 1988). The sinkhole deposits of Seminole Sink (41VV620), a vertical shaft cave, contained the remains of at least 21 individuals from Early Archaic occupation in the region. According to Bement (1989:67), although other sinkhole burials have been identified since Seminole Sink, it provided the first cemetery-like burial population in the region.

In addition to caves and rockshelters, there are open-air archaeological sites that have been identified in the lower Pecos area, such as alluvial terrace sites and burned rock midden. Alluvial terrace sites, which are located along major rivers and their tributaries, are often deeply stratified and have provided significant data on regional chronology and the prehistoric use of upland resources. Cultural deposits in terrace sites are often buried by culturally sterile flood deposits, thus sealing occupational events. This type of stratigraphic integrity is often not available in rockshelter sites. By excavating both stratified terrace sites and rockshelters, a more complete chronological record was developed for the lower Pecos River region (Shafer 1988).

Burned rock midden are probably the most visible of the open-air sites. These sites are mounded accumulations of fire-cracked limestone fragments resulting from the use of stones as heat conductors for preparing food in pits. The middens result from the
repeated use of these earth ovens. Earth ovens were used for baking lechuguilla and sotol throughout the cultural sequence (Dering 1979, 1998a, 1998b; Shafer 1986, 1988).

**ARCHAIC PERIOD PALEOECONOMY**

Over the past two decades, archaeologists have presented a variety of models of the lower Pecos Archaic Period economy. One of the models argues for adaptive success and the stability of hunting and gathering groups living in a somewhat harsh, yet diverse environment. In this model, groups were tethered to rock shelters in canyons near water. Rock shelter occupations were residential and long-term, however, open areas around shelters were used during periods of favorable weather. Diet consisted of a mixture of terrestrial and aquatic resources, however, the critical plant resources were lechuguilla, sotol, and prickly pear. Earth ovens, which appear in the region around 6100 B.P., the beginning of the Middle Archaic, were used to render digestible the calories contained in these xeric plants. The aquatic and terrestrial resources were considered sufficient to sustain large population aggregations, or extended stays of smaller groups. Lechuguilla, sotol, and prickly pear were seen as intensifiable resources which supported populations concentrated in canyons along major streams, or a change to a logistical procurement strategy. Harris lines and enamel hypoplasia identified in the skeletal population from several sites in the lower Pecos were argued to be signs of only temporary seasonal stress, further supporting a model of desert bounty and successful adaptation (Dering 1998b; Shafer 1981, 1986; Turpin 1995; Williams-Dean 1978).
An alternative model argues that although lechuguilla, sotol, and prickly pear were primary resources, they should be viewed as famine foods, rather than desert bounty. Groups reliant on these plants probably employed a point-to-point mobility. Group size and mobility continued to increase between the Early and Middle Archaic periods in this model. Large-scale earth oven processing was utilized to generate a food surplus (Brown, cited in Dering 1998b).

**Desert Bounty or Famine Food?** In a recent manuscript, Phil Dering (1998b) provides a different perspective of the regional paleoeconomy during the Archaic Period. Through archaeobotanical analysis and actualistic studies of earth oven processing, ecological and ethnographic information, in addition to bioarchaeological evidence, Dering (1998b) argues that plant resource staples lechuguilla, sotol, and prickly pear could not dominate the diet of a hunter-gatherer population, and that residential mobility was governed by depletion of local food and fuel resources, rather than the distribution of water sources.

Dering conducted earth oven experiments to gain an idea of the scale of calories that an oven can produce and the relative caloric output of the lechuguilla, sotol, and prickly pear. He concluded the caloric output of earth ovens is low. Of the three plant resources analyzed, lechuguilla has the highest caloric yield per unit, sotol is second, and prickly pear a distant third. The amount of fuel required for each firing, he argues, is significant enough to cause standing deadwood to be depleted rapidly. The slow-growing lechuguilla and sotol plants could also be depleted through overcropping. He further noted that multiple earth oven firings would generate an abundance of refuse,
with a resulting archaeological signature inordinately greater than the scale of caloric output.

The low caloric output of the ovens indicates that logistical trips to collect lechuguilla when local resources become depleted would not be profitable. Sotol, with an even lower caloric return, would be even less profitable. Dering argues that earth oven processing, with low caloric return and inability to generate sufficient surplus, could not sustain large bands or aggregations of bands. Frequent residential movements would be forced as groups sought new lechuguilla and sotol stands, in addition to fuel wood. He also suggests that encounter hunting of deer and small game required relatively high mobility of populations during the Archaic Period.

Dering also questions the notion that the nutritional needs of the lower Pecos population were being met. Reconsidering the bioarchaeological data and faunal remains, in light of his assessment of the earth oven caloric output data, he argues that the population was under sufficient stress to exhibit both metabolic and developmental disorders. The identification of porotic hyperostosis and dental pathologies on a par with maize agriculturalists suggests that the population lacked sufficient meat protein and fat from meats and vegetables. This is supported by faunal assemblages from the region which are dominated by rodents and small rabbits, deer was scarce relative to the availability of small game. According to Dering (1998b), the appearance of earth ovens in the lower Pecos by the end of the Early Archaic presents evidence of a population under stress that is being forced to significantly increase their labor input in order to increase the energy output of the landscape.
CULTURAL — HISTORICAL SYNTHESIS

The lower Pecos cultural area has been defined archaeologically by distinctive rock art styles, a hunting and gathering way of life, and a common material culture recovered from the dry rock-shelters (Lord 1984; Shafer 1986; Turpin 1995). The region has been included as part of an archaeologically defined tradition known as the southern North American Archaic. These hunter-gatherer groups occupied the Chihuahuan and Sonoran Deserts throughout much of the Holocene.

One of the most accurate regional chronologies in Texas has been developed for the lower Pecos region as a result of ample radiocarbon dates, deeply stratified terrace sites, and a sensitive stylistic sequence of projectile points and other aspects of material culture (Dibble 1967; Shafer 1988; Turpin 1995). Several nomenclatures have been used when discussing lower Pecos chronology (Turpin 1995); however, for the purpose of this study, I will keep my discussion to the Archaic Periods; Early, Middle, and Late.

The Early Archaic Period spans approximately 3,000 years from 9000 to 6000 B.P. Botanical remains recovered from rockshelters indicate that the diet of the prehistoric inhabitants of the region during the Early Archaic consisted primarily of desert succulents, such as lechuguilla, sotol, and prickly pear, supplemented by fruits, seeds, roots, and leafy plants. Although human skeletal remains reveal some dietary stress experienced with the population during the Early Archaic, the overall health of the people is believed to have been better than most early agriculturalists and many hunting and gathering populations.
The majority of the cultural deposits investigated in the lower Pecos date to the Middle Archaic (6000 to 3000 B.P.). Before and after the Middle Archaic, lower Pecos cultural materials share many traits with the remains from areas to the south in Coahuila, Mexico, and to the north in the Edwards Plateau region (Turpin 1995:541). As indicated by radiocarbon dates, it is during the Middle Archaic that the Pecos River Style pictographs flourished (Hyman and Rowe 1997). Analysis of coprolites collected from Hinds Cave indicate that the inhabitants of the region relied heavily on the xeric flora and fauna during the Middle Archaic, just as they had during the Early Archaic.

The Late Archaic (3000 to 1200 B.P.) is marked by cultural changes resulting from the arrival of cooler, more mesic conditions. It is during the early part of the Late Archaic that buffalo jumps of bison occurred at Bonfire Shelter. Turpin (1995) argues that the presence of bison and the climatic shift towards more mesic conditions would have resulted in abrupt economic, technological, and site distribution changes in the region. By the middle of the Late Archaic, however, the bison had retreated from the area and there was a reemphasis placed on the xeric flora and fauna of the region that lasted through the Late Archaic. Radiocarbon dates for the Red Linear and Red Monochrome indicate that these two rock art styles appear at the transition between the Late Archaic and Late Prehistoric Periods (Hyman and Rowe 1997; Ilger, et al. 1994, 1995).

The Late Prehistoric Period (1300 to 450 B.P.) is marked by the introduction of arrowpoints and the use of the of the bow and arrow. The earliest appearance of arrowpoints in the lower Pecos occurs around 1380 B. P. in Arenosa Shelter (Turpin
Bows and arrows are a frequently occurring pictographic element in the Red Monochrome pictographs which have been radiocarbon dated to approximately 1,300 years ago (Hyman and Rowe 1997; Ilger, et al. 1994, 1995).

ROCK ART OF THE LOWER PECOS

It is during the lower Pecos Archaic Period that the walls of hundreds of rockshelters in the region were bedecked with an array of pictographic images. Although the rock paintings range in age from 4,200 years ago to the time of European contact, the vast majority of the art was produced during the Archaic Period. The rock-paintings within the region have been categorized into four distinctive and successive styles; the Pecos River, Red Linear, Red Monochrome, and Historic (Kirkland and

Figure 2.2. Pecos River Style. This section of the 40-m Panther Cave panel (41VV83) extends 8.5-m. Redrawn from Kirkland (1967:frontispiece).
Newcomb 1967).

The presence of an organic binder in the paints has allowed researchers to obtain radiocarbon ages through Accelerator Mass Spectrometry (AMS). AMS dates for Pecos River Style art, which is the best represented and most ancient of the recognized styles, range from >2950 to 4200 B.P. (Chaffee, et al. 1994, 1993; Hyman and Rowe 1997; Ilger, et al. 1995; Russ, et al. 1990). These dates place the Pecos River rock art style to the latter part of the Middle Archaic, 4100 to 3200 B.P. This study will focus, almost exclusively, on the Pecos River Style art, the most abundant and well-preserved art in the region (Figure 2.2).

The central motif of the Pecos River Style is polychrome and monochrome anthropomorphic figures accompanied by an assortment of enigmatic designs. Anthropomorphs range in size from approximately 10 cm to 8 m in height. There is variability in the manner in which the anthropomorphs are depicted. Head and body shape, ornamentation, size, and color vary between sites as well as within each rock art panel. The bodies of the anthropomorphs are depicted facing forward with arms extending outward or with their bodies in profile. Heads are either absent or depicted in a square, rectangular, oval, or other geometric form, or in a manner resembling a particular animal, such as a bird or feline. Frequently the anthropomorphs are depicted with some type of head ornamentation, such as a feather or antler headdress and with paraphernalia hanging from their arms or at the waist. Commonly found in association with these anthropomorphic figures are design elements such as atlatls, dart points, depictions of animals, serpentine lines, and geometric forms.
Only one date each has been obtained for the two more recent prehistoric styles: 1280 ± 150 B.P. for the Red Linear (Figure 2.3) and 1125 ± 85 B.P. for Red Monochrome (Figure 2.4) (Ilger, et al. 1995). The Red Linear Style is characterized by small red stick figures of human and animals engaging in group activities. Unlike the Pecos River Style, Red Linear figures more closely resemble the human form. Individual sex can often be determined by the presence of either a phallus or a circle in the genital region.

The Red Monochrome Style consists primarily of frontally posed human figures associated with bows and arrows and realistically depicted animals in side-view. Red Monochrome Style animals include turkeys, turtles, canines, felines, rabbits, fish, and deer. Red Monochrome panels are painted predominantly with pigments producing red
and orange hues. Although there is only one date available for this style, the presence of the bow and arrow in Red Monochrome rock art panels securely places the art within the Late Prehistoric.

The Historic Style has not been radiocarbon dated, however, it is a category that includes all art reflecting European contact (Figure 2.5). The Historic Period in the lower Pecos began around 350 B.P. and extends into the present. Historic Period rock art most commonly depicts missions, crosses, men on horseback, cattle, and robed figures.

I have used the term "style" in the above discussion only in reference to the previous literature written on the rock art of the lower Pecos. I feel, however, that the term is not only inappropriate, but stifling. As I will discuss in the following chapter, "style" has been considered by materialist archaeologists as important only for localizing
social units in time and space, beyond explanation, and afunctional. This assumption has impaired the integration of rock art with other archaeological data, thereby ignoring a vast source of evidence about our human past and the adaptive value of art in society.

Figure 2.5. Historic Style. Vaquero Shelter (41VV77). Illustration by Jessica Lee.
CHAPTER III

IT'S PRETTY. BUT IS IT ART?

When the flush of a new-born sun fell on Eden’s green and gold,
Our father Adam sat under the tree and scratched with a stick in the mould;
And the first rude sketch that the world had seen was joy to his mighty heart,
Till the Devil whispered behind the leaves, “It’s pretty. But is it Art?”

(Rudyard Kipling, *The Comundrum of the Workshop*)

In this chapter, I will be discussing how contemporary definitions for art have influenced Western perceptions of prehistoric art and contributed to its dismissal as stylistic behavior, devoid of any detectable selective value (Dunnell 1978:199). The assumption that stylistic behavior is afunctional and beyond explanation in terms of evolutionary principles has impeded rock art studies around the world. As a result, there is a paucity of systematic scientific studies of prehistoric rock art in North America, including the lower Pecos River region. Current research, however, is moving beyond viewing prehistoric imagery in terms of contemporary definitions for art and, as a result, is leading rock art studies into a new era. It is an era in which powerful theoretical constructs and explanations govern research — an era in which the art is given a voice and an opportunity to dispel preconceived stereotypes of our human past.

WHAT IS THIS THING CALLED “ART”?

Was the production of rock art in the lower Pecos River region “mere” stylistic behavior, adaptively neutral and devoid of positive or negative selection value? Or, did
the production of art confer a selective advantage with regard to the social and natural environment? Before we can answer these questions, we must explore the reason why art is typically described as stylistic behavior. The answer, I believe, lies in the contemporary Western definition of "fine" art.

**Art for Art's Sake.** The question posed by the Devil in Kipling's *Conundrum of the Workshop*, written in 1890, is one that over a century later continues to be asked — "It's pretty. But is it Art?" What art is (and is not) has been the center of controversy for ages and will likely continue to be hotly debated in the years ahead. It is not my intention to enter into this debate by offering another definition for this elusive phenomenon; there are already as many definitions for the term as there are books on the subject. It is important, however, to consider the influence Western definitions of fine art have on our perceptions of art from prehistory.

According to art historian, Mary Anne Staniszewski, art is "an original creation produced by an individual gifted with genius. . . an object of aesthetic beauty, separate from everyday life" (Staniszewski 1995:111). Art is "not solely political propaganda, not a religious nor sacred object, neither magic nor craft" (Staniszewski 1995:111). It has been argued that by its very nature, art is non-utilitarian (Anderson 1979; Maquet 1971, 1986). Based on this definition, art is a relatively recent phenomenon, an invention of the modern era (Kristeller 1970; Staniszewski 1995). Although the term "beaux arts" first appeared within the French language during the mid-seventeenth century, it was not until 1880 that the word "art" in the modern use of the term, was found in any English dictionary (Kristeller 1970; Staniszewski 1995).
If we accept this definition, the vast corpus of images we cherish today as works of art cannot be considered Art (capital-A Art refers to the contemporary Western definition). Not even the magnificent works produced during the height of the Renaissance — such as Michelangelo’s *Creation of Adam* and da Vinci’s *Last Supper* — can be considered Art. Perhaps the definition put forth by Staniszewski does not reflect the general public’s perception of what art is and is not; I know it certainly does not reflect mine. Ask friends, however, to explain how they selected the artwork for their home or office and you will likely get one of the following responses: “it moves me,” “it is really pretty,” “it matches my sofa,” “it was cheap,” or “I didn’t select it, the decorator did.” It is highly unlikely that you would get the following response: “I don’t especially like the way it looks, however, it is very useful.” Art, in western societies is not viewed as utilitarian, rather, it is viewed as an object of aesthetic beauty produced by individuals acting on their own free will.

**Art — Stylistic or Functional Behavior?** As stated earlier, when explaining human behavior, most American archaeologists distinguish between things that people do of their own free will (stylistic behavior — which includes art) and things people do in order to survive (functional behavior) (Dunnell 1978, 1980). R. C. Dunnell (1978), an exponent of the rigid style-function dichotomy in archaeology, argues that style is afunctional and beyond explanation. According to Dunnell, “Style denotes those forms that do not have detectable selective values. Function is manifest as those forms that directly affect the Darwinian fitness of the populations in which they occur” (Dunnell 1978:199). In support of Dunnell’s rigid dichotomy, Kirch states, “When . . . we are
concerned with cultural evolution in the sense of adaptedness with respect to
environment, it is those aspects of behavior that confer a selective advantage with regard
to that environment which will interest us,” i.e., functional behaviors (Kirch 1980:111).
Stylistic behavior tends to be interesting to the materialists only for localizing social units
in time and space. Von Bertalanffy (1968:191) asserts that “any form of creativity” is
spontaneous and, therefore, not necessarily a response to environmental stimulus; it is
adaptively neutral behavior. Robert Bettinger is critical of the materialist’s downplay of
the importance of style, arguing that “Any attempt to create a rigid boundary between
style and function will fail . . . For example, the attempt to use free will as a distinction
founders on the fact that conforming to stylistic conventions of speech, dress, and belief
is frequently compulsory and almost always sanctioned” (Bettinger 1996:133). Although
I agree with Bettinger’s criticism of the style-function dichotomy, I am more concerned
with how prehistoric art has become subsumed within the category of stylistic behavior
and the implications of this categorization.

Art That Takes Action. Today, in many non-Western societies, art is neither a
linguistic category nor a social practice. The objects produced by individuals in those
societies, however, are removed from their cultural context and displayed in Western
museums “to be looked at;” they are appropriated and transformed into objects of art. A
recent exhibition at the Yale University Art Gallery entitled, Baule: African Art Western
Eyes, was described as being “many things all at once . . . a gathering of astonishingly
beautiful objects; a radical rethinking of traditional museum presentations of art; and
perhaps most important, a suggested model for a new kind of art history in which the
very act of seeing is redefined" (Cotter 1997:39). Although Baule sculpture has been treasured as works of art in Western museums for most of the twentieth century, the Baule themselves have no single word for art (Vogel 1997). In "Beyond Beauty, Art That Takes Action," an article appearing in the New York Times reporting on the Baule exhibit, H. Cotter notes that the Baule "value the work they make far less for what it looks like than what for what it can do, socially and spiritually . . . ." (Cotter 1997:39 emphasis added).

Among the Baule of Africa and countless other non-Western societies, art works; it performs. As Forge (1967) noted among the Abelam of New Guinea, the paintings that are ranked as the "best" by members in the community earned this ranking based on their effectiveness in ritual. This effectiveness does not go unnoticed by members of other communities. If one community appears to be producing a more bountiful yam harvest, the painting style of the successful yam producers is adopted by neighboring communities in an effort to increase the effectiveness of their paintings. Forge states, "the skillful artist who satisfies the aesthetic sense and produces beauty is rewarded not for the beauty itself but because the beauty, although not recognized as such, is regarded as power" (Forge 1967:83).

The same is true for Australian Aboriginal art. As noted by Munn, "Walbiri describe all designs as wiri, a term meaning 'strong,' 'powerful,' and also 'important.' In fact, there are distinct classes of designs that differ in relative importance and power, but the general sense of 'efficacious' applies to all of them" (Munn 1973:33) The designs are "valuable instruments" (Munn 1973:55). Aboriginal art, however, is now
accepted in the institutional art world as “fine art.” It is defined as fine art by its purchasers, such as galleries, collectors, and museums, not by the individuals who produced the objects. These works of “art” are then displayed with no mention of the original function intended for the object; which is religious and, to some degree, political in nature (Morphy 1991). As Maquet notes, “When artifacts are uprooted from their culture of origin and are assimilated in another, several phenomena of culture change are triggered. Usually there is a shift from one aesthetic locus to another, and a metamorphosis of an object from instrument to art” (Maquet 1986:70).

ART FOR LIFE’S SAKE

Anthropologists who study the arts in non-Western societies usually acknowledge the utility of art (Anderson 1979; Bunzel 1972; Forge 1967; Mukerjee 1971). Recent research, however, suggests that not only is there utility in art, but that a general behavior of art has played a critical role in human biological adaptation (Biese 1983; Dissanayake 1988, 1992).

The Behavior of Art. Ellen Dissanayake (1988, 1992) argues that a behavior of art, or “making special,” is essential to human biological adaptation. She describes the behavior of art as follows: “the manufacture or expression of what are commonly called ‘the arts,’ is based on a universal inherited propensity in human nature to make some objects and activities special” (Dissanayake 1988:107). Dissanayake has presented a very convincing and positive view of art as “life-sustaining,” as “art for life’s sake.” She states, “. . . the fact that people everywhere value the arts and take the trouble to express
themselves aesthetically suggests to an evolutionary biologist that there is a reason: doing this (rather than doing this) contributes to human evolutionary fitness. Faced with the overwhelming evidence that people everywhere make and respond to the arts, the ethologist would have to presuppose that the arts must have survival value” (Dissanayake 1988:62). Using an ethological perspective, Dissanayake argues that art is a universal and essential human behavior that is as characteristic of humankind as toolmaking, symbolization, language, and the development of culture.

The Work of Art and Artists. Archaeologists have long been interested in the study of toolmaking behavior and the products of such behavior, readily accepting the utility of both the behavior and the product in human adaptation. Only recently, however, have researchers begun to recognize that art and artists are active agents in the negotiation of social relations and in the reproduction of society (Biese 1983; Dowson 1998; Lewis-Williams 1995a). Megan Biese (1983) has suggested that expressive forms, such as storytelling and rock paintings, are integral parts of a hunting and gathering adaptation. She maintains that “individuals and social groups act through expressive forms to articulate meanings that must be shared in order to perpetuate society” (Biese 1983:58). These expressive forms, which include rock art, “perform work.” According to Biese, expressive forms work to “indirectly” instruct and communicate information necessary to make certain adaptations successful within egalitarian societies where direct instruction is reacted to adversely. In hunting and gathering societies, the work performed by expressive forms may not have been accomplishable through any other means. “In the case of the San, the wrestling of a
livelhood from a harsh environment with handmade tools, depending as absolutely as it has upon social cooperation of a very particular sort, has been intimately connected with the visual and verbal arts which 'make sense' and also provide a framework for survival information” (Biesele 1983:59).

It's Pretty. But Is It Art? If art behavior is essential to human adaptation and the product of the behavior is an instrument in the reproduction of society, is it correct to refer to the behavior and the product as “art?” As discussed earlier, contemporary Western definitions of Art state that it is “separate from everyday life” and “non-utilitarian”.

The rock paintings that line canyon and shelter walls of the lower Pecos have been described as “beautiful,” “magnificent.” and even “pretty” — but are they Art? Rock paintings and engravings have been referred to in the literature for hundreds of years as “rock art.” but are they Art? The rock art of the lower Pecos, as with prehistoric imagery around the world, is increasingly being admired for its looks. These images now decorates the walls of homes, coffee mugs, clothing, stationery, and even doormats — appropriated by our culture and transformed into Art.

By modern, Western definition, the pictographic images of the lower Pecos are not Art, nor are the vast majority of images from prehistory we refer to as “rock art,” “ceramic art,” “body art,” etc. They are “power-full” instruments that serve express functions in specific contexts and the visual byproducts of an essential human behavior — the behavior of art. Should we then cease to refer to this imagery as “rock art?” We could try to use a less value-laden term, perhaps rock imagery or rock paintings and
engravings. These terms too, however, become problematic. Changing the term we use to refer to these images will not change the way they are viewed by archaeologists, art historians, anthropologists, or the general public. We cannot, after all, deny the aesthetic pleasure we derive from beholding these masterpieces from prehistory. As members of a Western society we can appreciate them aesthetically; however, we must try to explain them scientifically, recognizing their adaptive, utilitarian, and functional importance.

I have chosen to refer to these images from prehistory as rock art throughout the dissertation. For the problem, as I see it, is not in the term “rock art,” but in Western insecurities about what art does. Why should we change the term used to refer to this type of visual imagery just because it does not fit our only recently developed and extremely imperialistic definition for what Art is? In ten years, the “contemporary” definition for art will likely be vastly different from what it is today. What will we do then; change terms again? The solution is not to change the term but, through research and education, to broaden our understanding and appreciation for the “work” of art — past, present, and future.

REVIEW OF THE LITERATURE

In keeping with the Western attitude towards art as non-utilitarian, archaeologists, with few exceptions, have until recently neglected art as a source of data about prehistoric cultures. Morphy (1989) suggests that the neglect of art was either a consequence of a lack of interpretive progress or the cause. Regardless of which came first, Morphy (1989) argues that the analysis of prehistoric art was held up for two main
reasons: 1) prehistorians often failed to adequately integrate art with other archaeological data and failed to subject it to analogous methods of analysis; and 2) they failed to recognize the complex ways in which art could be integrated within the social and cultural fabric of society.

For generations, archaeologists have written with considerable latitude about the thoughts, beliefs systems, and world views of ancient prehistoric peoples. During the 1960's and 1970's it became apparent that earlier statements made about past symbolic systems, such as prehistoric art, were speculative at best and certainly not grounded in the scientific tradition. It was this awareness, in part, that sparked the development of processual or "new" Archaeology, with an emphasis placed on the implementation of the scientific method for deriving inferences about the past.

The processual archaeologists of the 1980's, however, focused their attention on material aspects of life, avoiding research in the areas of human cognition or of symbolic structures. Renfrew and Zubrow describe this period in processual archaeology as follows:

Culture was often defined, following Leslie White and Lewis Binford as man's extra-somatic means of adaptation. Arguing from a standpoint which has subsequently, and not unreasonably, been characterized as 'functionalist', workers often placed more emphasis on economic aspects and sometimes social aspects of the past, and tended to ignore the belief systems and indeed often the communication systems of early societies. These were the days of what may be termed functional-processual archaeology, with an emphasis upon productive efficiency considered against a background of Darwinian selection [1994:3].

In an effort to remain within the realm of science, what little rock art research was conducted under the rubrics of processual archaeology, was restricted to
documentation and data collection. In 1983, David Lewis-Williams, professor of
cognitive archaeology and director of the Rock Art Research Unit, University of the
Witwatersrand, Johannesburg, South Africa, argued that the "received empiricist
paradigm which dominated archaeology for so long is altogether inappropriate to
understanding rock art as, indeed, it is to all archaeology: we shall have to move away
from the empiricists' restricted emphasis on data collection and induction from these
data" (Lewis-Williams 1983:3). Lewis-Williams further argued that if rock art research
is to be accorded a scientific status, we must formulate explicit theory and method
(Lewis-Williams 1983). The appropriate theory and method, he maintained, would likely
come from social and cognitive anthropology. He further postulated that "it is doubtful
if the old mode of description followed by inductively inferred ad hoc explanation will
play any further significant part in rock art studies: new and more powerful theoretical
constructs and explanations will govern future research" (Lewis-Williams 1983:11).
Lewis-Williams led rock art research into a new era.

Working in conjunction with social anthropologist Megan Bieseke, Lewis-
Williams demonstrated the utility of combining an analysis of the art with ethnographic
analogy (Lewis-Williams and Bieseke 1978). Drawing from the wealth of San folklore
collected by Bieseke and others, Lewis-Williams developed a detailed shamanic
interpretation of southern African rock art, showing that the art constituted much more
than hunting magic as previously speculated (Lewis-Williams 1980, 1981, 1982, 1984a,


1993). His symbolic anthropological analysis of San ethnographic record, which followed the analytical framework of Victor Turner (1967), provided researchers with an approach that has proven to be equally as profitable in other regions of the world.

In the 1980's, Lewis-Williams and Thomas Dowson provided researchers with yet another means of deriving inferences from prehistoric art. They demonstrated the effectiveness of intertwining three mutually constraining and reinforcing strands of evidence in an attempt to further explain San rock art. The strands of their “cable-like” argument include the rock art, San ethnography, and neuropsychological research on altered states of consciousness (Lewis-Williams and Dowson 1988, 1989; Lewis-Williams, et al. 1993). Their Neuropsychological Model, which focuses on the ways in which mental images — “entoptic phenomena” — are perceived universally by individuals in an altered state of consciousness, has been successfully applied to hunter-gatherer rock art around the world. This neurological bridge affords insight into the shamanic images found within regions, and from time periods, for which no directly relevant ethnography exists.

Numerous other scholars from around the world have contributed to the discipline — more than can be adequately discussed here. In Australia, R. Layton (1992), H. Morphy (1989), and P. S. C. Taçon (1989), have worked with Aboriginal consultants and have demonstrated the vital role rock art serves as a form of communication.

In South Africa, P. Vinnicombe demonstrated through quantification and numerical analysis the significance of the eland antelope in San rock art. Rejected the
notion of sympathetic magic, Vinnicombe suggested that the eland served an important role in the religious beliefs of the artists (Vinnicombe 1967, 1972, 1976). A. Manhire and J. Parkington integrated the rock art of the Western Cape into historical sequences and studied the geographical distribution of the art (Manhire, et al. 1983, Parkington 1989). A. Solomon addressed issues of gender relations in the San rock art. Dismayed with the emphasis placed on the role of the shaman in the production of the art, she is developing a model which focuses on San mythology and history (Solomon 1997). Thomas Dowson greatly contributed to the shamanic explanation for San rock art and is currently addressing critical issues concerning the role of rock art imagery in San social relations (Dowson 1988, 1994, 1998).


**Review of Lower Pecos Rock Art Research.** While the work of David Lewis-Williams has changed the direction of rock art research around the world, it has not yet impacted research conducted in the lower Pecos River region. With the exception of the more recent interpretive work of S. Turpin (1992, 1994), the majority of the lower Pecos
rock art research has focused on documentation and data collection. While data collection and documentation are essential in the research of prehistoric art, they fail to explain the art or expand our understanding of the societies within which it was produced.

In 1849, Captain S. G. French first reported the presence of Indian paintings near the mouth of the Pecos River within the lower Pecos River region. A few years later a member of the Boundary Survey Commission also noted the presence of the paintings. It wasn’t until the 1930’s, however, that serious efforts at recording and studying the art of the region began. The most valuable of these early studies were conducted by Emma Gutzeit and Mary Virginia Carson for the Witte Memorial Museum, by Mr. and Mrs. Forrest Kirkland, and by A. T. Jackson (Turpin 1990).

In 1931, Gutzeit and Carson recorded 18 rock art sites in the form of watercolor renderings. A few years later, Forrest Kirkland, a commercial draftsman, accompanied by his wife Lula, began producing detailed watercolor renderings of all major sites in the region. The project begun by the Kirklands, however, was never fully completed due to Forrest’s untimely death in 1942 at the age of forty-nine. Before his death he managed to copy 91 pictograph and petroglyph sites across the state of Texas, 43 of which are located in the lower Pecos River region. He was the first person to report stylistic variations and locational differences in the art. Kirkland attributed this variability to different ethnic groups, naming them the Val Verde Dry Shelter and Val Verde Flooded Shelter cultures (Kirkland 1938).

A. T. Jackson began documenting rock art sites in Texas during the 1930’s. In
1938, Jackson’s photographs, sketches, and descriptions of 195 rock art sites, 35 of
which are located in the lower Pecos, were published in The Picture Writing of Texas
Indians. In his book, Jackson noted affinities between regions in Texas and the Plains or
Greater Southwest regions of the United States.

During the 1940's and early 1950's, additional analysis and field study were
conducted by J. Charles Kelley and Herbert J. Taylor, Jr. Whereas the earlier work of
Gutzeit and Carson focused solely on recording the art through water color paintings
and notes, the later work of Forrest Kirkland (1938), A. T. Jackson (1938), J. Charles
Kelley (1950, 1971) and Herbert C. Taylor (1948, 1949a, 1949b) sought not only to
record the art, but to suggest possible associations of the paintings with specific cultural
groups who had inhabited the area in prehistoric times. It was through the efforts of
these individuals that at least three styles were identified within the region; Pecos River
Style (labeled Val Verde Dry Shelter by Kirkland), Red Figure Style (labeled Val Verde
Flooded Shelter by Kirkland), and the Historic Style.

The planned impoundment of Amistad Reservoir in the 1960's generated a
resurgence in rock art studies. During an extensive survey of the area, conducted by E.
B. Jelks, J. A. Graham, and W. A. Davis, 200 archaeological sites were recorded on the
Texas side of the Rio Grande, of which 49 were rock art panels. On the Mexican side of
the Rio Grande, Rul and Taylor located 68 prehistoric sites, however, only one of these
sites contained rock art.

Following the Amistad Reservoir survey, Terrence Grieder (1966) and David
Gebhard (1965) photographed and artistically documented lower Pecos rock art sites.
and offered a relative sequence for the pictographs in the major canyon systems of the area. Studying the wide variety of rock art within Seminole Canyon, Gebhard was able to produce a detailed relative chronology. He defined six categories or types and four subphases. Gebhard ordered the types chronologically based on stylistic criteria and superimposition.

A new version of the rock art styles and chronologies were present by W. W. Newcomb, Jr. in *The Rock Art of Texas Indians* (1967). In this publication, Newcomb identified four rock art styles in the region; Pecos River, Red Linear, Red Monochrome, and Historic. Newcomb was the first to suggest that the polychrome and monochrome anthropomorphic figures, a dominant theme in the Pecos River Style, were those of shamans. Using ethnographic analogy, Newcomb further developed an idea first presented by Campbell (1958) which attributed the Pecos River style to a shamanic religious system.

J. Charles Kelley (1974) argued that the Pecos River Style represents an artistic cult developed in response to cultural emanations originating in Mesoamerica. Harry Shafer (1980) presented a compelling counter argument. He suggested that "the similarities, if they do exist, between the lower Pecos shaman figures and iconographic motifs of Mesoamerica, may be merely the fortuitous result of different adaptive responses resulting from a common desert culture base" (Shafer 1980:111).

With the advent of post-processual archaeology, Solveig Turpin focused her research efforts on the rock art of the lower Pecos region and proceeded to publish extensively on the subject (Turpin 1984, 1986, 1988, 1990, 1991, 1992, 1993, 1994,
1995). Building on the works of Kirkland and Newcomb (1967) and Campbell (1958), Turpin identified additional elements associated with shamanic religious systems in the Pecos River Style art. Turpin also proposed a fifth, intrusive rock art style, Bold Line Geometric. She argued that the Bold Line Geometrics “are most clearly affiliated with the generic Desert Abstract styles of northern Mexico and the American Southwest” (Turpin 1995:551).

Perhaps the most significant impetus for rock art research in the region was prompted by the Witte Museum of San Antonio. The Witte Museum initiated an interdisciplinary effort to study and publicize the prehistoric art of the lower Pecos region in the early 1980's. Drawing on the skills of not only archaeologists, but also paleobotanists, art historians, and social anthropologists, the Witte effort sought to interpret the material culture and reveal the lifestyle of the prehistoric hunter-gatherer inhabitants of the lower Pecos River region. The Lower Pecos Project resulted in the production of the Ancient Texans exhibit at the Witte Museum in San Antonio and the publication of Ancient Texans: Rock Art and Lifeways Along the Lower Pecos (Shafer 1986). It also led to a significant increase in public awareness of prehistoric art and a greater understanding of the hunting-gathering lifeways of the people who produced the art.

In the late 1980's, the paint used to produce the pictographs within the region was identified to contain an organic binder which allowed researchers at Texas A&M University to obtain radiocarbon ages through Accelerator Mass Spectrometry for the Pecos River, Red Linear, and Red Monochrome rock art styles (Chaffee, et al. 1993,
1994; Hyman and Rowe 1997; Ijger, et al. 1994, 1995; Russ, et al. 1990). Additionally, DNA was extracted from the Pecos River Style rock-art and subjected to polymerase chain reaction (PCR) and phylogenetic DNA analysis. The results of the analysis indicated that the organic binder utilized in the paint was from a mammal, probably an ungulate (Reese, et al. 1996). Based on experiments conducted to make paint using ingredients available during the Archaic Period, in conjunction with ethnographic evidence and the results of the DNA analysis, it appears likely that deer bone marrow was the binder used to produce the Pecos River Style pictographs (Boyd 1993).

CONCLUSIONS

Rock art research in the lower Pecos River region, as well as in other regions of the world, got off to a slow start due to Western society's dismissal of art as extrinsic, superfluous, and decorative. In this chapter, I have demonstrated that art in non-Western societies is anything but non-essential; it is powerful and instrumental. Current archaeological research conducted around the globe is beginning to recognize rock art as a relevant field of archaeological study. This has been especially demonstrated in South African archaeology through the work of David Lewis-Williams (1983, 1995a, 1995b). Archaeologists in the United States, however, have been slow to recognize the contribution that rock art studies can make towards the reconstruction of a prehistoric cultural system. Certainly, the enormous "data bank" of the lower Pecos River region has not been sufficiently tapped in the reconstruction of lower Pecos prehistory.

Although previous rock art research in the region has provided some insight into
potential interpretations of the art, no systematic scientific studies utilizing empirical methods have been conducted to explain the art. The work of previous rock art researchers, albeit thorough in its discussion of the shamanic aspect of Pecos River Style rock art, is drawn from ethnographic generalizations on hunting and gathering societies. These generalizations lack the necessary theory, method, and tools to understand human cognition and behavior in an ecological context.
CHAPTER IV
RESEARCH DESIGN

One of the most troubling problems in archaeology is to determine about what or in what manner did prehistoric people think. A fundamental challenge is to develop the theory, methodology, and tools to understand human cognition” [Renfrew and Zubrow 1994:frontispiece].

In the previous chapter I argued that the primary cause for the lack of systematic scientific studies of rock art lies in the imposing of our contemporary Western definition for Art as non-utilitarian on the imagery produced in prehistory. North American archaeologists, influenced by Western conceptions of Art, failed to adequately integrate pictographs and petroglyphs with other archaeological data. In this dissertation, I address the rock art of the lower Pecos as a feature to be studied in the context of an archaeological site.

Pictographic panels, which are painted along rock shelter walls and along cliff faces, are non-portable artifacts or features. A feature is a concentration of functionally and temporally related artifacts, and is considered to be the archaeological reflection of some activity or set of activities (Hester, et al. 1997:44). Based on this definition, rock art, which is clearly the reflection of past cultural activity, should be classed as an archaeological feature and subjected to analogous methods of analysis. As such, it should be studied in the context of an archaeological site. A site “is any discrete, bounded location where humans lived, worked, or carried out a task — and where
evidence of their behavior can be recovered by the archaeologist” (Hester, et al. 1997:44).

**GENERAL METHOD**

I have developed, modified, and implemented a research method specifically designed to describe, explain, and infer behavior from this aspect of the archaeological record over the span of several years. Although the methods I have used in the field to record rock art have been refined through the years, the general method used to explain the rock art has not changed. This method is presented below.

**Formal Feature Analysis.** During the formal analysis of rock art features, I analyze the pictographs in order to identify patterns in the archaeological record. I treat each pictographic panel as a single unit or composition. This is accomplished by drawing a scale color rendering of each rock art panel included in the analysis.

Defining what constitutes a “rock art panel,” like an archaeological “site,” is problematic. Identifying a rock art panel as a discrete, bounded location where imagery appears imposes a very Western conception of space use upon non-Western behavior. The areas within a rock shelter that are not painted may be just as much a part of the planned composition as those that are painted. Natural features in the rock surface, such as cracks and crevices, rock protrusions, and mineral stains, are frequently incorporated into the composition and must be considered a part of the rock art panel. Although I recognize the difficulties associated with defining what constitutes a panel, the production of full panel renderings requires that there be a beginning and an end. A rock
art panel, therefore, is defined as 1) the imagery contained within or immediately adjacent to a rock shelter or 2) contiguous imagery located along a cliff face with no more than 4 meters between painted surfaces.

In some areas of the world, rock art researchers are able to trace rock paintings and engravings. In the lower Pecos, however, this method is not suitable due to the fragile condition of the paintings and their limestone canvases. Any contact with the paintings can cause the delicate surface to splinter or spall off. Renderings, rather than tracings, are made of entire rock art panels. As renderings they are not exact duplications of the panel, but renditions produced through a series of steps involving sketching, photographing, and painting. This is a very time consuming process, however, the benefits of this approach are immeasurable. Producing these scale renderings of each rock art panel allows the researcher to become aware of each pictographic element and its spatial relationship to other elements in the panel. No longer is one overwhelmed by the art, but familiar with it. Subtleties in the art that cannot be captured on film can be documented and included in the rendering. Photographic documentation tends to remove the researcher from the subject. No matter how much time I spend analyzing a photograph, if I do not sketch the art — I do not “know” the art. Elizabeth Wayland Barber eloquently expresses the benefits of this approach in her study of another aspect of material culture — textiles. She states:

Once we have located a good source of evidence, we need to sharpen our ability to make the most of what is there. The first step, in my experience, is to trick oneself into focusing on every part of the data. Draw it, count it, map it, chart it, and if necessary (or possible) re-create it.
For example . . . I inspected photographs of the Venus Lespugue a dozen times, but it was not until I made my own tracing that I noticed the marks showing that the strings of her string skirt were fraying at the bottom, telling me that the sculptor knew of string made from twisted fiber twenty thousand years ago. The act of drawing forced me to pay minute attention to every tiny detail of the statuette for the first time. Similarly, it was not until I decided to color by hand my photocopies of all the known Mycenaean frescoes showing clothing that I began to appreciate how frequently a particular border pattern occurred [Barber 1994:295].

The same revelations occur when rendering rock art panels. Drawing and painting each rock art element in the production of the overall rendering not only increases awareness of imagery content, but also aids in the identification of variations and consistencies in artistic styles within a single panel and in comparison with others included in the study. The data collected during the production of the renderings can be used to identify “motifs.” Motifs are defined as recurring themes or dominant features in the rock art that contain two or more pictographic elements. The data can also be used to track the distribution of motifs and pictographic elements across the landscape, noting their presence or absence within a canyon, between canyons, and among the major river systems in the region. The distributional analysis of rock art is invaluable in identifying the repeated association of specific pictographic elements at various sites, which allows us to establish patterns in the archaeological record of land use.

**Ethnographic Review.** Explanation of the patterns identified during the formal feature analysis requires the construction of a body of correlates and formal knowledge. Development of the correlates and formal knowledge begins with a careful and thorough study of ethnographic literature.
There are several different levels of research conducted during the review of ethnographic literature. First, I review the role of visual imagery, such as pictographs, sculptures, architecture, etc., in indigenous societies around the world. Second, I conduct a more intensive review of ethnographic and ethnohistoric accounts of hunting-gathering societies located within arid environments similar to the area of the lower Pecos River region in Texas. Finally, the most thorough review of the ethnographic and ethnohistoric literature is focused on the regions of northern Mexico and southwestern United States. This stage involves documenting patterns in the ethnographic literature.

The ethnographic data collected during this review and the patterns identified during the formal analysis are used to formulate hypotheses. According to R. L. Kelly, "We cannot extrapolate from images, descriptions, or statistical generalizations about modern hunter-gatherers to the past. We can, however, use theoretical arguments, tested against ethnological data, to derive expectations for prehistoric hunter-gatherer behavior, given what we reconstruct as their environment and what we think are the evolutionary principle guiding their behavior" (Kelly 1995:341).

**Archaeological Context.** I assess the inferences generated through the formal feature analysis and ethnographic review within the context of other aspects of regional material culture. Examining the art in conjunction with the artifacts recovered from the sediments aids in the explanation of both assemblages.

**Cable-like Arguments.** Cable-like arguments are developed by intertwining distinct, separate strands of evidence. These separate strands of evidence, in addition to those listed above, come from areas such as the social and bio-physical environment,
animal behavior, and neuropsychology. These strands can be either mutually reinforcing or mutually constraining. In the event that each strand points to the same conclusion, they can be mutually reinforcing. However, they can also be mutually constraining in that certain strands may result in the exclusion of a specific conclusion or whole classes of conclusions (Lewis-Williams 1995).

RESEARCH SAMPLE

The primary research sample consists of five Pecos River Style rock art panels — Rattlesnake Canyon (41VV180), White Shaman (41VV124), Panther Cave (41VV83), Mystic Shelter (41VV612), and Cedar Springs (41VV696). These rock art panels, which will be described in the following chapter, were selected based on location and their relatively high level of preservation. They are located within rock shelters found along four major drainage systems that feed into the Rio Grande: Rattlesnake Canyon, Pecos River, Seminole Canyon, and Devils River.

ROCK ART RECORDING AND DATA COLLECTION

I began recording rock art in the lower Pecos River region in the summer of 1989 as a professional artist. At this early stage in my understanding of the art, my method consisted simply of sketching, photographing, and measuring isolated motifs, operating under the assumption that each site contained a random assortment of rock art imagery. As an artist, however, I soon recognized that the placement of the imagery on the shelter walls was not random — but planned.
With this new insight, I realized the importance of studying the panels as compositions rather than focusing on isolated motifs. I began producing full panel renderings in the fall of 1991 using photographs of the rock art and Kirkland's watercolor renderings. After 1991, the renderings were produced using only photographs and sketches made of the art. My goal in producing the renderings has not been to replicate the rock art in exacting detail; this would not only be time and cost prohibitive, it would be impossible. Rather, I have produced the renderings to identify relationships of pictographic elements within a panel, compare and contrast the pictographs contained at each site to others in the region, and to consider placement of the art across the landscape and its archaeological context.

Between 1989 and 1998, I have spent approximately 8 months in the region recording rock art. As my understanding of the pictographs increased, so did the number of questions I sought to answer; with this came more sophisticated methods for recording the rock art and collecting data from each of the archaeological sites. Beginning in 1997, I developed eight recording forms to be used in the field for documentation and analysis; each of these are discussed below. Although the field methods and forms I used during the summer 1997 field season proved to be extremely beneficial in addressing some of these new questions, they are likely to undergo further refinement as new questions emerge.

Field Procedures. Recording the rock art at an archaeological site, in addition to other relevant data pertaining to the site itself, requires careful and extensive
documentation. It also requires spending several days to several weeks at each site. The steps I follow and forms I use are discussed briefly below.

**Step 1: Site Form.** The site form (Appendix A) is completed immediately upon reaching the site. It contains general information about each rock art site and is used as a cover sheet for all forms pertaining to the site. This form was modified from the State of Texas Archeological Site form and from forms developed by Texas Parks and Wildlife Department for recording information about rock art sites.

**Step 2: Photo Reference Form.** The photo reference form (Appendix B), which is a modified version of the “Rock Art Photo Reference Form” developed by Texas Parks and Wildlife, is used to keep an accurate record of all photographs taken. A photo reference numbering system is developed and maintained throughout the recording session. The following information is included in the reference number:

1. Film Type — color slide (CS), color print (CP), Black and White (BW)
2. Date (month-year)
3. Roll Number — All rolls used during a field season are numbered consecutively.

The information requested in the body of the form is self-explanatory with the exception of “Unit #.” This column is used to record the section or unit of the rock art panel being photographed (see below for further discussion).

**Step 3: Rock Art Recording Forms.** The rock art recording forms (Appendices C - H) are used to document specific pictographic elements or motifs at each rock art site. Each of the elements are counted and documented on the recording forms. An example
of each is drawn in the left-hand column of the form; its measurements are noted next to the drawing. Using a Munsell Guide, the appropriate color code is determined for each figure and is recorded with the corresponding drawing. A detailed written description of the figure and all related elements are reported in the right-hand section. Photographs are taken of each figure recorded. The forms are divided as follows:

1. **Zoomorphs — (Appendix C)** This form is broken down according to type of animal represented — deer, canines, felines, birds, and reptiles. If other zoomorphs are identified they are documented on an appended page.

2. **Non-skeletonized Anthropomorphs — (Appendix D)** All anthropomorphic figures (images with human attributes) that do not have any decoration down the central section of the body or designs along the exterior lines of the figure are considered non-skeletonized. In the lower Pecos, these are typically monochromatic and smaller in size than skeletonized anthropomorphs (discussed below).

3. **Skeletonized Anthropomorphs — (Appendix E)** All anthropomorphic figures that have some form of design along the central area of the body or that have decoration along the exterior lines of the body are considered skeletonized anthropomorphs. These are often polychromatic. This form does not include therianthropic figures (defined below), although differentiating between what is and is not a therianthrope can sometimes be very difficult.
4. Therianthropes — (Appendix F) Therianthropes are anthropomorphs with animal characteristics, such as antlers, wings, fur-like fringe, etc. These are frequently very elaborate polychromatic figures and skeletonized. As I mentioned earlier, differentiating between therianthrope and skeletonized anthropomorph can be difficult.

5. Hand Prints — (Appendix G) All forms of hand prints are included on this form.

6. Entoptics — (Appendix G) This form is used to document all geometric forms that are similar to those identified as entoptics by Siegel (1984) and Horowitz (1964). According to Siegel, these geometric forms are universally experienced by individuals in an altered state of consciousness. A discussion on entoptic imagery will be presented in Chapter VI.

7. Subject — (Appendix H) This form is used as an addendum to the other forms when more space is needed.

*Step 4: Field Sketches.* Sketches are made of complex areas and faint images within the panel that may not be clear in photographs. These sketches are later used in the development of the full panel renderings. Sketches are produced on acid free paper and include measurements, Munsell color codes, and a detailed written description. Each subject of a field sketch is also photographed.

*Step 5: Photography.* Photographs are taken of individual pictographic elements and motifs, meter by meter units of the entire panel (refer to Appendix B). general
overviews, and local vegetation and landscape. All photographs are recorded on a
reference form.

When photographing a rock art panel, the archaeological site number and panel
unit number is indicated on a menu board and included in each photograph. These
photographs are used to produce full panel renderings upon returning to the lab.

**Lab Procedures.** One of the problems that plagues archaeologists is that rock
art cannot be excavated, labeled, bagged, and taken back to the lab for analysis. With
proper field methods, however, the rock art can be taken back to lab for analysis — only
in the form of sketches, photographs, extensive notes, measurements, etc. The rock art
panel can be reconstructed in the lab from the data collected in the field.

**Step 1: Organizing Slides.** Site number, photo reference number, and unit
number (when applicable) are noted on all slides. Slides are then placed in archival
quality plastic slide sleeves.

**Step 2: Producing the Rendering.** The following materials are used to produce
the full panel renderings: 1) 100% rag vellum or acid free paper, 2) pastels, and 3)
prismacolor pencils. Panel unit slides are projected and lightly copied onto the paper
using a soft pencil. Using pastels, the surface of the paper is toned to resemble the color
of the shelter wall. This is accomplished by grinding pastel pigments to a fine powder
and then lightly rubbing the powder into the surface of the paper using a soft cloth,
tissue, or cotton ball. Detailed images are then added using the prismacolors. Colors
selected for rendering the images are determined by the Munsell color codes recorded
while in the field. Sketches and photographs of individual elements are used to add
further detail in complex or faint areas of the panel. Because pastels and prismacolors are highly erasable, future adjustments and corrections can be made to the rendering with relative ease.

Producing a rendering should be viewed as an on-going, long-term process. Subsequent trips to a site inevitably result in the identification of new data to be added to the rendering or the need to make adjustments to existing images. Different lighting conditions, better weather conditions, more time spent at a site, improved photography, fewer gnats, can reveal subtleties in the rock art not seen before. No rendering can ever be considered totally "complete."

**Step 3: Data Analysis.** Once the majority of the images have been rendered and the rendering has been refined, pictographic elements are counted and compared to the counts recorded on the rock art recording forms. If the data on the recording form is inaccurate, a notation is made and a sheet attached with the corrected information. If the rendering is inaccurate, the slides and notes are revisited and the rendering is corrected accordingly.

The data collected from all the sites in the study are then compared. Because the rock art panels at each site are not equal in size or complexity, a straight numeric comparison among sites cannot accurately reflect the density of pictographic elements contained within each panel. In future research, I will consider the amount of the total area of the panel devoted to each pictographic element.

Determining precise counts of pictographic elements is extremely difficult. Many of the images are very faint, damaged, completely destroyed, or lost under other
imagery. Complete reconstruction of the imagery contained in the panel is, therefore, simply not possible. Every effort is made, however, to treat the data as faithfully as possible.

Image counts obtained during the feature analysis, rock art panel descriptions, and an analysis of the data will be presented in the following chapter. Patterns identified during the feature analysis will also be discussed.
CHAPTER V
A PATTERNED PAST

In this chapter, I provide a condensed description of the five Pecos River Style rock art panels included in the analysis. Due to the vast amount of imagery, a complete description is beyond the scope of this dissertation. I follow the panel descriptions with a brief introduction to the rock art patterns identified during the analysis. In the succeeding chapters, three of these patterns are explained using the methods discussed in Chapter IV, Research Design.

As mentioned in the previous chapter, the counts given for each element are approximations; arriving at an exact count is impossible due to damaged panels, over-painting, weathering, and observation conditions; even viewing the art in different light can reveal pictographic elements not seen before. Future implementation of photographic image enhancement technology is certain to result in counts slightly different than what are presented here; however, no technology will be able to capture all of the original imagery painted on shelter walls.

Terms used to describe and classify the pictographic elements identified at each site are defined in Chapter IV. Referents given for each pictographic element — such as “feather headdress,” “staff-like object,” etc. — are not to be considered explanations or interpretations for the rock art; they are used only as descriptors. Too often, words used to reference pictographs and the names assigned to rock art sites become accepted as
interpretation for the art, when in fact; its significance may be very different than the referent being used.

Placement of pictographs in the rock art panels is described from the viewer's perspective — that is, facing the panel. When discussing the right or left hand of anthropomorphic figures, however, it is from the perspective of the paintings.

THE DATA

Rattlesnake Canyon (41VV180). This site is located near the town of Langtry, Texas in Rattlesnake Canyon, about 275 meters from the Rio Grande. The entire wall of this small southwest-facing shelter is covered with pictographs. The bulk of the paintings are Pecos River Style. The dimensions of the painted surface are approximately 24-x-3 m. The pictographs are in fairly good condition; however, shelter flooding has damaged the lower section of the panel. Spalling has caused serious damage to the far right side of the panel. Flooding also removed the majority of shelter sedimentary deposits, with the exception of remnant burned rock scatters in front of the site. Primary pictographic elements identified at Rattlesnake Canyon are listed and discussed below.

The Rattlesnake Canyon rendering (Panel 1) was produced in 1991 prior to the development of the more refined recording methods described in the previous chapter. The rendering was generated using my photographs of the site and information from Forrest Kirkland's watercolor renderings of the panel (1967). Subsequent observations
made during trips to Rattlesnake Canyon demonstrated that the majority of the images were depicted accurately.

*Anthropomorphs.* One of the most striking aspects of this panel is the number of dichromatic and polychromatic skeletonized anthropomorphic figures (Panel 1a). At least 58 of the 63 anthropomorphs identified in this panel are skeletonized. Predominant colors are red and black; however, yellows and oranges are also present. There are four distinctive characteristics associated with these figures. First, approximately 17 of the anthropomorphs are wearing what resembles either a single or dual feather headdress or rabbit ears (Panel 1b). Because this same pictographic element is associated with a rabbit's head in another rock art panel in the area, I will refer to it as a rabbit ear headdress throughout the dissertation. The rabbit ears appear on figures found within all areas of the panel and at all levels (figures with headdresses are superimposed over other figures with headdresses).

The second characteristic of the anthropomorphs are wings. At least 21 of the figures are winged (Panel 1c). Nine of the 21 winged figures do not have legs and all of the winged anthropomorphs are painted either horizontally or at an angle on the wall. None of the winged figures are wearing the rabbit ear headdress discussed above.

The third characteristic of the Rattlesnake Canyon anthropomorphs is their association with a staff-like object bearing an enlarge distal end (Panel 1d). The anthropomorphs are “holding” this objects in either their right or left hand. Although these and other objects are described as being “held” by the anthropomorphs, they are actually only located near the right or left hand. The enlarged distal end is depicted in a
variety of ways and is stylistically comparable to the anthropomorph with which it is associated.

The fourth characteristic is the association of anthropomorphs with atlatls (Panel 1e). At least 15 of the anthropomorphs are holding atlatls; however, none of the winged anthropomorphs are associated with this pictographic element. Two of the anthropomorphs are holding the atlatl in their left hand; the remainder are holding the atlatl in their right hand.

There are at least 4 skeletonized anthropomorphs that have been impaled by a spear (Panel 1f). These figures are winged and depicted horizontally on the panel, as opposed to the vertical position of the non-impaled anthropomorphs.

**Zoomorphs.** The number of animal figures depicted in the panel is low in comparison to the number of anthropomorphs. There are approximately 4 felines (Panel 1g) and three birds (Panel 1h). The birds are located near the center of the panel. The felines are located in the left side of the panel. Although there are numerous serpentine or crenelated lines throughout the paintings, there are no distinguishing attributes that can be used to positively identify them as serpents.

**Geometrics and Other Enigmatic Figures.** The crenelated lines are depicted simply using only one color, or elaborated using several colors. At least three of the more complex images are crenelated lines forming an arch (Panel 1i). At the top of the arch is an opening or hole. Each of these crenelated arches is associated with one of the skeletonized anthropomorphs which are painted either above, below, or behind the crenelation. These figures are located within the left section of the panel.
There are over 100 straight lines resembling spears or feathered darts clustered around the bodies of various anthropomorphs and amoeba-like figures. There is also a cigar-shaped figure approximately 2.5 meters in length located in the central section of the panel.

At the far right end of the panel is large cluster of concentric circles painted in black and red (Panel 1j). The circle is impaled by a spear or dart and is surrounded by the impaled, winged figures.

White Shaman (41VV124). The White Shaman site is located in a small southwest facing shelter high on a bluff overlooking the Pecos River near its confluence with the Rio Grande. Dimensions of the pictographic panel within the shelter are 8-x-4 m. Paintings are predominantly Pecos River Style and are in fairly good condition, with the exception of the lower portion of the panel which has been damaged by sheep and goats rubbing against the paintings. Although there are no sedimentary deposits in the shelter, there is some burned rock and midden debris in the talus.

The White Shaman rendering (Panel 2) was produced using the methods discussed in the previous chapter. The lower, damaged section of the panel contains small linear images that are very difficult to see. These images will not be discussed here. The majority of the paintings, however, are in good condition and have been included in the rendering.

Anthropomorphs. Although a small panel, it contains over 30 anthropomorphic figures, both skeletonized and non-skeletonized. There are five black non-skeletonized anthropomorphic figures with red heads that extend the length of the panel. Each of
these figures are approximately the same size and are spaced fairly evenly apart (Panel 2a). Associated with each of these anthropomorphs are long, slender, black objects with red tips. These objects are associated with the right and left hand of each of the anthropomorphs.

There are at least 10 impaled anthropomorphs, seven of which are skeletonized. Six of the impaled skeletonized anthropomorphs are depicted upside down with "hair" falling downwards. Associated with these figures are spears or feathered darts in each hand; however, none of these figures are holding atlatls. Their bodies are frequently decorated with black dots (Panel 2b).

There are two headless white skeletonized anthropomorphs located near the center of the panel; both have a black band running down the center of their bodies. One is outlined in red and has red lines decorating the body (Panel 2c). The other is faded and less elaborately painted.

There are two antlered skeletonized anthropomorphs in the left end of the panel. One of these figures is impaled and has two sets of antler racks on its head (Panel 2d). It is depicted slightly off vertical. The other antlered figure is vertically depicted and is painted in red and black (Panel 2e). The antlers of this figure are decorated with black dots. This is the only figure identified at the site that has eyes. Painting facial features, such as eyes, is very rare in the Pecos River Style rock art. This figure is holding an atlatl in its right hand and a staff-like object with an enlarged spinescent distal end in the left hand.
**Zoomorphs.** Only two deer have been identified in the panel; both are impaled. One is located at the right end of the panel and the other at the left end. Both are painted in red; however, the one to the left is covered in large black dots and is located just above the two antlered anthropomorphs (Panel 2f).

**Geometrics and Other Enigmatic Figures.** There are well over 100 dots in this panel. Many of the dots are free-floating; however, many are decorating the other figures in the panel. There are at least six red dots that have been impaled with feathered darts or spears. Three of these are located at the far left end of the panel near the antlered figures (Panel 2g). The other impaled dots are depicted in the underbelly region of a very large and enigmatic serpent-like figure located in the center of the panel (Panel 2h). Two other enigmatic polychrome figures — not human, not animal — are also decorated with dots (Panel 2i).

Crenelated lines are present, including a crenelated arch with an opening running down the center of the arch. The skeletonized antlered anthropomorph with dots on its tines is located in the central section of the arch (Panel 2j).

A white crenelated line runs the entire length of the panel and crosses over the top the five black anthropomorphs discussed above. As best as can be determined, no pictographic elements are painted over the top of this line. At the far left end of the panel, the white line changes to black (Panel 2k).

**Panther Cave (41VV83).** Panther Cave is a very large west-facing rock shelter located near the mouth of Seminole Canyon within Seminole Canyon State Park. Archaeological deposits have been severely impacted by recent activity. The once
extensive talus slope associated with the shelter was inundated with the construction of Amistad Reservoir. Pecos River Style paintings extend approximately 40-x-6 m along the back wall of the shelter. Paintings on the exterior walls of the shelter are barely visible due to weathering. The paintings inside the shelter are in fair condition; however, there has been serious damage caused by water seepage, mineral stains, insect burrowing, and spalling.

The Panther Cave rendering (Panel 3) was produced in 1991, prior to the development of the recording methods described in the previous chapter. It was produced using photographs I made of the pictographs and Forrest Kirkland’s watercolor paintings of the Panther Cave panel. Due to the condition of the painting and a very large amount of over-painting, counting pictographic elements in this panel is very difficult.

_Anthropomorphs_. Over 40 anthropomorphs are included in the Panther Cave panel. At least 30 of these anthropomorphs are skeletonized. There is a great deal of diversity in anthropomorph depiction. Some are elaborately painted with two or more colors; others are less ornate. However, one notable attribute of the Panther Cave anthropomorphs is feather hipclusters. At least seven of the larger anthropomorphs (2 to 4 meters tall) have a cluster of feathers at the hip (Panel 3a). Only one winged anthropomorph (Panel 3b) and one anthropomorph wearing a feather headdress (Panel 3c) have been identified at this site.

_Zoomorphs_. There are at least 17 impaled deer (Panel 3d) in the Panther Cave panel and 8 felines (Panel 3e). The felines are often quite large, extending as much as
3.5 meters across, and located throughout the panel. The deer are small and located near the right and left ends of the panel.

*Geometrics and Other Enigmatic Figures.* There are over 100 lines resembling feathered darts; most of which are located at the far right end of the panel surrounding an anthropomorph and an enigmatic round, black and red figure. Just below the round figure are red and yellow impaled dots and impaled deer (Panel 3f). There are also several geometric forms that resemble a single pole ladder located in this section of the panel; these have been impaled as well.

Crenelated lines are located throughout the panel. In at least two instances the crenelated lines form an arch. An opening or break in the crenelation is located in the center of the arch (Panel 3g). A third crenelated line connects to a circle. There are numerous lines radiating up from the circle. Just above the circle is a skeletonized anthropomorph (Panel 3h). There may be a line connecting to the other side of the circle, but this is yet to be determined. Located just above the circle is a skeletonized anthropomorph.

*Mystic Shelter (41VV612).* Mystic Shelter is located in a small arroyo that feeds into the Devil’s River just south of Cedar Springs Canyon. The southeast-facing shelter consists of three levels or tiers; the lowest level contains very little art and the upper level contains no art. The lower level may have contained significantly more art at one time; however, due to flooding the paintings have been destroyed. The majority of the art is contained within the second tier, which is high enough to be protected from flooding. The approximately 23-x-5 m pictographic panel located within this section of
the shelter contains predominantly Pecos River Style rock art; however, there are also numerous paintings identified as Red Linear Style. Due to water seepage, entire sections of the panel are destroyed. Those sections not damaged by seepage are in excellent condition; but the likelihood of damage from further water seepage appears imminent. There are no sedimentary deposits at this site and no talus.

The Mystic Shelter rendering (Panel 4) was produced using the methods described in the earlier chapter. Although each visit to the site has revealed subtleties in the art not previously noted, the rendering includes the vast majority of the imagery contained within the panel.

Anthropomorphs. There are over 40 anthropomorphs in this panel. Tremendous damage to the paintings suggests that numerous anthropomorphs may have been destroyed. At least three of the anthropomorphs are holding the staff-like object with the enlarged spinescent distal end (Panel 4a). There are two antlered anthropomorphs at this site. One of the antlered figures is polychrome — yellow, red, and black; black dots cover the body of this figure and the tips of its red antler rack are tipped in black (Panel 4b). The other antlered anthropomorph is located at the far right end of the panel; it is dichromatic, yellow and red (Panel 4c).

There are no less than 14 impaled anthropomorphs. At least four are non-skeletonized (Panel 4d) and depicted vertically on the panel, in contrast to the 10 impaled skeletonized figures depicted either upside down, horizontal, or at an angle (Panel 4e).
**Zoomorphs.** Felines and deer are both present in the Mystic Shelter paintings. There are four felines, all are depicted in a different fashion and located towards the right end of the panel. The largest feline is approximately 3 meters long with red lines emanating from the nose and mouth (Panel 4f). Just beneath the large feline are two more smaller felines approximately half the size of the one above. The legs, tail, and claws of one of the felines are detached from its body (Panel 4g). The front portion of this feline has been destroyed by water seepage, making it impossible to know how the head of the figure was originally illustrated. The other feline is headless, however, its appendages are attached (Panel 4h). The fourth feline has a head that is contorted backwards and is located at the far right end of the panel near the antlered anthropomorph.

In addition to felines, the Mystic Shelter paintings include five deer (Panel 4i) and a very large horned serpent (Panel 4j). The deer, all of which appear to be impaled, are located at the far left end of the panel. The 5.6 meter long horned serpent is painted red with a black line running down the top its body and alternating red and black dots decorate its underside. The right end of the serpent has been destroyed by water seepage.

**Geometrics and Other Enigmatic Figures.** There are squares located just above the head of three anthropomorphic figure. Two of the squares have lines extending outward from the lower two corners (Panel 4k). These squares are painted red, yellow, and orange.
A pictographic element resembling a single pole ladder appears frequently throughout the panel; some are impaled and others are not (Panel 4l). The single pole ladders are located just to the right of the deer. These geometrics are associated with impaled skeletonized anthropomorphs. The impaled anthropomorphs have bodies resembling the single pole ladder (Panel 4e).

Crenelated lines are present in all areas of the panel. Two crenelated arches with openings in the center are associated with anthropomorphs. Only one of the anthropomorphs is skeletonized (Panel 4m).

Cedar Springs (41VV696). This site is located within Cedar Springs Canyon approximately 900 meters above the Devils River. It is a large southeast-facing shelter located low in the canyon. The back wall of the shelter is covered with Pecos River Style pictographs in fair condition. Dimensions of the painted surface extend approximately 33-x-7 m. There are no cultural deposits in this shelter, however, due to its location in the canyon, deposits would have been washed away by flooding. Adjacent to the main Cedar Springs shelter is a second pictograph panel termed the Cedar Springs Annex. The paintings in the Annex extend approximately 34.5 meters in length and appear to have originally been joined with the paintings in the main shelter. With the exception of a few pictographs protected by a slight rock overhang, the majority of the paintings in the Annex have been damaged or completely destroyed through exposure to the elements, mineral deposits, and spalling. Because the paintings in the main shelter and the Annex appear to have been contiguous, they will be discussed jointly below.
The Cedar Springs rendering (Panel 5) was the last one to be produced during this study. The methods used to record the panel were discussed in the previous chapter. Cedar Springs Annex has not yet been rendered as a complete unit. Due to the poor condition of the pictographs, it has only been possible to sketch isolated sections of the Annex paintings.

**Anthropomorphs.** There are over 137 anthropomorphs contained in the paintings at Cedar Springs — 85 in the main shelter and 52 in the Annex. Of the 137 anthropomorphs, 98 are non-skeletonized and are under 50 cm in height. None of the non-skeletonized anthropomorphs are not holding atlatls. The remaining anthropomorphs are skeletonized and range from approximately 30 cm to 5 meters in height. At least 20 of the skeletonized anthropomorphs are elaborately painted and adorned with animal attributes, such as antlers, bird heads, or fur (Panel 5a). Twenty-nine of the anthropomorphs are skeletonized, but do not appear to have any animal attributes.

At least four of the anthropomorphs have antler headdresses. Antler tines on two of the anthropomorphs are tipped in black; the third antlered figure has only the central beam tipped in black. The fourth antlered anthropomorph, which is located in the Annex, does not appear to have any tines decorated.

At least 20 of the anthropomorphs are holding a staff-like object with an enlarged distal end in their left hand and an atlatl in the right hand. At least one anthropomorph is holding the staff-like object in its right hand rather than the left. There are at least five occurrences of the staff-like object that are not associated with anthropomorphs.
There is one anthropomorph with large wings and a bird head (Panel 5b) and one, perhaps two, that have a feather headdress. No impaled anthropomorphs have been identified at this site.

*Zoomorphs.* Deer and felines, and possibly two birds, are present in the Cedar Springs paintings. There are at least 31 deer contained in the paintings at Cedar Springs, most of which are impaled. Ten deer have been identified in the main shelter, nine of which are similarly depicted and located in the central section of the panel. These nine deer are associated with an antlered anthropomorph (Panel 5c). The tenth deer, which is very faded, is located in the left hand section of the panel and is not depicted in the same manner as the other nine.

Twenty deer, stylistically different than the ones in the main shelter, have been identified in Cedar Springs Annex. For the most part, their bodies are depicted short and fat; a few are more elongated. At least one of the bucks has dots on the ends of its antlers.

There are at least 16 felines in the Cedar Springs paintings. Eleven of these figures are depicted with their heads contorted backwards, mouths open, and impaled with a spear or feathered dart (Panel 5d). These felines are located in the central section of the panel and are surrounded by the impaled deer discussed above. Also located in this same section is a negative painted feline with red lines emanating from its mouth and nose area (Panel 5e). This feline is superimposed over the top of an antlered anthropomorph. Above the impaled deer and felines is what appears to be an antlered impaled feline. The head of this figure is also contorted backwards (Panel 5f).
**Geometrics and Other Enigmatic Figures.** The paintings at Cedar Springs contain a plethora of geometric forms and enigmatic figures; Y-shapes, T-shapes, comb-shapes, U-shapes, and single pole ladders. Each of these geometrics is associated with a specific anthropomorph (Panel 5g). The single pole ladder forms are frequently impaled and located in the area of the impaled deer, impaled felines, and antlered anthropomorph. There are also anthropomorphs with single pole ladder bodies similar to those at Mystic Shleter (Panel 5h).

There are over 100 lines that resemble spears or feathered darts; most of these are located surrounding the body of an anthropomorphic figure (Panel 5i). Crenelated lines, some monochrome and simple, others very ornate and polychrome, are a frequently occurring pictographic element. There are two very elaborate crenelated arches with openings in the center. Beneath one of the arches is a skeletonized antlered anthropomorph (Panel 5j); the other arch is inverted and does not have an anthropomorph above or below it (Panel 5k). There are other crenelated arches in the panel; however, they do not have openings in the center.

There are a wide variety of amoeba-like figures located in the Cedar Springs paintings. One of these has animal characteristic and is associated with at least three of the staff-like objects described above (Panel 5l). Large U-shaped elements are located in the Annex as well as crenelated figures resembling the letter W. Other geometrics include grid patterns, dots, concentric circles, circles linked with lines, and nested curves. There are at least 8 impaled black dots, four of which are very distinct, located in the Annex.
PATTERNS IN THE ARCHAEOLOGICAL RECORD

The pictographic element counts from each site were compared in order to identify patterns in the rock art. These data are listed below in Table 5.1. Only primary pictographic elements are included in the table. Analysis of these data revealed patterns in the distribution of specific pictographic elements. It also revealed "motifs," which are repeated themes or dominant features in the rock art which are composed of two or more pictographic elements.

Table 5.1. Data Summary

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Pecos River Style Motifs. Numerous motifs have been identified during this study; however, it is beyond the scope of this dissertation to address each one individually. Three of the motifs identified during the formal feature analysis and their distribution among the sites in the analysis will be discussed below. Each individual occurrence of the motif will be described and explained in detail in the following chapters.

Motif #1. As demonstrated in Figure 5.1, the first motif was identified at every site included in the analysis. The elements of this motif include a crenelated arch with an opening in the center of the arch and a skeletonized anthropomorph located above,
below, or behind the arch. The anthropomorph is either associated with a particular animal or its body has been adorned with animal attributes.

Figure 5.2. Motif #2 - Antlers, Anthropomorphs, Deer, and Dots. Impaled deer and impaled dots found in association with antlered anthropomorphs.

Motif #2. The elements of second motif identified during the formal feature analysis include: impaled deer, impaled dots, and antlered anthropomorphs with dots on their antler tines or decorating their bodies. As demonstrated in Figure 5.2, all three of these elements were identified at Cedar Springs (41VV696) and White Shaman (41VV124). Two of the three recurring elements were identified at Panther Cave
(41VV83) and Mystic Shelter (41VV612). Rattlesnake Canyon (41VV180) did not contain any of these elements.

Motif #3. As demonstrated in Figure 5.3, the third motif is present at all five sites in the analysis. This motif contains anthropomorphs holding staff-like objects with enlarged distal ends.

![Figure 5.3: Motif #3 - Anthropomorphs and Staff-like Objects With Enlarged Distal Ends.](image)

**Patterned Distribution of Pictographic Elements.** Two very striking patterns in the geographic distribution of pictographic elements were identified during the formal feature analysis.
Figure 5.4. Feather Hipcluster Distribution. Distribution of anthropomorphs wearing feather hipclusters.

*Feather Hipclusters.* The first pattern is the distribution of anthropomorphs with feather hipclusters. As seen in Figure 5.4, this element is present at only one of the five sites included in the analysis, Panther Cave (41VV83). Although none of the other panels analyzed contained anthropomorphs with feather hipclusters, other sites within Seminole Canyon, such as Fate Bell Shelter (41VV74) contain the element. An anthropomorph with a feather hipcluster has also been identified at Hanging Cave (41VV79) which is located in Painted Canyon, less than 2 km east of Panther Cave.

*Wings and Rabbit Ear Headdresses.* The second interesting pattern is the distribution of winged anthropomorphs and anthropomorphs with rabbit ear headdresses
(Figure 5.5). These two elements co-occur at Rattlesnake Canyon (41VV180) and are significantly represented — 21 winged anthropomorphs and 17 anthropomorphs with rabbit ears. Only one winged anthropomorph was identified at Cedar Springs (41VV696) and Panther Cave (41VV83). Northeast of Rattlesnake Canyon, however, there are several sites that contain rabbit ear headdresses very similar to the ones at Rattlesnake Canyon. Rabbit ears have been identified at Eagle Cave (41VV167), approximately 8 km northeast of Rattlesnake Canyon and, approximately 12 km further east at 41VV576, 41VV584, 41VV595, and 41VV943.

![Graph showing distribution of winged anthropomorphs and rabbit ear headdresses at sites 41VV180, 41VV124, 41VV83, 41VV812, and 41VV988.]

Figure 5.5. Winged Anthropomorph and Rabbit Ear Headdress Distribution.
The clustered geographic distribution of these pictographic elements suggests that they may be affiliated with specific clans or are perhaps territorial markers; however, there is insufficient data at this time to address these issues adequately. A thorough survey of the rock art throughout the Lower Pecos River Region will be conducted in the future to determine the distribution of these elements across the landscape.

In the following chapters, I will use ethnological data to formulate hypotheses to explain the three motifs discussed above. The hypotheses will be tested against additional evidence from the material record and neuropsychology, and considered within the context of the social and bio-physical environment of the lower Pecos region.
CHAPTER VI
GATEWAY SERPENTS AND SHAMANIC JOURNEYS

In this chapter I provide an explanation for the most frequently occurring motif identified during the formal feature analysis of the Pecos River Style pictographs. The pictographic elements of this motif include: a crenelated arch, an opening at the center of the arch, and a skeletonized anthropomorphic figure located above, below, or behind the crenelated arch. The anthropomorphs are either associated with a particular animal or their bodies have been adorned with animal attributes. To explain the motif, I follow a three step approach: 1) describe the motif identified at each site in the study, 2) formulate a hypothesis regarding possible analogous relationships between the motif and specific beliefs associated with the shamanic journey to the Otherworld identified in the ethnographic literature, and 3) test the hypothesis against evidence from neuropsychology and the archaeological record.

CRENELATED ARCHES, PASSAGEWAYS, ANTHROPOMORPHS, AND ANIMALS: A LOWER PECOS PICTOGRAPHIC MOTIF

Rattlesnake Canyon (41VV180). The rock art panel located within Rattlesnake Canyon contains at least three occurrences of the motif. The first, found near the far left end of the panel (Figure 6.1), depicts a polychrome crenelated arch superimposed over the top of a skeletonized red and black anthropomorphic figure. The anthropomorph is wearing a rabbit ear headdress. The head of the figure is facing left. There is a hole
Figure 6.1 Motif #1A - Rattlesnake Canyon (41VV180).

painted in the top of the arch with red, yellow, and black lines radiating down from the opening.

The second appearance of the motif (Figure 6.2) is found just to the right of the figure discussed above. It is a polychrome red and black skeletonized anthropomorph wearing a rabbit ear headdress. The object associated with the left hand of the anthropomorph has previously been identified as an atlatl (Kelley 1950, 1971). There is a staff like object with an enlarged distal end associated with the right hand. A circle, found at the top of the crenelated arch, is painted over the chest area of the anthropomorphic figure. Above the anthropomorph are two polychrome red and black feline figures.
Figure 6.2. Motif #1B - Rattlesnake Canyon (41VV180).

Figure 6.3. Motif #1C - Rattlesnake Canyon (41VV180). Illustration by Jessica Lee.
The third occurrence of the motif (Figure 6.3) is located to the lower right of the last figure discussed. Included in this motif is a skeletonized winged anthropomorph painted beneath a crenelated arch. There is an opening at the top of the arch with lines radiating from the center outward.

![Figure 6.4. Motif #1 - White Shaman (41VV124).](image)

**White Shaman (41VV124).** The panel at the White Shaman site contains only one occurrence of the motif (Figure 6.4). It depicts a very elaborate crenelated arch at the far left end of the panel. Unlike Rattlesnake Canyon, however, the opening in the arch is not illustrated by a hole. Instead, parallel lines run from the base of the arch through the top. Superimposed over the arch within the parallel lines is a skeletonized antlered anthropomorphic figure. This antlered anthropomorph is painted in both red
and dark gray with lines running vertically down the center of the figure. On the end of each of the tines of the antler headdress are small black dots. Associated with the right hand of the anthropomorph is an atlatl and with the left hand is a staff like object similar to that identified at Rattlesnake Canyon.

![Figure 6.5. Motif #1A - Panther Cave (41VV83). Illustration by Jessica Lee.](image)

**Panther Cave (41VV83).** There is at least one, and perhaps two, occurrences of the motif at Panther Cave. One of the images is very difficult to see due to over-painting and damage from spalling (Figure 6.5). The second image is found at the far right end of the panel just beneath the large feline figure for which the site was named. A crenelated line connects with a circle; radiating out and upward from the circle are numerous fine
lines. Just above the opening in the arch and below the feline is a winged skeletonized anthropomorph with a bird-shaped head. Protruding from the head are two feathered darts and a possible feather headdress (Figure 6.6).

![Figure 6.6. Motif #1B - Panther Cave (41VV83). Illustration by Jessica Lee.](image)

**Mystic Shelter (41VV612).** A very vivid illustration of the motif is located just left of center in the Mystic Shelter panel (Figure 6.7). It depicts a crenelated arch with an opening at the top. Superimposed over the opening and continuing on above it is a skeletonized anthropomorphic figure. The polychrome anthropomorph is painted in two tones of a reddish-brown pigment, fringed along both sides, with a sinuous black line running down the center of the figure. There is an atlatl associated with the right hand and dart points with the left. Beneath the arch is a row of small monochrome black
anthropomorphs surrounded by black and red dots. Beneath these anthropomorphs are several horizontal red and black lines.

Figure 6.7. Motif #1 - Mystic Shelter (41VV612).

**Cedar Springs** (41VV696). Cedar Springs contains a very clear example of the motif. Located toward the right end of the panel is a crenelated arch with an elaborately painted opening at the top (Figure 6.8). The left side of the arch is painted black and the right side is white. Beneath the arch is an antlered skeletonized anthropomorphic figure. At the ends of each of the antler tines are black dots. There is an atlatl in the right hand of the figure and the same staff-like object with an enlarged distal end in the left hand of the anthropomorph.
SERPENTS, OTHERWORLD PORTALS, SHAMANS, AND ANIMAL
FAMILIARS: AN ETHNOGRAPHIC MOTIF

My review of the ethnographic literature revealed a similar motif in the myths and folklore of cultures around the world (Boyd 1996). The corresponding pattern in the literature is associated with beliefs about the journey taken by shamans to the spiritual realm. In this section, I give a brief introduction to features of shamanic ideologies that are similar to the lower Pecos pictographic motif. I then identify similar features in the shamanistic belief systems of cultures located within Mesoamerica and the American Southwest, specifically the Aztec, Huichol, Yaqui, and Hopi. Each of these are members of the Uto-Aztecan language family, one of the most widely distributed language families in North America, stretching from the Great Basin into the Valley of Mexico.
Although I am using ethnological data from four Uto-Aztecan groups to formulate a hypothesis to explain the motif, I am not stating that the Archaic inhabitants of the region were necessarily Uto-Aztecan speakers. At this time, we have no knowledge of what language was spoken by the peoples living in the region during the Archaic period. Each of these groups does, however, maintain similar cosmological beliefs and ideologies associated with the shamanic journey to the spirit or Otherworld.

The elements of the ethnographic motif include: 1) the universe consisting of various layers with the supernatural realm existing below the earth's surface, 2) the role of the serpent as the gateway through which one must pass on the journey to the spirit world, 3) sacred portals or passageways, both natural and human-made, that access the supernatural realm, and 4) animal spirit helpers or familiars.

Key Features of Shamanism and the Shamanic Journey. Dobkin de Rios and Winkelman (1989), note that there is a lack of coherence in the use of the terms "shaman" and "shamanism." Mistakenly, the term "shaman" has been used synonymously to refer to a wide variety of trance practitioners, such as sorcerers, witches, prophets, seers, and diviners. Hultkrantz provides a clear definition for shamanism, one that has since been empirically supported by Winkelman (1992) through a cross-cultural assessment of magico-religious practice in 47 societies. The fundamental elements of shamanism are as follows: 1) the shaman establishes contact with the supernatural realm; 2) he/she is the intermediary between the supernaturals and members of his/her group, 3) the shaman receives inspiration from guardian or helping spirits which most commonly appear in the form of animals, 4) the shaman has ecstatic
experiences which involve being able to enter an altered state of consciousness.

The conception of the universe consisting of various layers or cosmic regions is a belief common to many cultures around the world (Dupre 1975; Eliade 1964; Hultkrantz 1968; Katz, et al. 1997; Tooker 1979; Tylor 1970). For people who conceive of their universe in this manner, the center or *axis mundi* is the point of intersection between these regions where communication with the spirit world is possible (Eliade 1959, 1964). This central axis passes through an opening or portal in the center of each region. It is through this portal that gods and ancestors are able to travel between regions. It is also through this opening that the shaman’s soul is able to enter the Otherworld and personally confront supernatural forces, while serving as guardian of both the physical and psychic equilibrium of the group (Eliade 1959, 1964; Hultkrantz 1968; Winkleman 1986, 1992).

Certain geographic features, such as caves, mountains, and bodies of water, are frequently associated with the *axis mundi*. During shamanic initiations, caves are of particular importance and function as concrete symbols for passageways to another world, or a descent to the underworld. Eliade describes the initiation of the Smith Sound Eskimo as follows: “the aspirant must go at night to a cliff containing caves and walk straight ahead in the darkness. If he is destined to become a shaman, he will enter a cave; . . . [a]s soon as he has entered the cave, it closes behind him and does not open again until sometime later” (Eliade 1964:51). Caves are also of primary importance in North and South American shamanism. It is in caves that aspirants have their dreams and meet their helping spirits (Eliade 1964).
Though methods differ from culture to culture, access into the Otherworld by a shaman can be achieved through such techniques as the use of hallucinogenic plants, fasting, blood-letting, self-hypnosis and various types of rhythmic activity that place the shaman in an altered state of consciousness (ASC). When a shaman enters this altered state, it is believed that he/she has experienced "death." It is a death whereby the soul of the shaman leaves the body and journeys into the world beyond (Eliade 1959, 1964; Furst 1972, 1976; Winkleman 1992).

The shaman's tutelary animal plays an important role in the shamanic journey into the Otherworld. The tutelary animal or spirit companion enables the shaman to forsake the human condition. The situation that existed in mythical times, when separation between humankind and the animal world had not yet occurred, is re-established each time the shaman changes into an animal. The shaman experiences a ritual death, dying to this world and being reborn into the Otherworld (Eliade 1964; Hultkrantz 1968).

The death and rebirth experience often involves either a mysterious illness or a symbolic ritual of mystical death which can involve such things as dismemberment of the body, renewal of the organs, or being "killed" with arrows. This initiation involves an operation conducted by semi-divine beings or an ancestor, in which the body of the shaman is dismembered and his or her internal organs and bones are replaced (Eliade 1964; Kalweit 1996). However, before the "mystical organs" can be obtained, the shaman must gain the ability to see himself as a skeleton. According to Eliade, "To reduce oneself to the skeleton condition is equivalent to re-entering the womb of this primordial life, that is, to a complete renewal, a mystical rebirth" (Eliade 1964:63).
Shamanic Ideologies of Mesoamerica and the American Southwest.

Shamanic ideology is entrenched in the mythology and folklore of numerous cultures in Mesoamerica and the American Southwest; it is especially identifiable in those societies concerned with life after death and shamanic journeys to the Otherworld. I will discuss below the shamanic ideologies of four groups within the region, the Aztec, Huichol, Yaqui, and Hopi, and identify the recurring elements of these ideologies.

Aztecs. The Aztecs, whose ancestors were the wandering Chichimecs of the Chihuahuan desert, perceived their cosmos as divided into several vertically aligned horizontal layers. The world above the earth consisted of thirteen layers of heavens. Below the earth lie the nine layers of Mictlan, the land of the dead. Entrance into Mictlan was through a cave which was conceived of as the gaping jaws of a reptilian earth monster (Brundage 1979; Ortiz de Montellano 1990; Pasztory 1983).

Caves, "oztotl," as defined in the Florentine Codex, were the place of the dead: "Our mothers, our fathers have gone to rest in the water, in the cave, the place of no openings, the place of no smoke hole, the place of the dead" (Dibble and Anderson 1970:277). It was also a magical place and provided access to the world of the supernatural: "It is wide-mouthed; it is narrow-mouthed. It has mouths which pass through to the other side. I place myself in the cave. I enter the cave" (Dibble and Anderson 1970:276).

Burial in natural and artificial caves was common among the Aztecs (Heyden 1981). Replicas of caves were created to serve as portals to the land of the dead. For example, in the Florentine Codex, Sahagun discusses the cremation process for the
bodies of Aztec noblemen and commoners. He noted that after cremation was complete, the Aztecs "... dug a round hole in which to place it (cremated ashes): a pit. This they called a cave" (Sahagun 1951-1970:3:45).

Another example of the replication of sacred geography is illustrated in Aztec architecture. The ruins of many Aztec sites contain structures known as ballcourts. In the exact center of the ballcourt, or tlachco, is a circular flagstone that represents a cosmic center or axis mundi. In Aztec mythology, Quetzalcoatl, the feathered serpent, was said to have opened this sacred portal into the world below (Brundage 1979:11).

Aztec art depicts the prominent role of the serpent in Aztec thought. According to Pasztory, "the most elaborate animal structures are feathered serpents with an earth monster carved under the base. They signify the green surface of the earth overlying the voracious underworld" (Pasztory 1983:234). The serpent as the earth's surface covering the world below is illustrated in the Codex Selden Roll (Figure 6.9). In this codex is a depiction of the cave birth place, Chicomoztoc. The mouth of the cave is symbolized by the maw of the earth monster. Covering the maw is a serpentine arch which represents the earth's surface.

The serpent representing the earth's surface is also illustrated in a stone sculpture at the Museo Nacional de Antropología in Mexico City. The sculpture depicts a coiled feather serpent with a face emerging from its open jaws. Underneath the serpent stone is a relief of the earth monster. Pasztory states that "the human face emerging from the maw of a feathered serpent probably renders an image of rebirth. In Mesoamerican art the disappearance and reappearance of the sun, the stars, and the planets were
represented metaphorically as being swallowed and regurgitated by a monster which often demonstrated serpent characteristics" (Pasztory 1983:162).

Figure 6.9. Codex Seldon Roll. The open maw of the earth monster as depicted in Aztec codices. Redrawn by author from Heyden (1981).

Several other animals, in addition to the serpent, had supernatural associations. Ortiz de Montellano states that Aztec religion combined "an elaborate state religion with shamanism ..." (Ortiz de Montellano 1990:67). Human-animal transformation and animal spirit helpers were among the characteristics he identified in Aztec religion associated with shamanism. For example, the Aztecs believed that the animistic force of a shaman, *tonalli*, could enter the shaman's animal double, *nahuali*. Aztec gods were also believed to transform into their animal familiars at will (Ortiz de Montellano 1990).

According to Brundage (1979:82), the ancient Chichimec god known to the
Aztecs as Tezcatlipoca excelled beyond all other Aztec gods at transforming into his animal familiar, the jaguar. Brundage credits this well established ability to transform into an animal to Tezcatlipoca's shamanic origins (Brundage 1979:82).

Huichol. The Huichol live in the highland geographical zone of the Sierra Madre Occidentals in the states of Jalisco and Nayarit in northwestern Mexico. According to Huichol tradition their nomadic hunting and gathering Chichimec ancestors migrated into the area from a northern ancestral homeland in the Chihuahuan Desert (Myerhoff 1974; Schaefer and Furst 1996).

The Huichol perceive the world as surrounded by the sea which, with its serpent-like motions, is the largest of all serpents. A two headed serpent serves as a gateway through which the sun must pass on its journey into the world below upon setting each day (Lumholtz 1900, 1902; Myerhoff 1974). The concept of the serpent as the gateway to the world below is demonstrated in Huichol myth and art.

A hole made in the center of the Huichol ceremonial temple or tuki serves as their axis mundi through which communication with the supernatural realm is possible. This sacred cavity is believed to be the doorway through which the shaman descends on his magical flight into the Otherworld (Myerhoff 1974; Zingg 1977). Covering this sacred cavity is a small round stone disk referred to as a god disk (Lumholtz 1900; Myerhoff 1974). In Huichol mythology it was otuanaka, the corn mother, who commanded that the sacred hole be covered with a god disk and that the disk be engraved with her animals: snakes of blue, green, and yellow (Zingg 1977).

In a yarn painting created by Huichol shaman/artist, Jose Benitez Sanchez, the
soul of the deceased is depicted journeying to the land of the dead (Figure 6.10). The destination of the soul lies through a serpentine arch at the base of the painting. The small upside-down anthropomorphic figure with a vertical band running down the center of the body represents the shaman. According to the Huichol shaman/artist, Ramon Medina, the practice of depicting the shaman in this skeletonized fashion is done specifically so that the figure is recognized as that of a shaman. When asked why it is done that way, Ramon responded, "because that is how it was established in the time of the ancestors" (Furst 1978:23).

![Figure 6.10. Huichol Yarn Painting - Journey of the Soul. Yarn painting by Jose Benitez Sanchez illustrating a Huichol soul journeying to the land of the dead. Redrawn by the author from Berrin (1978).](image)

The Huichol soul, being guided by the shaman in the middle of the painting, is depicted passing through the passageway that leads to the world below. The land of the
dead is illustrated at the base of the painting by a serpentine arch, possibly representing
the serpent that surrounds the world — dividing the land of the dead from the land of the
living.

As with the Aztecs, other animals in addition to the serpent are associated with
the supernatural. Among the Huichol, the deer is a sacred and magical animal.
*Káuyůmari*, also known as Sacred Deer Person, is the anthropomorphized tutelary
animal of the Huichol shaman. One of the most important services of *Káuyůmari* is to
act as the intermediary between the shaman and the gods. According to Myerhoff, there
is reason to believe that *Káuyůmari* is "closely modeled on an actual historical
personage, perhaps an important early mara’ákame (shaman) who later merged with the
Sacred Deer Person" (Myerhoff 1974:85). *Káuyůmari* is conceived of both in the form
of a deer and as a person wearing antlers (Furst 1972).

**Yaqui.** The Yaqui Indians, prior to Spanish contact, were dispersed throughout
the state of Sonora in northwestern Mexico. Today Yaqui settlements are located in
southern Arizona, California, and elsewhere in the western United States (Spicer 1940).
As with the Aztec and the Huichol, accessing the Otherworld figures prominently in
Yaqui mythology.

The Yaqui homeland and way of life, "yoania", and the beliefs associated with it
form the basis of Yaqui thought and character (Painter 1986:3). The *Surem*, which the
Yaqui believe to be their ancestors, lived a nomadic life in a world where nature and man
had a common psychic life, communicating through a gift called *seikata*. This was the
way things were prior to the prophecy given through the Talking Tree (Painter 1986;
Spicer 1940).

In the legend of the Talking Tree, a vibrating tree or stick foretells the coming of Christianity. Those who were willing to accept this new way of life continued to live as Yaquis in Yaqui country. Those who were unwilling to accept the changes went underground as Surem, taking the *yoania* with them. The Yaqui believe the *yoania* and the Surem are still there today. Their secrets can be learned through *yoania* visions that appear in far off places such as secret caves in the mountains or can be communicated through dreams (Painter 1986).

Only those individuals who possess the gift of *seataka*, are earnest in their desire to seek the *yoania*, and are courageous enough to endure the frightening trials associated with obtaining *yoania* visions are successful. This terrifying ordeal involves an encounter with a very large snake. Entrance and exit to the supernatural world of *yoania* must be made through the mouth of a giant serpent (Painter 1986). This was also noted by Beals (1943) in his study of *The Aboriginal Culture of the Cahita Indians*, which included the Uto-Aztecan speaking Yaqui and Mayo. He noted that "despite the documentary statement that shamans inherited office, often they acquired power through visions, possibly through dreams, or through some form of initiation which involved death-and-resurrection concepts that included being swallowed and passed through the body of a snake dwelling in a cave" (Beals 1943:64). The source of a shaman's power, according to Beals, "was the dream or vision, through which an individual acquired the assistance of a spirit, in animal form usually, which helped him or over which he had certain control" (Beals 1943:64).
The *pascola* dance group is frequently mentioned in association with *yoania* visions. *Pascola* dances are kept separate from church sponsored activities. They are performed as the result of a *yoania* vision obtained in a dream. The Yaqui maintain that *pascola* knowledge comes from the animals of *yoania* rather than from Christian supernaturals. *Pascola* rituals and music are thought to have originally come "from a snake which lived in the water in the mountains" (Spicer 1940:261).

**Hopi.** The Hopi of northern Arizona believe that the universe consists of various cosmic levels. The world below is conceived of as a series of waterways beneath the earth. The Horned Water Serpent, residing in the interior of the earth, is overseer of this watery world and over all waters of the earth. For the Hopi, the serpent serves as the communicator between the earthly world and the world below. Snakes are released after ceremonies to carry messages to the spirits residing in the watery depths of the world below (Tyler 1964).

In addition to the serpent, several animals are believed by the Hopi to possess supernatural power. Tutelary animals or spirit companions that enable magico-religious practitioners, such as shaman and witches, to forsake their human condition in order to gain power from the supernatural realm, are present within Hopi society. Transformation into animals and getting power from animals is "a concept rendered collective through the (Pueblo) societies" (Parsons 1974:63). The transformation is "effected through putting on the animal pelt or through turning over, that is passing through a hoop or ring" (Parsons 1974:66[footnote]).

In Hopi cosmology, caves are revered as openings to the world below, where the
serpent and other supernaturals reside. These openings are symbolized by a hole, called a *sipapu*, which is made in the center of the floor of the ceremonial kiva. The *sipapu* is kept sealed except during ceremonies, when it serves as a symbolic entrance into the world below (Ortiz 1972; Waters 1963).

**SHAMANIC JOURNEYS INTO THE OTHERWORLD OF THE LOWER PECOS ARCHAIC**

My review of the literature revealed striking similarities between the iconographic expression and ideology associated with the shamanic journey among indigenous peoples of Mesoamerica and the American Southwest, and the Pecos River Style pictographs of the lower Pecos region (Boyd 1996). Based upon the patterns identified in the ethnographic literature, I offer the following hypothesis for the Pecos River Style motif: when found in association, the elements of the motif are graphic representations of shamanic journeys. I will use four elements identified as common among the Aztec, Huichol, Yaqui, and Hopi motif, to offer a possible explanation for the rock art motif: 1) the universe consisting of various layers with the supernatural realm existing below the earth's surface, 2) the role of the serpent as the gateway through which one must pass on the journey to the spirit world, 3) sacred portals or passageways, both natural and human-made, that access the supernatural realm, and 4) animal spirit helpers or familiars. The hypothesis will then be tested against evidence from neuropsychology and from the lower Pecos archaeological record.
The Crenelated Arch and The Serpent. In each of the cultures discussed above, the universe is conceived of as consisting of various layers with a supernatural realm existing below the earth's surface. Each also has the concept of the serpent as being either a barrier or gateway through which the shaman must pass to access the spiritual realm below. The crenelated arch of the motif is analogous to the serpent as the barrier or gateway through which the shaman must pass on his or her journey to the Otherworld. As with the Aztec, it represents the earth’s surface overlying the voracious and watery underworld, the land of the ancestors. This is most clearly illustrated at Mystic Shelter (Figure 6.7). At the base of the crenelated arch is a horizontal band of red and black lines that represent the rivers of the underworld. The small anthropomorphic figures contained within the arch represent the ancestor or spirit beings that reside in the land of the dead. The spirits of the dead in some societies, and perhaps here, are the shaman’s helpers. During healing ceremonies the shaman sends the spirits of the dead to find and retrieve the strayed soul of the ailing person (Eliade 1964).

The Portal and Accessing the Otherworld. Another element repeated throughout the ethnographic literature is the concept of sacred portals or passageways, both natural and human-made, through which the shaman can access the supernatural realm. The opening in the crenelated arch is analogous to this portal or axis mundi. In the natural landscape, caves, rock shelters, sink holes, and other “holes” in the earth’s surface — the serpent’s body — serve as portals to the Otherworld. Although crenelated arches and crenelated lines are a common motif in the Pecos River Style pictographs, not all have openings in the crenelation. When they do, however, they are
usually associated with skeletonized anthropomorphs.

**Skeletonization, Animals, and Transformation.** The final element of the motif repeated in each of the cultures discussed above is the idea that the shaman must experience a ritual death in order to be reborn into the spiritual realm. This ritual death and rebirth involves the merging of the shaman and an animal familiar. The skeletonized anthropomorphic figures located above, below, or behind the crenelated arch, represent the shaman undertaking the journey to the Otherworld. Skeletonization — the decoration of the central portion of the figure — is used to illustrate death and resurrection. As Eliade states, “the reduction to the skeleton indicates a passing beyond the profane human condition and, hence, a deliverance from it... to reduce oneself to a skeleton condition is equivalent to re-entering the womb of this primordial life, that is, to a complete renewal, a mystical rebirth” (Eliade 1964:63). And, as indicated by the Huichol shaman, the practice of depicting the shaman in the skeletonized fashion is done specifically so that the figure will be recognized as that of a shaman (Furst 1978:23).

The animals and animal attributes associated with these skeletonized figures represent the shaman’s animal familiar or helping spirits which are of central importance in the death and rebirth of the shaman. According to Eliade:

The presence of a helping spirit in animal form, dialog with it in a secret language, or incarnation of such an animal spirit by the shaman (masks, actions, dances, etc.) is another way of showing that the shaman can forsake his human condition, is able, in a word, to ‘die’. From the most distant times almost all animals have been conceived of as psychopomps that accompany the soul into the beyond or as the dead person’s new form. Whether it is the ‘ancestor’ or the ‘initiatory master,’ *the animal symbolizes a real and direct connection with the beyond* [Eliade 1964:93 emphasis added].
In each of the sites included in the analysis, the skeletonized anthropomorphs — shamans — are either surrounded by their animal familiar or have been transformed into them.

**NEUROPSYCHOLOGY AND SHAMANIC STATES OF CONSCIOUSNESS**

The ethnographic literature provides only one of the strands of evidence in the “cable-like” argument I propose. As stated by R. L. Kelly, “the translation of information from ethnography to archaeology cannot be direct” (Kelly 1995:339). Therefore, I will test the hypothesis formulated through ethnographic analogy against additional evidence from neuropsychology and the archaeological record.

I will begin by presenting the components of a neuropsychological model developed by David Lewis-Williams and Thomas Dowson and applied to the rock art of South Africa and to the Upper Paleolithic art. I will then apply their model to the rock art of the lower Pecos, specifically addressing the elements of the motif.

**The Lewis-Williams and Dowson Model.** Lewis-Williams and Dowson (1988:201) have developed a neuropsychological model for classifying and addressing prehistoric art that “avoids simplistic ethnographic analogy and the impasse of induction from internal analysis.” This approach grew out of their research on San rock art in South Africa, where the shamanic nature of the art directed their attention to altered states of consciousness.

As mentioned earlier, one of the defining characteristics of shamanism is the shaman’s ability to enter an altered state of consciousness. Shamans deliberately induce
trance states through a variety of ways, such as auditory driving (rhythmic drumming and chanting), fasting and thirsting, sleep deprivation, and the ingestion of hallucinogenic drugs. Individuals, including shamans, entering a trance state experience a range of luminous visual percepts that are independent of light from an external source and are caused by an excitation of the central nervous system (Horowitz 1964, 1975; Klüver 1926, 1942, 1966; Lewis-Williams and Dowson 1988; Reichel-Dolmatoff 1978a, 1978b; Siegel 1977, 1984). Extensive research conducted by Siegel (1984) at the Neuropsychiatric Institute of the University of California at Los Angeles and others (Horowitz 1964, 1975; Klüver 1926, 1942, 1966) has identified that these visual percepts are very much alike from one person to another, appearing as geometric forms, such as grids, zigzags, dots, spirals, and catenary curves. They are experienced as shimmering, moving, rotating patterns that grade one into the other, combining in a multitude of ways. Because these visual percepts derive from the central nervous system, all people entering an altered state of consciousness are likely to experience them, no matter what their cultural background.

Lewis-Williams and Dowson (1988:202) refer to these visual percepts as “entoptic phenomena.” Entoptics are “visual sensations derived from the structure of the optic system anywhere from the eyeball to the cortex.” This term includes geometrics derived from different parts of the visual system, including phosphenes and form constants. Phosphenes, which are entophthalmic — within the eye — can be produced by physical stimulation, such as placing pressure on the eyeball. Form constants derive from the optic system, most likely from the brain. Lewis-Williams and
Dowson (1988:202) also distinguish entoptic phenomena from hallucinations, which "include iconic visions of culturally controlled items such as animals, as well as somatic
and aural experiences and have no foundation in the actual structure of the optic system.”

The Lewis-Williams and Dowson neuropsychological model, which seeks to explain the imagery of altered states, contains three components: 1) types of entoptic phenomena, 2) principles governing their perception, and 3) stages in the progression of altered states of consciousness.

*Entoptic Forms.* Lewis-Williams and Dowson selected six of the most frequent types of entoptic forms reported by neurologists and psychologists (Figure 6.11). These include 1) the basic grid pattern and its development in a lattice and expanding hexagonal pattern, 2) sets of parallel lines, 3) dots and short flecks, 4) zigzag lines crossing the field of vision (reported by some subjects as angular, by others as undulating, 5) nested catenary curves, and 6) filigrees or thin meandering lines.

*Principles of Perception.* The ways in which individuals perceive entoptics and hallucinations vary. Lewis-Williams and Dowson formulated seven principles that govern how these entoptic forms are perceived.

1) Replication - when the subject perceives an entoptic phenomenon in one of the fundamental forms.

2) Fragmentation - when an entoptic is broken down into minimal components. For example, a grid being fragmented into a ladder-like form.

3) Integration - when entoptics are blended to form complex patterns. For example, a grid blending with a series of zigzags.
4) Superpositioning - when one entoptic is projected against another
5) Juxtapositioning - when entoptics appear next to one another
6) Reduplication - when a single image multiplies to become a series of duplicated images
7) Rotation - when the entoptics rotate in the field of vision

Stages in the Development of Mental Imagery. The third component in their model is the identification of three stages in the development of mental imagery. In Stage 1 — the earliest stages of an altered state — individuals experience entoptic forms (not iconic). The entoptics can be perceived with the eyes open or closed and are not consciously controlled. These are often characterized by a variety of saturated colors.

In Stage 2, as the individual progresses into a deeper altered state of consciousness, he/she tries to make sense of the entoptic images, to decode or recognize forms. He or she will use similes to describe the experience; for example, indicating that the grid pattern “looks like a honeycomb” or the undulating lines “look like a snake.”

In Stage 3 — the deepest stage of trance — the entoptics are elaborated into iconic images. Similes are no longer used to describe the forms as the individual loses the ability to discriminate between literal and analogous meanings. The iconic images are often projected against a background of geometric forms. No longer do the wavy lines “look like” snakes; they are snakes.

Neuropsychology and the Shamanic Journey Motif. Reichel-Dolmatoff (1978) conducted a study of the hallucinatory imagery experienced by the Tukano
Indians in the Colombian Northwest Amazon. In his study, he asked Tukano shamans to
draw pictures of the visions they experienced while under the influence of yage. The
complex geometric images drawn by the shaman were the same geometric patterns used
in their pictographs and petroglyphs and decorating their vessels, pottery, baskets,
bodies, and buildings. They were also the same geometric forms identified in the altered
states research and later used by Lewis-Williams and Dowson to explain the prehistoric
pictographs of South Africa (1988, 1989). These same entoptic forms are present in the
pictographs of the lower Pecos, including the motif.

_Serpents in the Mind._ One of the six entoptic forms of the neuropsychological
model is zigzag or undulating lines that cross the field of vision. This visual percept is
similar to the crenelated lines forming the arch of the motif. Illusions associated with the
ingestion of mescaline (Maclay and Guttman 1941; Siegel and Jarvik 1975) and with
migraine hallucinations (Richards 1971) are very similar to the motif. These illusions are
described by Richards as follows: “It generally begins near the center of the visual field
as a small, gray area with indefinite boundaries . . . [d]uring the next few minutes the
gray area slowly expands into a horseshoe, with bright zigzag lines appearing at the outer
edge. These lines are small at first and grow as the blind area expands and moves
outward toward the periphery of the visual field” (Richards 1971:89)

Individuals entering an altered state of consciousness frequently described the
undulating lines as snakes (Horowitz 1964). One of the forms repeated in the Tukano
vision drawings elicited by Riechel-Dolmatoff is that of crenelated lines which, according
to the Tukano, represent either the Snake Canoe of their creation myth or yage snakes

Often, as illustrated below, the individual reports two snakes, or the sensation of being surrounded by snakes. This may be due to “bilateral duplication” or “reduplication,” redundant elements of simple forms in hallucinatory and pseudo-hallucinatory images identified by Horowitz (1975:179).

Deep hallucinations submerged me. I suddenly found myself surrounded by two gigantic boa constrictors that seemed fifty feet long... my eyes are closed and I see a spectacular world of brilliant lights, and in the middle of these hazy thoughts, the snakes start talking to me without words [Narby 1998:7].

A Light at the End of the Tunnel. The opening in the arch, which is pictographically represented as either a circle or as parallel lines, can also be explained in terms of imagery associated with the final stage in the development of mental imagery. During Stage 3, individuals report a vortex or tunnel-like image surrounding and engulfing them. At the end of the tunnel is a very bright light or a hole. The bright light in the center of the field of vision obscures details but allows images on the periphery to be observed. Siegel (1977) states that it is the location of this point of light that creates the tunnel-like perspective. The surrounding images pulsate, moving toward the center of the tunnel or away from the light, sometimes moving in both directions. This experience was described by one individual as follows: “It’s sort of like a tube, like I sort of feel — like sort of — that I’m at the bottom of a tube looking up. You can see the slides (imagery) converging with a point in the center” (Siegel 1977:134).
Individuals report feeling as though they are falling into this vortex or flying through the tunnel at incredible rates of speed. Geometric forms begin combining, duplicating, superimposing and then are replaced by complex imagery, including recognizable scenes, people, and objects. It is at this point that they have crossed over to the Otherworld (Siegel 1992).

The mouth of the tunnel turned toward me as it writhed and pulsed, a Euclidian snake pregnant with light and form. Suddenly it disgorged a storm of images, stars, pinwheels, snowflakes, mosaics, and fans [Siegel 1992:15].

I explained the opening in the crenelated arch as a portal — the axis mundi — through which the shaman could access the spiritual realm through ethnographic analogy. The application of the neuropsychological model provides support for this explanation. The opening in the arch, which is frequently illustrated with yellow, orange, or red lines emanating from it, represents the bright light at the end of the tunnel experienced during an altered state. The arch is formed by the bilateral duplication of the one of the recurring visual percepts — undulating lines. The addition of the circle or parallel lines running down the center of the arch forms a conical shape, the shape of the funnel or tube which is also a recurrent element in altered states.

I Have Wings! Each of the anthropomorphs in the motif is associated with an animal or is adorned with the attributes of a particular animal. This aspect of the motif was explained through ethnographic analogy as the union of the shaman with his or her animal familiar, a vitally important component of the shamanic journey to the Otherworld. The feeling of transformation from human to animal can, as with the crenelated arch and portal, be explained in terms of neuropsychology.
Mental imagery is but one of the experiences associated with an altered state. Individuals also report auditory, olfactory, gustatory, kinesthetic, tactile, and synesthetic hallucinations. Tactile hallucinations often lead individuals into feeling as though they are turning into animals. These hallucinations, which usually begin as itching skin on the hands, legs, and back, give the sensation of growing hair or sprouting wings (Harner 1973b; Siegel and Jarvik 1975).

I thought of a fox, and instantly I was transformed into that animal. I could feel myself a fox, could see my long ears and bushy tail, and by a sort of introversion felt that my complete anatomy was that of a fox. Suddenly, the point of vision changed. My eyes seemed to be located at the back of my mouth: I looked out between parted lips, saw the two rows of pointed teeth, and, closing my mouth with a snap, saw nothing . . . [Siegel and Jarvik 1975:104-105].

When I turn into a lion, I can feel my lion-hair growing and my teeth forming. I'm inside that lion, no longer a person. Others to whom I appear see me as just another lion [Katz, et al. 1997:24].

I felt that it was no longer a hand but the tip of a wing, I was turning into a winged being. I then stretched my wings and felt extreme freedom and expansion. My wings were growing . . . I have wings! I have wings [Naranjo 1973:180]!

The sensation of body dismemberment and alteration has also been reported by individuals in an altered state. The following description was reported by an individual experiencing henbane intoxication.

. . . my feet were growing lighter, expanding and breaking loose from my body. Each part of my body seemed to be going off on its own. My head was growing independently larger, and I was seized with the fear that I was falling apart [Harner 1973b:139].
Shamanic Transformation in the Lower Pecos Archaic. Housed within Mystic Shelter is an especially vivid illustration of the coalescing of shaman and animal familiar (Figure 6.12). Although it is composed differently from the motif described earlier, it contains all of the elements identified as a part of that motif and can be explained through ethnographic analogy and neuropsychology.

At the top right end of the Mystic Shelter panel is a large feline figure, approximately 3 meter in length; red lines emanating out of its nose and mouth. At the head of this figure is the end of the tail of another feline. The tail, legs, and claws have been disarticulated from the body of this second figure. Due to water damage it is not possible to know at this time whether the head of the feline was originally painted or not. In front of this figure is another feline. The appendages are attached, however, the head is missing. This time it is clear that the head was not originally painted. Note also the
manner in which the legs and claws are illustrated in comparison to the previous felines. As opposed to thick and rigid, they are depicted thin and limp.

Associated with the feline figures are five red, non-skeletonized, impaled anthropomorphs and one skeletonized figure. The first red anthropomorph appears just to the left of the feline with disarticulated appendages. The second appears to the left of a crenelated arch and the third under the arch. The fourth red anthropomorph is located to the right of the arch. The fifth is encircled by the tail of the headless feline. A line, probably a spear, runs from the rump of the feline and connects with this fifth anthropomorph. This anthropomorph is no longer only red, it contains a red-orange color similar to the color painted on the rump of the headless feline. In front of the headless feline is an ornate headless skeletonized anthropomorph. There is a series of lines emanating from the headless feline and across the body of the headless anthropomorph.

The various components involved in the merger of shaman and animal are clearly illustrated in this section of the panel. The animal familiar is a feline, perhaps a mountain lion. It is depicted in three different forms, representing three different stages in the merger of human and animal. The shaman, which prior to the merger is illustrated as a non-skeletonized anthropomorph, is depicted at least five times prior to the transformation.

Across the top of the panel, the first feline is painted in a such a manner as to indicate action, a leaping position. The second feline is illustrated quite differently from the first. Its appendages are all disarticulated; tail, legs, claws, are all separating from the
body. This is very similar to the description given by the individual experiencing henbane intoxication, in which he felt his body falling apart. It is also similar to Eliade's discussion of shamanic initiation involving dismemberment, in which the initiate receives "renewed organs and bones" from his or her helping spirit.

The next feline, headless, limbs limp and lifeless, is depicted at approximately a 60 degree angle, which is a posture common to individuals entering a trance state (Goodman, et al. 1974). The red lines emanating from the headless feline across to the headless skeletonized anthropomorph may represent the nose bleed associated with individuals entering trance (Eliade 1964; Lewis-Williams 1992), blood-letting (Schele 1986), and the blood of a dying animal.

Just as with the feline, each of the anthropomorphic figures illustrates a stage in the transformation. Each of these figures is impaled with a spear, which represents the ritual symbolic killing of the initiate shaman. The figure located between the two crenelated lines is not skeletonized, indicating that transformation is not complete. The yellow and black figures located beneath the red anthropomorph represent helping spirits or ancestors that assist in the transformation. The merger of human and animal begins with the fifth anthropomorph. This is illustrated by the encircling of the figure with the tail of the feline, by the line connecting the two, and by the color passing from the rump of the feline, up the line, and into the anthropomorph. The headless, skeletonized anthropomorph represents the completed transformation. The shaman has contemplated his/her own skeleton, received the mystical organs and renewed bones, and experienced
ritual death. Mythical time when animals and humans were not separated has been reestablished and the journey to the Otherworld can be taken.

ARCHAEOLOGY OF THE OTHERWORLD

The archaeological record in the lower Pecos and surrounding regions provides an additional strand of evidence which can be used to support my explanation of the motif. A common method of disposing of the dead among the residents of the Chihuahuan Desert, including the lower Pecos region, was to drop the body down a vertical shaft cave or sinkhole (Aveleyra, et al. 1956; Bement 1994; Turpin 1988). The sinkhole deposits of Seminole Sink (41VV620) contained the remains of at least 22 individuals from the Early Archaic period. Numerous other caves and rockshelters have produced interments, however, "... Seminole Sink produced the first cemetery-like burial population in the region" (Bement 1989:67). Additional vertical shaft caves with human remains have been identified since the excavation of Seminole Sink in 1984 (Bement 1994).

Turpin (1988) provides some possible explanations for the use of sinkholes as burial chambers in the lower Pecos. She suggests that burial of the dead in sinkholes might have been a response to the belief in "animas persisting in forms ranging from beneficial spirits to malevolent ghosts... [i]f the ghost is malevolent and seeks to torment the living, the sinkhole may have served as a sealed sepulcher to contain the spirits" (Turpin 1988:125). Other possible explanations offered by Turpin include returning the dead to the womb of Mother Earth, rapid disposal of the bodies and abandonment of the
area, or simply a convenient location for “pedestrian pallbearers.” Based on the ethnographic literature and the elements of the motif, it appears most likely that the disposal of the dead in sinkholes involved ideas of death and regeneration, as suggested by Turpin’s idea of returning the body to the womb of Mother Earth.

As discussed earlier, to cultures that conceive of their universe as consisting of tiered cosmic regions, the "center" or *axis mundi* is the point of intersection where communication with the spirit world is made possible. Certain geographical features, such as caves and sinkholes are associated with this "center" and are believed to be imbued with sacred power (Bassie-Sweet 1991; Heyden 1981; Schele 1990). Although not necessarily thought of as the “womb of Mother Earth,” the use of vertical shaft caves as mortuary sites in the lower Pecos was a means of returning the dead to the place of origin and the place where the ancestors now reside.

As discussed earlier, the opening at the top of the crenelated arch in the motif represents the portal to the Otherworld. In the natural landscape, the mouth of the sinkhole served as the portal to the supernatural realm — the land of the ancestors. The opening in the crenelated arch, which often has lines emanating out from the center, also represents the bright light at the end of the tunnel experienced by the shaman in his or her altered state. The experience of seeing the light at the end of the tunnel would have been recreated when standing in the bottom of the sinkhole or within a vertical shaft cave, the light pouring into the chamber through the earth’s surface. The crenelated lines on each side of the portal represent the serpent — the gateway to the Otherworld. Passing through openings in the earth’s surface, such as sinkholes or vertical shaft caves,
is symbolic of entering the Otherworld through the mouth of the serpent, or making the
dangerous journey past the two headed serpent — gatekeeper to the world below —
land of the dead.

POLYSEMY AND ROCK ART

In rock art research, as in all archaeological research, it is essential to consider
context. Rock art images must be considered within not only the painted context, but the
physical, social, and cognitive context. Elements of a motif, such as the crenelated arch,
will likely carry different significations in different contexts — they are polysemic; that
is, they have a diversity of meanings (Turner 1967).

Based on the information presented in this chapter, it would be easy to fall into
the trap of explaining all crenelated lines as serpents, or all anthropomorphs as shamans.
These elements, however, have been explained as such only in the painted context of
other elements in the motif. Crenelated lines are not always serpents, nor are all
anthropomorphs shamans. The wide variety of painted contexts in which
anthropomorphic forms appear suggests a wide variety of possible explanations.
Anthropomorphs may represent any number of inhabitants of the supernatural or natural
realm — deities, ancestor spirits, mythical beings, shaman, witches, historical figures,
etc. To refer to all anthropomorphic figures as "shamans" is to deny the richness,
diversity, and complexity of hunting and gathering belief systems, thereby feeding the
stereotype of the "simple primitive."
Not only should we not deny the polysemic nature of each element present in the motif, we must also recognize that there may be a multiplicity of meanings associated with the motif itself; it is far richer than simply a graphic metaphor that explains the shamanic journey. As will be discussed below, the production and consumption of rock art was ingrained in the social, economic, and intellectual circumstances of the society within which it was created (Lewis-Williams 1995). As such, the artist and the art were not passive, but active agents in social relations.

**SHAMANIC JOURNEYS, ROCK ART, AND SOCIAL RELATIONS**

Like other genres of material culture, rock art did not merely reflect the society in which it was made, its economy, power structures, myths and so forth. It also constituted, reproduced and sometimes subverted social relations and beliefs... the making of each rock art image by an individual or a group was a socio-political intervention [Lewis-Williams 1995b:143].

I have explained the Pecos River Style motif as a graphic representation of shamanic journeys into the Otherworld, however, the work of the artist/shaman, and the work of the motif, reaches far beyond graphic representation. One of the most serious mistakes made within the interpretation of shamanic art is the assumption that the imagery simply represents the shamans’ experiences in the Otherworld. Thomas Dowson (1998:333) cautions us that such interpretations downplay the role these images serve in structuring social relations. The art and the artist perform an active role — artists are “active agents who create as well as participate in the communities in which they live” and the art has an “active role in day-today social relations” (Dowson...
1998:336). Each member of society, including the shaman, is cognizant of the conditions of reproduction of the society.

**Rock Art as Indirect Instruction.** Along these same lines, Megan Bieseie (1983) and David Lewis-Williams (1995) have explored the work performed by Ju/'hoansi hunter-gatherer artists and their art in the reproduction of society. Bieseie states that the painter’s work should be viewed as “both symbolic in nature and practical in effect” (Bieseie 1983:59). The worked performed by expressive forms, such as rock art, may not have been able to be accomplished in any other way; it served to communicate indirectly information necessary for the reproduction of society (Bieseie 1983).

Blurton Jones and Konner (1976), Bieseie (1983), and others have noted that direct instruction among hunter-gatherers is rare and is often met with adverse reactions. Blurton Jones and Konner (1976:345) offer the following explanation for the adverse reaction to direct instruction among hunter-gatherers.

This presumably (and the people think so too) relates to very basic features of their society and its ecology such as food-sharing. Since it is highly probable that successful exploitation of the social hunting niche depends on extensive food-sharing, this is a powerful force among the selection pressures on hunter-gatherer behavior. It is not far-fetched to suggest that this force may have been strong enough for long enough to set constraints on the way that information was best transmitted from person to person and acquired by individuals [Blurton Jones and Konner 1976:345].

Bieseie (1983) suggests that rock paintings, like stories related by storytellers, are developed and utilized as a means of indirect instruction and information exchange within egalitarian societies with oral traditions. These non-written expressive forms
serve to make individual experiences — shared experiences and individual knowledge — shared knowledge. The sharing of both tangible and intangible resources is essential in egalitarian societies; expressive forms, such as rock art, are vehicles through which the intangible assets (general knowledge about animal behavior, plant habitat, trance experience, etc.) are distributed from individual to group.

**Art and Artist as Active Agents.** With this in mind, let us return to the motif discussed in this chapter. If the rock art was a means of indirect instruction and information exchange, and I believe it was, what was the information and instruction being communicated through the motif and why was the transmission of this information necessary?

Biesele has noted that among the Ju/'hoansi “The rendering of individual kergymatic accounts (personal religious revelation) into culturally shared images is a very important process in the religious unity of hunter-gatherers . . .” (Biesele 1983:56)

The graphic representation of one’s journey to the spirit realm is a vehicle through which that experience can be culturally shared. The work performed by the lower Pecos motif, however, is greater than the simple graphic representation of shamanic experience. A complete “job description” is beyond the scope of this dissertation, therefore; only a few of the jobs performed by the artist and the art will be discussed here.

The motif discussed in this chapter provides in a concrete, representational form, information regarding the structure of the Otherworld and the shamanic journey. This graphic representation is important on several levels. As discussed above, it transforms individual experience into shared experience. Additionally, it both instructs and informs
initiate shamans regarding the trance experience. Lewis-Williams (1995) has suggested that the pictorial representation of trance experience in San rock paintings may have reduced the fear experienced by initiates prior to entering trance. As discussed earlier, the elements of the motif are representative of actual neurological processes associated with altered states of consciousness. The motif contains not simply “mythical” information regarding the structure of the cosmos, but factual data regarding the trance experience.

An individual’s personal religious revelations are, however, to a large degree culturally informed and mediated. “Initiates have certain experiences in trance because they expect to do so, basing their expectations on other accounts they have heard” (Biesel 1983), and, in the case of rock art — seen. The shamanic journey motif, to some degree, conditions and facilitates the trance experience. I say, “to some degree” because the shamans, as individual decision makers, could manipulate rock art imagery to negotiate their position within the community (Dowson 1998). Addressing this issue of human agency, Lewis-Williams has argued that rock art could be manipulated by individuals who have a clear image of what they want to achieve and the means by which it can be achieved (Lewis-Williams 1995:143). The artists who produced the Pecos River shamanic journey motif possessed restricted or arcane knowledge that could be used to reinforce or challenge social relations. The art and the artist of the lower Pecos Archaic Period, therefore, should be recognized as active agents in the negotiation of social relations.
CHAPTER VII

NATURE'S BRIDGE TO THE OTHERWORLD

Perhaps the discovery that certain substances found in nature help man to move beyond his everyday experiences to 'Otherworlds' and the institutionalizing of these personal ecstatic experiences into an ideological and ritual framework accepted by the group as a whole... goes back to the beginnings of human culture [Furst 1972:viii].

In the previous chapter, the most frequently occurring motif identified during the feature analysis of the Pecos River Style pictographs was explained as a pictorial representation of the shaman's journey to the spiritual realm. It was further suggested that the rock art, as a form of indirect communication, was an active agent in the negotiation of social relations. The two remaining motifs identified in the analysis of Pecos River Style rock art are also associated with the shamanic journey, more specifically, the use of psychotropic plants by shamans as a bridge to the Otherworld.

In this Chapter, I begin by describing the motifs as they appear in the pictographs at each site in the study, and will follow with a discussion of similar motifs identified in the ethnographic record. The motifs identified in the ethnographic literature and the Pecos River Style pictographs, when assessed within the context of additional archaeological, neuropsychological, and ecological evidence, provide insight into the specific rituals and beliefs of the lower Pecos hunters and gatherers surrounding the use of two very powerful psychotropic and medicinal plants — Lophophora williamsii (peyote cactus) and Datura (jimsonweed).
Figure 7.1. Impaled Deer and Impaled Dots - Panther Cave (41VV83).

With the new information generated from this research, I will address the long debated origins of peyotism and the influence of the mescal bean medicine society in the development of the Peyote Religion. Additionally, I will suggest that the powerful figure Coyote — the giver of visions, the trickster — has its origins in the physiological effects of jimsonweed intoxication. The rock art of the lower Pecos may contain the earliest depictions of this "mythical" character.

**ANTHROPOMORPHS, ANTLERS, DEER, AND DOTS: ANOTHER PICTOGRAPHIC MOTIF**

The second pattern identified during the feature analysis is the association of antlered anthropomorphs with black dots on the ends of their antler tines, impaled deer,
and impaled dots. This motif appears in the pictographs of four of the five sites in the analysis. Rattlesnake Canyon (41VV180) is the only site that does not contain any elements of the motif.

At Panther Cave and Mystic Shelter two of the elements in the motif are present. It is possible that all three of the elements were included in the panels at one time; however, due to over-painting and damage to the pictographs, they may no longer be visible.

Panther Cave (41VV83). There are at least 17 deer represented at this site; most are impaled. Found in close proximity to the impaled deer, and in some cases intermingled with the deer, are impaled dots (Figure 7.1). There are at least 15 impaled
red and yellow dots, each with lines radiating outward. No antlered anthropomorphs have been identified in the panel.

**Mystic Shelter (41VV612).** There are at least 5 impaled deer at this site and two antlered anthropomorphs. The body of one of the antlered anthropomorphs is covered with black dots and the antler tines are tipped in black (Figure 7.2). The other antlered figure is so badly damaged due to water seepage that the details of the figure are difficult to determine. No impaled dots have been identified in the panel.

![Figure 7.3. Cedar Springs Antlered Anthropomorph. Antlered anthropomorph with black dots on the end of each antler tine.](image)

**Cedar Springs (41VV696).** At Cedar Springs, the antlers of the skeletonized anthropomorph identified earlier as a shaman are decorated with black dots on the end of each antler tine (Figure 7.3). Included in the Cedar Springs and Cedar Springs Annex
Figure 7.4. Impaled Black Dots - Cedar Springs (41VV696). Illustration by Damon Burden.

Figure 7.5. Deer With Dots on Antler Tines - Cedar Springs (41VV696). Illustration by Damon Burden.
panels are depictions of at least 21 deer, over half of these deer have been impaled. There are at least 19 antler racks bedecked with black dots within the main Cedar Springs panel. At least eight impaled black dots have been identified in the Cedar Springs Annex panel (Figure 7.4). The antlers of one of the deer in the annex appears to have been decorated with dots on the ends of each antler tine (Figure 7.5).

![Figure 7.6. White Shaman Antlered Anthropomorph, Impaled Dots, and Impaled Deer.](image)

**White Shaman (41VV124).** The panel at the White Shaman site contains the clearest example of the association of impaled deer, impaled dots, and dots on deer antler tines. At this site, an antlered anthropomorph with black dots on the end of each antler tine is found in close proximity to both impaled deer and impaled dots (Figure 7.6). This
is the same figure explained in the previous chapter as representing a shaman. The body of the impaled deer is decorated with numerous larger black dots.

While conducting a review of the ethnographic literature on cultures within northern Mexico, I identified elements in the historic accounts of Huichol peyotism that are similar to pictographic elements of the rock art motif. Further study resulted in the identification of additional similarities between the pictographs contained within the White Shaman panel and a Huichol pilgrimage taken annually to collect the sacred peyote cactus (Boyd and Dering 1996, Boyd 1998). I will begin by providing a description of the White Shaman panel, followed by a brief discussion on the botany of peyote, the speculated origins of peyotism, and the Huichol ritual peyote pilgrimage and hunt. I will then compare the Pecos River Style pictographs to the Huichol ethnographic data, suggesting that the elements in the rock art motif are evidence for peyotism in the lower Pecos during the Archaic Period. This hypothesis will be tested against evidence from neuropsychology, ecology, and the archaeological record.

I spent approximately 70 field hours sketching and photographing the pictographs at 41VV124. From these, I produced a color rendering of the 4-x-8 m panel (Panel 2). The panel consists of the following elements:

1. Five black and red anthropomorphic figures extend the length of the panel, each approximately the same size.

2. Associated with each of these figures, one in each hand, are long slender black objects with red tips.
(3) Associated with each of these main anthropomorphic figures are other anthropomorphs depicted in an X-ray or skeletonized fashion, as well as zoomorphic and other enigmatic figures.

(4) Numerous black dots are present, both free-floating and decorating the figures in the panel. Over 100 have been counted.

(5) There is an element resembling a deer that is covered with black dots. The deer appears to have been impaled by a dart point.

(6) At the far left end of the panel, near the impaled deer, is an antlered anthropomorph whose tines are decorated with black dots.

(7) The antlered anthropomorph is superimposed over the top of a large undulating arch. This anthropomorph is the only one depicted with a weapon, in this case an atlatl.

(8) Close to the antlered anthropomorph and the impaled deer are red dots that appear to have been impaled by dart points.

(9) There is an object located just above the impaled dots that consists of a straight line with numerous branching lines projecting from one end.

(10) A white line extends the entire length of the panel uniting the five anthropomorphic figures. At the far left end of the panel the line changes to black.
PEYOTE: THE DIVINE CACTUS

Botany of Peyote. Peyote (*Lophophora williamsii*) is a spherical, spineless, chalky blue-green colored cactus with a height of less than 5 cm and a diameter of seldom more than 6-8 cm. It is most frequently found growing in shallow, rocky upland soils under the thorny shrub canopy provided by plants such as mesquite and acacia. Peyote grows in clusters from a tuberous taproot associated with a much larger nurse plant. During drought conditions, peyote crowns descend below the ground into the taproot to reduce exposure to transpiration losses. When the rains return, the cactus swells and rises slightly above the surface of the soil (Benitez 1975; Boke and Anderson 1970; Bruhn and Holmstedt 1974; Morgan 1983).

![Figure 7.7. Geographic Distribution of Peyote. (After Morgan 1983:74).](image)
The plant's geographic range occurs primarily in northeastern and central Mexico and along the Texas borderlands (Figure 7.7) (Boke and Anderson 1970; Morgan 1983). In the lower Pecos River region, modern peyote populations are located on south-facing slopes overlooking the western side of the Pecos River canyon, on the uplands above Seminole Canyon just east of the Pecos River, as well as in the area of Langtry, Texas. There are probably many more populations within a few miles of the rock shelters in this study, but locating them is difficult because of restricted access to private land.

![Figure 7.8. Peyote Buttons. Peyote buttons recovered from the sediments of Shumla Cave, Val Verde County, Texas. Photograph courtesy of the Witte Museum, San Antonio, Texas.](image)

The **Peyote Experience.** The cactus is harvested by slicing off the small exposed crown. When dried, the sliced segments of the cactus resemble hard brownish disks that are referred to as peyote buttons (Figure 7.8). Although more than 30 alkaloids have been chemically identified in peyote, the major active alkaloid, mescaline, is capable of
producing psychic effects and hallucinations in humans (Aberle 1966; Anderson 1996; Bruhn and Holmstedt 1974; Litovitz 1983).

Taken in small quantities, less than 5 mg/kg, Peyote produces wakefulness, mild analgesia, loss of appetite, allays thirst, and suppresses the sexual drive (Aberle 1966; Klüver 1966; La Barre 1975; Schultes 1938). Each button contains on average 45 mg of mescaline, thus four to twelve buttons must be consumed to produce vivid visual hallucinations, including reports of shimmering intensification of color and texture, frequent geometric imagery, and distortions in body image and depth perception.

Although Peyote intoxication is most commonly associated with visual hallucinations, both auditory and tactile hallucinations, and a variety of synesthesia, are also reported (Anderson 1996; Bye 1979; Klüver 1966; Litovitz 1983; Schultes 1969; Siegel 1984).

**Peyote Medicine.** Peyote is not an hallucinogenic drug, but a religious sacrament to most Native Americans. Through the centuries, Peyote has been used by Native Americans more for its therapeutic properties than for its vision-producing properties. According to Edward Anderson, “The primary use of sacred plants by most indigenous people in North America has always been religious and at the same time medicinal because religion and medicine have not been separated” (Anderson 1996:107).

In Mexico, Peyote is used to protect individuals from sickness — it forms a barrier against all that is evil. In the United States, the primary use of Peyote is to treat individuals after they become ill. Peyote is reported to cure nearly everything, including tuberculosis, pneumonia, rheumatism, scarlet fever, venereal disease, diabetes, influenza,
snake bites, cancer, insanity, broken bones, and many more diseases and ailments (Aberle 1966; Anderson 1996; Bye 1979; Hultkrantz 1997; La Barre 1975).

Scientists have responded to the widespread claims of peyote's therapeutic value by beginning a search for substances in peyote that may be medically significant. One of their most interesting discoveries is the identification of a crystalline substance, "peyocactin," that is believed to have antibiotic qualities. "Peyocactin" has been demonstrated to have a definite in vitro antiseptic action against a wide variety of microorganisms (Anderson 1996). However, according to Anderson, "the curative nature of the plant probably is due more to their [Native Americans] response to its psychoactive properties than to the presence of any true healing chemical substances" (Anderson 1996:119).

**Origins of Peyotism.** Due to the plant's powerful properties, Pre-Columbian groups in south Texas and throughout northern Mexico, utilized peyote in religious ceremonies (Hultkrantz 1997; La Barre 1975; Stewart 1987). In the 19th century peyote use spread northward to Oklahoma where the modern peyote religion of the Native American Church became formalized during the 1880's (Hultkrantz 1997; Stewart 1987). There is considerable controversy regarding the origins of peyotism (which I will return to later in this chapter) and the content of the earlier cult from which it emerged (Campbell 1958; Howard 1957, 1960; Hultkrantz 1997; Opler 1937, 1938, 1945; Slotkin 1951, 1955; Stewart 1987; Troike 1962). From pre-Conquest time to early in the nineteenth century, various groups located in Mexico and Texas either utilized or were familiar with the peyote cactus. These include the following groups: Aztec,
Zacateco, Tarascan, Cazcan, Guachichil, Huichol, Lagunero, Tepehuan, Tepecano, Cora, Acazee, Tamaulipeco, Coahuilteco, Tarahumara, Opata, Pima Bajo, Papago, Yaqui, Jumano, Julimeno, Lipan Apache, Carrizo, Tonkawa, Karankawa, Mescalero Apache, Caddo, Otomi, and Tlascalan (Hrdlicka 1908; Shonle 1925; Stewart 1987).

In discussing the prominence of peyote use among tribes of Mexico, Ales Hrdlicka (1908) notes that although peyote use was most prominent among the Huichol of northern Mexico, it was also well known among the Opata and the Yaqui. Additionally, the Tepecano used peyote obtained from the Huichol for medicinal and ceremonial purposes. He further identifies its use among the Papago and the Pima for medicinal and, most probably, ceremonial purposes as well.

Peyotism in the United States is recognized as having its origins in northern Mexico and southern Texas along the Rio Grande River (Hultkrantz 1997; La Barre 1975; Stewart 1974; Stewart 1987). This is the northern-most reach for the natural growth range of peyote. During historic times, various Indian groups such as the Comanches and the Kiowas and tribes from Oklahoma journeyed to the lower Pecos region to harvest peyote for ceremonial use. The Comanches and the Kiowas reportedly collected peyote along the Rio Grande and Pecos River (Slotkin 1951, 1955; Stewart 1987). According to Jack R. Skiles, a botanist living in the area of Langtry, Texas, the "Indians from Oklahoma made trips to Langtry for many years (during the 1930's) gathering peyote for use in their religious ceremonies" (Skiles, cited in Stewart 1987:13).

The earliest historical reference to peyotism was made in the 1560's by Friar Bernardino de Sahagun. In his General History of the Things of New Spain he credits
the primitive nomadic tribes of northern Mexico, the "Teochichimeca," with the
discovery of the hallucinogenic properties of the peyote cactus. The "Teochichimeca"
peyote ceremony described by Sahagun shares many features with the peyote ceremonies
conducted by the modern Huichol Indians of northern Mexico (Furst 1972; La Barre
1975; Myerhoff 1974; Stewart 1987). Researchers have suggested that the ancestors of
the modern Huichol migrated as nomadic Chichimec hunters into the Sierra Madre
Occidentals from a northern homeland, perhaps even the American Southwest (Furst
1972).

**Huichol Peyotism.** The peyote hunt is at the core of the Huichol belief system
and it unites peyote, deer, and maize into one inseparable sacred symbol. Deer, peyote,
and maize are so intimately interwoven that the Huichol believe that maize is deer,
peyote is deer, and maize is peyote; one cannot exist without the others (Furst 1972,
1976, 1978; Furst and Myerhoff 1966; La Barre 1975; Lummoltz 1900; Myerhoff 1974).

Huichol religion is complex; however, the driving force in ritual practices is the
desire for rain. In Huichol myths both peyote and rain sprang from the forehead of the
deer, without the deer there would be no peyote and no rain; consequently there would
be no maize. Peyote is therefore sacrificed each year to Grandfather Fire to ensure rain
and a bountiful crop (Lummoltz 1900, 1902).

The only peyote that may used as a sacrifice in these ceremonies is peyote the
Huichol have obtained from their sacred homeland, Wirikuta. In myth, and possibly in
history, Wirikuta is the place from which the Ancient Ones came before settling in the
Sierra Madre Occidentals in north-central Mexico. Each year preceding the spring rain-
bringing ceremonies, small bands of Huichol unite and set out on a 480 km pilgrimage across the desert, journeying northeast to their land of origin where the peyote grows (Figure 7.7) (Benitez 1975; Furst 1972; Furst and Myerhoff 1966; Lumholtz 1902).

In order to be able to enter the sacred homeland, each pilgrim must be transformed into a spirit-being. It is the responsibility of the shaman or mara'ákame to assist in this transformation, and to assign a new name to each of the pilgrims. The shaman who leads the group on the hunt always becomes Grandfather Fire. He carries the antlers of the Huichol divine ancestor Káuyiümari, or Sacred Deer Person.

Káuyiümari is the intermediary between the shaman and the gods and the guide and protector of the pilgrims along the journey (Benitez 1975; Furst 1972; Lumholtz 1900; Myerhoff 1974). The Huichol describe him as follows:

"We call him Káuyiümari. We call him Maxa Kwaxi. It is all one. Káuyiümari aids Grandfather Fire. He aids Father Sun. He guides the mara'ákame in what must be done. So that the peyote can be hunted. So that the mara'ákame can take the peyote from the horns of the deer, there in Wirikiuta" [Myerhoff 1974:87].

Káuyiümari is conceived of in the form of a deer and as a person wearing antlers. The Huichol believe that when the deer-god descended from heaven he brought peyote on his antlers to the sacred homeland, leaving the divine peyote cactus behind in his tracks. It is also believed that Káuyiümari uses his antlers to open the portal to the Otherworld on the peyote pilgrimage (Benitez 1975; Furst 1972; Myerhoff 1974).

Another major ritual that must be conducted before the pilgrims can be completely transformed into divine beings is that of purification and confession. The term "confession," according to Myerhoff, is misleading in that it implies the Western
religious tradition of confession. She states that the primary function of this ritual "is to
transform the participants spiritually by making them new" (Myerhoff 1974:132).

Sexual misdeeds are the only actions confessed during the ceremony. Each
participant declares publicly his or her sexual transgressions. The shaman makes a knot
in a husk fiber cord for each transgression mentioned. After all of the pilgrims have
confessed, the shaman throws the knotted cord in the fire. By this action, the
transgressions have been absolved and the pilgrims are no longer considered mortal. To
signify a new beginning and unity among the pilgrims, the shaman removes from his
pouch a fresh cactus fiber cord which each pilgrim is instructed to grasp. The shaman
scorches the cord over the fire before placing it back in his pouch (Benitez 1975;
Myerhoff 1974). When they arrive in the land of Wirikúta the sacred cord will be
knotted by each pilgrim and then unknotted at the end of the pilgrims journey home
(Furst 1972; Lumholtz 1900; Myerhoff 1974).

Once the confessions and transformations are complete, the group leaves the
village in single-file. The shaman-leader goes first, and carries the bow and arrows with
which the first peyote will be shot. He also carries deer antlers, which represent
Káuyúmari (Lumholtz 1900; Myerhoff 1974). Strict attention is given to preserving the
order of the pilgrims as they proceed in single file. This order must be maintained no
matter how awkward or inconvenient, just as their ancestors did on the First Peyote
Hunt (Benitez 1975; Furst 1974; Lumholtz 1900, 1902; Myerhoff 1974).

Candles are an important element within the peyote pilgrimage. At designated
points along the journey to Wirikúta, the pilgrims display the offerings they have brought
to the peyote. Each stands before his or her offerings while holding candles towards the ascending sun (Benitez 1975; Furst 1972; Myerhoff 1974).

About mid-morning after arriving in the sacred homeland of Wirikúta, the shaman signals for the hunt to begin. The pilgrims fan out across the desert, breaking their single file order as they search for the peyote/deer. Myerhoff describes the pilgrims' behavior to be "precisely that of stalking an animal" (Myerhoff 1974:153). Once the shaman has found the peyote/deer, he takes aim and shoots it with an arrow. Bursts of color like a rainbow are said to spurt upward from the slain peyote/deer. The colored rays are called the kupuri, and represent the soul of the peyote and of the deer. The shaman coaxes the soul back into the peyote/deer with his sacred feather plumes (Benitez 1975; Furst 1972, Myerhoff 1974).

The pilgrims proceed to gather peyote to take back to those who remained at home. After a sufficient amount has been collected, the peyote is sorted, cleaned and packed. The shaman selects five of the finest peyotes, each with five sections. The number five is a sacred number among the Huichol because it signifies the four cardinal points and the sacred center. It also stands for completion. The five peyotes are strung together and hung on the antlers of Káuyúmari. The next day, the pilgrims begin their long journey home (Benitez 1975; Furst 1972; Myerhoff 1974).

PEYOTISM IN THE PICTOGRAPHS: THE HYPOTHESIS

In this section, I will begin by identifying similarities between the pictographic elements of the White Shaman panel (41VV124) and elements of the Huichol peyote
pilgrimage and hunt. This will be followed by a discussion on the motif identified during the analysis of the Pecos River Style pictographs.

**White Shaman Revisited.** Specific elements of the Pecos River Style rock-art are similar to specific elements in the Huichol ritual peyote pilgrimage. Virtually every major aspect of the ritual has its corresponding rock-art representation, and virtually every pictographic element at 41VV124 can be linked to some aspect of the ritual. I will revisit each of the elements of the panel and identify its counterpart in Huichol peyotism.

1. Five black and red anthropomorphic figures extend the length of the panel, each approximately the same size.

The artist(s) of the 41VV124 rock-art panel utilized the full expanse of canvas provided on the shelter wall. The black and red anthropomorphs are placed evenly across the panel. This is analogous to the Huichol peyote pilgrims observing strict single-file order while on the pilgrimage.

2. Long, slender, black objects with red tips are associated with each of the five anthropomorphs.

The red-tipped black objects associated with the anthropomorphs are analogous to the candles held up by the pilgrims towards the ascending sun when making offerings to peyote at various points along the journey. In this case, however, these objects would represent torches as opposed to candles.

3. Anthropomorphs depicted in a skeletonized fashion, zoomorphic, and other enigmatic figures are associated with each of the five black and red anthropomorphs.
Each of the five black and red anthropomorphs appears to be going through a metamorphosis and is associated with either zoomorphic, anthropomorphic or other enigmatic figures. This is analogous to the transformation of the pilgrims into spirit-beings prior to their journey to the sacred homeland to hunt peyote.

Guiding the pilgrims in this transformation are the skeletonized depictions of the shaman and his spirit helpers. Modern Huichol artists depict shaman and spirit beings in a skeletonized or X-ray fashion in their yarn paintings. When asked why it is done that way, Ramon Medina, a Huichol shaman and artist responded, "because that is how it was established in the time of the ancestors" (Furst 1978.23).

The five black and red anthropomorphs are not depicted in a skeletonized fashion. These anthropomorphs, therefore, represent the pilgrims prior to their transformation into spirit-beings.

(4) A white line extends the entire length of the panel uniting the five anthropomorphic figures. At the left end of the panel, the line changes to black.

Extending the entire length of the 41VV124 panel is a white line that unites each of the five anthropomorphs, just as the cactus fiber cord used by the Huichol shaman unites all the pilgrims following purification and confession. At one end of the white line, the color changes to black, possibly to symbolize the scorching of the sacred fiber cord done by the Huichol shaman.
The number of anthropomorphs is also significant. As stated earlier, among the Huichol, five is a sacred number representing completion. The pilgrims, following their transformation and confession, are considered complete and perfected.

(5) An antlered anthropomorph is superimposed over the top of a large undulating arch. This is the only anthropomorph in the panel associated with a weapon, in this case an atlatl.

At the far left end of the panel, passing through the motif identified in the previous chapter as that of the Otherworld, is the image of a polychrome antlered anthropomorph. The antler tines of the headdress are decorated with small black dots, analogous to the peyote buttons brought on the tines of the Huichol divine ancestor, Káuyúmari. This figure is also the only anthropomorph in the panel associated with a weapon, in this case an atlatl. This motif is analogous to the shaman-leader who carries the antlers of Káuyúmari to open the Otherworld portal and who carries the weapon to shoot the first peyote/deer. This may also be an indication that the panel is to be read from left to right.

(6) Impaled dots, impaled deer decorated with dots, and elements resembling feather plumes

There are over 100 dots in the 41VV124 panel. Black dots are depicted on the bodies of the anthropomorphs and free-floating throughout the panel. There are at least six impaled red dots. The clearest of these appear on the left end of the panel above the antlered anthropomorph. These impaled dots are analogous to the peyote/deer shot by the Huichol shaman.
There is also an impaled deer covered with large black dots. This image closely resembles depictions of the peyote/deer in Huichol sacred art. The Huichol decorate the body of the deer with either dots or flowers to represent the peyote button (Figure 7.9). The deer, according to Myerhoff, "is the most sacred and magical animal of the Huichol. He gave them peyote in the First Hunt and reappears during subsequent hunts, bringing peyote, which is conceptualized as either remaining behind in his footsteps or as growing from his horns and tail" (Myerhoff 1974:199).

![Figure 7.9. Huichol Yarn Painting - Birth of Peyote. Yarn painting by Chavelo González de la Cruz illustrating the birth of peyote from the antlers and body of the Great Deer in Wirikúta. Redrawn by author from Schaefer and Furst (1996).](image-url)

Found in close proximity to the impaled dots and impaled deer, is an element resembling the feather plume used by the shaman to coax the soul back into the peyote/deer after being shot with the arrow.
Recurring Patterns in Pictographs and Ethnographies. The association of peyote with deer in the ethnographic literature is not restricted to Huichol peyotism, nor is the motif association of impaled deer, impaled dots, and antlered anthropomorphs restricted to 41VV124 and the other sites mentioned at the beginning of this chapter.

![Diagram of Fate Bell Antlered Anthropomorph](image)

Figure 7.10. Fate Bell Antlered Anthropomorph. Black dots decorate the tines of the winged, antlered anthropomorph. Beneath the anthropomorph are antler racks and impaled dots.

The association of antlered anthropomorphs with black dots on the ends of their antler tines, impaled deer, and impaled dots was identified at additional sites in the region. At Fate Bell Shelter (41VV74) in Seminole Canyon the antler tines of a winged
antlered anthropomorph are bedecked with black dots (Figure 7.10). In this panel an
additional element — a winged antlered anthropomorph — may be understood through
analogy. According to the Huichol, deer have the ability to fly (Myerhoff 1974:201).
The sacred deer which brought the First Peyote to the ancestors, flew down from the
heavens with peyote on his antler tines. Found in close proximity to the winged, antlered
anthropomorph are impaled dots bursting with color and numerous depictions of antler
racks. The impaled dots bursting with color are analogous to the Huichol description of
the soul of the deer escaping as colored rays from the peyote after being shot by the
shaman.
The association of black dots on antler tines, impaled deer, and dots is also present on a panel located near Black Cave (41VV76) located in Pressa Canyon, a tributary of Seminole Canyon (Figure 7.11). The panel at 41VV76 provides further analogies with Huichol conceptions of the peyote/deer and rain-bringing. Located approximately 3.05 meters to the right of the antlered anthropomorph is an anthropomorph surrounded by impaled deer (Figure 7.12). Above the anthropomorph is an antler rack with rays resembling a rainbow extending from it. This may be analogous to the Huichol notion of rain springing from the forehead of the deer or of the colored rays representing the soul of the peyote/deer trying to escape after being shot.

Damon Burden, a graduate student at Texas A&M University, identified dots on the antler tines of a Red Linear deer at 41VV201 (Figure 7.13). The Red Linear Style is
Figure 7.13. Red Linear Deer With Dots on Antler Tines. Pressa Canyon (41VV201). Illustration by Jessica Lee.

Figure 7.14. Red Monochrome Deer - Painted Canyon (41VV78). Illustration by Jessica Lee.
speculated to have been produced approximately 2,000 years after the Pecos River Style pictographs. At 41VV78, a very large Red Monochrome deer is painted with a design very similar to the Huichol depiction of the peyote/deer (Figure 7.14). I recognize that these two sites are isolated examples of the motif in the later pictographs of the region, however, with further research additional sites may be identified. Since we have contemporary ethnographic accounts of a peyote/deer relationship (Schaefer and Furst 1996; Underhill 1952), the presence of this motif in more recent pictographs should not be discounted.

Other groups, in addition to the Huichol, associate peyote with deer. The antiquity of this association is suggested in Zapotec material culture. An effigy snuffing pipe from Oaxaca dating to 400-200BC depicts a reclining deer holding a peyote cactus in its mouth (Furst 1976).

The association of deer with peyote, although less direct, is also present among the Papago. Ruth Underhill, states that Papago "shamans owned love magic. A 'mushroom' which corresponds with the Huichol description of peyote, was a strong love charm. A man stalked it like a deer, and shot it with an arrow before it had a chance to disappear into the ground" (Underhill 1969:264). Also according to Underhill, there is a mysterious connection between an unidentified plant used by the Papago as an intoxicant, pihuri, and deer. She suggests that the Papago pihuri may be analogous to the Huichol hikuli (peyote) (Underhill 1969).

There is also the association of deer and peyote present in the ritual racing of various Mexican groups. Use of peyote to increase stamina during ritual racing is known
for the Tarahumara, Huichol, Tamaulipecan, and Axacee tribes. The association of deer with peyote is demonstrated by the Axacee, who during a race tied strips of deer hide or hooves to their insteps to help them climb hills while racing. The Tarahumara and Huichol carry the peyote/deer during ritual racing (Lumholtz 1902; La Barre 1975).

The peyote/deer relationship is present in the modern peyote religion of the Native American Church as well. In the United States, many members of the Native American Church make a pilgrimage to South Texas or northern Mexico to collect peyote plants that will be used in ceremonies. The peyote, however, will not reveal itself to the pilgrims until after they have prayed. At that time, “it may appear in the form of a man or deer, leaving the plants behind” (Underhill 1952:144).

**DEER, PEYOTE, MAIZE, AND RAIN-BRINGING: A NATURAL FIT**

Today, as in 1900 when Carl Lumholtz conducted his research, the Huichol sacrifice the peyote/deer as an offering to the gods to bring rain and insure against drought. They believe that peyote must be offered to the gods every year "or they would be unable to catch deer: consequently it would not rain and they would have no corn" (Lumholtz 1900:23). Why would the non-agricultural hunter-gatherers living along waterways of the lower Pecos region sacrifice the peyote/deer in rain-bringing ceremonies? And, why are these seemingly disparate elements combined in the pictographs and ethnographic literature? A look at the effects of peyote intoxication and the ecology of deer and peyote, reveals that these seemingly disparate elements are not so disparate after all.
Neurophysiology and the Peyote/Deer Relationship. Peyote is widely used as a stimulant in Mexico. Individuals who take peyote claim that it allows one to overcome great fatigue and endure hunger and thirst for several days (Aberle 1966; La Barre 1975; Schultes 1938). These physiological effects of peyote intoxication connect peyote with deer and rain. I suggest that as an appetite suppressant peyote is meat, more specifically, it is deer meat. In its ability to satisfy thirst, peyote is water, or rain.

During peyote intoxication individuals do not lose consciousness and are able to control their limbs and senses (Schultes 1938). Onlookers have described them as "jumping like a deer" (La Barre 1975:17). Lumholtz, referring to the Huichol, noted that "although an Indian feels drunk after eating a quantity of hikuli (peyote), . . . he maintains the balance of his body even better than under normal conditions, and he will walk along the edge of precipices without becoming dizzy" (Lumholtz 1903:138). Eating peyote, therefore, not only satisfies hunger like deer, but also causes one to behave as a deer.

An Ecological Explanation. The purpose of the ritual for the prehistoric hunter-gatherers of the lower Pecos River region may have been similar to that of the Huichol. By studying peyote and deer ecology, I was able to establish an ecological relationship between peyote, deer, and rain. This ecological relationship can be used to explain the peyote/deer/rain complex among the hunter-gatherers of the Lower Pecos and, perhaps, for the relationship of these three elements in the ethnographic literature.

Rainfall occurs primarily in the summer and often in the form of widely-spaced torrential rains of short duration. These rains increase the production of both desert
ephemerals and trigger leafing and flowering of important forage and fruit bearing shrubs. As opposed to bringing rain for the crops, the peyote/deer would have been sacrificed to bring rain to increase the quantity of desert plant foods available for harvest.

Additionally, as deer ecologists have demonstrated in the Chihuahuan Desert, deer travel rapidly to a given area soon after a rain to eat vegetation that emerges following rainfall (Cooke 1993). Deer have been documented to leave dry season homes where no rain has fallen and travel as far as 32 km to an area where rain had fallen three days prior. As noted by Rautenstrauch and Krausman (1989), deer do not migrate to seek more nutritious forage or a better habitat, but the fresh new feed appearing after rain. When the rain comes the deer come, sometimes from considerable distances. Therefore, rainfall not only increases plant food availability but game availability as well.

Rainfall also brings peyote. Peyote has an extensive growing range within the Chihuahuan Desert from central Mexico to southern Texas, including the lower Pecos River region. The peyote cactus grows in shrub microenvironments on east and south facing slopes to receive moisture from prevailing Gulf Winds. During dry periods, peyote descends below the ground surface becoming difficult to find. Immediately after a rain, however, the peyote swells, becoming visible on the surface of the ground (Benitez 1975; Morgan 1983).

Thus we have the relationship of the deer, the peyote, and the rain. When the rains come, the deer come and the peyote appears on the ground where the deer have been feeding on the fresh vegetation. As the Huichol say, wherever the deer has stepped, peyote will grow in his tracks. The addition of maize into the peyote/deer
complex by the marginally agricultural Huichol may have been an extension of the already existing relationship identified by the hunter-gatherers between rainfall and the arrival of peyote, deer, and wild plant foods.

R. E. Schultes offers another connection between peyote and deer. He states, “[p]eyote plants are normally unicephalous, but age and injury may cause them to become polyccephalous, assuming bizarre shapes, often resembling a deer-hoof imprint, a circumstance which may account for the close association of peyote with the deer in Mexican mythology” (Schultes 1938:699).

My contention is that the lower Pecos shaman/artists used the rock paintings to indirectly instruct members of society about ecological relationships, such as the effects of rain on animal and plant behavior — knowledge which was necessary for successful exploitation of the hunting and gathering niche. Further, it may be that the shaman was also able to indirectly influence social cooperation in the control of scarce resources through the art and associated rituals. As R. L. Kelly (1995) has noted, conservation ethics are reflected in spiritual beliefs. Among the San, “trance was the liminal area within which the [San] medicine men accomplished their articulations of ecological reality (e.g. scattered rainfall) with social necessity (bands cooperating within a band nexus for maximization of resources)” (Biesele 1983:55).

PEYOTE IN THE ARCHAEOLOGICAL SEDMENTS

Additional evidence to support the argument for the presence of peyotism in the lower Pecos comes from the archaeological record. George Martin (1933), an
archaeologist working in the lower Pecos region during the 1930's reports having
frequently found peyote in the debris of Shumla Caves. The peyote excavated from
Shumla Cave No. 5 has been radiocarbon dated to 7,000 b.p. (Furst 1989). It was also
reported by Woolsey at Fields Shelter and by Sayles in several Texas sites (Campbell
1958; Sayles 1935).

Various items of material culture that were recovered from the Shumla Cave
excavations are similar to paraphernalia used in peyote ceremonies by various aboriginal
groups. These include rasping sticks made from either bone or wood, a rattle made from
deer scapula, a pouch and reed tubes containing cedar incense, and feather plumes (La
Barre 1975; Lumholtz 1900, 1902; Schultes 1937; Stewart 1987).

MESCALISM — PREDECESSOR TO PEYOTISM IN THE LOWER PECOS?

As stated earlier, the origins of modern peyotism in the United States is still
unclear. Åke Hultkrantz maintains, “Mexican tribal peyote ritualism constituted the
transition to the Plains peyote rite . . .” and that “the Coahuiltec — living on both sides
of the eastern Rio Grande — are most likely to have been the transmitters” (Hultkrantz
1997:31). Ruecking maintains that not only was peyotism present among the
Coahuiltecs as early as the 1500's, but that the “peyote complex was diffused from the
Coahuiltecan area to other groups of Mexico” and then “in much later times to the Plains
of the United States” (Ruecking 1954:337). Beals (1973) limits the ceremonial use of
peyote prior to 1750 to northern Mexico and suggests that the modern peyote cult
stemmed from a ceremonial setting in that area. La Barre (1975) also suggests that the ceremonial origin of peyotism was northeastern Mexico.

La Barre (1957) has argued that mescalism — the ritual use of the mescal bean (Sophora secundiflora) — predates peyotism in the United States and Mexico. Some researchers further suggest that not only does mescalism predate peyotism, but that it greatly influenced the development of the modern Peyote Religion (Howard 1957, 1960; Hultkrantz 1997). They maintain that peyote gradually replaced the dangerous mescal bean, until ultimately a distinct ceremonial peyote complex was established. Troike argues, however, that mescalism was not ever really a cult because as far as we know, the mescal bean was never an object of worship (Troike 1962:947). Stewart (1980) and Merrill (1977), go even further to assert that there is no evidence to suggest that a mescal bean ceremonial complex impacted or led to the development of the Peyote Religion.

The pictographs of the lower Pecos River region were entered into this debate by T. N. Campbell (1958). In support of La Barre's argument for mescalism as a predecessor of peyotism, Campbell noted the presence of mescal beans in the archaeological sediments of the lower Pecos River region and identified similarities between the mescal bean medicine society and the Pecos River Style pictographs. I will present Campbell's interpretation below, following a brief introduction to the botany of Sophora secundiflora and its importance in the ethnographic literature. I will then argue that peyotism was not the descendant of a mescal bean cult in the lower Pecos and offer an alternative to Campbell's interpretation of the Pecos River Style pictographs.
Botany of *Sophora secundiflora*. Archaeologists and anthropologists have explored the ritual significance of *Sophora secundiflora* or Texas mountain laurel (Adovasio and Fry 1976; Campbell 1958; Merrill 1977). The Texas mountain laurel is an evergreen shrub or small tree of the legume family (*Fabaceae*), native to northern Mexico and the adjacent southwestern United States. In the lower Pecos region, it is a common shrub of the canyons, where the showy, bluish-purple flowers mature into a hard, woody legume containing red seeds. "mescal beans" (Figure 7.15).

![Figure 7.15. Mescal Beans (*Sophora secundiflora*).](image)

The seeds of *Sophora secundiflora* contain narcotic poisonous quinolizidine alkaloids, including cystine, that produce a variety of physiological effects. The symptomatology of poisoning through their ingestion includes nausea, vomiting, diarrhea, excitement, muscle paralysis, insensitivity to pain, delirium, convulsions, coma,
and occasionally death through respiratory failure. The nature, duration, and intensity of the effects of mescal bean intoxication depend primarily on the number of seeds consumed and the manner in which they are prepared for ingestion (Hatfield, et al. 1977; Merrill 1977).

There is no evidence that any of the mescal bean alkaloids are capable of directly inducing hallucinations (Hatfield, et al. 1977; Merrill 1977). As G. M. Hatfield has argued, the mescal beans play a part in creating the context within which visions take place - but not in the direct generation of the vision itself (Hatfield, et al. 1977:376). W. L. Merrill states "... the visions seem to have resulted from the combined impact of several factors, including the physiological effects of the mescal bean alkaloids, the dramatic and frequently intense sensory stimulation characteristic of the ceremonial contexts in which mescal beans were consumed, and the vision-seeker's belief and expectation that visions were both possible and likely to occur in such contexts" (Merrill 1977:4).

**Mescal Beans in the Archaeological Record.** In the archaeological record, mescal beans have been recovered from the cultural deposits of numerous prehistorically inhabited rock-shelters in the lower Pecos region. The cultural deposits from which they were recovered range in age from 8000 B.P. to the historic period. Major rock-shelter sites from which the seeds or pod fragments have been recovered include Fate Bell Shelter (41VV74), Coontail Spin (41VV82), Zopilote Cave (41VV216), Eagle Cave (41VV167), and Hinds Cave (41VV456) (Campbell 1947; Davenport 1938; Dering 1979; Holden 1937; Martin 1933).
Despite the widespread occurrence of mescal bean, the archaeological evidence provides very little insight into how the beans were used by prehistoric peoples of the region. Only two sites yielded specimens of mescal beans that allude to its utilization. A deeply fringed buckskin loin-cloth was recovered from Murrah Cave, which has three longitudinally split mescal beans attached to its fringe. The loin-cloth was found folded on top of a bundle of Mormon Tea (Ephedra sp.) with seven pieces of red paint placed on top of it. The cultural deposits from which the loin cloth was recovered are classified as Archaic (Holden 1937; Merrill 1977).

At Horseshoe Ranch Caves a twined bag was found covered by three layers of matting and resting upon a woven rabbit fur robe or blanket. The bag contained the following items: 1) woven fiber cords, 2) a woven package containing a flint or chert knife, 2 bundles of sinew, and a small ball of pinkish clay; 3) a buckskin thong; 4) a flint-knapping kit; 5) a mussel shell; 6) 3 flint blades, 5 side-scrappers, 5 unworked flints, and a projectile point; 7) a flattened mano; 8) a small terrapin carapace with holes bored along its outer edges; 9) 11 jackrabbit mandible halves; 10) 3 pieces of red paint stone; 11) 38 mescal beans; and 12) 187 Texas buckeye seeds (Ungnadia speciosa). The bag was recovered from cultural deposits dating to the Archaic (Martin 1933; Merrill 1977; Shafer 1986).

**Ethnographic Accounts of Mescalism.** Although over 30 Native American groups are ethnographically reported as utilizing mescal beans, the use of the beans in contexts associated with visions is limited. According to G. M. Hatfield et al., "Most, if not all of these groups used mescal beans as seed beads, which they attached to their
clothing and other articles. Yet, less than half of these groups consumed mescal beans or
a decoction prepared from these seeds, and the majority of the groups who did ingest
mescal beans did so primarily for their emetic and purgative effects. . . . In fact, only six
Native American groups are suspected to have associated the consumption of mescal
beans with visionary experiences" (Hatfield, et al. 1977:379).

Although principally used as a seed bead, mescal beans have also been used
medicinally and in decoctions prepared from other plants. The Cheyenne are reported to
have used mescal beans in the preparation of an eye-wash. The Comanche and Kickapoo
utilized the seeds to cure earaches. The Mescalero and Chiricahua Apache occasionally
mixed mescal beans with their corn beer. There is some evidence to show that the
Coahuilteco and Hasinai Caddo consumed mescal beans in conjunction with the
hallucinogenic peyote cactus *Lophophora williamsii* (Hatfield, et al. 1977). The Native
American Church integrated mescal beans as items of material culture into the
 paraphernalia of the Peyote Religion during the reservation period. Today, mescal beans
maintain their prominence in peyote paraphernalia (Howard 1957, 1960; La Barre 1957,
1975; Merrill 1977; Safford 1917; Schultes 1937, 1969).

**Mescalism in the Pecos River Style Pictographs.** T. N. Campbell sought an
explanation for the presence of the seeds of *Sophora secundiflora* in the sediments of the
lower Pecos through his pioneering use of ethnographic analogy, stating "even a cursory
examination of the Pecos River Style pictographs reveals a number of parallels to the
mescal bean cult . . . . The historic cult is frequently linked with hunting and with the
deer . . . and this also seems to be true of the Pecos River Focus cult" (Campbell
Campbell based his interpretation on parallels identified between the paraphernalia utilized in the historic mescal bean cult and the pictographs of the region:

1) The design elements decorating the bodies of the Pecos River Style anthropomorphs are similar to paraphernalia worn by cult practitioners. This includes fox skins draped over the arms of cult members, deer-tail necklaces and owl-feather bracelets, and fox skins wrapped about the waist.

2) Anthropomorphic figures depicted with weapons in the Pecos River Style rock art are analogous to the men dancing with weapons in the historic mescal bean cults.

3) The staff-like object with an enlarged distal end held by the anthropomorphs in the rock art is analogous to the staff held by the leader in the ritual of at least one historic mescal bean cult.

4) The enlarged distal end of the staff held by Pecos River Style anthropomorphs, Campbell suggests, is a gourd rattle used in the historic cults.

Despite subsequent archaeological research in the Lower Pecos area, Campbell's interpretation has been widely cited without critical re-evaluation. Campbell has identified some interesting similarities between the pictographs and the historic mescal bean medicine society. Dering and I (Boyd and Dering 1996), however, have argued that with the presence of more powerful plants in the archaeological remains, it is not reasonable to assume that the inhabitants of the region were engaged solely in a mescal
bean cult — if a mescal bean cult existed in the region at all. Peyote has been recovered from archaeological sediments in the lower Pecos and, as presented earlier in this chapter, has been identified in the 4,000 year old Pecos River Style pictographs. The Pecos River Style pictographs and the archaeological remains of the region also contain evidence of another plant which is reported to be of great importance to shamans throughout Mexico and the American Southwest — *Datura* (jimsonweed) (Boyd and Dering 1996). I will present the evidence for the ritual use of jimsonweed by lower Pecos shaman below. I will also suggest that just as peyote has an animal counterpart — deer, jimsonweed has an animal counterpart within the canid family — perhaps the coyote.

**PRICKLY PEAR POUCHES, GOURT RATTLES, OR JIMSONWEEED?**

One of the motifs Campbell described in relation to the historic mescal bean medicine society is an additional motif identified during my analysis of the Pecos River Style pictographs — anthropomorphs holding a staff-like object with an enlarged distal end. According to Campbell, the enlarged distal end may represent a gourd rattle used in the mescal bean medicine society. In *Rock Art of Texas Indians*, W. W. Newcomb (1967) reinterpreted this motif as a prickly-pear pouch, and identified that over half of the anthropomorphic figures are associated with this motif. Based on the morphology of the motif, supported by ethnographic and archaeological evidence, Dering and I (Boyd and Dering 1996) have argued that this motif is neither a gourd rattle nor a prickly-pear pouch, but a pictographic representation of the fruit of *Datura* (jimsonweed). I will
present our argument following a brief description of the motif in the Pecos River Style pictographs and a brief discussion on the botany of *Datura* and its reference in the ethnographic literature.

**The Motif.** The enlarged distal end of the staff-like object is most frequently depicted as an ovular or circular object with numerous spinescent protrusions, however, stylized versions of the motif are also present (Figure 7.16). Each of the sites included in the analysis contain this motif. In the Rattlesnake Canyon pictographs, at least nine skeletonized anthropomorphs are holding the staff-like object. The White Shaman panel contains only one representation of this motif — an antlered skeletonized anthropomorph holding the object in its left hand. There are at least 13 depictions skeletonized anthropomorphs holding the staff-like object in the Panther Cave paintings,
three in the Mystic Shelter pictographs, and over 20 in the Cedar Springs panel. The morphology of the enlarged distal end with the spinescent protrusions closely resembles the fruit of Datura, a powerful hallucinogenic plant associated with shamanism throughout much of North America.

**Botany of Datura sp.** Datura is a genus of the Solanaceae, the nightshade family. Also referred to by such names as jimsonweed, devil's apple, thorn apple, and Gabriel's trumpet, Datura has been one of the most important medicinal and hallucinogenic plants used since ancient times in both the Old and New World (Avery, et al. 1959; Dobkin de Rios 1984; Harner 1973a, 1973b; Heiser 1989; Safford 1917, 1920; Schultes 1969, 1972).
According to herbarium records, at least three species of *Datura* have been collected in or near the lower Pecos River region, *Datura stramonium*, *Datura inoxia*, and *Datura wrightii*. *Datura inoxia* and *Datura wrightii* (Figure 7.17), both of which grow throughout the southwestern United States and northern Mexico, are closely related members of the section *Dutra*. *Datura stramonium* (Figure 7.18), which is in the section *Stramonium*, has a cosmopolitan distribution. All of the species grow in open, disturbed areas, especially dry washes and on river banks throughout the region.

The *Daturas* growing in the study area are herbaceous plants that produce a white funnelform corolla which matures into a spiny fruit called a capsule. The spines, about 5 mm long, protrude in all directions from the fruit, which gives it the appearance of a spiny seed pod. The seeds are fairly large, reniform in shape with a distinctive carunculate surface. In *Datura inoxia* and *Datura wrightii*, the seeds are 4-5 mm long by 3-4 mm wide, and are usually a light tan color. The seeds of *Datura stramonium* are about half that size, turning black when mature.

**The Jimsonweed Experience.** The *Daturas* produce copious alkaloids, chief among them are the belladonna alkaloids atropine, hyoscine (scopolamine), and hyoscyamine. Bye *et al.* (1991: Tables 6 & 7:38) have compiled a list of alkaloids extracted from *Datura lanosa* and its close relatives, *Datura inoxia* and *Datura wrightii*. *Datura stramonium* apparently has a much lower alkaloid concentration than the other two species.

Although the seeds contain the highest percentage of the alkaloids, decoctions and powders prepared from any part of any of the *Datura* sp. produce complex
physiological effects when taken in toxic doses (Avery, et al. 1959; Klein-Schwartz and Oderda 1984; Martinez 1969). Symptomatology of low-dose *Datura* intoxication includes extreme pupil dilation, restlessness, delirium, disorientation, loss of short-term memory, high fever, dry mucous membranes, convulsions, and hallucinations. Higher doses can cause lethargy, coma, and death. Individuals experiencing *Datura* intoxication have been described as "hot as a hare", "red as a beet", "dry as a bone", "blind as a bat", and "mad as a hatter" (Klein-Schwartz and Oderda 1984; Kulig and Rumack 1983).

Because they are alkaloid-producing annual or perennial herbs, members of the genus have been an important constituent of pharmacopoeias for centuries around the world. Today, *Datura* abuse among adolescents and adults seeking the "jimsonweed high" is not uncommon (Klein-Schwartz and Oderda 1984; Mahler 1975). Many Native American cultures continue to use *Datura* as a medicinal and ceremonial plant. According to Harner (1973b:146), the solanaceous hallucinogens are so powerful, that it is essentially impossible for the user to control his mind and body sufficiently to perform ritual activity at the same time. Because of this and because of the extended period of sleep associated with high dose *Datura* intoxication — three to four days, Harner (1973b) argues that *Datura* was used in the vision quest, rather than in shamanic rituals requiring the shaman to be able to operate in both worlds simultaneously.

**In the Hands of Shaman.** The ethnographic and ethnobotanical literature of the New World reveals the widespread use of the genus *Datura* by shamans for the purpose of divination, prophecy, ecstatic initiation, ritual intoxication, diagnosis, and curing (Dobkin de Rios 1984; Furst 1976; Lewis and Elvin-Lewis 1977). Various species of
*Datura* were highly valued among the pre-Columbian Mexicans as a medicinal and hallucinogenic plant (Bennet and Zingg 1935; Dibble and Anderson 1970; Pennington 1963; Zingg 1977). Within the American Southwest, the Navajo, Yokut, Yuman, Paiute, Chumash, and many others employed the seeds, roots, and leaves, in adolescent or divinatory rites (Applegate 1975; Bean and Saubel 1972; Elmore 1943; La Barre 1975; Schultes 1972; Strong 1929; Watermann 1910).

Many of the aboriginal tribes of southern California employed *Datura* for its medicinal and hallucinogenic properties (Applegate 1975; Bean and Saubel 1972; Strong 1929). Among the Cahuilla Indians of California, shamans utilized the hallucinogenic properties of *Datura* to transcend reality and take magical flights to the spirit or Otherworld. Magical flights to the Otherworld by Cahuilla shaman were considered a necessary activity. Through the use of *Datura* the shaman was able to journey to the spirit realm and gain information useful for his people (Barrows 1900; Bean and Saubel 1972).

Among the Chumash of the Santa Barbara California region, *Datura* was accorded a very high status. It was relied upon for establishing contact with supernatural guardians or dream helpers, to communicate with the dead, to see into the future, and to cure serious wounds and illnesses or to counter the effects of ill omens or breaches of tabu (Applegate 1975).

Matilda Coxe Stevenson relates in the *Ethnobotany of the Zuni Indians* the use of *Datura* by Zuni rain-priests in rain-bringing rituals and divination and by Zuni doctors to render the patient unconscious while he performs simple operations. Stevenson also
points out that the flower identified as a squash blossom by other ethnographers of the Zuni is, in actuality, a *Datura* blossom. She states that this is "an error only too pleasing to the Zuni, as the blossom of the *Datura* is most sacred to them" (Stevenson 1915:46f).

According to Campbell Pennington, the Tarahumara Indians of northern Mexico add the roots, seeds and leaves of *Datura* to *tesguino* which is used as a ceremonial offering and drunk to induce visions. He also reports that the Tarahumara shaman drink a small portion of the *Datura* mixture while making a diagnosis (Bye 1979, 1985; Pennington 1963). Among the Tarahumara, *Datura* is considered extremely dangerous. It is believed that anyone who breaks the plant or pulls it up will eventually go crazy and die. Only the peyote shaman, who is armed with a plant more powerful than *Datura*, can destroy this dangerous weed (Bennet and Zingg 1935; Fackelman 1993).

**Datura in the Archaeological Sediments.** *Datura* is rarely identified at archaeological sites, however, in the rock-shelters of the lower Pecos River region, five seeds have been reported from Hinds Cave (Area Aw, Lens 10). The lens in which the Hinds Cave *Datura* was found is bracketed by radiocarbon ages of 4510±70 B.P. (Lens 9, Area Aw) and 4990±70 B.P. (Lens 11, Area Aw). The seeds came from a grass mat adjacent to a hearth feature. Unfortunately they were not in a context suggestive of any particular use or special treatment, such as a cache (Dering 1979). Among reports from other archaeological sites that allude to the ceremonial use of the plant, perhaps the most compelling is from Higgins Flat Pueblo near the San Francisco River, three miles northwest of Reserve, New Mexico. At this site, about 900 seeds of *Datura meteloides*
were found on the floor of a room that yielded ceremonial objects (Cutler 1956; Cutler and Kaplan 1956; Yarnell 1959).

Although not found in a context that provides insight into the use of the plant, *Datura* seed pods and/or *Datura* seeds have been reported from archaeological sites in Utah, New Mexico, and Arizona. Alice Eastwood (1893) noted that *Datura* seed pods were frequently found in the ruins of southeastern Utah. *Datura* seed pod fragments were identified by Cutler and Kaplan (1956) at Montezuma Castle in central Arizona. The seeds of *Datura* have been recovered from the sites of Mattocks Ruin in southwestern New Mexico, Rito de los Frijoles Canyon in north central Mexico, and Pottery Mound in northwestern New Mexico (Yarnell 1959).

The strength of the pictorial representation of *Datura* in the Lower Pecos, the presence of *Datura* in the sediments, and the reoccurring association of *Datura* with shamanism in the ethnography present a forceful argument that this was an important ritual and medicinal plant utilized by shamans of the Lower Pecos Archaic.

**JIMSONWEED AND CANIDS OF THE NIGHT**

I have argued in this chapter that both *Lophophora williamsii* (peyote) and *Datura* sp. (jimsonweed) were important medicinal and psychotropic plants used by shamans in the lower Pecos approximately 4,000 years ago. I have also discussed possible neuropsychological and ecological origins for the relationship of peyote and its animal counterpart the deer. In the concluding section of this chapter, I will propose that an animal counterpart for jimsonweed can also be identified in the pictographs.
In the ethnographic literature, night predators — in particular, coyotes — are associated with Jimsonweed. The physiological effects of *Datura* intoxication provides clues to the association of the plant with canids. In the myths and folk tales of groups in northern Mexico and the American southwest, there exists a recurring dialectic between peyote and Jimsonweed and between their animal counterparts, the deer and coyote. I suggest that there is evidence of this dialectic in the lower Pecos pictographs and offer neuropsychological and ecological explanations for the dialectical relationship.

**El Cancérbero - The Black Dog.** Ethnographic and ethnobotanical literature of the New World reveals the widespread use of the genus *Datura* by shaman for the purposes of divination, prophecy, ecstatic initiation, ritual intoxication, diagnosis, and curing. Throughout the ethnographic literature of groups in the southwestern United States and Mexico, *Datura* is also equated with witchcraft, sorcery, wind, and the canids, in particular, the coyote (Boyd, in press).

Many aboriginal tribes of southern California employed *Datura* for its medicinal and hallucinogenic properties. Jimsonweed was believed to be a great human shaman with whom the aboriginal shaman could communicate. Ceremonies involving the use of *Datura* were conducted when there was a scarcity of water or food, or when an epidemic raged. It was an especially important component in the *toloáche* (*Datura*) boy's initiation ceremonies (Applegate 1975; Bean and Saubel 1972; Strong 1929). A decoction prepared from *Datura* was administered to the boys during the initiation ceremonies. The *paha* or ceremonial assistant, presided over the ceremony and was responsible for preparing and administering the decoction of *Datura* to the initiates.
Coyote, one of the first and greatest shamans, was the first *paha* to preside over the jimsonweed ceremonies (Strong 1929:108, 134).

The Chumash ingested *Datura* to establish contact with the supernatural world. A specialist prepared and administered the *Datura* mixture. According to a Chumash myth collected by Blackburn (1975), Coyote was the *Datura* giver in times past when the animals were still people. The Chumash saw *Datura* as the old woman *Moymoy*. *Moymoy* is the Chumash word for *Datura*. Coyote, the trickster and adept sorcerer came into existence from *Moymoy's* sweat. Due to the lethal aspects of *Datura*, it was a common ingredient in poisons made by Chumash sorcerers (Applegate 1975; Blackburn 1975).

Among the Tohono O'odham (Papago), Coyote was the messenger for the supernaturals and giver of visions. Although Tohono O'odham hunters are reluctant to discuss the use of *Datura* to bring about visions which assist in the deer hunt, several Tohono O'odham hunting songs indicate that the plant was used (Underhill 1969:91-93). The same is true among the Akmiel O'odham (Pima) who sing "Datura Songs" to bring success when setting out on a deer hunt (Russell 1975:300).

Among the Yaqui, the coyote is perceived as having powerful *morea* or witchcraft. Witches, which are said to be "from the left side," transform themselves into human coyotes. They prepare a decoction made from *Datura* in a witching olla. When the wind blows the odor over the landscape, anyone smelling the decoction will become ill and perhaps even die (Moises, et al. 1971:20; Painter 1986:48).
Among various Pueblo groups, coyotes are equated with witches (Parsons 1974:193-194, 221). Animal transformation by witches is effected by donning animal pelts or through "turning over," which refers to passing through a hoop or ring. When a Hopi witch turns over, he or she becomes a coyote. Among the Hopi and Zuni, Coyote was the first witch and teacher of witchcraft. Like the Huichol, various Pueblo groups associate *Datura* with the wind and witchcraft. Witches are believed to control weather, keeping the rain away or bringing the wind. The witch was able to bring winds by pulling up a *Datura* plant. The winds would continue blowing until the plant's hole was filled (Parsons 1974:136[footnote]).

Although there is no mention of *Datura* use by Zuni witches, descriptions of individuals believed to be under a witch's spell display behavior similar to behavior equated with *Datura* intoxication. Stevenson describes a 12 year old girl suffering from severe hysteria due to witchcraft as follows: "She rolled and tossed, pulled at her hair and throat, and threw her arms wildly about, her legs moving as violently as her arms. Her head was never quiet for a moment" (Stevenson 1904:389).

Navajo witches, when assuming the form of a human wolf, often wear coyote or wolf hides. *Datura* was employed by Navajo witches in Frenzy Witchcraft to seduce women, for success in gambling, and in trading. The Prostitution Way was conducted to cure victims of Frenzy Witchcraft. Prostitution Way was considered closely linked with Coyote Way and Moth or Rabid Coyote Way (Kluckholn 1944:230). During the ceremony, singers of the Prostitution Way chant supervised individual's using *Datura* for
purposes of divination. The antidote for the diagnostican was a plant called "deer eye" (Kluckhohn 1944:176).

In *Mitobotanica: Zapoteca*, Blas Pablo Reko (1945:104) identifies the word for *Datura* in the Zapotec language as *Xolo* or *Xholo*. The association of *Datura* with the canids is clear in his definition for the Zapotec term.

*Xolotl* (azt.), el cancérbero. *Nombre sugestivo del mito de la mandrágora, cuya raíz ha de ser arrancada por un perro negro (xolotl). Aquí el tolóache mexicano sustituye a la mandrágora europea, porque los dos son drogas obrubilantes.*

[Xolotl, the three-headed dog which guards the gate of the nether world. Suggestive name for the mandrake myth, whose root is to be pulled out by a black dog (*Xolotl*). Here the Mexican *Datura* substitutes the European mandrake, because both are drugs that confuse the nervous system. [Translation by author]]

Zapotec witches were most frequently reported to take the form of a dog. Parsons (1936) relates several tales in which the witch animal is a dog. One particular tale told by a Zapotec man is about a boy who fell in love with a girl and is especially illustrative of the witch/dog relationship. The girl persuades the lovesick boy to go for a walk with her in the evening. While on their walk, she rubs some grease on his hands and tells him to roll over. He does so, and feels himself being transformed into a black dog, *xolotl*. The girl does the same to herself and becomes a black bitch. The bitch leaves the dog, telling him to wait for her while she goes to talk to several other witches that were also dogs. After the boy and girl changed back into people the boy beats the girl for what she did to him. He awakens ill the next day and eventually dies (Parsons 1936:133).
The associations between *Datura*, witches or sorcerers, the wind, and the canids is perhaps the most evident among the Huichol Indians of northern Mexico. *Datura* is personified as *Kiéri Téwiyári* (Datura Person) and the "Tree of the Wind." He is considered by the Huichol to be the supernatural chief of the sorcerers. *Kiéri* was believed to be "born from the wind, on the wind, an evil wind" (Furst and Myerhoff 1966:8). He is equated with the animals of sorcery, in particular the canids — the fox and wolf. Furst and Myerhoff (1966) see connections between Aztec cosmology, the characterization of *Kiéri* as the "Tree of the Wind," and his association with the wolf. They note: "in the Florentine Codex, Sahagun tells us that those born under the sign of *Ce Ehecatl*, One Wind, are destined to become sorcerers. If they are nobility, they can become werewolves and also take on other forms at will" (Furst and Myerhoff 1966:33).

**Lycanthropy — the Jimsonweed High.** Lycanthropy, the belief that one can change into a wolf or a similar predator, is frequently associated with solanaceous hallucinogens, such as *Datura*. As presented earlier, the *Daturas* produce copious alkaloids, primarily the belladonna alkaloids atropine, hyoscine (scopolamine), and hyoscyamine. Decoctions and powders prepared from any part of any of the *Datura* plant produce complex physiological effects when taken in toxic doses (Avery, et al. 1959; Klein-Schwartz and Oderda 1984; Mahler 1975; Martinez 1969). Ointments prepared from the plant can produce the same physiological effects due to the ability of atropine to be absorbed through the skin (Cooper 1791; Klein-Schwartz and Oderda 1984).
Those labouring under lycanthropia go out during the night imitating wolves in all things and lingering about sepulchers until morning. You may recognize such persons by these marks: they are pale, their vision feeble, their eyes dry, tongue very dry, and the flow of the saliva stopped; but they are thirsty, and their legs have incurable ulcerations from frequent falls. Such are the marks of the disease [Adams, cited in Harner 1973b:141].

The “marks of the disease” of lycanthropy, described above, closely resemble those reported for clinical effects of jimsonweed poisoning (Harner 1973b:141). Symptomatology of low dose Datura intoxication includes extreme pupil dilation, restlessness, delirium, disorientation, loss of short-term memory, high fever, dry mucous membranes, convulsions, and hallucinations. Severe photophobia resulting from pupil dilation is repeatedly associated with Datura intoxication. Samuel Cooper (1791) reports that a young girl suffering from Datura poisoning experienced such an extreme degree of pupil dilation that she was able to see clearly at night, but was nearly blinded by light. Pupil dilation reportedly persists for several days after the ingestion of Datura seeds (Klein-Schwartz and Oderda 1984).

Combative and aggressive behavior is typical of individuals experiencing Datura intoxication. The symptoms exhibited have been described as similar to those of rabies, whereby the patient reportedly bites, strikes, and screams, throwing their arms about wildly, picking and grasping at unattainable objects. Individuals experience extreme thirst; however, the sight of water "throws him into a spasm, foaming at the mouth and other symptoms similar to those of hydrophobia" (Millspaugh 1974:502).

Ireland (1817) quotes a report by Dr. Haygarth in a Bath newspaper that describes the behavior of children following the consumption of Datura stramonium
seeds. The children “were seized with very violent convulsions and vomiting; an alarming pain in the head, stomach, and bowels: the latter with blindness, and a kind of madness; biting, scratching, shrieking, laughing, and crying, in a frightful manner” (Ireland 1817:11).

The same alkaloids that have been chemically identified in the genus Datura have also been identified in related solanaceous plants such as *Atropa belladonna* (belladonna) and *Mandragora officinarum* (mandrake). These plants have a long history of use in sorcery and witchcraft and generate physiological effects similar to *Datura*. Following the ingestion or absorption of the atropine and scopolamine alkaloids contained in the plants, witches entered an hallucinatory state during which they journeyed to a rendezvous with spirits and demons. During this state, they are reported to have experienced the hallucination of being transformed into a predatory animal, in particular the wolf. This transformation was facilitated through the tactile suggestions produced through wearing wolf skins or wolf skin girdles (Harner 1973b).

The Were-Wolves are certayne Sorcerers, who having annoynted their bodies, with an Oyntment which they make by the instinct of the Divell: And putting on a certayne Inchaunted Girdle, doe not onely unto the view of others, seeme as Wolues, but to their owne thinking have both the Shape, and the Nature of Wolues, so long as they weare the sayd girdle: And they doe dispose themselves as very Wolues, in worrying, and killing, and most of Humane Creatures” [Verstegan, cited in Harner 1973:144].

According to Harner (1973b:145), the “solanaceous plant ointment was used both in experiencing the witches’ flight and the metamorphosis into werewolf. The
differing results can be explained from what we know of modern experiences with hallucinogenic drugs. That is, the expectations and desires of the subject and the cues in his immediate environment strongly affect the nature of his experience."

**Jimsonweed/Canids in the Pictographs.** The Pecos River Style pictographs contain images suggesting a jimsonweed/canid association. The two predators depicted in the pictographs of the lower Pecos are canids and felines. Although not as frequently
depicted as the felines, canids are present in the Pecos River Style pictographs. At Fate Bell Annex there is a polychrome Pecos River Style anthropomorph holding *Datura* in the left-hand with an unidentified quadruped — perhaps a canid — at the right arm (Figure 7.19). Another coyote-like figure is adjacent to the left side of the anthropomorph. Other Pecos River Style pictographs depict canids and deer in opposition to one another (Figure 7.20).

The appearance of canids increases in the Red Linear Style. The Pressa Canyon Red Linear site (41VV201) provides an excellent example of the association of canids with *Datura* (Figure 7.21). There are three main components of this panel. On the left side of the panel is a vertical row of rigid, spiny-headed stick figures with erect phalli. Below these figures is a horizontal row of canids. To the right of the canids are a group of fluid, red linear figures, males with phallus erect, females with holes at the abdomen and wearing what appears to be skirts. Both males and females have their arms extended in front of the bodies, bent at the elbows. These figures are facing three other Red Linear figures painted in the same fluid manner. The central figure, a male, is holding the hands of two females, neither of which is depicted wearing the skirt identified on the other females.

Above the Red Linear figures is the depiction of a plant. There are two canids associated with this plant, one is positioned on a stem and the other is hanging upside-down from another stem. This Red Linear plant is strikingly similar the *Datura* plant and depictions of the plant in a Huichol yarn painting that relates the mythic battle between Sacred Deer Person, *Kâuyümari*, and Datura Person, *Kiéri Têwiyâri*. The canid, an
animal familiar of Datura Person and of sorcery and death, is depicted to the left of the
Datura plant illustrated in the yarn painting (Figure 7.22). Datura Person is depicted
with a spiny head, Sacred Deer Person with antlers. In yarn paintings, depictions of
Figure 7.22. Huichol Yarn Painting of Datura Plant and Datura Person. Datura Person is located in the top left portion of the painting. Redrawn by author from Furst and Myerhoff (1966).

Figure 7.23. Huichol Yarn Painting — Battle Between Datura Person and Sacred Deer Person. Redrawn by author from Furst and Myerhoff (1966).
Datura Person are frequently associated with canid figures (Figure 7.23). Canids in the yarn painting of the "Tree of the Wind" are depicted at the left hand of the central figure, with the white-tailed deer depicted at the right (Figure 7.24). The Huichol consider the left to be associated with sorcery and witchcraft. The deer in this yarn painting represent Kieri's adversary, Kauyumiari.

The Red Linear depiction of the deer with dots on the antler tines mentioned earlier, as well as other deer figures and anthropomorphs, are located approximately 6 meters to the left of the panel described above. None of the anthropomorphs associated with the deer have the spiny-heads of those associated with the plant.

In the pictographs, the spiny-headed stick figures, the canids, the plant resembling Datura, and the depiction of the canids both on the plant and below the

Figure 7.24. Huichol Yarn Painting — Tree of the Wind. Redrawn by author from Berrin (1978).
spiny-headed stick figures illustrate the metaphorical relationship between the canids and jimsonweed. The canid associated with the Pecos River Style anthropomorphic figure holding *Datura* also illustrates the jimsonweed/canid association.

**Neurophysiology and the Canid/Datura Relationship.** The association of peyote to deer was explained earlier in this chapter in terms of the physiological effects of peyote intoxication and peyote/deer ecology. The physiological effects associated with *Datura* intoxication also provide insight into the association of jimsonweed with the canids. The symptomatology of *Datura* intoxication is repeatedly equated with the behavior of a predator, in particular the canids. Individuals experiencing *Datura* intoxication are described as restless and aggressive, and displaying symptoms of hydrophobia, such as extreme thirst, foaming at the mouth, biting, and striking. Not only do intoxicated individuals appear to others to behave as predatory animals of the night, but they believe themselves to be transformed into such animals. As Hesse notes, "A characteristic feature of solanaceae psychosis is . . . that the intoxicated person imagines himself to have been changed into some animal, and the hallucinosis is completed by the sensation of the growing of feathers and hair . . ." (Hesse 1946:103-4). The sensation of becoming a predatory animal evoked by the Solanaceae hallucinogens is so strong that individuals have been reported to "physically attack a number of persons on various occasions, biting them with their teeth, killing them and even eating parts of their bodies" (Harner 1973b:144).

Another very noted effect of *Datura* intoxication is the ability to see clearly at night due to pupil dilation. These are characteristics equated with nocturnal canids, such
as the coyote and the wolf. *Datura* is also nocturnal, with the blossoms of the plant opening during the night and closing after sunrise.

**ART, ARTISTS, AND POLITICS**

A dialectic between peyote and *Datura*, deer and coyote is illustrated in the views concerning the power of one plant over the other, in particular, the power of peyote over *Datura*. For example, the Tarahumara consider *Datura* to be extremely dangerous. It is believed that anyone who breaks a plant or pulls one up will eventually go crazy and die. Only the peyote shaman, who is armed with a plant more powerful than *Datura*, can safely destroy this dangerous weed (Bennett and Zingg 1935; Fackelmann 1993). Peyote has also been reported as an anti-witch medicine at Taos Pueblo (Parsons 1974:13) and as an antidote to *Datura* poisoning by the Huichols (Lumboltz 1902; Myerhoff 1974) and the Tarahumara. Although genus and species is not provided, the Navajo use a plant referred to as "deer's eye" as an antidote for *Datura* (Kluckhohn 1944).

The most explicit example of the dialectic between the two hallucinogens and their animal counterparts is provided in the Huichol jimsonweed myth. According to Zingg (1938) and later to Furst and Myerhoff (1966), *Datura* is personified as *Kiéri Téwiyári* (*Datura* Person), considered by the Huichol to be the supernatural chief of the sorcerers and equated with all that is evil. In the myth, the evil *Datura* Person, *Kiéri Téwiyári*, attempts, through his intoxicating juices and the use of sorcery, sought to lure the Huichol away from using peyote to *Datura* instead. In an effort to save his people
from the evil ways of *Datura*, the horned culture hero, *Kâuyûmarî*, Sacred Deer Person, vanquishes Datura Person and his followers with the aid of peyote.

Furst and Myerhoff (1966:8[footnote]) note that "It is not impossible that the two protagonists whose struggle is recorded in the myth cycle are historical figures, perhaps the leaders of two rival cults." If this is true, Coyote, the "mythical" character encountered in myths and folk tales throughout northern Mexico and the American Southwest, may actually be a historical figure — a shaman whose plant of choice was Datura. The physiological effects of the powerful plant caused the shaman to behave like and to become transformed into his or her animal counterpart, the coyote. *Datura* is Coyote, just as Peyote is Deer.

If the Huichol myth is interpreted historically, the identification of the peyote/deer and Jimsonweed/canid association in the rock art of the lower Pecos demonstrates considerable antiquity for tension and rivalry between the two cults. Further, as discussed in the previous chapter, it demonstrates the important role of the art and the artists as active agents in the negotiation of social relations and statuses. Dowson (1998) and Lewis-Williams (1995) have suggested that shaman/artists used art actively in such negotiations. Dowson has identified power struggles between San shaman in the rock art of South Africa, and has argued that these power struggles "were negotiated (not just reflected) in the art. The art, produced by shamans, became active and instrumental in forging new social relations that developed out of these power struggles" (Dowson 1998:338).
Bieseie has noted that San trance experiences are regarded as unique, truthful, and important messages from the spiritual realm that can be obtained only through trancing. It was the role of the shaman/artist to convey these messages from the Otherworld to the people of the real world. The San rock paintings were one of the ways in which the shaman communicated this information and, according to Bieseie (1983:56), may be considered similarly, with respect to the truth-value accorded to them. Dowson has suggested that shamans “manipulated design elements such as size, colour and detail, as well as graphic representations of hallucinations to suit specific political purposes” (Dowson 1998:340). Because of the truth-value accorded the paintings, manipulation of the imagery by the shaman/artist was not far from manipulating the universe (Dowson 1998:340).

The plant/animal associations identified in the lower Pecos art may be the earliest depictions of the deer as culture hero, provider of peyote, and intermediary between shamans and deities, and of Coyote, the first paha to administer Datura, messenger for the supernaturals, and giver of visions. Further, the identification of the two in the art, especially the more recent Red Monochrome and Red Linear imagery, may reflect a struggle for power between peyote and jimsonweed shamans. The shaman/artists of the lower Pecos may have manipulated the art to serve specific political purposes — peyote shamans and jimsonweed shamans negotiating social relations and status through the art.
CHAPTER VIII
CONCLUSION:
THE WORK OF ART

In this concluding chapter, I summarize the results of the analysis of three Pecos River Style motifs to demonstrate that prehistoric art is not beyond explanation in terms of evolutionary principles. I argue that the production of rock art in the lower Pecos River region was an adaptive strategy — a fitness-enhancing behavior. The explanations for the patterns identified in the art can be used to expand our knowledge of hunting and gathering lifeways during the lower Pecos Archaic Period. As stated in the introductory chapter, rock art serves as a window into all components of a socio-cultural system — technological, social, and ideological.

EXPLAINING PREHISTORIC ROCK ART

It has been argued here, that contemporary Western conceptions of art as superfluous, decorative, and non-utilitarian, have influenced archaeologists' perceptions of prehistoric art and have contributed to its dismissal as adaptively neutral behavior — devoid of any detectable selective value, and beyond explanation in terms of evolutionary principles. Art, along with other "recreational" activities, has been deemed extrinsic to human adaptation (Harris 1979). However, as discussed in Chapter III, the recognized role of visual imagery in many non-Western societies is vastly different; an art object is valued more for what it can do, socially and spiritually, than for what it looks like. The
art "works;" it performs. Images are considered sources of power; they are potent and important.

I recognize that the translation of information from the ethnographic literature to the archaeological record cannot be direct (Kelly 1995) and that I cannot assume that the role of art in prehistory was the same as it is today in non-Western societies. However, by analyzing rock art along with other archaeological data, we can begin to recognize the complex ways in which the rock art was integrated within the social and cultural fabric of society. In this dissertation, I have addressed the rock art of the lower Pecos as an archaeological feature studied within the context of an archaeological site.

I began by conducting a formal feature analysis of the art in order to identify patterns in the rock art. The analysis revealed both patterns in the geographic distribution of pictographic elements and patterns in the co-occurrence of specific pictographic elements or motifs. My review of the ethnographic literature revealed similar patterns that were then used to develop hypotheses to explain three of the rock art motifs identified during the formal analysis. The hypotheses were tested against the lower Pecos Archaic material record and neuropsychological behavior associated with altered states of consciousness, and considered within the context of the social and biophysical environment of the region. Briefly summarized in Tables 8.1 - 8.3 are the results of this research.

For the most part, it has been accepted that the Pecos River Style rock art is shamanic art. Consequently, it should come as no surprise that the rock art contains images of shamanic flight, animal spirit helpers, and other universal aspects of
Table 8.1. Motif #1: The Shamanic Journey

<table>
<thead>
<tr>
<th>Elements of the Pictographic Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Crenelated arch with opening in the center of the arch</td>
</tr>
<tr>
<td>• Skeletonized anthropomorphic figure located either above, below, or behind the arch</td>
</tr>
<tr>
<td>• Animals or animal attributes associated with the skeletonized anthropomorph</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elements of the Ethnographic Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Shamans journey to supernatural realm, which exists either above or below earth’s surface, to confront supernatural forces on behalf of his/her group. The world below, or Underworld, in the land of the dead.</td>
</tr>
<tr>
<td>• Shamanic journeys involve entering altered states of consciousness through various methods, including fasting, blood-letting, self-hypnosis, rhythmic activity, auditory driving, and hallucinogenic plants.</td>
</tr>
<tr>
<td>• Communication with or access to the supernatural realm by Huichol, Yaqui, Aztec, and Hopi shamans is through a serpent. The serpent divides the upper from the lower world.</td>
</tr>
<tr>
<td>• Sacred portals, natural and man-made, serve as passageways for the shamans on their journey to the supernatural realm.</td>
</tr>
<tr>
<td>• Tutelary animals or animal familiars enable the shaman to forsake the human condition to be reborn into Otherworld in animal form.</td>
</tr>
<tr>
<td>• Death and rebirth experience often involves symbolic ritual of mystical death which can include such things as dismemberment, renewal of the organs, “killing” with arrows, and reducing oneself to a skeletal form</td>
</tr>
</tbody>
</table>

Hypothesis

When found in association, the elements of the motif are graphic representations of the shamanic journey. Crenelated arches represent the serpent as the gateway or vehicle to the Otherworld. The opening in the arch represents the portal through which the shaman enters the Otherworld. Animals and animal attributes associated with the skeletonized anthropomorph represent the shaman’s animal familiar. Skeletonization is used to indicate that the shaman has experienced ritual death and been reborn into the Otherworld.

Testing the Hypothesis

Neuropsychology and Altered States of Consciousness

• The Crenelated Arch — Individuals entering altered states of consciousness frequently report seeing undulating lines. These lines are often described as snakes or snake-like.  
• The Opening in the Arch — In deep altered states, individuals report a vortex or tunnel surrounding and engulfing them. At the end of the tunnel is a very bright light or hole. Individuals report the sensation of either falling into or flying through the vortex.  
• Skeletonization — Individuals report experiencing their limbs become detached from their bodies  
• Animals and Animal Attributes — Individuals report encountering animals in hallucinatory visions and becoming transformed into an animal.

Archaeology

• A common method of disposing of the dead in the lower Pecos was to drop the body down a vertical shaft cave or place deep within a horizontal shaft cave.  
• The Crenelated Arch — The arch is formed by the walls of the vertical and horizontal shaft cave. It is the body of the serpent and the vortex or tunnel.  
• The Opening in the Arch — The opening in the earth’s surface at the entrance into the cave is the opening in the arch. It is the mouth of the serpent, the portal to the Otherworld, and the light at the end of the tunnel.

Conclusion

The pictographic elements of the Pecos River Style motif record the shamanic — altered state of consciousness — experience.
Table 8.2. Motif #2: Lower Pecos Peyotism

<table>
<thead>
<tr>
<th>Elements of the Pictographic Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impaled deer</td>
</tr>
<tr>
<td>• Impaled dots</td>
</tr>
<tr>
<td>• Antlered anthropomorphs with black dots on their antler tines or decorating their body</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elements of the Huichol Ethnographic Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Deer and peyote are woven into one inseparable sacred symbol — deer is peyote and peyote is deer.</td>
</tr>
<tr>
<td>• Kanamurr or Sacred Deer Person, descended from the heavens bringing peyote on his antler tines. The Huichol believe that wherever the deer steps, peyote will grow in its tracks.</td>
</tr>
<tr>
<td>• The Huichol make a pilgrimage to hunt the peyote/deer. Once the shaman locates the peyote/deer, he shoots it with an arrow.</td>
</tr>
<tr>
<td>• The crown of the cactus is cut and collected. These &quot;peyote buttons&quot; are attached to the tines of the deer antlers carried by the shaman on the peyote pilgrimage.</td>
</tr>
<tr>
<td>• The peyote/deer is sacrificed to bring rain.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>A metaphorical relationship between deer and peyote existed during the lower Pecos Archaic. When found in association, impaled deer, impaled dots, and dots on deer antler tines are representation for peyote.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Testing the Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeology</td>
</tr>
<tr>
<td>• Peyote has been recovered from the debris at Shumla Caves in the lower Pecos.</td>
</tr>
<tr>
<td>• Various items of material culture recovered from excavations in the lower Pecos are similar to paraphernalia used in peyote ceremonies, such as rasping sticks made from bone or wood and rattles made from deer scapula.</td>
</tr>
<tr>
<td>• Peyote recovered from Shumla Cave excavation has been radiocarbon dated to 7,000 b.p.</td>
</tr>
<tr>
<td>• The elements of the motif have been identified at several other sites in the region.</td>
</tr>
<tr>
<td>• The pictographic panel at the White Shaman site (41VV124) contains additional elements associated with the Huichol peyote pilgrimage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neuropsychology and Effects of Peyote Intoxication</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Individuals taking peyote claim to be as agile as deer. They have been described as &quot;jumping like deer.&quot;</td>
</tr>
<tr>
<td>• Eating peyote allays thirst and suppresses appetite.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecology and Animal Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In the Chihuahuan desert, deer travel rapidly to areas where it has recently rained to seek fresh feed. Rain brings the deer.</td>
</tr>
<tr>
<td>• Peyote grows under the canopy of the shrubs on which the deer feed. During drought conditions, the cactus descends below the ground surface and becomes difficult to find. Immediately after rainfall, the peyote swells, becoming visible on the surface of the ground. Rain brings the peyote.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower Pecos Subsistence</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rainfall increased the production of both desert ephemerals and triggered leafing and flowering of important forage and fruit bearing shrubs, thereby increasing the quantity of plant foods available for harvest.</td>
</tr>
<tr>
<td>• Rainfall increased the availability of game.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A metaphorical relationship between deer and peyote existed in the lower Pecos during the Archaic Period. The peyote/deer was sacrificed to bring rain, thereby increasing the availability of three important resources — deer, wild plant foods, and peyote.</td>
</tr>
</tbody>
</table>
Table 8.3. Motif #3: *Datura* — A Power Plant of the Lower Pecos Archaic

<table>
<thead>
<tr>
<th>Elements of the Pictographic Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Anthropomorphic figures</td>
</tr>
<tr>
<td>• Staff-like object with an enlarged, usually spinescent, distal end</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elements of the Ethnographic Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>• One of the most important medicinal and hallucinogenic plants used since ancient times in both the Old and New World</td>
</tr>
<tr>
<td>• Widespread use of <em>Datura</em> by shamans for the purpose of divination, prophecy, ecstatic initiation, ritual intoxication, diagnosis, and curing</td>
</tr>
<tr>
<td>• Highly valued as a medicinal and hallucinogenic plant</td>
</tr>
<tr>
<td>• Used to transcend reality and take magical flights</td>
</tr>
<tr>
<td>• Render patients unconscious during surgery</td>
</tr>
<tr>
<td>• Associated with Coyote and other canids</td>
</tr>
<tr>
<td>• Equated with witchcraft and sorcery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Botany</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Three species of <em>Datura</em> grow in the lower Pecos River region</td>
</tr>
<tr>
<td>• Spiny <em>Datura</em> seed pods resemble the enlarged distal end of the staff-like object</td>
</tr>
<tr>
<td>• All parts of <em>Datura</em> plants produce copious alkaloid, however, the seeds contain the highest percentage of alkaloids</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Datura</em> was an important power plant used by shamans during the Archaic Period of the lower Pecos River region. The enlarged distal end of the staff-like object held by anthropomorphic figures represents the <em>Datura</em> seed pod.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Testing the Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Archaeology</strong></td>
</tr>
<tr>
<td>• Seeds identified in the sediments of a lower Pecos rock shelter. The lens in which the seeds were found is bracketed by radiocarbon ages of 4510±70 b.p.</td>
</tr>
<tr>
<td>• Seeds and seed pods have been reported from archaeological sites throughout the American Southwest.</td>
</tr>
<tr>
<td>• Nine hundred seeds were found on the floor of a room that yielded ceremonial objects as Higgins Flat Pueblo in New Mexico.</td>
</tr>
<tr>
<td>• The motif appears in the pictographs throughout the region</td>
</tr>
<tr>
<td>• The <em>Datura</em> motif and other pictographic elements resembling the plant are found in association with a canid-like animal at other sites in the lower Pecos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neuropsychology and the Jimsonweed Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Symptomatology of low dose <em>Datura</em> intoxication includes extreme pupil dilation, restlessness, delirium, loss of short-term memory, high fever, dry mucous membranes, hydrophobia, aggressive behavior, convulsions, and hallucinations.</td>
</tr>
<tr>
<td>• High doses can cause lethargy, coma, and death.</td>
</tr>
<tr>
<td>• Individuals report the sensation of being transformed into a wolf</td>
</tr>
<tr>
<td>• Individuals intoxicated with <em>Datura</em> are described as behaving like a rabid dog — growling, biting, and foaming at the mouth.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Datura</em> was an important medicinal and hallucinogenic plant used by magico-religious practitioners during the lower Pecos Archaic Period. When found in association with anthropomorphic figures, the staff-like object with the enlarged distal end represents <em>Datura</em>.</td>
</tr>
</tbody>
</table>
shamanism. Labeling the art as shamanic, however, does little, if anything, to expand our knowledge of the diversity of human behavior. Hunter-gatherers, past and present, live under specific social and environmental conditions that generate considerable behavioral variability within societies that practice shamanism. Shamanism, after all, is not a religion, it is a religious configuration in which one can see shamanic practice and symbolism side by side with, or incorporated into, other traditions (Wright 1989).

As archaeologists, it is not only our goal to reconstruct the past, i.e. identify that the rock paintings are shamanic art, but also to explain the past in terms of the evolutionary principles guiding human behavior. In the introductory chapter, I stated that one of my primary objectives was to synthesize rock art explanations generated during the course of this analysis in order to address issues regarding the hunting and gathering lifeways of lower Pecos Archaic Period. I will demonstrate below the contribution that an understanding of the rock art has made towards the reconstruction of this prehistoric cultural system — technological, social, and ideological.

ROCK ART AND TECHNOLOGY

The Pecos River Style rock art contains numerous depictions of atlatls, rabbit sticks, spears, and feathered darts; items that are readily accepted as part of the technological systems employed by the inhabitants of the region during the Archaic Period. I argue, however, that not only does the rock art contain imagery reflecting prehistoric technology, it is itself a form of technology.

Communication. Technology is defined as the application of knowledge for practical ends. I suggest that the lower Pecos rock art was an integral part of the
technological system used by the hunter-gatherer inhabitants of the region. The work performed by both the art and the artist should be viewed as totally practical in effect. As discussed in Chapter VI, the rock art was used to communicate "indirectly" information necessary for successful adaptation. Produced within an egalitarian society in which direct instruction is considered inappropriate, the rock art was a vehicle through which important information and instruction could be disseminated to members of the community.

**Subsistence.** Important subsistence information regarding the bio-physical environment and animal behavior is incorporated into the rock art imagery. For example, the motif explained in Chapter VII and summarized in Table 8.2, contains information regarding real-world ecological relationships — the effects of rainfall on deer movement, wild plant food availability, and the availability of an important medicine and sacrament — the peyote cactus. The relationship between rain, deer, and peyote was integrated into the belief system and rituals conducted by the people of the lower Pecos Archaic. The rock art reflects a metaphorical relationship between deer and peyote — deer was peyote and peyote was deer. In Huichol myth, the peyote/deer was sacrificed to bring rain. In the lower Pecos during the Archaic Period both rain and deer were a scarce resource; therefore, the purpose of the ritual identified in the art may also have been to bring rain, which in turn increased the availability of deer, peyote, and wild plant foods.

That this ecological relationship was integrated into the rituals and belief system of the lower Pecos Archaic should not detract from the fact that it contains practical and necessary instruction for successful exploitation of the environment. What is important
here is not whether the sacrifice of the peyote/deer actually brought rain, but that it
established the relationship between rainfall and the arrival of deer, wild plant foods, and
peyote. This type of information may have been important in making decisions regarding
band mobility — determining when and where to move.

Peyote and *Datura* may also have been utilized to increase hunting prowess. The
Machiguenga of Peru consume a variety of sedges containing alkaloids to improve aim
and concentration while hunting. The alkaloids in the sedges act as a physical and mental
stimulant (Eliot 1998). Alkaloids in peyote increase stamina, induce mental exhilaration,
and heighten senses (Anderson 1996) — physiological effects that could be beneficial to
a hunter. Machiguenga men also use sedge liquid as eyedrops to improve their vision
(Eliot 1998). *Datura* could have been used to improve vision for night hunting. Liquids
prepared from *Datura* and placed in the eyes cause extreme pupil dilation, making it
possible to see clearly at night, yet blinded in the day.

**Medical Botany.** Two plants identified in the archaeological sediments of the
lower Pecos have been identified as having medicinal and hallucinogenic properties. The
finding of these plants in the deposits has generated speculation regarding their
utilization as medicines and in ritual. Two of the motifs identified in the course of this
analysis contain information regarding the use of two of these very important plants —
peyote (*Lophophora williamsii*) and jimsonweed (*Datura* sp).

In Chapter VII (summarized in Table 8.2 and 8.3), I discussed the use of these
plants by shamans in the lower Pecos. As a medicine, peyote has been used during child
birth and to treat tuberculosis, pneumonia, rheumatism, scarlet fever, snake bites, broken
bones, and many more diseases and ailments. Scientists have identified that the plant
contains an antibiotic substance which has been demonstrated to have a definite \textit{in vitro} antiseptic action against a wide variety of microorganisms. Datura is reported ethnographically to be used in the treatments of hydrophobia (rabies), sprains, bone fractures, asthma, rattlesnake and tarantula bites, gout, and piles. It was also used to render a patient unconscious during surgery. Today, \textit{Datura} alkaloids are important constituents in numerous Western medicines.

The psychoactive properties of peyote and \textit{Datura} were employed by lower Pecos shamans to enter altered states of consciousness. Both of these plants contain powerful alkaloids capable of producing vivid auditory, tactile, olfactory, and visual hallucinations. In the ethnographic literature, peyote and Datura are the two plants most commonly associated with shamanism and altered states. Peyote and \textit{Datura} were utilized by shamans during the lower Pecos for both their medicinal and psychoactive properties. The role of peyote as a sacrament will be discussed below.

**ROCK ART AND SOCIAL RELATIONS**

As demonstrated in Chapter VI and VII, both the art and artist perform active roles in the negotiation of social relations. The shaman/artist is cognizant of the conditions necessary for the reproduction of society and as such, creates as well as participates in his/her community.

**Territory and Property Rights.** One of the patterns identified during the formal analysis of the art is the patterned geographic distribution of specific pictographic elements. The identification of specific pictographic elements associated with specific geographical regions — such as feather hipclusters in the rock art of Seminole and
Painted Canyons, and rabbit ear headdresses in Rattlesnake Canyon and canyons to the east of Rattlesnake — suggest that the rock art may have been used to delineate territories and designate property rights. Although more data is needed before this can be empirically tested, it appears that lower Pecos rock art will provide researchers with the information necessary to determine issues regarding hunter-gatherer territoriality and property rights.

**Translating Individual into Shared Experience.** The art has an active role in day-to-day social relations — carrying important information regarded by members of the community as unique messages from the supernatural realm. The artist, although pre-constrained to some degree by tradition, communicates new information to the community through the art and, at the same time, reinforces old material. “Learning events are communication events, and *vice versa*” (Bieseke 1983:56).

Both art and artist contribute to religious unity within an egalitarian community, transforming individual religious revelation or experience into culturally shared images. As Bieseke states “An interweaving of tradition and creativity keeps the society itself alive, so that individuals experience their own lives as contributions to shared reality” (Bieseke 1983:56).

The lower Pecos shamanic journey motif (Table 8.1) is an example of the transformation of the individual experience into the shared experience. The motif works to communicate this experience to the members of society and at the same time, shapes and facilitates the trance experience of initiate shamans. As mentioned earlier, the motif communicates not simply “mythical” or metaphysical information regarding the structure of the cosmos, but factual neurological data regarding the trance experience.
**Restricted and Communal Knowledge.** Because of the truth-value accorded to the images, shaman/artists could manipulate design elements and graphic representations of hallucinatory experiences in response to variable environmental challenges or to suit specific political purposes. Dowson (1998) has argued that power struggles between shamans are not only reflected in, but negotiated through San rock art imagery. It was suggested in Chapter VI, that the lower Pecos rock art may also have served to negotiate power struggles, whether metaphysical or historical in origin. The tension illustrated in art and myth between peyote and jimsonweed, and their animal counterparts, deer and coyote, may reflect a struggle for power between two historical shamans. If not historical in origin, it reflects a struggle for power at the metaphysical level. It is important to remember that for shamans, supernatural relations are as real as the everyday “natural” social relations. As Dowson has stated, “The images of spirits . . . are in a sense like people in prehistory. They are as much people as the shamans who experienced them and the artists who painted them” (Dowson 1998:341)

**ROCK ART AND IDEOLOGY**

The artists of the lower Pecos communicated the structure of their cosmos and messages from the supernatural realm to their community through the art. The information communicated through the art can be used today to reconstruct aspects of the lower Pecos cosmos and identify specific rituals performed during the Archaic Period.

**A Tiered Universe.** As discussed in Chapter VI, the shamanic journey motif graphically illustrates a belief in a tiered cosmos with a supernatural realm residing
beyond the serpent — a metaphor for the earth's surface. Passage to the Otherworld could be made through features in the natural landscape, such as caves and sinkholes and other openings in the earth's surface. Entering the mouth of a cave or sinkhole was symbolic of entering the mouth of the serpent or passing through the body of a serpent to access the supernatural realm. The lower Pecos practice of burying the dead in sinkholes and horizontal shafts cave was a means of returning the dead to the land of the ancestors.

The Peyote Sacrament. Accessing the supernatural realm was also facilitated through the consumption of the peyote sacrament. The identification of peyotism in the pictographs of the lower Pecos has important contributions to make, not only to the reconstruction of hunting and gathering lifeways in the lower Pecos, but to the debate regarding the origins of the Peyote Religion.

There has been considerable controversy regarding the origins of the contemporary Peyote Religion. It is generally recognized as having its origins in northern Mexico and southern Texas along the Rio Grande. The earliest historical reference to peyotism appears in accounts of Coahuiltecan *mitote* ceremonies conducted during the 1500's. The identification of peyotism in the lower Pecos extends the origins of peyotism back at least 4,000 years.

In Chapter VII, I explained the pictographic elements of a Pecos River Style motif in terms of contemporary Huichol peyotism, regional ecology, and the physiological effects of peyote intoxication (Table 8.2). The motif, which has been identified at several sites in the region, demonstrates that a metaphorical relationship existed in the lower Pecos Archaic Period between deer and peyote. Further analysis of
the rock art panel at the White Shaman site (41VV124) resulted in the identification of specific details in lower Pecos peyotism. Although peyote had previously been identified in Archaic Period archaeological deposits, prior to the incorporation of pictographic data the importance of this plant was not known. The prevalence of the motif in the lower Pecos rock art and the identification of peyote in the archaeological sediments, suggests that peyote was an important medicinal and sacramental plant used by the hunting and gathering residents of the lower Pecos River region during the Archaic Period.

_Datura and Shamanism._ The third motif identified during the formal analysis of the rock art was explained in Chapter VII as the pictographic representation of _Datura_ (Table 8.3). _Datura_, a very important plant used as a medicine and as a bridge to the Otherworld, was also identified in lower Pecos Archaic Period sediments.

_Datura_ is one of the most important medicinal and hallucinogenic plants used since ancient times in both the Old and New World. In the ethnographic literature, _Datura_ use by shamans for the purpose of divination, curing, prophecy, ecstatic initiation, and ritual intoxication is widely reported. The _Datura_ motif appears in the Pecos River Style rock art throughout the region, suggesting its importance in lower Pecos hunter-gatherer pharmacopeia.

**CONCLUSION**

Was the rock art of the lower Pecos River region “mere” stylistic behavior and, as Dunnell (1978) would argue — devoid of any detectable selective value? I have demonstrated that the production of rock art was an integral part of lower Pecos hunter-
gatherer adaptation: It communicated information regarding the bio-physical environment of the region, animal behavior, and ecological relationships important for the successful exploitation of the hunting and gathering niche. Additionally, both art and artist were active agents in both reproducing and challenging social relations. The art was a vehicle through which individual intangible assets were shared — individual knowledge became group knowledge. The rock art was ingrained in the technological, social, and ideological business of the hunting and gathering community within which it was produced; the art performed work. The production of art was a fitness-enhancing response to variable environmental challenges. Megan Bieseke sums it up beautifully in the following quote: “Individuals and social groups act through expressive forms [including rock art] to articulate meanings that must be shared in order to perpetuate society. These forms perform work by containing, exploring, commenting on, turning inside out, and in a myriad of ways reinforcing the cognized models . . . which keep cultural systems continuing in their environments (Bieseke 1983:58 emphasis added).

In this dissertation, I have demonstrated that prehistoric art is not beyond explanation in terms of evolutionary principles. Images from the past contain a vast corpus of data — accessible through sound, scientific methods — that can enrich our understanding of human lifeways in prehistory and, at the same time, expand our appreciation for the work of art in the present and the future.
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Winkleman, M.

Wright, P. A.
Yarnell, R. A.

Zingg, R. M.
APPENDICES
APPENDIX A

Site #: ______________________ Recorder(s) ____________________________

Date: ______________ Location: UTM Zone __________ USGS Map name: __________

Time of day: _______ Best lighting: __________ Easting ___ ___ ___ ___ ___

Previously recorded: yes / no, If yes, by: __________________ Nothing ___ ___ ___ ___ ___

If yes, location of documentation: __________________________

Site owner (name, address, phone#): ________________________________

Description of site location: ______________________________________

Directions for site access: _________________________________________

Type of site: Shelter __________ Cliff face ___________ Other ___________

Habitation site: ____________________ Mortar holes: _____________________

Rock Art category: Pictograph __________ Petroglyph __________ Both ______

Exposure (direction rock art faces): ______ Dimensions of decorated area: __________

Present condition of site: _________________________________________

Brief description/Present condition of rock art: _______________________

Natural deterioration: _____________________________________________

Vandalism: ______________________________________________________

Nearest natural water source (include appx. distance): ________________

Vegetation: ______________________________________________________
APPENDIX B

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#### ZOOMORPHS

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## APPENDIX H

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VITA

Carolyn Elizabeth Boyd

3982 Windfree Drive
College Station, Texas 77845

EDUCATION:

SPECIALIZATIONS:
Analysis, interpretation, and reproduction of the pre-historic (4000 BP) rock art
located in the Lower Pecos River Region of southwest Texas and northern
Mexico.

POSITIONS CURRENTLY HELD:
February 1998 to present: Vice-President, Cultural Communication Systems
Institute, College Station, Texas.

September 1996 to present: Research Associate, Texas Archaeological Research
Laboratory, The University of Texas, Austin.

PUBLICATIONS:
1996. Shamanic Journeys Into the Otherworld of the Archaic Chichimec. *Latin
American Antiquity*, 7(2):152-164.

1996. Medicinal and Hallucinogenic Plants Identified in the Sediments and the

In Press. Pictographic Evidence of Peyotism in the Lower Pecos, Texas Archaic.
Invited manuscript, *The Archaeology of Rock Art*, edited by C. Chippindale and

In Press. Peyote, Datura, and Their Animal Counterparts Identified in the
Pictographs of the Lower Pecos, Texas Archaic. Invited manuscript, *Rock Art
and Ethnography*, edited by D. Whitley, University of New Mexico Press,
Albuquerque.
Panel 1
Rendering of Rattlesnake Canyon
(+41VV180)

Carolyn Elizabeth Boyd - December 1998
Panel 2
Rendering of White Shaman
(41VV124)

Carolyn Elizabeth Boyd - December 1998
NOTE TO USERS

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LEFT TO RIGHT, TOP TO BOTTOM, WITH SMALL OVERLAPS

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Black and white photographic prints (17”x 23”) are available for an additional charge.

UMI
Panel 3
Rendering of Panther Cave
(41VV83)

Carolyn Elizabeth Boyd - December 1998
Panel 4
Rendering of Mystic Shelter
(41VV612)

Carolyn Elizabeth Boyd - December 1998
Panel 5
Rendering of Cedar Springs
(41VV696)

Carolyn Elizabeth Boyd - December 1998
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