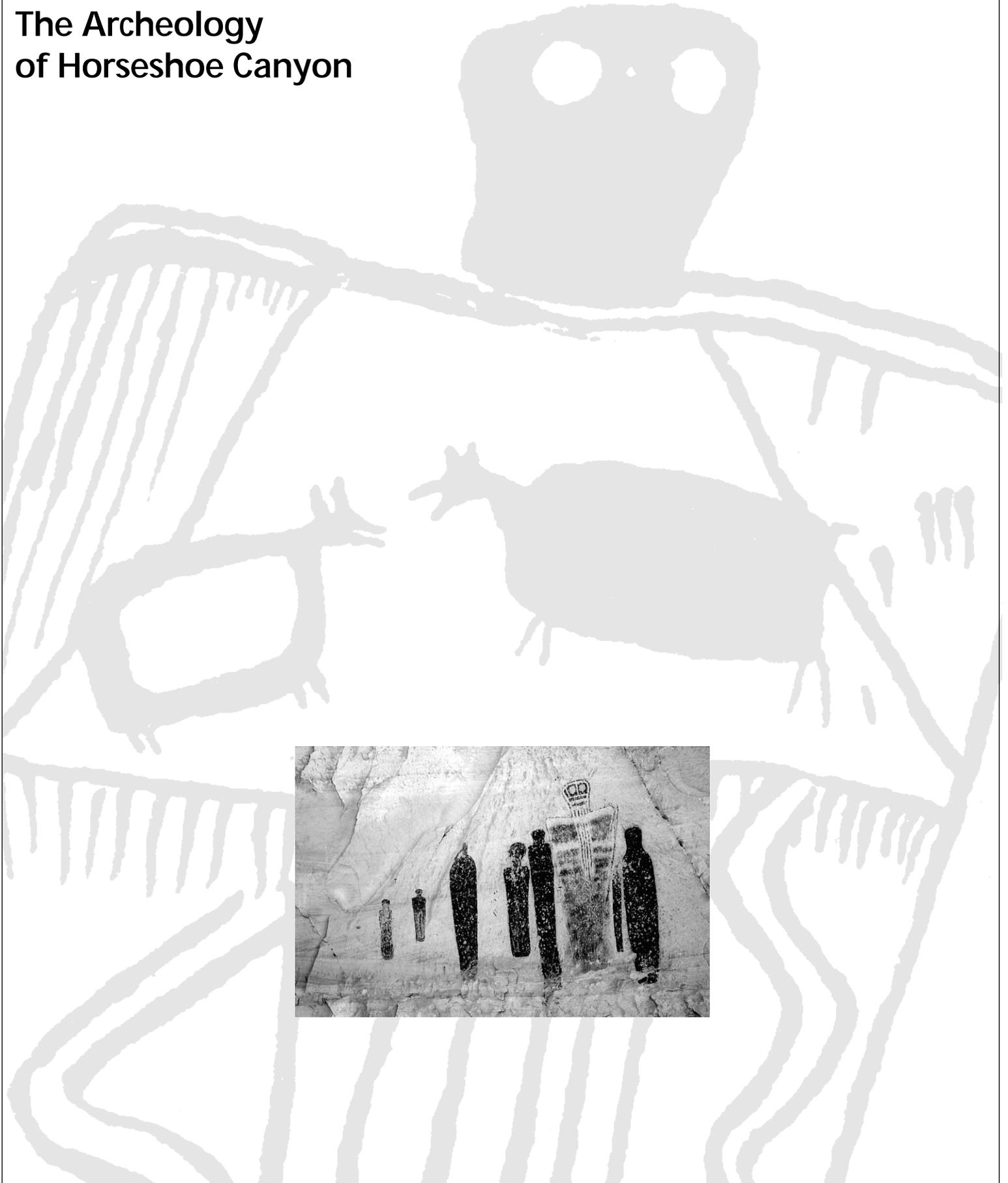




The Archeology of Horseshoe Canyon



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The Power and The Glory

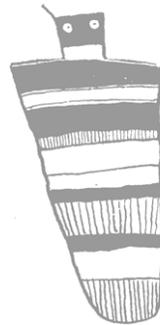
Shamanistic Arts of the Archaic Period

By Alan R. Schroedl

For over a hundred years, Americans have been intrigued by their ancient prehistoric predecessors in the Greater Southwest. By the turn of the century archaeologists knew that the haunting cliff dwellings were left by the Anasazi farmers who lived in the region 700 to 900 years ago. But it was only in the 1930's and 1940's that archaeologists discovered evidence of the first people in the southwest, the Big Game Hunters. These Big Game Hunters manufactured the unique fluted Clovis and Folsom points and hunted mammoth and now-extinct bison from about 8000 to 11000 years ago. Still, as recently as twenty years ago almost nothing was known about the people who occupied the canyon country after the Big Game Hunters, but before the Anasazi cliff dwellers. As they became known, they would emerge as some of the most artistically creative people of ancient times.

Through several archaeology projects in the mid-1970's, our knowledge of the time period from about 2000 years to 8000 years ago blossomed. These excavations opened a view to a lifeway during this period that archaeologists call the "Archaic." The Archaic people were nomads, hunting large and small game animals, and collecting and processing wild plants. It appears they did not build permanent habitation structures, but lived in caves and in small brush shelters built in the open. They occupied the Colorado Plateau until the introduction of corn agriculture about 2000 years ago.

In the late 1970's, archaeologists generally believed that Archaic peoples lived in the upland forested areas and large open parklands. The resources in the narrow canyons of the region were thought to be too sparse and limited to attract the Archaic peoples. Recent research in Canyonlands National Park and Glen Canyon National Recreation Area has shown that this is not the case. Archaeologists have found camps belonging to the Archaic people in many of the canyons. Some date back almost 8000 years.



Ancient environmental evidence from about 6000 to 8000 years ago shows that when the Archaic people were living in these canyons, the rainfall in the summer was much more frequent and run-off from winter snow was much greater. In several of the narrow canyons, small lakes, ponds or marshes were formed. These well-watered areas provided a rich environment in the canyon for both the wild plants and animals that Archaic people collected and hunted.

But over the years, the environment changed: rainfall decreased, temperatures rose slightly, and these people had to adapt to new ways. Archaeologists found evidence that Archaic people started manufacturing new varieties of stone tools and probably hunted smaller game such as rabbits more intensively, and when the game became harder to hunt, they started eating more wild plants and grasses.

Recent research has shown that about 3000 to 4000 years ago there was a significant change in the climatic regime of the area. This environmental shift may have affected the populations of large game animals, forcing prehistoric Archaic people to face the problem of dwindling food resources. Perhaps it was during such times of stress that Archaic peoples turned to religion and shamanistic activities to try to magically increase the number of plants and animals. Shamanism is a form of religion in which certain individuals thought to be endowed with supernatural powers perform rituals revealed in a trance or dream. While archaeologists find it very difficult to identify religious or ritual activities of people who are long gone, split-twig figurines and Barrier Canyon rock art may be prime artistic expressions of this kind of magico-religious activity.

In dry caves, primarily in the Grand Canyon area and along tributaries to the Green and Colorado rivers in southern Utah, many small animal effigies have been recovered. These figurines are usually constructed from a single thin branch, such as willow, that has been split, bent, folded and wrapped into the shape of an animal.

Generally these forms are suggestive of deer and mountain sheep, but dogs too, might also be represented. Radiocarbon dating on figurines and associated twigs has produced seven dates, five of which range between 3500 and 4000 years ago.

In caves in the Grand Canyon region, split-twig figurines are found in a context that clearly implies their ritual function. They are recovered in very high, almost inaccessible caves, caves that are not suitable for everyday living. It is a rugged climb into the caves. There is no water nearby, nor is there a wide variety of plants or animals available in the immediate area.

The placement of the figurines within these caves is a clear indication of magical use of these items. At least three cave sites in the Grand Canyon area, Tse'an Kaetan Cave, Tse'an Sha Cave and Shrine Cave, have split-twig figurines associated with rock cairns. At other sites, such as Stanton's Cave in the same area, the figurines are found in small caches under boulders. At none of these sites is there trash and debris of everyday Archaic life. These caves were not used for habitation, but for rituals.

The utilization of Shrine Cave for religious activity by Archaic people is very intriguing. On the northwest side of the first alcove, a large limestone block was identified as a shrine. This block had a small cairn of limestone rocks placed on top. Surrounding this shrine were a series of 13 other small rock cairns. A single split-twig figurine was found under one of the cairns.

On a ledge behind the shrine was a series of six other cairns, each with 2 to 5 limestone rocks. Squawbush twigs that had not been shaped or formed were found under four of the piles. One room, located off a passageway from the main alcove, lies in the dark zone of the cave. Seven rock cairns and one partial figurine were found in this room.

The use of these figurines in some form of magico-religious activity is further demonstrated by the fact that several of these figurines from Luka Cave, Stanton's Cave and Tse'an Kaetan Cave were found with fecal pellets of artiodactyls (the family that includes deer, mountain sheep and mountain goats) inserted within the body cavity. Perhaps these were meant to represent the animals

that the Archaic people were hunting. In fact, at least one of the split-twig figurines was found with a "miniature spear" piercing the chest of the animal.

This evidence suggests that local Archaic people would journey to these caves for a kind of ritual activity called imitative magic by anthropologists. The figurines were constructed as representations of the big game animals. Perhaps after some chants or other rituals, the figurines were speared in an effort to increase the chance of hunting success. At the end of the ceremony, the figurines

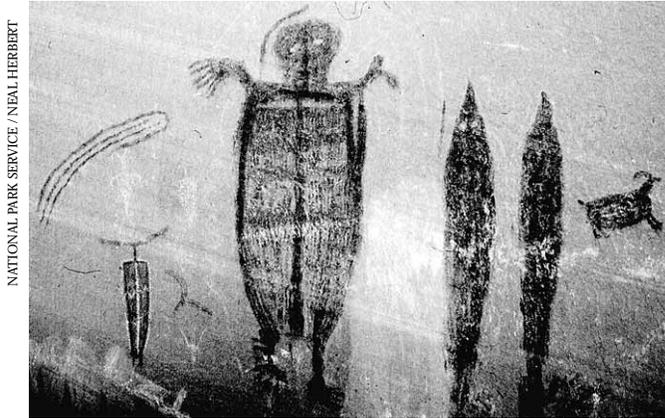
were buried or left on the surface of the cave. While much of this scenario is speculation, it is consistent with the careful observations made about these figurines and their context by archaeologists.

Understanding and interpreting the elusive nature of religious activities of Archaic and other ancient peoples is difficult at best. But due to its uniqueness, rock art has also been traditionally interpreted as part

of the religion or ideology of prehistoric peoples.

Some of the most spectacular examples of rock art in the Greater Southwest and canyon country are attributed to Archaic people. This rock art, the Barrier Canyon Style, usually consists of larger-than-life-size anthropomorphic (manlike) forms, as well as stylized animals such as birds and dogs and other objects. The identifying characteristics of these figures are vacant looking or missing eyes, the frequent absence of arms and legs, and the presence of vertical body markings. The "ghost-like" appearance led Polly Schaafsma, a rock art specialist, to suggest that this colorful style represents shamanistic art associated with ritual activities of the Archaic people. Generally, these powerful figures occur in a series of humanlike forms on rock faces protected from the elements in deep, narrow canyons in the Canyonlands region of Utah.

Studying rock art is a slow, discouraging process; its meaning is subject to interpretation, it often cannot be assigned to a particular prehistoric group, and it cannot be dated directly. At one time much of the Barrier Canyon rock art was attributed to the Anasazi farmers of the region and their horticultural cousins to the north west, the Fremont. However, extensive study in the past several decades has allowed researchers to better estimate dates for this and other rock art styles in the Southwest.



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Hell Roaring Canyon. Figures painted with deep red-brown pigment. In contrast, the "comet" on the left is yellow ochre.

Polly Schaafsma was the first to suggest that the style did not originate with agriculturalists who lived in Utah between A.D. 700 and 1200, but rather was painted by people who predated them. There were a number of lines of evidence that suggested that these were older pictographs. For example, none of the Barrier Canyon Style rock art showed human forms using a bow and arrow. The bow and arrow was introduced into the Canyonlands area around A.D. 400, and numerous rock art panels after this date depict people using a bow and arrow. However, these are absent from Barrier Canyon rock art, while some panels show people using the spear thrower, the principal weapon before the bow and arrow.

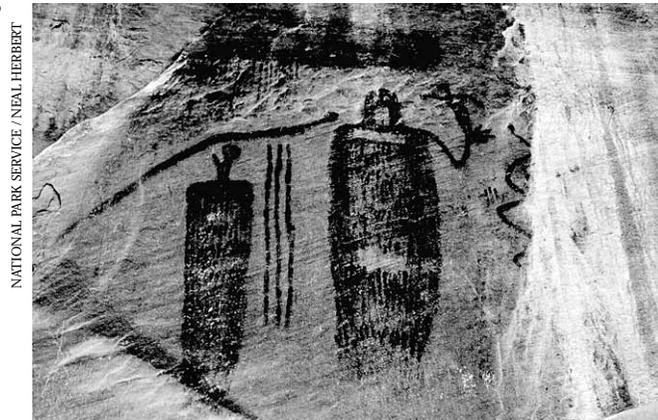
Additionally, at some rock art panels, Fremont and Anasazi art has been painted or pecked over Barrier Canyon forms. This, of course, indicates that the Barrier Canyon forms had to have been painted before the other images. Finally, several of the Barrier Canyon panels are on benches or shelves that are inaccessible today. This suggests that sufficient time has passed since they were painted for the ledges and the handholds to have weathered or fallen away from these panels.

Based on these various lines of evidence, Polly Schaafsma believes that Late Archaic people painted the Barrier Canyon Style between 2500 and 1500 years ago. Archaeologists today question that date range for this rock art style. However, in the early 1970's when Schaafsma first suggested that this rock art was created by hunters and gatherers who preceded the Fremont and Anasazi people in southeastern Utah, almost nothing was known about the Archaic occupation in this area of Utah. Some archaeologists even believed that the area was unoccupied until Basketmaker people entered the region about 2000 years ago.

Over the past several years, as researchers recognized the distinctive nature of this style, many more of these panels have been recorded in the general Canyonlands region of central and southeastern Utah. To date, there is no evidence at any of these recently recorded panels to suggest that they were made by anyone other than Archaic people.

Recently, in Canyonlands National Park, a prehistoric hearth below one of these panels was radiocarbon

dated to about 3000 years ago. However, there is no way of knowing whether the panel was manufactured before the hearth was used, whether the hearth was used before the panel had been painted, or whether they were contemporaneous. This radiocarbon date suggests that the Barrier Canyon Style might be as much as 500 years earlier than hypothesized by Schaafsma. And, in fact, there is other evidence to suggest that the style is even older than 3000 years.



Seven Mile Canyon. These 2-4 foot figures have blue eyes, and the large figure has a blue snake in its mouth.

A growing mass of data indicates that there was extensive Archaic occupation in the Canyonlands region between 5000 and 8000 years ago. At one site, Cowboy Cave, clay figurines of human form were found with tapering torsos lacking arms, identical in shape to the body forms of Barrier Canyon pictographs. In fact, one of the figurines had a series of parallel lines down the torso similar to those found on many of the

Barrier Canyon anthropomorphs. These figurines were found in a layer dated to about 6000 years old. They were also found associated with a series of incised and painted sandstone slabs. These small slabs had unusual etch marks on them and red and black pigment in various geometric forms.

Clearly, these items were not used to hunt animals, process plants or manufacture tools. They probably represented some kind of non-utilitarian object, possibly even a religious symbol. The date of the analogous clay figurines and the painted rocks, as well as the rather intense Archaic occupation in the Canyonlands region about 6000 years ago, suggests that Barrier Canyon rock art could be much older than Polly Schaafsma hypothesized. Perhaps it could be the oldest rock art in the Southwest, dating to as early as 6000 to 8000 years ago.

If Barrier Canyon rock art is actually that old, how do we explain the radiocarbon date from the hearth in Canyonlands that is only 3000 years old? One can certainly speculate that, if Barrier Canyon rock art was painted 6000 years ago, by 3000 years later the origins of the rock art would have been long lost in the past. By that time the panels would have been ancient, and perhaps a sacred site for the worship of ancestors. Such speculations are interesting but only future research and work by professional archaeologists will answer these questions,

providing these rock art sites are maintained and not damaged by vandalism or illicit activity.

Whether Barrier Canyon Style rock art was made 6000 years ago or 3000 years ago or only 1500 years ago, it is clear that during Archaic times people living in the Canyonlands area had sufficient time to pursue nonsubsistence activities. These resulted in examples of mobile and mural art that even today have the power to awe us. Whatever the motivation and regardless of their age, Barrier Canyon rock art, especially, is a glorious part of the prehistoric heritage of Canyonlands.

Additionally, the split-twig figurine finds suggest that Archaic people were interested in manipulating their environment through imitative magic. Exact interpretation of the Barrier Canyon rock art is uncertain, although Schaafsma suggested that it represents shamanistic art associated with ritual activities of the Archaic people.

Although these people lived for over 6000 years in the Canyonlands section of the Colorado Plateau essentially unchanged, we now recognize that they did not simply live in caves, hunt animals and collect wild plants. They also participated in a full cultural lifestyle, social events with friends and neighbors, and possibly, when times got bad and resources were scarce, they tried to improve their lot by shamanistic activities or imitative magic to help them cope with the changing environment. The results have left us forever in their debt.

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Alan R. Schroedl, "The Power and the Glory," *Canyon Legacy*, Spring 1989.

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Excerpts from

Indian Rock Art of the Southwest

By Polly Schaafsma

A History of Rock Art Studies

The American Southwest is only one of many places where rock art occurs. Throughout the world, rock drawings are both monuments to man's achievements as an artist and documents of various aspects of his social and religious life, reflecting his myths, beliefs, and magical practices. Probably the oldest rock art known is that of the Ice Age hunters of western Europe. Much research has been conducted and many books written on the spectacular paintings from the European caves, and thus these ancient masterpieces immediately come to mind when the subject of rock art is broached (Breuil 1952; Ucko and Rosenfeld 1967).

Rock art in the United States is only now emerging as a subject of general concern to archaeologists and Indian art historians. In many geographic regions, such as the Southwest, however, rock drawings are by far the most readily accessible and prolifically occurring products of prehistoric artistic endeavor, and the literature that has accumulated on the subject over the years is considerable.

In the Southwest, the area of our concern, salvage projects in the early 1960s initiated a continuing study of rock art. Rock art research was conducted in Glen Canyon in southern Utah and northern Arizona and on the Pine and San Juan rivers in northern New Mexico and southern Colorado before the Glen Canyon and Navajo dams flooded these drainages (Turner 1963; P. Schaafsma 1963). A subsequent rock art project was carried out along the upper Rio Grande before the construction of Cochiti Dam above the pueblo of Cochiti (P. Schaafsma 1975).

Nevertheless, in the Southwest as elsewhere in North America, rock art studies have lagged behind other archaeological research. There are several reasons for this. Archaeologists, preferring to deal with excavations and the data thus obtained, have chosen to ignore rock art rather than add this seemingly enigmatic body of material to their burden of analysis. In some instances, the lack of associated cultural remains has made it difficult to date or assign rock art to a specific cultural period. Underly-

ing these problems is the rather diffuse bias on the part of many archaeologists that rock art, unlike other cultural remains, lacks order, a definite structure or patterning that can be used as a guideline for analysis. A certain amount of this prejudice may have arisen from the earliest rock art studies, in which investigators were primarily concerned with trait or element tracking. This approach was not fruitful and served to fracture and obscure the stylistic complexes that later scholars have found to be the primary tool for ordering the immense and varied body of raw data of rock drawings. As a result, the subject was conveniently tabled, and an integrated body of information on rock art comparable to that available on other types of archaeological remains has been lacking.

Fortunately, recent rock art research has served to dispel this prejudice. The fact that rock art is structured, in the same way that all archaeological data conform to discernible patterns, has been well established.

The Study of Rock Art: A Theoretical Framework

Basic to a meaningful approach to the study of rock art is an understanding of how rock art is structured. Variation in the patterns within the art can then be described and used to inform the archaeologist of meaningful variation within the broader cultural context. Second, how the art relates to the total cultural complex needs to be considered. Finally, interpretation of the content of the art may be attempted, particularly if ethnographic information is available.

The Concept of Style

The recognition of rock art styles is basic to the ordering of data concerning rock art. That "human behavior is not capricious but is patterned" (Martin and Plog 1973:24) is a fundamental premise, of course, that has always underlain systematic investigations of human activity, and it has been well demonstrated that the art of any cultural group conforms to the confines of a style

or a limited range of styles. The recognition of styles in rock art and the use of these styles to correlate rock art with particular prehistoric cultures is not new to rock art studies. Perhaps one of the earliest instances of documented recognition of the correlation between art styles and prehistoric cultures is to be found in a comment by Crimmins:

“In January, 1925, we wrote to Dr. Fewkes that the study of the petroglyphs on Senator A. B. Fall’s ranch at Three Rivers, New Mexico, led us to believe that many of them were made by the pre-Pueblo Indians, as they were similar in design to the pictures on the pottery of the Mimbres Indians. Dr. Fewkes wrote us as follows: “So far as known to me, this is the first time in the history of archaeological research in the Southwest, that pictographs have served as guides to locate native cultures in the Pueblo region.” (1929:38)

Following this, a number of rock art studies recognized the concept of style (Steward 1929; Morss 1931; Cressman 1937; Haury 1945b). These investigations have been followed by recent works that take for granted the utility of this concept and that relate rock art styles to specific prehistoric or historic cultural groups (Baumhoff, Heizer, and Elsasser 1958; Heizer and Baumhoff 1962; Turner 1963; Grant 1965, 1968; Newcomb and Kirkland 1967; P. Schaafsma 1963, 1971, 1972; Burton 1971; Hedges 1973; Heizer and Clewlow 1973). In the organization of data into style categories, a number of different methods have been used, the simplest being based on mere inspection of the material. More exact methods have involved the use of statistics and factor analysis in order to measure the occurrences of given elements or to determine how certain traits cluster for the purpose of describing definite figure types (Heizer and Baumhoff 1962; Von Werlhof 1965; Burton 1971).

It is worthwhile, perhaps, to examine the meaning of the word style and to clarify its use in rock art studies. Among the major components of style in regard to rock art are the element inventory and the specific figure types making up this inventory. A figure type is the specific form and characteristic mode of expression of any given element. Important in the development of figure types are the major design components and the shapes employed. Second, the forms used and the relationships between the elements of a panel work together to create an overall aesthetic quality of expression that in many instances is an important aspect of style. The various technical means employed in creating designs also contribute to the general sense of style and its aesthetic consideration (P. Schaafsma 1971:3).

Schapiro (1953) noted that style is studied more

often by the archaeologist as a diagnostic means than for its own sake as an important constituent of culture. Further, he points out that the characteristics of styles vary continuously and resist systematic classification into perfectly distinct groups, but that precise limits are sometimes fixed by convention for simplicity in dealing with historical problems. Common to the approach of the art historian or anthropologist is the assumption that every style is peculiar to a period of culture and that in a given culture or epoch of culture there is only one style or at least a limited range of styles. Therefore, style can be used with confidence as an independent clue to the time and place of origin of a work of art. Thus its use as an archaeological tool is justified.

The style concept is not a static one, however. Once a style has been described and its range of distribution determined, it is necessary to understand the significance of this information in a wider archaeological context. Regional variation also may be present within the bounds of the style, and it is the aim of the archaeologist to explain this variation, or even the lack of it, rather than merely describing it. In order to do this, one must have some idea of how rock art is articulated with the prehistoric cultural system of which it is a part.

The major subsystems of a cultural system have been classified as technological, sociological, and ideological (Binford 1962), and the functioning of any of these so-called subsystems leaves behind material evidence that reflects the nature of the component. Art is an artifactual or material record of the ideological component of a prehistoric social system.

With this understanding, rock art studies can proceed on at least two different levels of investigation: regional and local. It has been proposed that the term interaction sphere be used to deal with regional configurations in an archaeological context (Struever 1972). The concept of the interaction sphere is applicable to areas of stylistic uniformity. Stylistic uniformity results from a panregional information exchange network, and the degree of homogeneity in a region depends on the efficiency of the intergroup communications (C. Schaafsma 1973:12, 26-27). A shared repertoire of rock art elements, figure types, figure complexes, and aesthetic modes—hence style—thus signifies participation in a given ideographic system and, in turn, in a given communication network. The spatial and temporal distribution of a style, once determined, can be used as an aid in defining the range of the communication network and hence the sociocultural system being considered. Regional differences within the style may denote regional variation within the culture.

At the local level, minor variation within a style, such as different element inventories between contemporaneous sites, may indicate that these sites served different needs. This brings us to the subject of how rock drawings functioned for the people who made them. The means to understanding this are several.

The Function of Rock Art Sites

How rock art sites functioned is a major concern in reconstructing the lives of prehistoric groups when these sites are present in the cultural inventory. Information may be limited to the contents and the situation of the site itself. Or it may be known how it correlates with other contemporaneous prehistoric remains (habitation sites and trails) as well as with geographic features such as hilltops, canyon junctions, and water sources. In most instances the rock art of a specific cultural group exhibits patterned modes of distribution. Using this kind of information, Heizer and Baumhoff (1962) and Grant (1968) have made a convincing case that the Great Basin Abstract petroglyphs of Nevada and eastern California were made in connection with hunting rituals. Likewise, White (1965), Zahniser (1970), Kearns (1973), and others have attempted to correlate Hohokam rock art sites with a number of different kinds of Hohokam remains (see pp. 96-99).

A consideration of the location as well as the contents of Paleolithic paintings in Europe has led scholars to suggest that these ancient works, dating over thousands of years, were done for a multitude of reasons. As summarized by Ucko and Rosenfeld:

“There is nothing against assuming that Palaeolithic art, as is also the art of many living “primitives,” is the result of many different interests. Within any one cave, therefore, it is possible to imagine that many. . . possibilities . . . apply: that some representations were the work of children (perhaps some of the floor engravings), that some were used in acts of sympathetic magic (perhaps some of the representations pierced with holes), that some were placed in particular situations in order to please (perhaps some of the open-air low reliefs), and that some were illustrations of myths and traditions (perhaps those which contain imaginary creatures, anthropomorphs and unexpected combinations of animal species). It is very possible, however, that some and perhaps many Paleolithic representations were made for reasons which still totally escape the modern observer. “(1967:239)

Ethnographic documents of modern tribes in Africa and Australia substantiate the multiuse interpretation set forth by Ucko and Rosenfeld on the basis of archaeologi-

cal evidence (Frobenius and Fox 1937:22-24; Moors 1971:117-19). The fact that many Australian sites are currently in use or are subject to ethnographic interpretation has contributed to an understanding of how rock art sites have been used by people everywhere. Specifically, these sites have provided models for suggesting how hunter-gatherer sites may have functioned in the Southwest.

In the Southwest, however, the use of ethnographic analogy can also be much more specific. Ethnographic documentation on the use of rock art sites by recent Pueblos and Navajos can by extension aid the archaeologist in understanding the function of prehistoric or protohistoric sites of these same people. Or, individual rock art elements may be interpreted ethnographically. For example, modern Pueblo use of the hand print, a common element in rock art (Fig. 5), has suggested its meaning in certain prehistoric occurrences.

In sum, the combined use of ethnographic analogy, both generally and within a single ongoing culture, and analysis of sites and their relationships to other remains has suggested many uses and functions for southwestern rock art before historic times. The creative activity of painting and carving designs on stone was not narrowly focused, nor do these remains as a rule represent doodling and play, as is sometimes postulated. Rather, they were more often integrated with a wide range of needs, just as artistic enterprises permeate many facets of all modern cultures.

Symbolism and Interpretation

The relationship between rock art and its cultural matrix is all very well, but of surpassing interest to most general readers are the questions: What does it mean? Are these rock drawings a language awaiting interpretation? Interpreting rock art designs is intriguing yet difficult, often impossible. As a result, other, more fruitful approaches to rock art have been devised.

Whenever an interpretation of rock art by the archaeologist is possible, it is usually made so through the use of the ethnological record, just as ethnographic accounts contribute to an understanding of the function of rock art sites. Certain general interpretations have been arrived at by comparing elements in the rock art with various aspects of shamanistic symbolism. A number of basic shamanistic beliefs recur throughout the world, and the elements of these beliefs are present in the native religions of this continent. Rock art from a number of different places in North America has been examined from the point of view of shamanism (Hedges 1975; Wellmann 1975; Vastokas and Vastokas 1973). In many

instances, figure complexes and symbolism found in the rock art of the Southwest seem to be explainable within the context of shamanic beliefs and practices.

Further, ethnographic sources are especially useful in those instances in which we are dealing with prehistoric or protohistoric records of the same Indian cultures that exist in the Southwest today, such as the Pueblos and Navajos. In many cases, specific supernatural beings can be identified in the rock art of these peoples, and even some of the more abstract symbolism of ritual design can be interpreted with a reasonable degree of certainty.

Nevertheless, it is also true that ethnographic sources should be used with caution. Fewkes (1973:64) observed that among the Hopi the meanings of many designs have been lost and that a single design can have a variety of meanings. He found, for example, that the circle is the totemic signature of the earth people but that it also means other things. Thus he did not try to interpret the circles in the designs of the prehistoric pottery with which he was dealing. He also pointed out that most of the ancient pottery symbols were incomprehensible to the modern Hopi priests, although the priests suggested many—and differing—interpretations for the designs.

Ellis and Hammack (1968:35), in referring to the concentric circles from Arrow Grotto, state that this ancient symbol is so standardized in Pueblo explanation as possibly to warrant designation as a glyph—the outer circle representing the light around the sun, the second the sun himself, and the dot his umbilicus (Fig. 6). Several years ago, however, while visiting some petroglyphs near the Hopi reservation, I was informed by a knowledgeable Hopi that this symbol represents the earth, the center circle or dot standing for the water in the earth's center. Nevertheless, it should be pointed out that in this particular instance the apparent contradiction may be superficial. Heyden (1975:143) expresses the opinion that sky and earth were inseparable in ancient myth and thought in Mexico, and he cites the fact that Sahagun (1969, IV:172) refers to the Sun-Earth as one. That this duality is also present in Pueblo thought is made explicit by Ellis and Hammack (1968) in their reference to Arrow Grotto as a combined earth and sun shrine.

An interesting case of symbol diffusion on the Great Plains that serves as a model along the lines of which change in symbolic meaning occurs has been described by Spier (1921). Among the Plains tribes, there was a wider distribution of rites and regalia, including symbols, than there were shared features of organization and mythological beliefs. This situation occurred because objective phenomena were readily diffused between neighboring tribes, but the borrower would not necessarily have the opportu-

nity or desire to learn the esoteric connections and complex web of meanings of the borrowed goods. The new user was often satisfied with an explanation of a ceremonial object furnished by his own beliefs (Spier 1921:517). In this way, symbolic meanings were constantly changing as they were passed on between even similar groups of people.

The baffling nature of the content of rock drawings continues to spark the imagination of the uninitiated, providing a kind of Rorschach test in which the observer projects onto the drawings meanings that coincide with cultural biases and personal and popular fantasies. Among the most common of these “folk interpretations” is that a particular petroglyph or painting represents a map to treasure buried somewhere in the vicinity. Finding a “story” that can be “read” in the depictions is also common. There are also the very popular volumes that see in rock art, as well as in other archaeological remains, evidence of sunken continents or ancient visitors from outer space.

One of the most persistent misconceptions is the notion that all Indian rock art is, in fact, a form of writing. Although this possibility has been considered by various writers for some time, a recent book by Martineau (1973) develops this thesis most explicitly. It is his contention that rock art is rock writing—a pan-Indian system akin to sign language, applicable everywhere, regardless of cultural affiliations or the time in question. This system he attempts to “crack” by the application of the tools of cryptanalysis. His hypothesis, however, is not substantiated by archaeology. The fact that universal meanings are lacking for symbols commonly found in rock drawings has been admirably discussed by Renaud (1936:5), Cain (1950:54), and recently by Heizer and Clewlow (1973:51-52).

Dating Rock Art

One of the major problems presented by the study of rock art is that of dating the art. Several approaches, in some cases used together, have made possible the chronological ordering of southwestern rock art styles as they are described in the following pages. The ability to date a particular site absolutely is rare, but various methods provide means of relative dating.

Patination is an important means of determining the relative ages of petroglyphs made at different times on the same cliff or boulder surface. Patina is the formation of a black or brown stain of hydrous iron and manganese oxides on rock surfaces (Grant 1967:43). When a petroglyph is made, the design is pecked or scratched through this surface so that the original color of the rock

is exposed. On this exposed surface, a new layer of patina immediately begins to form. The older the figure is, the darker it becomes. If two or more figures on a surface were made at different times, the more recent one will be lighter in color (Fig. 7). Because patina varies with the composition of the rock and its exposure to sun and rain, however, the degree of patination alone is not an absolute guide for dating.

Superimposition is another way to determine the relative age of rock art. Designs were sometimes painted or pecked on top of older ones, and in some cases the figures of several different styles and periods were made in the same spot. When the superimpositions are petroglyphs, the difference in patination between the periods of work will indicate, at least roughly, whether much or little time elapsed between the points at which they were made. Where designs were pecked or painted over others of the same style and no age differences are apparent, we may be dealing with a narrower time span.

Vertical placement of styles on a cliff face or within a rock-shelter can also be an important indication of age. In the river canyons of the Colorado Plateau during early prehistoric times, for example, petroglyphs were sometimes made from the tops of sand dunes lying against the cliffs. The dunes were often removed later by floods, and petroglyphs were made by subsequent canyon occupants in the scars left by the dunes. Thus vertical stratigraphy is present today, with the oldest work on top. Similarly, ledges in rock-shelters and along cliffs often enabled early artists to reach locations now inaccessible, and the work of later cultural groups, made after the ledges fell, is often present below.

The association of habitation debris with rock art is sometimes very helpful. In the Southwest, rock art often occurs with habitation sites of the Hohokam, Mogollon, and Anasazi horticulturalists. Frequently these sites can be placed within a given time frame by the pottery types present. In late Anasazi sites very specific dates are sometimes obtainable for the rock art that was made from the rooftops of cliff dwellings. Some of this originated within the fifty-year period between A.D. 1250 and A.D. 1300.

One of the most useful means of ordering the chronology of certain rock art styles has been the comparison of rock art figures with those on datable artifacts such as pottery or clay pipes, or wall plaster in the ruins themselves (Figs. 8, 9). A major stylistic break occurring in the mural art of the Anasazi around A.D. 1300-1350 has assisted in dating a comparable change in the Anasazi Pueblo rock art.

Limitations on absolute dates are sometimes provided by the content of the art itself. The first appearance

of the bow as a hunting weapon, replacing the spear and the atlatl, is dated in Arizona as early as A.D. 200. It spread eastward across New Mexico, reaching West Texas between A.D. 600 and A.D. 1000 (Grant 1968:5-51; Newcomb and Kirkland 1967:40). The appearance of the bow in rock art, particularly in the northern Chihuahua and West Texas region, has been helpful in establishing the earliest possible date for these paintings. Conversely, styles in which the spear is emphasized must be earlier in date than those in which the bow is depicted.

The horse is another element with obvious temporal restrictions. The presence of this animal in a rock art panel indicates beyond any doubt that one is dealing with art of the historic period. First brought to this continent by the Spaniards in the sixteenth century, the horse was becoming popular among the Apaches of New Mexico by the first half of the seventeenth century (Clark 1966:8). Horses became a favorite motif in Apache rock drawings, presumably at this time or shortly thereafter; they first occur in Navajo art in the early eighteenth century.

Finally, some of the late rock art of the Navajo depicts specific historical events, such as the Spanish expedition into Canyon del Muerto that ended with the tragedy at Massacre Cave in 1805 and the Ute invasion of the same canyon in 1858. Presumably the paintings of the Spaniards and their horses and the charcoal drawings depicting the encounter with the Utes were made within a few years of the events themselves (see Chapter 9).

Techniques: Brush & Hammerstone

Rock drawings were made in a number of different ways, and the method or combination of methods chosen to execute designs on rock is one aspect of style. There are two major technical categories: rock paintings, and petroglyphs, or designs cut into rock. The ambiguous term "pictograph," which has a long history of usage in the literature and may refer to either rock paintings alone or to both painted and cut figures, is not used in this volume.

Rock Paintings

Rock paintings are usually found on the light-colored rock surfaces of protected places such as rock-shelters and beneath overhangs where there is little or no patina (Plate 1). Of the colors used for these paintings, red, white, black, and orange are the most common, with red predominating. Yellow and pink also occur from time to time. Green and blue are rare but are occasionally found. The colors used were determined by the materials available as well as, at least in some cases, by ritual

requirements.

Paint consists of three major components: the pigment or coloring agent, a binder used to stabilize the paint and cause it to adhere to the surface to which it is applied, and the vehicle, the means by which it is made fluid (Hibben 1975:36).

The pigment, consisting of a lump of clay or other mineral, was ground up in preparation for mixing with the other ingredients. The paints used in southwestern rock paintings have not been tested for their constituent parts, but the pigments used in the kiva mural art of the Hopi ruins of Awatovi and Kawaika have been analyzed in detail; for an excellent discussion of the results, see Watson Smith (1952:22-24). Astonishingly similar results are reported from Pottery Mound by Hibben (1975:36-48). It is reasonable to suppose that the pigments used in rock paintings did not differ appreciably from those of the mural paintings.

The various shades of red can probably be ascribed to the use of the mineral hematite, or red iron oxide. Limonite was probably the source for yellow, while orange was in all likelihood obtained from a combination of these. Malachite is the most obvious source for green pigment and azurite for bright blue. Turquoise paint may have been obtained from grinding up turquoise itself. White clay was often used for painting, although silica, gypsum, chalk, or calcium carbonate are other possible sources indicated by the mural paint analysis. Clays stained with other minerals produce various pastel shades, and these were used for rock painting, particularly by thirteenth-century Anasazi; colors include subtle shades of pinks, salmon, lavender, and pale green. An organic material such as charcoal or another form of carbon would have been a readily available source for black paint.

The vehicle and binding agent were combined into a single fluid to which the ground pigment was added. It is likely that water was commonly used to create the desired consistency of the paint, but the binding medium used in the mural paints has never been determined because there is no evidence of it left. Judging by what is known from ethnographic sources, the binding medium was probably any one of a number of organic substances. The Hopis, in painting ceremonial objects, use saliva generated by chewing a variety of seeds that contain a vegetable oil; sometimes, but not always, water is added (Smith 1952:30). Smith also reports the use as a binding agent of yucca juice or syrup, water and white bean meal, pinon gum for preparing blue and green paints, and the whites of eagle eggs (1952:31).

Once the paint was mixed, it could be applied in several ways, and the rock surface, particularly when

sandstone was involved, was sometimes smoothed and abraded in preparation for receiving the painting (Fig. 12). Brushes, possibly made from the ends of yucca leaves that had been chewed to remove the pulp and leave the strong vertical fibers, seem to have been used for painting small solid areas, clear lines, and fine details. Wider areas may have been painted with a corn husk wrapped around the finger (Smith 1952:31). The use of the finger itself for painting is evident in the finger streaks left in areas painted in this manner (Fig. 13). This technique was often used to create a thin application of paint over a large area. Dots, an element commonly found in abstract paintings or as a decorative device on the human form, were usually painted with fingertips dipped in paint. Whole hand prints are also common (Plate 2). Occasionally a negative or stenciled design occurs, like the star crosses in Figure 14, which were made by spraying paint around a form. Hands are the most usual motif painted in this way. Finally, dry lines were produced by drawing directly on the rock with a stick of charcoal or a lump of soft pigment. Lines or areas of solid coloring done with a dry medium are usually less definite and very sketchy compared to painted ones.

Petroglyphs

Petroglyphs are more common than paintings. Throughout many regions of the Southwest these figures occur by the hundreds. Dark exposed surfaces of highly patinated sandstone and basalt cliffs and talus boulders were often selected for making petroglyphs because of the effective contrast between the original rock surfaces and the newly cut designs.

The usual method of making petroglyphs was by pecking (Figs. 15, 16). This was often done by means of a direct blow with a hammerstone, a tool sometimes found in association with petroglyph sites. Direct percussion does not provide precise control over the placement of the resulting peck mark or dint (Turner 1963:2). When a hammerstone was used in conjunction with a chisel, results were finer, as greater control could be exercised over the size of the dints and their spacing (Fig. 17). Another aid to achieving accurate results in the finished design was the occasional practice of lightly incising or pecking a preliminary outline. The remains of these outlines are sometimes still visible.

Even taking into account variability attributable to individual artists, differences in pecking techniques to some degree characterize different styles. Large dints and uneven outlines, for example, may be typical of one petroglyph style, while another may fairly consistently exhibit small and very even dinting.

Whether small solid figures or large outline figures were made was largely a stylistic choice within the pecking technique. Because of the greater amount of work involved, solid figures tend to be smaller. Outline figures, on the other hand, are sometimes very large and may approach life-size. Further, the use of unpecked interior space allows the addition of many details or decorative elements.

Another method of making petroglyphs is to incise or scratch designs into the rock with a sharp tool. Incised designs are often found on soft sandstone surfaces lacking a heavy patina, and they are characteristic of historic petroglyphs in the Southwest (Fig. 18). Designs rendered by this method lack the boldness of the pecked figures; but more fluid and expressive lines result, and greater detail is possible. Although incising tends to create a linear style, in some cases large areas were abraded, resulting in solid patterns.

In some examples, two or more techniques were used together. Scratched or incised details, for example, were sometimes added to both pecked and painted figures. In other instances, pecked figures were also painted.

The reasons for the different technical methods chosen by prehistoric artists are not always clear, but a major determinant in this matter frequently seems to have been the regional character of the available rock or the character of the particular rock to be decorated. Petroglyphs dominate, for example, in parts of southern Arizona and in the Rio Grande Valley of New Mexico where open talus slopes strewn with patina-blackened boulders are a major landscape feature. On the other hand, shallow caves and overhangs in light-colored rock were selected for rock painting. Thus painting is the characteristic rock art technique found in the mountains of southwestern New Mexico, where small overhangs in the rhyolite cliffs present the best surfaces for decoration,

On the Colorado Plateau, however, where vast stretches of highly patinated, smooth sandstone cliffs are readily available along with numerous rock-shelters, certain stylistic complexes may be made up predominantly of either petroglyphs or paintings. This suggests that other factors, such as ritual prescription, function (hence location, which often has a bearing on the nature of the rock), and even fashion, may also have influenced the method used. An intensive regional survey to determine how technical aspects of rock art correlate with such variables as style, subject matter, and site situations would be informative, particularly on the Colorado Plateau, where both rockshelters and highly patinated cliffs and boulders were available for rock art.

The Barrier Canyon Anthropomorphic Style

Rock paintings believed to be the production of pre-Fremont hunting-and-gathering peoples in the northern Southwest are the Barrier Canyon Anthropomorphic Style paintings of eastern Utah (Figs. 3, 13, 38-48 and Plates. 1, 4-8). They constitute a major style grouping. The number of known sites is about twenty, and they are located in the rugged, arid canyon country of the Colorado Plateau in the drainage of the Colorado River (Figs. 36, 37) (P. Schaafsma 1971:68).

This region was also occupied by the San Rafael Fremont between A.D. 1700 and A.D. 1200, and the paintings have been classified by some archaeologists as Fremont (Gunnerson 1969). In an earlier study of Utah rock art, the problem of the cultural affiliation of these paintings was examined in depth (P. Schaafsma 1971:128-35), and it was felt that evidence supported the probability that the Barrier Canyon Style artists were hunter-gatherers immediately preceding the Fremonters of the region.

The dominant motif in the Barrier Canyon Style is the dark, tapering, immobile anthropomorphic form, painted in a dark red pigment. These figures are frequently ghostly in appearance, hovering in rows against a sandstone backdrop within arched alcoves and rock-shelters (Figs. 38, 39). The number of figures at a site may vary from a single anthropomorph to dozens. Isolated compositional groupings, centered on one or two large human forms, flanked by smaller ones or tiny birds and quadrupeds, as well as by zigzags or unidentifiable objects, sometimes occur (Fig. 40 and Plate 4).

The paintings of the Great Gallery in Barrier Canyon, better known as Horseshoe Canyon, are among the finest in the style. The long wall of the shelter is covered with dozens of richly decorated anthropomorphs, many of which are life size (Figs. 13, 39, 43-46 and Plates 1, 6). In a number of instances the surface of the rock was smoothed in preparation for receiving the paintings, and several techniques were used to achieve the varied and elaborate textural effects. The tall ghostlike being in Plate 6 was created by a spatter technique; the indefinite result contributes to his ethereal appearance. Possibly, however, it is a fur robe that is represented. The paint on the torsos of other anthropomorphs (Figs. 13 and 44) was applied with the artist's fingers, a method of painting that created a thin background on top of which lines and dots were applied in thicker paint. In several cases, lines were incised through the more heavily painted areas, and the feeling of a rich textile resulted. In some instances, the body area is divided into panels: elaborated with stripes

or wavy lines or both. One Great Gallery anthropomorph has animals in the area of the chest, and another has smaller, mummylike figures incorporated into panels on the torso. Other solidly painted figures are adorned with linear patterns of white dots (Figs. 45, 46). Tiny birds and quadrupeds are grouped at the heads, shoulders, or sides of a number of these anthropomorphs. The skull-like aspect of the heads in Figure 43 is readily apparent.

The triangle of delicately painted mountain sheep (Fig. 46) forms an unusual group. The sheep are portrayed in different running positions and below, more crudely painted, is a dog that appears to be chasing them. To the right are two men apparently holding spears and engaged in combat. The expressive use of line to denote action in the figures of the sheep and the two men contrasts with the surrounding immobile mummylike forms, although they were all clearly done by the same hand.

Other notable paintings (Figs. 47, 48 and Plates 7, 8) are located at the Bird Site in the Maze in the Horse Canyon drainage near the junction of the Colorado and Green rivers (Fig. 37). The main panel is a composition consisting of a long row of figures that are very elongate and that approach life size (Plates 7, 13). Again there is evidence of surface preparation prior to making the paintings. Unlike the Great Gallery anthropomorphs, most of those in the Maze have thin arms or legs or both. Stripes and wavy lines decorate their bodies, and zigzag lines are drawn beside them. As elsewhere, these figures are accompanied by tiny birds and animals. Motifs concerning the harvest also are present (Plate 8). Two smaller figures, expertly rendered as silhouettes, seem to wear burden baskets and carry in their hands objects that resemble tools for gathering wild grains (P. Schaafsma 1971:129). The last figure on the right in this group is approached by a large bird and has rabbits running down his aim. What appears to be ricegrass, the seeds of which were a major food source at the hunter-gatherer level, sprouts from a finger. Another small composition at this site consists of a human figure about 15 inches tall that is approached by tiny birds and quadrupeds; again, wild plants are included in the group. In addition to what appear to be grasses, there is a stalk of what may be yucca fruit.

A comparison can be drawn between the Barrier Canyon Anthropomorphic Style and the paintings of the Archaic Pecos River Style in Texas (P. Schaafsma 1971: Fig. 132). These two art complexes share certain stylistic emphases as well as some very specific and unusual details. Considering the distances involved, the significance of these similarities is puzzling. In a recent article, however, Schroedl (1977:260-62) points out that—parallels in the realm of nonutilitarian objects exist between the

Grand Canyon split-twig figurine complex in southern Utah and the Pecos River region in Texas that suggest a relationship between these two regions. Schroedl regards the Barrier Canyon Style paintings as a probable component of the late Grand Canyon figurine complex in southern Utah. Excavation in Cowboy Cave in the vicinity of the Great Gallery on a Barrier Creek tributary revealed painted sandstone and clay figurines with counterparts in the Pecos River region.

The Cowboy Cave materials, which are dated between 100 B.C. and A.D. 500, also correlate well temporally with the Barrier Canyon Style. Comparisons of the Barrier Canyon Style with other rock art in the same general region of the Colorado Plateau suggest that the Barrier Canyon Style falls late in the Archaic sequence. It may have been, in part at least, contemporaneous with the Anasazi Basketmakers to the south, and a rough tentative dating between 500 B.C. and A.D. 500 is suggested. Evidence to support this general assignment is found in the occasional overlap in anthropomorphic types between the Barrier Canyon Style and those painted by the San Juan Basketmakers. Also, at Butler Wash, a Basketmaker site in southern Utah, certain details of torso decoration resemble those from Barrier Canyon Style art. Further, the emphasis on the depiction of the yucca fruit at Butler Wash is of interest, as a similar depiction occurs in the Maze. The absence of the bow, which may have been present in the region as early as A.D. 200 (Grant 1968:51) and the absence of Pueblo stylistic impact, which is prevalent in the Fremont art of the same region, also suggest an early date for Barrier Canyon Style art.

One senses that the remote, awe-inspiring anthropomorphic forms of the Barrier Canyon Style are beings imbued with supernatural power. It is not unreasonable, considering the content of the paintings, to suggest that we are dealing with a shamanic art. In fact, Wellmann (1975) has described the paintings in the Maze as “the seasonal image of a harvest scene imbued with distinctly shamanistic dualities.”

The presence of shamanistic symbolism in North American Indian rock art has been pointed out, and the idea that certain rock art may be the result of shamanic practices has been discussed by investigators in widely different areas: southern California (Hedges 1975), Ontario (Vastokas and Vastokas 1973), and Utah, Arizona, and Wyoming (Wellmann 1975). Shamanism is an “ecstatic technique at the disposal of a particular elite” (Eliade 1964), shamans themselves being individuals of power who have the ability to transport themselves mentally from one level of awareness to another, communicating with the supernatural by means of dreams, fasting, trance,

visions, and the like. During their quest for power, aspiring shamans have to submit to an initiatory ordeal involving symbolic death and rebirth, and during ecstasy the shaman's soul is able to travel throughout this world as well as into the realms above and below.

Many shamanic practices and much of the symbolism associated with shamanism are held in common over vast areas (Furst 1974a), and the Barrier Canyon Style anthropomorphs have attributes and associations characteristic of shamans throughout the world. Horns, which are one type of headdress occurring on Barrier Canyon Style figures, are almost universally emblematic of shamanic and supernatural power. Animal spirit helpers, common to the shamanic realm (Furst 1974a:135), may explain the many tiny animals and birds that approach these figures or appear on their heads and shoulders. Birds in this context may symbolize the shamanic power of magic flight; the bird may lead the soul in flight, or the soul may actually change into a bird (Wellmann 1975). The large dog, a major figure in many Barrier Canyon Style panels, may be analogous to the jaguar, whose form New World shamans commonly are believed to assume. This belief in jaguar transformation in Central and South America has been documented from ancient times to the present (Furst 1972). In this regard, the fact that the cat does appear in a similar context in the Western Archaic paintings of the Pecos River Focus is noteworthy (P. Schaafsma 1971:131, Fig. 132; Newcomb and Kirkland 1967). Further, according to Goldman (1963:262), among the Cubeo (a tribe of the Amazon Basin), "the yavi is the supreme shaman, the one who can take the form of a jaguar, who consorts with jaguars, who maintains the jaguar as a dog" —a comment that may have a certain amount of relevance here. Finally, the deathlike aspect of many of the anthropomorphs may well be significant. Skeletal motifs in rock art may in some cases relate to the shaman's initiatory journey to the Underworld.

The compositions in the Barrier Canyon Style paintings were carefully planned, and the fact that superimpositions are rare suggests that the image, not just the act of painting, was important. Further, the painting at each shelter appears to be the work of a single person, or, at the most, a limited number of people, indicating that these paintings were probably made only by a select few, probably artist-shamans. These factors, along with the powerful impact made by the paintings themselves in their impressive settings, imply that the sites where these paintings occur served as some kind of religious foci or retreats.

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Trance and Transformation in the Canyons

Shamanism and Early Rock Art on the Colorado Plateau

By Polly Schaafsma

Introduction

The early rock art of the Colorado Plateau of eastern Utah and northern Arizona includes some of the most explicitly shamanistic rock art in North America. Painted and pecked on sandstone cliffs and in rock shelters are several rock art styles or systems of iconography distinguished by subject matter that strongly suggests they had origins in shamanic beliefs and practices. This paper explores shamanistic models for “goodness of fit” as explanations of the content of two of these styles: the Barrier Canyon style (BCS), the work of Western Archaic hunter-gatherers of the Colorado River drainage [estimated dates ca. 5000-4000 B. C. to ca. 1000 or 500 B. C. (Schaafsma 1986:225)], and the San Juan Anthropomorphic style of the Basketmakers of the Lower San Juan drainage.

A new “long chronology” for Basketmaker II has emerged out of recent research that extends the early dates for maize farming on the Colorado Plateau back to sometime between 1500 and 1000 B. C. (Lipe 1993:2-3; Smiley 1993; Smiley et al. 1986). The earliest dates (1500 B. C. to A. D. 50) come from rock shelters that contain burials and storage cists as well as rock art. The new long chronology better explains the large quantity of extant Basketmaker rock art and its relationships with the Archaic styles featuring large anthropomorphs. The recogni-

tion of shamanic elements in this rock art is not new, and these have been pointed out and briefly discussed in previous publications (Cole 1990:77, 123; Grant 1978:167, 185, 189-190; Hedges 1985:90-91; Schaafsma 1980:71-72, 117, 1986:226, 1990:230).

A more extensive consideration is given to the shamanic aspects of Basketmaker rock art by Cole (1989) who in part relies on much later ethnographic accounts from Zuni and Hopi as aids to interpreting Basketmaker imagery. There is, however, a significant temporal gap separating Basketmaker II from the ethnographic present, from a minimum of 1,450 to possibly as much as 3,500 years. Although I cite potential Pueblo parallels in some instances, the thrust of the discussion in this paper is based instead on general shamanic models. Lacking ethnographic data closely related to the ancient

prehistoric cultures that made this art, interpretations are offered here on the basis of comparisons between elements and scenes in the rock art and various more or less universal aspects of shamanic phenomena from more remote ethnographic contexts. As discussed by Furst (1986) and others (Eliade 1964; Halifax 1982), many shamanic elements are transcultural. The antiquity of shamanism in the history of mankind is acknowledged by all students of the subject, and shamanic elements persist today in the religions of many cultures. Shamanic practitioners were (are) persons skilled in “the techniques of ecstasy.” With

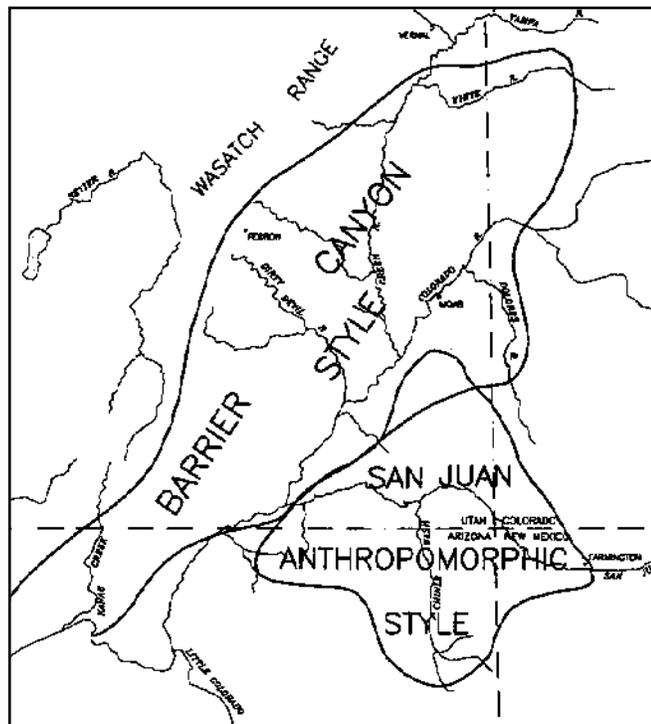


Figure 1. Map of the Colorado and San Juan drainages showing the distribution of Barrier Canyon Style and San Juan Basketmaker rock art.

the assistance of various spirits, including those of animals, through trance and symbolic death, they have the ability to travel to celestial realms and the Underworld in order to communicate with the “purveyors of power” (Halifax 1982:9). The interconnectedness and kinship between all things underlies the shamanic world view. Man, animals, and plants are qualitatively equal and can assume each other’s forms. Aural and somatic hallucinations and visionary experiences characterize the shamanic trance experience, and these are often provoked by the use of hallucinogens. With the aid of spirit helpers, tutelary deities, and divine or semi-divine beings (Eliade 1964:88-95), these otherworldly voyagers contact ancestral and supernatural powers in the interests of curing, fertility, divining, successful hunting and battle exploits, and weather control. In other words, shamanic rites are performed by persons with access to supernatural powers for the benefit of the group. Shamans would have been held responsible for effecting a balance with the cosmos and played important roles in curing, as well as in the social and economic welfare of the early people on the Colorado Plateau.

Universally, shamans have communicated their extraordinary experiences through art. It is reasonable to speculate, with little possibility of testing this proposition and without close ethnographic comparisons, that shamans were frequently the BCS and Basketmaker artists. In addition, as pointed out by Whitley (1992:94), in the ethnographic past in southern California, initiates participating in puberty rites that included shamanic experiences sometimes made rock art. Initiation can involve a journey to the supernatural realm with its associated experiences of death and rebirth, as well as the acquisition of spirit helpers. Rock art made as records of these events by shamans and initiates alike may involve trance images, paintings or petroglyphs of beings encountered on supernatural journeys, spirit helpers, and transformational experiences. A shaman’s commitment to record visions

from his trance may account for many or most of the BCS and Basketmaker petroglyphs and rock paintings. Rock art made in a shamanistic context would serve to validate the supernatural journey into the cosmic mysteries and to communicate this voyage to a wider group, including initiates. In addition, rock art might be made in order to refresh the shaman’s memory of the otherworldly journey. In all cases, rock art imagery would have been effective in reducing the barriers between the real and the supernatural. In both BCS and San Juan Basketmaker

rock art, a large anthropomorphic figure with supernatural attributes is the dominant subject (Figure 4). In both styles, these anthropomorphs display otherworldly (non-naturalistic) features and, in the BCS in particular, spirit helpers and tutelary deities, commonly in animal form, are consistently represented (Figures 5, 6). In sites of both BCS and Basketmaker origin, one is able to identify groups of figures and discrete compositions that appear to

have been executed by a single individual (Figure 4). In individual technique and “style” they “go together”, often focusing on a particular theme or type of figure. The aesthetic achievement and technical excellence present in much of this art indicate that making it was a time-consuming, exacting, and thus a “valuable” activity. It is interesting that as shamanic themes wane in Anasazi rock art, there is a notable decline in the technical and visual quality, suggesting that rock art was less important than in earlier days.

In addition to spirit helpers, transmogrification, and other somatic as well as aural trance symbolism, what may be entoptic (neuropsychological) phenomena appear to be represented in these art styles, raising the question of the use of hallucinogens. Archaeological evidence in the form of pipes and cane cigarettes suggests that altered states of consciousness and trance were induced or assisted by tobacco (Switzer 1969). The use of *datura* among the Pueblos (*Datura meteloides*) is well documented



Figure 4: Basketmaker petroglyphs, Butler Wash, San Juan River, Utah. Stylistic consistency and layout of these figures indicate that they were conceived and created as a group, probably by a single artist. Large figures

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ethnographically. In addition, *Amanita muscaria* and *psilocybin* mushrooms were also available (States 1990), although ethnographically there is no record of the use of mushrooms in the Southwest.

As mentioned previously, there are no close connections between this rock art and the ethnographic present or recent past. Whitley (1992, 1994, this volume) cites material from the ethnographic past, including that of Numic speakers, to explain shamanic elements in rock art of the far west. Settlement of the Colorado Plateau by Numic speakers, however, considerably postdates the rock art under consideration (Anderson 1983; Marwitt 1986). The ethnographic present of the Southwest pueblos is an amalgam of continuities with the past as well as changes that have either developed in situ or been introduced. Ideological changes were either gradual (from Basketmaker II through Pueblo III) or relatively sudden around A. D. 1300 (Schaafsma 1980). On a general front, a simple historical continuity from the shamanic ideology of the San Juan Basketmakers and to the modern Pueblos seems unlikely. The rock art itself indicates that ideology (along with political and social organization) during this long period of time was complicated by change. Change includes phasing out, by ca. A. D. 600 if not earlier, much of the shamanic imagery that characterizes Basketmaker rock art. Taking these factors into account, the use of the Pueblo ethnographic record to illuminate certain shamanic themes may be approached with caution. Natural models (see Whitley, this volume), from whence symbolic associations are derived, may provide a stabilizing effect. Once metaphors, for example, between certain natural phenomena have become formalized and ritualized, the continued associations in nature would serve to preserve these ideas. Animal and bird symbolism seen in this rock

art may be amenable to some analysis by ethnographic comparisons, although a full-blown understanding from this distance is unlikely. In summary, although the ethnographic record may be a touchstone for understanding this rock art, the most useful model for these two early styles is a generalized shamanistic framework.

Barrier Canyon Style

Barrier Canyon style rock art (Cole 1990:67-82; Schaafsma 1980, 1986) is found throughout the Colorado and Green River drainages from northwestern Colorado to the Grand Canyon (Figure 1). This indicates that hunter-gatherer populations of this wide region shared a common ideological background that distinguished them from hunter-gatherers elsewhere. The large number of sites, the complex imagery, and the technical finesse with which it is executed are all indications that rock art was an important means of communication. There is also evidence to suggest that this rock art style is not only several thousand years old, but that it continued to be made over a long period of time (Schaafsma 1986:225). Imagery that is transitional between BCS, Basketmaker, and Fremont indicates that BCS rock art may have been made until farming was introduced and precipitated cultural change. Absolute dating methods will eventually clarify the nature of these relationships. Petroglyphs exist, but most BCS rock art consists of paintings in rock shelters. There is a conspicuous paucity, perhaps even lack, of BCS rock art on boulders.

The abstracted anthropomorphic with its attendant death and transformational symbolism is the main subject of this art as it is repeated again and again in the sandstone canyons of the Colorado Plateau (Figures 2, 3, 5-10). This figure, in turn, is often accompanied by small or tiny animals and birds, sometimes only an inch or two long (Figure 5). Although it might be argued that these figures represent the ancestral souls of the dead, or other anthropomorphic sources of supernatural powers, it is more likely that in most cases we are viewing pictures of shamans experiencing symbolic death and at times transformation, possibly into a supernatural or animal form. Similar figure groupings in the Pecos River style have long been regarded as depictions of shamans with their associated animal spirit helpers (Kirkland and Newcomb 1967:65-80). The intimate relationship between the shamanic quest and the animal world of tutelary deities and spirit helpers and guardians is well documented. According to Eliade (1964:95):

... the guardian and helping spirits without which no

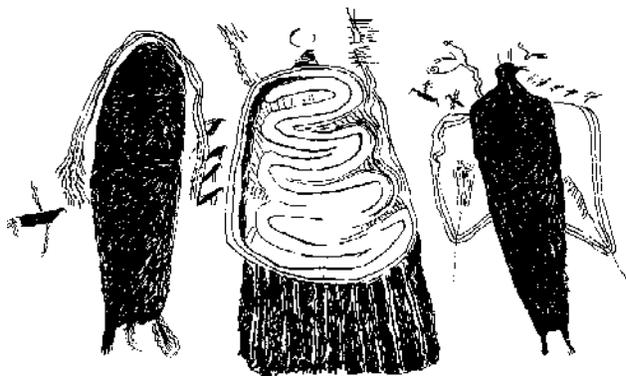


Figure 5. Detailed paintings of unnaturalistic life forms suggest transformational themes. The one on the right has the head of a bird and a suggestion of wings. The end figures are flanked by plants and birds flying away, some toward the central motif that appears to contain a snake. The large figures are less than 40 cm tall. All painting is red (hematite) unless otherwise indicated.

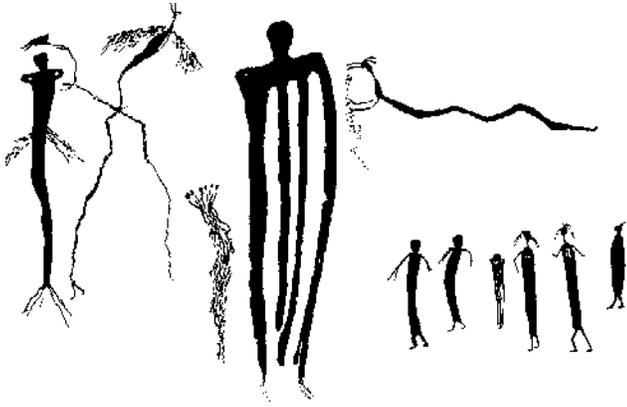


Figure 6. Part of a group including a bird and snakes with human features suggesting shamans undergoing transmogrification. Roots appear to grow from the feet of the figure on the left. The largest is about 30 cm tall.

shamanic seance is possible can be regarded as the authenticating signs of the shaman's ecstatic journeys in the beyond. This is as much as to say that the animals spirits play the same role as the ancestral spirits; these, too, carry the shaman to the beyond (sky and underworld), reveal the mysteries to him, teach him, and so on. The role of the animal spirit in initiation rites and in myths and legends of the hero's travels in the beyond parallels that of the dead man's soul in (shamanic) initiatory "possession." But it is clear that it is the shaman himself who becomes the dead man (or the animal spirit, or the god, etc.) in order to demonstrate his real ability to ascend to the sky or descend to the underworld.

In many respects, this quote well describes what was painted by BCS artists. We are not viewing living human beings as such, but transformed anthropomorphic forms replete with trance and death symbolism. These figures are abstract, often extremely elongated (Figures 6-8), and frequently lack arms and legs (Figures 2, 3 g). One of the somatic effects of hallucinogens is the sense of bodily elongation (Lewis-Williams 1988:10) and projections from the head (Whitley, this volume). In addition, heads may be completely unnaturalistic, and some figures are even headless. In many cases, enormous eyes are featured



Figure 7. Elongated Barrier Canyon style figures holding plants, staffs, and various other objects, some of which may be spears. The anvil-shaped heads of these anthropomorphs and those in Figure 6 from the same site suggest bird forms.

or eyes are given unusual emphasis by outlining in white. When a shaman is in a trance state, he is said to see with mystical eyes (Eliade 1964:42) - he can "see" lost objects, the presence of evil spirits, the nature or cause of an illness, and into the past and future - things and places inaccessible to the uninitiated. Dots and lines falling from the eyes of some anthropomorphs (Schaafsma 1980: Figs. 45, 48) could represent hallucinogenically produced facial bleeding, indicative of a trance state (see Whitley, this volume), although this interpretation is subject to further investigation. Whiting (1950:59) describes shamans bleeding from their eyes and nose, but this seemed to have been a result of not using their power and therefore not a condition of trance. Enlarged eyes and bulbous heads are reminiscent of skulls. A suggestion of death imagery is also present in the occasional abstract indication of ribs (Figure 9; Cole 1990: Pl. 22; Schaafsma 1980: Pl.4). In

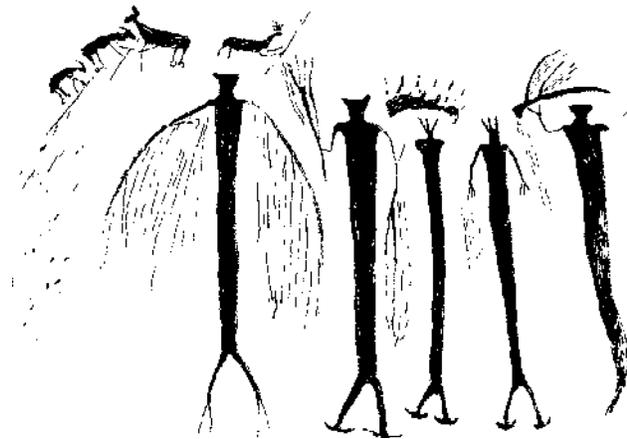


Figure 8. Transformational themes in this group include animals (upper left) holding staffs like humans and the large left-hand figure with wings. Feet are unnatural.

addition, there are other abstract designs in the body area of BCS anthropomorphs comprised of rows of dots, sets of parallel lines, wavy lines, zigzags, and so forth. These elements by themselves are recognized types of entoptic phenomena that can also be integrated with iconic images in a culturally defined manner (Lewis-Williams and Dowson 1988:202-203). Thus viewed, these seemingly "decorative elements" become another material artifact indicating trance state and, at the same time, they suggest transparency and inner body parts.

As mentioned earlier in this discussion, spirits of different categories are invoked for shamanic assistance, all of which may be pictured in the BCS. Power may be obtained through souls of dead shamans or souls of ancestors, and the source of power may differentiate types of shamans. The majority of familiar and helping spir-

its, however, have animal forms. Birds, insects, bighorn sheep, various quadrupeds, and other life forms lacking naturalistic counterparts are positioned near or within the body area of abstracted anthropomorphs (Figures 5, 6, 8, 10). The close relationships between man and animals, and the shaman's ability to share in the occult powers of the animal world is one of the major messages of shamanism in general and of these rock art compositions. Scenes in the BCS art are reminiscent of a Siberian Goldi shaman's costume painted with small figures of spirits over which he had control (Vastokas 1977:99-104). Birds and snakes, well known for their powerful shamanic associations, preponderate as spirit helpers. Birds in particular symbolize shamanic flight. Becoming a bird (Figures 5, 6, 8) allows one to take the ecstatic journey to sky and beyond, and in many places

in the world, bird elements are commonly incorporated into shamans' costumes. In the rock art, birds fly over and around the heads and toward and away from the bodies of the anthropomorphic forms (Figures 5, 8). Snakes, who gain strong shamanistic associations through their close relationships with earth and Underworld, and who rejuvenate themselves by shedding their skins, are powerful assistants. They are shown held in the hands or on or alongside the bodies of shamans (Figures 3, 6, 9, 10). Shamanic powers may also be obtained from "phantoms" and earth spirits (Eliade 1964:89). Depictions by shaman-artists of the spirit world invisible to the uninitiated may account for the inclusion of elements and animals in these scenes that lack natural counterparts (Schaafsma 1980).

In some BCS paintings, actual ceremonies seem to be in progress (Figures 6-8). Plants, potential spirit helpers, are held by ceremonial participants (Figures 7, 8). In a few scenes, elongated anthropomorphs appear to dance with bears or other animals (Schaafsma 1971: Fig. 78). Bears and other carnivores, perhaps dogs, are often pictured on a larger scale. The dog(?) at the feet of anthropomorphs in some panels seems to be a spirit of a different class and is perhaps a guardian or guide for the shaman's journeying soul. In Asia and the polar regions, dogs may

be helping spirits, but they frequently play the role of guard in Underworld scenes.

In addition to the scenes in which human-like figures and animals are shown in intimate association, there are pictures of transmogrification. Incarnation of a shaman into animal form (possession) equals his ability to die, forsake the human condition, for the sake of acquiring supernatural powers (Eliade 1964:93). Transformational themes seemingly related to shamanic death and rebirth are portrayed in a painting near Moab, Utah in which a snake or viscera (or both at once) are graphically painted inside an unidentifiable form (Figure 5). On the right of this central figure is a bird-headed anthropomorph flanked by plants and, on the left, an ambiguous headless form with animal feet. Both lateral figures are shown with small birds that fly toward the central motif.

Soul flight (the birds flying away) and organ renewal, both common to the initiatory experience, are suggested here. In a composition of small figures that apparently illustrates a whole ceremony, a bird flies upward trailing a line that ends with human feet, and snakes, one with sheep horns, have human arms (Figure 6 and Hedges 1985:90-91). Dashed lines falling from the mouth of one snake suggest facial bleeding, a phenomenon well documented in shamanic trance scenes elsewhere (Lewis-Williams 1982:434, Whitley, this volume). Another human figure in this group has roots growing from its feet. The most usual transformational image in BCS art, however, is the occasional portrayal of winged anthropomorphs (Figure 8), conflated imagery that directly suggests shamanic flight.

In addition, there are other animals lacking human characteristics that may symbolically represent shamans. Shamanic combat during altered states of consciousness and in animal form may be represented in rock art. Mountain lions challenging each other pecked in the cliff at the Great Gallery in Barrier (Horseshoe) Canyon suggest such an confrontation. Similar encounters are pictured in the Pecos River style (Kirkland and Newcomb 1967; Zintgraff and Turpin 1991) and Eliade (1964:94-95) cites cave drawings of Saymali Tas, in Kirgizin, in

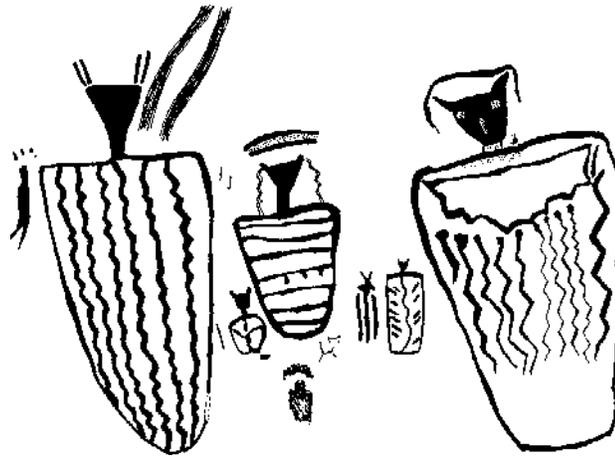


Figure 9. Figures from San Juan County, Utah. Body patterns include the small figure with "ribs" and the snakes on the right-hand figure with the head of a cat. Entoptic imagery is suggested by the geometric patterns. The dotted areas indicate white paint. Figure on right is around 1 meter tall.

which shamans contest each other in the form of reindeer. If the alter-ego dies in the fight, the shaman soon dies as well. Another scene at the Great Gallery portrays two fully human figures in apparent combat above a group of mountain sheep (Figure 3, lower left). This appears to be part of a larger group involving abstract shamans and sheep.

Variation and the personal style of individual artists can be distinguished from site to site and from panel to panel within large sites, indicating the limit of each artist's documented vision. The recurrent theme of the abstracted shaman figure with helping spirits in BCS art appears to be the repetitious portrayal of a scene that distinguishes each seance and the shaman's death and resurrection. Evidence of repeated painting activity at a site may signify that a given place or shelter was regarded as sacred or harbored supernatural power. Rock shelters where paintings are located may have been viewed as entrances to, or at least as sharing a proximity with, the supernatural realm, a widely shared perspective throughout the West and in Mexico (Ellis and Hammack 1968; Whitley 1992). Once paintings were already present, they may have established the place as "important" or "meaningful" for future generations of shamans to leave their work. In the Great Gallery in Barrier Canyon, there was a lot of available space and there are few superimpositions. In Shamans' Gallery in Grand Canyon (Schaafsma 1990), the space was relatively limited, but paintings were superimposed, and sometimes figures were touched up or refurbished. The eventual result is a many-layered painted surface in which images build on each other as if previous figures gave the new ones added significance.

BCS rock art and its accompanying shamanic world-view seems to have set the stage for a continuing tradition on the Colorado Plateau, although the historical nature of these relationships is not well understood. Later related styles that communicate some of the same concepts include the Abajo-LaSal style (Cole 1990:152; 157), and San Juan Basketmaker and Fremont rock art.

San Juan Anthropomorphic Style

The San Juan Basketmaker region is located in the lower San Juan drainage in southeastern Utah and northern Arizona (Figure 1). In this region and beyond, the early maize farmers were preceded by hunter-gatherers who produced rock art known as Glen Canyon Style 5 (Turner 1963) or the Glen Canyon Linear style (Schaafsma 1980:72). This style also contains anthropomorphs with shamanic characteristics but is beyond the scope of this essay. The rock art of San Juan Basketmakers has



Figure 10. Large anthropomorph with snakes and bird-like anthropomorphic spirit helper. The central snake and eyes of the anthropomorph are green and a row of white dots embellishes the lower edge of the horizontal open rectangle across the shoulders. Roughly life-sized.

its own formal stylistic attributes and an iconographic system distinct from that of the BCS. Nevertheless, the continuing emphasis on large, broad-shouldered human figures, with shamanic attributes and associated elements, strongly suggests that Basketmaker ideology was linked to older shamanistic traditions on the Colorado Plateau.

The substantial quantity of Basketmaker rock art throughout the Lower San Juan drainage and its tributaries is consistent with the long chronology heretofore described. It is also indicative of extensive rock art production during Basketmaker II. Sites are of two major types: 1) petroglyphs on exposed cliff faces and boulders, and 2) rock paintings within the protected area of sandstone rock shelters. As in the BCS, one is often able to identify distinct groups of figures that seem to have been created together as a group, probably by one artist. Some of the largest and most complicated San Juan Basketmaker petroglyph sites are along the San Juan River in Utah (Figure 4). There seems to be a discernible chronological development in Basketmaker rock art from early to late, as evidenced both by superimpositions as well as gradual style changes into Basketmaker III. Whether or not the San Juan Anthropomorphic style encompasses the early years of Basketmaker III is uncertain, but in no case are we dealing with imagery that includes the depiction of bow and arrow hunters. The bow was introduced into southern Utah at the end of Basketmaker II or in early Basketmaker III (Hurst and Turner 1993:160), although dates of A. D. 300 (Holmer 1986) or earlier (Janetski 1993:239; Reed 1990) have been proposed. Precise dating, however, is not a major concern here.

The dominant element of the San Juan Anthropomorphic style is a static human figure with drooping

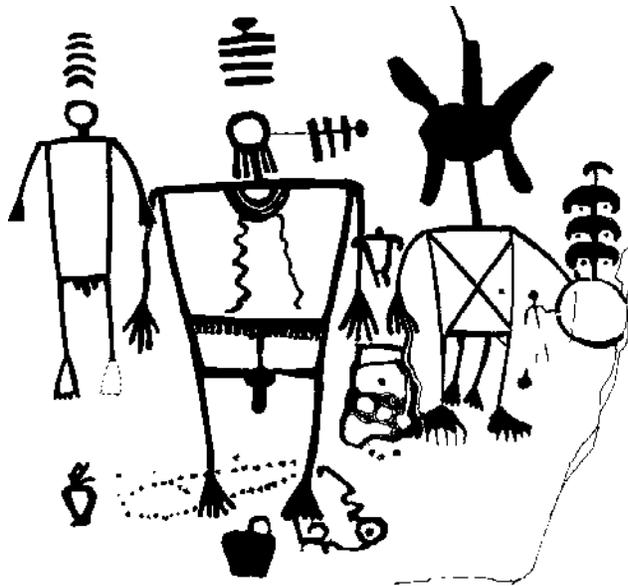


Figure 11. Detail of the Butler Wash panel. The central male figure has a left ear projection as well as a tiered headdress, a necklace, fringed belt. The figure to the right has clawed feet, and secondary legs hang from the baseline of the body. The left hand holds what appears to be a head surmounted by a tier of crescent shapes. The oversized head of this figure suggests that it might be masked. Large figures are approximately 1 meter

hands and feet (Figures 4, 11). These figures are usually larger than other associated elements, and size seems to have been a means of emphasizing their importance. They are often male, although females are clearly depicted at some sites (Cole 1993). Males and females are rarely paired, however. Formerly cited as merely a stylistic convention, the drooping attitude of hands and feet is herein regarded as having iconic significance, communicating information about the state of being of these anthropomorphs. Although it is possible that the souls of the dead or deceased shamans are the beings represented, the condition of immobility and lifelessness conveyed by this posture also suggests a trance state. As in the BCS, a complex of associated elements is also subject to interpretation via a shamanic paradigm. The secondary elements and details of the anthropomorphs themselves, however, are very different from those previously described. In contrast to their importance in the BCS, large staring eyes are only occasionally an attribute of Basketmaker figures (Cole 1993:Fig. 9.18). In some cases, eyes are outlined and, in some painted Basketmaker figures, eyes contribute to a skeletal aspect (Grant 1978:Fig. 4.56). As should be clear by now, shamanic

powers and death symbolism are not mutually exclusive subjects.

The typical elaborate towering headdresses graphically suggest communication with the spirit world and the celestial regions (Figures 4, 11). Elements projecting from the top of the head, especially those comprised of a series of crescents stacked one above the other, are common. The crescent headdress is the hallmark of the San Juan Basketmaker anthropomorph. In certain ethnographic situations, power is thought to reside in shamans "caps", and it is interesting that these towering and tiered headpieces are represented alone as significant objects in the lower Butler panel (Figure 4).

The significance of the contraptions issuing from the left ears of figures along the San Juan (Figures 4, 11) and in Canyon de Chelly (Grant 1978:Figs. 4.13, and 4.14) may lie in the realm of aural hallucinations. Special "hearing" is also a feature of a shaman's learning experience, necessary for communication with various spirits, understanding the language of plants and animals, and other secret languages (Eliade 1964:42, 96). These emanations suggest this kind of power. In almost every case the left ear is involved, and this may also have been meaningful.

It is noteworthy that material artifacts resembling these ear pieces or the characteristic headgear are almost nonexistent, in spite of the wealth of perishable material that has been retrieved from dry Basketmaker caves. A single piece of wood, flat across the top and inscribed with the figure of a bird, is one possible remnant of such a headpiece (Cole 1993: Fig. 9.17a and b). Such a near lack of material correlates, however, raises the question of whether we are viewing graphic representations of ideas or even natural objects.

These images could graphically illustrate concepts such as are found among the Huichol, who maintain that an animating soul or life force resides in (or emanates from) the top of the head (see Halifax 1982:83 for an illustration), as well as a belief in a multiplicity of souls (Furst 1977:17). At the same time the majority of these projecting devices or caps resemble mushrooms. I am not saying that this is what we see here (the wooden artifact isn't really mushroom-shaped) but, at the same time, hallucinogenic plants are commonly represented in art, and this possibility should not be overlooked.

Necklaces are also one of the most significant features of Basketmaker anthropomorphs and, in this

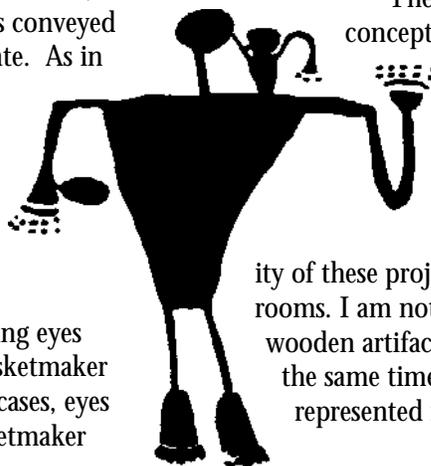


Figure 12. A Basketmaker anthropomorph with bear paw hands. A small figure "rides" on the left shoulder. Large figure is less than

context, may have been important power objects. In various cultures, necklaces are viewed as representing a certain status, or they signify supernatural power in themselves. Webber (1977:118-121), for example, describes necklaces made by Naskapi shamans of the Quebec-Labrador Peninsula that are worn by patients for life-time protection. The necklace of a Nepali shaman symbolizes the teacher who guided him through his apprenticeship (Hitchcock 1977:41-43), and the power of guru is passed on in this manner. Among the Zuni, rank and position of certain kachinas may be indicated by the necklaces that they wear (Bunzel 1932:871). On the Southern Plains, necklaces made of the red beans of *Sophora secundiflora* worn by peyotists are a historical linkage with the shamanic red bean medicine societies that prevailed before the latter were replaced by the peyote cult (La Barre 1964:126-127).

Other elements that suggest supernatural connections and powers are the lines extending from fingers (Figure 11), and the occasional small anthropomorphic form standing on or floating above the left shoulder of larger human figures (Figure 12). Upside-down anthropomorphs lack elaborations; some are even headless, and in themselves provide few clues as to their meaning. One occurs directly beneath an elaborate medicine bag, and the two figures appear to have been executed as a unit (Figure 13). In the context of shamanic imagery, these figures could depict the symbolic death of the neophyte or shaman entering a trance. Falling figures in the Pecos River style are combined with bird characteristics and are described as shamans falling back to earth from their celestial journey (Zintgraff and Turpin 1991:22).

Masks may be pictured in a few sites, either being worn or as separate elements (Cole 1989:64-65), although they are not common. Masking is a general phenomenon, and there is no indication that Basketmaker II masks have anything to do with kachina masks (Schaafsma 1980). Masking is consistent with shamanic transformational apparel, and the unusual representation of a possible animal mask (Cole 1989: Fig. 3b) could at the same time represent a shamanic spirit helper (Furst 1977:2).

Animals, birds, and other life forms in rock art are usually represented for their symbolic value. The close affinities of the Basketmaker figures to animals and other elements in the environment are for the most part illustrated differently in Basketmaker work than in the BCS. With the exception of the bird-headed figures (see

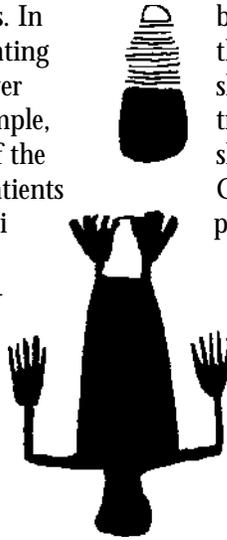


Figure 13. Upside-down Basketmaker anthropomorph below a medicine bag. Human figure is about 40 cm tall.

below), these associations as expressed through the art are less consistent. Man-animal relationships are most tenuously expressed where animal tracks, usually those of bears or carnivores, are shown in conjunction with the anthropomorphs. One figure at Butler Wash, however, has a sheep pecked in the chest region. Similar figures also occur in the BCS (Noxon and Marcus 1985:Fig. 66; Schaafsma 1980: Fig. 44). Cole (1989:77, Fig. 3a) discusses the shamanic import of the close spatial relationship between two large birds and the central anthropomorphic figure in a Butler Wash panel. Basketmaker figures with clawed feet or bear paw print hands combine human and animal forms (Figures 11, 12). It is the repeated image of the bird-headed shaman, however, that is the transformational figure par excellence in Basketmaker art. Evidence from superimpositions and stylistic trends suggest that these personages occur in the latter part of the Basketmaker sequence. The

importance of birds in shamanic iconography and transformational imagery with implications of travel to other realms is universal (Eliade 1964; Turpin, this volume) and has been discussed in connection with the BCS.

Instead of winged anthropomorphs and bird spirit helpers, however, in Basketmaker rock art we find shamans with birds on their heads. These birds are sometimes identifiable as ducks or other water fowl and turkeys (Figures 14, 15; Grant 1978:4.4, 4.22). (Note that in some cases Grant's chronology is subject to revision). Birds as or on heads of human figures, as well as three-digit hands and feet, emphasize the idea of avian transformation and, in some cases, flight and access to the sky. In a few cases, these bird-heads actually have their upper arms raised and/or legs bent and appear to be flying (Grant 1978:Fig. 4.22 c). Keeping in mind the temporal discrepancy between the Basketmakers and the contemporary Pueblos, Pueblo symbolism may provide more specific clues as the significance of ducks and turkeys in this context. Based on natural models, some symbolic meanings and metaphors, once set in motion, may have remained consistent over a long period of time. The strongly liminal nature of the migratory duck, that is at home in the sky, on and even under the water, is a natural model for mobility in several realms. The duck's linkage with supernatural travel among today's Pueblos is discussed at length by Tyler (1979:132-141). On the other hand, the more earth-bound turkey is linked with the Underworld and the dead, as well as clouds and rain, its home being in the mountains from whence the rain

comes (Tyler 1979:101-106). These associations among the Pueblos may well throw some light on the shamanic significance of these birds among the Basketmakers. In Basketmaker rock art, bird-headed shamans are frequently shown engaged in activities such as hunting with atlatl and darts or carrying a handful of projectiles. A search beyond the mundane for possible explanations for these figures opens up a world of fundamental shamanic metaphors.

Along the San Juan, duck-headed figures occur in pairs at some sites and are depicted as speared in the torso or leg (Figure 14). The meaning of these scenes is ambiguous, and several meanings or implications are possible. Shamanic combat may be the subject. D'Azevedo (1986:491) describes a contest or demonstration of power between Washo shamans in which each would try to prove his superiority over the other "by deflecting arrows." A specialty of shamans among Numic speakers in the Great Basin was their invulnerability to arrows (Steward 1943:285-286; Whiting 1950:28). In addition to real arrows, sickness projectiles may be hurled by sorcerers, supernaturals, or ancestral shamans. In other shamanic contexts, however, arrows (or other projectiles) can assume positive magical properties. Among the Huichol a feathered arrow may symbolize magic flight. In the latter case, the arrow is aimed for the purpose of electing a neophyte to undertake the shamanic journey (Furst 1977:23), and the arrow becomes a symbol of submission to a higher order of knowledge (Halifax 1982:5). In this case, the arrow could be identified with symbolic death and trance. Speared Basketmaker figures compare

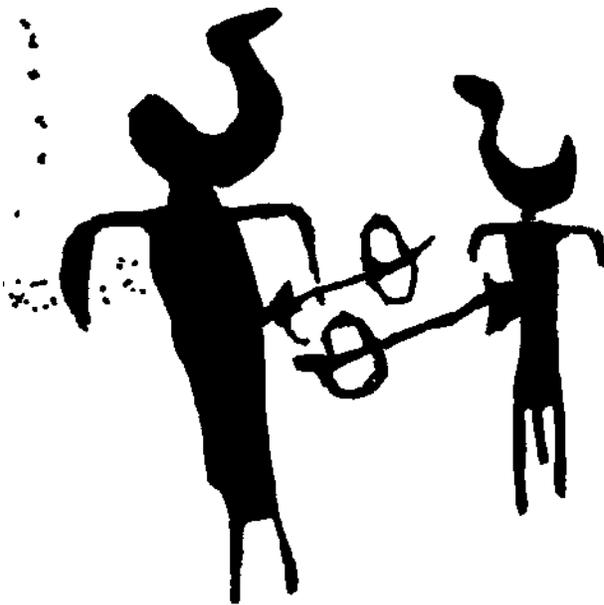


Figure 14. Bird (duck?) - headed shamans pierced with spears, San Juan County, Utah. Figures are roughly 30 cm tall.

well with the carving of an Eskimo shaman harpooning himself (Halifax 1982:4). Scenes showing shamans (indicated by their headgear) hunting with atlatls and darts also evoke complicated explanations within the shamanic paradigm as metaphors of death and the acquisition of power. A mountain lion hunt scene (extraordinary in itself) with the cat speared in the nose by bird-headed hunters features an over-sized medicine pouch (Figure 15), further evidence of the ritual nature of this scene. Lewis-Williams (1988:5-7) in his study of San Bushman rock art convincingly shows how the death metaphor of trance is symbolized in dying animals:

When an eland dies, it releases its potency and the whole place becomes imbued with power. The hunters can then harness this potency for a particularly efficacious trance dance ... (Lewis-Williams 1988:7).

Paintings of dying antelopes are seen as analogous to "dying" shamans, and the antelopes are also symbols of the power thus released and made available. Adopting this line of reasoning, the significance of the mountain lion hunt takes on new meaning as the animal is viewed as the spirit helper of the hunters. Bighorn sheep are the more usual object of the hunting quest. Sheep as well as deer had (have) complex symbolic value in the Great Basin and the Southwest (Ezell 1961:76; Schaafsma 1992a:30; Tyler 1975:80-87; Whitley 1982:98, 1994). These animals functioned as spirit helpers connected with curing, fertility, as well as with rain and weather control. In the Pueblo world, the killing of deer was said to bring rain (Tyler 1975). In the ethnographic past, Numic rain shamans used paraphernalia derived from bighorn sheep. Sheep hunting scenes with hunters wearing shamanic headgear could be highly metaphorical showing attempts to gain access to supernatural powers with which to control these variables; killing the game conferred power to the "hunter. At the same time, both hunting success and the power to bring rain could be implied by hunting scenes.

Power objects, such as crooked staffs and medicine bags or pouches, are emphasized at some sites (Figures 13, 15). Both have been retrieved from archaeological contexts. In the rock art, they are represented in the hands of figures with shamanic attributes or as icons worthy of representation by themselves. Along the San Juan, medicine bags in the rock art are trapezoidal in shape with a carrying strap on top. Excavations have produced similar skin bags (Guernsey and Kidder 1921: 108, Pls. 32 and 38, Fig. 16). Medicine bags, an important part of the shaman's repertoire (Webber 1977:120), would have

contained important ritual objects and materials such as tobacco and/or other hallucinogens, corn meal, fetishes, and so forth.

Another object appearing in this rock art is a fetish made of the flayed skin from a human head (for detailed discussions see Cole 1984, 1985, 1989). In an earlier paper (Schaafsma and Young 1983), these "heads" in Basketmaker rock art were erroneously described as possible masks, as the carrying loop (Cole 1984) had gone unnoticed. Such an artifact was found around the neck of a Basketmaker female buried with an infant (Kidder and Guernsey 1919: Pl. 87a and b). In the rock art, head skins may be held in the hand (Figure 11) or pictured separately. Handprints (see below) may occur nearby indicating that either the image itself or the place where it was painted was thought to have supernatural power.

The significance of the flayed heads in Basketmaker rock art may be partially at least illuminated by a comparison with beliefs surrounding scalping historically in the Pueblos (Cole 1989:71-76). In contemporary Pueblo myth and ritual, scalps function as rain fetishes, and blood-letting resulting from decapitation was conceptually related to fertility (Tedlock 1972:85-132). This seems to have been a widespread and generalized concept throughout agricultural America, involving the concepts of reciprocity and cosmic order. Trophy heads in the hands of priests and warriors on Paracas and Nazca textiles and ceramics are depicted with plants growing from the issuing blood (Anton 1987). Following this line of thought, in the hands of shamans, these fetishes, as well as functioning as rain fetishes, may have embodied the concept of preserving a balance with nature for an agricultural people. It is worthy of note here that several sites containing good paintings of fetish head skins are situated close to large springs, such as Green Mask Cave in Grand Gulch. Parallels between Basketmaker and Pueblo scalp ceremonialism, however, which would have had very different social contexts, cannot be inferred. One should be careful to note as well that there seems to be a hiatus in scalp representations between the literally represented Basketmaker fetish heads and the highly metaphorical scalp symbolism in Pueblo rock art after ca. A.D. 1325 (Schaafsma 1992b:167).



Figure 15. Basketmaker hunt scene showing a sheep with four spears, a spear above becomes a spiral with an anthropomorph attached. To the right, a bird-headed hunter spears a mountain lion in the nose. To the right is a very large medicine bag. Scale unavailable. Distortion in the drawing is the result of the angle at which the photograph (the source of the drawing)

Finally, within this shamanic framework, stamped painted handprints, found around and on top of painted Basketmaker anthropomorphs, and fetish heads suggest that the supernatural power controlled by the images may have been sought by others. The place itself, by virtue of the presence of the images, may also have been regarded as powerful. Offerings left at shamans' graves among the ethnographic Pima (Ezell 1961:79) suggest loosely analogous behavior.

This essay, which focuses primarily on seeking distinctly shamanic elements in the rock art, has not specifically addressed the economic, social, and political functions of shamans and their activities within the contexts of hunter-gatherers and the early farming societies on the Colorado Plateau. In the most general sense, shamans as important members of small social groups would have rallied

their special powers for purposes of exerting control on the unpredictable forces of nature. Issues of fertility (see also Cole 1989) and weather control have been addressed in the preceding discussion in relationship to specific kinds of images. It is reasonable to suppose that curing was a major shamanic function. Hunting success may also have been the object of shamanic ritual although the symbolic value of game animals is probably exceedingly more complex than it appears on the surface. Evidence of fighting and scalping in the archaeological record (Hurst and Turner 1993) suggests that warfare may have been another area in which shamanic powers were sought by the San Juan Basketmakers.

Discussion and Conclusions

This exploration into Barrier Canyon style and Basketmaker rock art has revealed evidence for a strong shamanic tradition among both hunter-gatherers and the first farmers on the Colorado Plateau. The two rock art complexes discussed in this essay are replete with themes that appear to portray shamanic trance, metaphorical death, magical flight, and transformations. Together, they indicate that shamanistic practices lay behind the production of this rock art and, in turn, that shamanism played an important role in these societies. The large,

often broad-shouldered shamanic anthropomorph central to both styles suggests some degree of historical ideological relationship between them, even though for the most part they occupied different regions. How to resolve the perception of ideological continuity on the Plateau, as suggested by the rock art, with the proposal that corn was brought into the San Juan drainage by immigrant San Pedro groups (Lipe 1993:6; Matson 1991) is a challenge for future research. Rock art encodes symbols, metaphors, and cosmologies of cognitive systems that motivated and gave reason to the behavior of members of these societies. Ideology provides some insight to the ways man viewed his universe and sought to control or influence his environment according to his needs. The ideological dimension that necessarily influenced social processes and economic pursuits is overlooked in traditional archaeological research that focuses on problems of dating, settlement patterns, subsistence, and other mundane aspects of life. Methodologies to bring these different aspects of prehistory together would greatly enhance our understanding of these cultures and how they interacted with their environment. The significant roles played by shamanic practitioners would not be reflected in the Basketmaker II architectural patterns. On the other hand, status differentiation in Basketmaker burials is indicated by the richness of associated offerings that include exotic items, such as turquoise and shell (Janetski 1993:226). These burials could be those of powerful people, such as shamans. The findings here seem to be somewhat in conflict with more traditional views that tend to relegate shamanism to hunter-gatherers. In a recent statement that acknowledges the accumulating evidence for a heavy dependence on maize farming in southern Utah during Basketmaker II, Lipe (1993) has argued that "a focus on commemoration and veneration of ancestors and lineage, and the promotion of fertility" is more characteristic of agricultural societies than is shamanism. In response, it needs to be pointed out that both recent and past research have clearly demonstrated that shamanistic practices are not in conflict with ancestor veneration, even in highly complex societies such as the Maya (Schele and Friedel 1990), or with other complex systems such as pre-Buddhist Tibet (Gettelman 1989:40). Curing rituals involving shamanic animal transformation have remained a vital practice in the Pueblos into the ethnographic present (Stevenson 1904:562-563). Thus, indications of shamanism among the Basketmakers are hardly surprising or subject to doubt.

Acknowledgments

I want to take this opportunity to thank Solveig Turpin for inviting me to participate in this volume. I am indebted to Jim Duffield and Dennis Slifer for their loan of photos from which to make drawings, and Curt Schaafsma for reading the paper and commentary.

Polly Schaafsma, "Trance and Transformation In the Canyons," *Shamanism and Rock Art in North America*, Solveig A. Turpin, ed. (Rock Art Foundation, Inc., 1994).

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Early Archaic Clay Figurines

From Cowboy and Walters Caves in Southeastern Utah

by Nancy J. Coulam & Alan R. Schroedl

Abstract

Excavations at Cowboy and Walters caves in southeastern Utah in the mid-1970s uncovered an assemblage of unfired clay artifacts unlike any previously described types. Analysis of these clay artifacts in 1994 demonstrated that some of them were manufactured during the Early Archaic period. The unfired clay figurines from the Early Archaic deposits at these sites have been assigned to a new type called Horseshoe Shouldered figurines. These unfired anthropomorphic figurines are the earliest figurines in the Southwest, and have a suspected time range of 5600 to 5000 B.C.

During the summer of 1975, a University of Utah field school excavated Cowboy Cave and Walters Cave, two large, adjacent sandstone caves in southeastern Utah (Figure 1). Because the sites were dry, a large range of perishable and nonperishable artifacts was recovered, notably a series of diagnostic projectile points, distinct sandal types, split-twig figurines, a cache of corn, and unfired clay figurines. Unfortunately, a description of the cultural features at the sites was not included in the published report by Jennings (1980). In correcting this deficiency and describing the features of Cowboy Cave in relation to the radiocarbon dates and the stratigraphic sequence, Schroedl and Coulam (1994) showed that, contrary to Jennings's assertion, about half of the fill in Cowboy Cave represents Early Archaic deposits. The Early Archaic occupation starts in Stratum IIb and continues through Stratum IVb (Figure 2), representing the time period from about 7430 to 5260 B.C.

In light of this revised stratigraphic and chronological sequence, we reviewed some of the artifacts from the site to assess whether the original analysts had overlooked any temporally significant artifact classes. Our analysis revealed that a previously unrecognized clay, anthropomorphic figurine type is stratigraphically and chronologically restricted

to the Early Archaic deposits at Cowboy Cave and Walters Cave. This figurine type, which we call the Horseshoe Shouldered type, is important because of its resemblance to the Barrier Canyon style rock art (Schaafsma 1971) of the northern Colorado Plateau, and because of what may eventually be inferred from these artifacts and rock art motifs about the behavior of Early Archaic hunter-gatherers in the Southwest.

Unfired Clay Objects at Cowboy and Walters Caves

Hull and White (1980) describe the collection of 144 unfired clay artifacts from Cowboy and Walters caves. In addition to clay fragments, Hull and White discuss four unfired clay artifact classes: clay figurines, thimble-shaped objects, loaf-shaped objects, and a cornucopia object. Because these unfired clay objects were recovered from all four of the cultural units (Units II, III, IV, and Unit V), which date between 7430 B.C. and A.D. 640, Hull and White failed to search for temporal or stylistic variability in the unfired clay artifacts.

In 1994 we attempted to examine each of these four artifact classes in the collections at the Utah Museum of Natural History. We reexamined most of the figurines, "thimble-shaped objects" and decorated fragments, but could not locate the loaf-shaped objects nor the cornucopia object. The three loaf-shaped objects were not illustrated or described in Hull and White's report (1980). The single cornucopia object, identified as field specimen (FS) number FS 1548, is illustrated in Jennings (1980:Fig. 45g). This object, from Stratum Vb, dates to A.D. 70 or later and is comparable to the "funnel-shaped objects" reported from Basketmaker contexts in northern Arizona (Guernsey 1931:87) or to the "conical vessels or hollow cones" re-

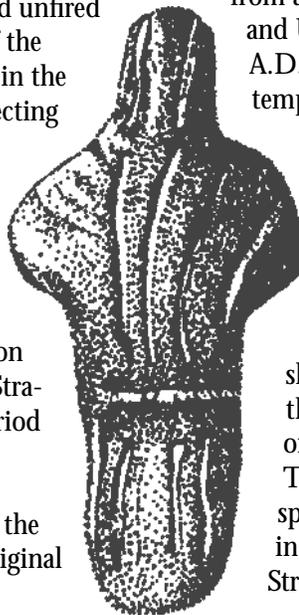


Figure 3. Drawing of Horseshoe Shouldered clay figurine from Cowboy Cave at the Utah Museum of Natural History.

ported from late strata at Danger Cave in northern Utah (Jennings 1957:208). These objects have been interpreted as miniature replicas of burden baskets and are considered diagnostic of post-Archaic periods.

After reviewing the original analyst notes at the University of Utah Archives, we were able to reconstruct the field specimen numbers for almost all of the reported unfired clay items from Cowboy Cave. This information is presented in Table 1. It should be noted that the provenience distribution of the artifacts does not correspond directly with the table presented by Hull and White (1980:123). Table 1 corrects several provenience errors in their table and analysis. First, Hull and White incorporated the unfired clay figurines and objects from Walters Cave into their table. While the five gross cultural units were correlated between Walters Cave and Cowboy Cave, individual strata between the two caves were not matched up (Schroedl and Coulam 1994:26); thus, Hull and White's table contains spurious data. Second, their table does not include unprovenienced specimens. And, third, it appears they misread FS number 1740 (a conical object), as FS 1240 and erroneously assigned this object to Stratum Iib.

The provenience information in Table 1 is considered accurate for the objects we actually handled or could review from the published photographs. We were unable to determine the correct FS number for two miniature figurine fragments (Jennings 1980:Fig. 47b and c) that are currently displayed in a sealed, permanent exhibit case at the Utah Museum of Natural History. (The museum does not have a listing of the FS or catalog numbers for artifacts in this sealed case.) These two specimens are probably FS 819 and FS 823 (Figure 3c and d), although we are unsure which specimen is associated with which FS number. After reviewing the literature and reexamining most of the artifacts, we have reclassified the Early Archaic unfired clay artifacts into the named categories described below.

Anthropomorphic Figurines

Our reanalysis demonstrates that unfired clay anthropomorphic figurines from Cowboy and Walters caves can be grouped into two types based on morphological characteristics as well as stratigraphic and chronological differentiation. We call these two types Horseshoe Shouldered and Pinched Nose. Hull and White (1980:122) attributed all the clay anthropomorphic figurines in Cowboy and Walters caves to a single "handle terminus" form, perhaps because they were hesitant to believe that some of the figurines could be more than 6000 years old. In light

of the radiocarbon discussions presented in Schroedl and Coulam (1994), unfired clay figurines and objects from Strata IIIj through IVb at Cowboy Cave date to the Early Archaic period (7400-5100 B.c.), making them the earliest clay artifacts identified on the Colorado Plateau.

The Early Archaic figurines from Cowboy and Walters caves are morphologically distinct from the three figurine fragments recovered from Unit V (A.D. 70 — 640) of Cowboy Cave. These three specimens (FS 811, FS 1909, and FS 1918) have pronounced nose ridges. See Jennings (1980:Fig. 47g and h) for an illustration of FS 811 and FS 1909. FS 1918 also has breasts and decorated lines. All three are comparable to specimens illustrated in Morss (1954). In his definitive study of unfired clay figurines from the Southwest, Morss did not define any specific types, although he did distinguish clay figurines from the "Northern Periphery" as a northern tradition and figurines from Hohokam and Mogollon areas as a southern tradition. Because of the unusual nature of the clay figurines found on Fremont sites in the "Northern Periphery," he distinguishes them as a regional style separate and distinct from northern Pueblo figurines.

Most of the specimens Morss described were recovered from Formative sites, which could easily be dated by ceramic cross-dating. Only two Basketmaker II figurines (collected from aceramic contexts) were known at that time (Morss 1954:10-12). One was collected by the Wetherills from a Grand Gulch Basketmaker II site (Cave 26) in the 1890s. The other Basketmaker II figurine was collected by Guernsey at Cave 14 in Sagiyotsosi Canyon. These specimens exhibit a distinctive nose ridge that is prominent on many later specimens and on the three specimens from Unit V at Cowboy Cave.

Besides having a raised or pinched nose ridge (Morss 1954:14), these Terminal Archaic and post-Archaic specimens have several other distinctive traits, including loaf-shaped torsos lacking arms, coffee-bean applique breasts, round holes or slit-ridge eyes, and, less commonly, hair bobs, necklaces, aprons, belts, and breech-clouts. Decorative punctations are not usually applied to the main body (cf. Morss 1954:14). Many of the figures have flat, plain dorsal surfaces indicating that the figurines were intended to be viewed from the front only.

Morss (1954) does not describe or illustrate any anthropomorphic figurines comparable to those found in the Early Archaic strata at Cowboy Cave. We believe these anthropomorphic figurines represent a previously unidentified class of figurines, which we call "Horseshoe Shouldered" figurines to distinguish them from later types with pinched noses.

Horseshoe Shouldered Figurines

Based on the recovery of ten specimens of this class from Cowboy and Walters caves (Table 1), Horseshoe Shouldered figurines at these sites have an estimated time range of 5600-5000 B.C. Illustrated in Figure 3a through d, this class currently represents the earliest known unfired clay figurine type in the Southwest. These anthropomorphic figurines range from 3 to 11 cm in length. They are constructed from a single piece of clay that was probably rolled and lightly smoothed into shape. Some of the figurines exhibit light polish, particularly around the base of the torso (what Morss calls the handle terminus). One of the figurines (Figure 3a) is also polished on one shoulder and along the side of its head. The figurines have pronounced, rounded shoulders and are generally oval in cross section. Some are plain, whereas others are decorated with incised lines (Figure 3a), punctated dots arranged in lines.

Conical Objects

Hull and White (1980) also identified several unfired clay items as “thimble objects.” Because we do not wish to attribute any function to these items, we label them conical objects (Table 1; Figure 4). Our review of the “decorated clay objects” class described by Hull and White (1980) shows that many were fragments of conical objects. Based on the whole and fragmentary specimens, we have developed a composite description of this artifact class. They are small (1 to 4 cm), unfired clay cones made from a single piece of clay. The thickest portion of the object is the rounded base and the thinnest portion is the sides or walls. The interior and exterior are finger smoothed but generally not polished. Most of the conical objects have broken rims. Broken cross sections look like miniature rim sherds. Many of the conical objects are decorated with lines of punctations, either dots or half-circles (Figure 4). The half-circles were probably made by pushing a grass stem into the wet clay.

The conical objects from Cowboy Cave were recovered from Strata IIIi, IVa, IVd, and Vd, suggesting a longer time span than Horseshoe Shouldered figurines. However, a refitting analysis demonstrated that several fragments separated both horizontally and vertically may actually be pieces of the same conical object. The refitting analysis, coupled with the stratigraphic reanalysis of Cowboy Cave (Schroedl and Coulam 1994), indicates that Late Archaic and Terminal Archaic occupants of the site dug pits into the Early Archaic strata. Some of the fragile clay artifacts were broken during these prehistoric pit excavations and were redeposited in the later strata where

the fill was discarded after removal from the pits. All the unfired conical fragments from Stratum IVd and from all strata in Unit V appear to have been moved up in the deposits and secondarily deposited. Thus we consider conical objects, like Horseshoe Shouldered figurines, to be temporally diagnostic of the Early Archaic period.

Clay Objects From Other Early Archaic Sites

We reviewed published information on 12 cave and rockshelter sites with probable Early Archaic assemblages for the presence of unfired clay objects. These sites (Bechan Cave, Black Rock Cave, Danger Cave, Dolores Cave, Dust Devil Cave, Hogup Cave, Joes Valley Alcove, Old Man Cave, Sand Dune Cave, Sudden Shelter, Promontory Cave, O'Malley Shelter) are scattered throughout the eastern Great Basin and northern Colorado Plateau (Figure 1). Several of the sites contained figurines or cornucopia-shaped objects in their post-Archaic strata — for example, Danger Cave (Jennings 1957) and Hogup Cave (Aikens 1970). However, the only sites besides Cowboy Cave and Walters Cave with clay objects from Early Archaic contexts are Sudden Shelter (Jennings and others 1980) and Dust Devil Cave (Lindsay and others 1968).

One of the unfired clay objects from Sudden Shelter is a tiny fragment that is broken along two lines of punctated dots (Jennings and others 1980:Fig. 67c). This object might be a conical object because it is curved, but it is too fragmentary to be sure. This item was recovered from Stratum 6. Another clay object from Sudden Shelter might be a Horseshoe Shouldered figurine, but the diagnostic shoulder area is missing. The object (Jennings and others 1980:Fig. 67a) is similar to the torso of a Horseshoe Shouldered figurine. It is decorated on one side with nine parallel chevrons of punctated dots. This figurine came from Stratum 7. Radiocarbon dates from Strata 5 and 8 provide bracketing dates for these clay artifacts from Sudden Shelter. The calibrated 1 sigma date for Strata 5 through 8 is 5690-4950 B.C.

Another unfired clay object from an Early Archaic context is the figurine reported from Stratum V of Dust Devil Cave (Lindsay and others 1968: 55). This is a mixed stratum including both Early Archaic (Desha) and Basketmaker components, but the authors state that the fragment of smooth, molded clay came from the Archaic portion of the stratum. Unfortunately, no photograph of the object is provided. According to the authors, not enough is present to determine its original form except to say that it appears to be part of a clay figurine.

Summary

This article provides a description of a previously unreported class of clay figurines that we call the Horseshoe Shouldered type. An Early Archaic type, it appears to be associated with small, decorated, conical clay objects. We have also reviewed other Early Archaic components in the northern Southwest, the Colorado Plateau, and eastern Great Basin for unfired clay figurines. Although they are rare, unfired clay objects are present in Early Archaic deposits. Based on limited dating information, we assign the Horseshoe Shouldered figurines and associated conical objects a possible date range of 5600-5000 B.C. These unfired figurines and objects predate those superficially similar specimens, such as pinched nose figurines and cornucopia-shaped objects, by more than 4000 years.

While we can attribute Horseshoe Shouldered figurines to a particular time of discard, we cannot provide specific functional interpretations based on the proveniences of the objects in Cowboy Cave, Walters Cave, or Sudden Shelter. We cannot tell if the objects functioned in the domestic sphere (as dolls or toys), as ritual paraphernalia (Talay 1993), or both. However, if we look beyond the immediate site proveniences, there is a striking resemblance between the Horseshoe Shouldered figurines and anthropomorphs depicted in Barrier Canyon style rock art (Schaafsma 1971). Schroedl (1976) was the first to conjecture that the prehistoric people who manufactured the clay figurines may have also painted the Barrier Canyon pictographs. However, recent efforts dating Barrier Canyon pictographs suggest that the rock art is only about 3000 years old (Tipps 1995), several thousand years younger than the date range for Horseshoe Shouldered style clay figurines.

We believe that there are more than coincidental similarities between the Early Archaic unfired clay figurines and the anthropomorphs in Barrier Canyon style rock art. It is possible that the dating on the rock art is in error, and that it actually dates to the Early Archaic. Another possibility is that Early Archaic objects at Cowboy Cave were moved upward and redeposited in later strata, to be uncovered by later people who depicted a similar motif in pictographs on nearby canyon walls. A third possibility is that the Horseshoe Shouldered motif remained part of the symbolism of the hunter-gatherers in the northern Colorado Plateau from the Early Archaic through the Late Archaic.

A considerable amount of basic archaeological work will be necessary to explore any of these hypotheses, but we hope that recognition of Horseshoe Shouldered figu-

rines and conical objects from Early Archaic sites in the northern Colorado Plateau will encourage archaeologists throughout the Southwest to look for similar connections between symbolic classes of archaeological data, such as figurines, and rock art. Only by looking for such spatial and temporal patterning in the archaeological record and comparing it with the ethnographic record of other hunter-gatherers (cf. Levin 1957) will we be able to learn more about Early Archaic ideology and how styles and cultural symbols within the Archaic were transformed through time and across the Southwest.

Acknowledgments

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Barrier Canyon Rock Art Dating

By Betsy L. Tipps

Barrier Canyon rock art in the Canyonlands area has long captured the interest and imagination of researchers and visitors alike. The age and cultural affiliation of the rock art are of great interest to the visiting public and, from a scientific perspective, essential to its use as a vehicle for understanding past human behavior. Thus, one of the specific research issues outlined in our original proposal for the Canyonlands Archeological Project concerned rock art dating (P-III Associates, Inc. 1984) as did our research design for the first year's field investigations (Tipps and Hewitt 1989:32). Funding for this work became available in 1987 and our contract was modified (National Park Service 1987) to allow us to attempt to date the Barrier Canyon Anthropomorphic Style rock art.

The age and cultural affiliation of this dramatic rock art style have been the subject of considerable interest for decades with proposals ranging from mere speculation to informed, well-reasoned approximations. Barrier Canyon Anthropomorphic Style rock art has, at one time or another, been attributed to every prehistoric culture known to occupy the northern Colorado Plateau with the exception of Paleoindian (e.g., Grant 1967:117; Gunnerson 1969:68, 158-159; Schaafsma 1971:128-135, 1980:61, 70, 1988:18; Schroedl 1977:262-263, 1989:17), and even to a protohistoric or historic people (Manning 1990:76).

Schroedl and Schaafsma have offered the most commonly accepted theories. In her early work, Schaafsma (1971:128-135, 1980:61, 70) hypothesized that Barrier Canyon rock art was made by pre-Fremont hunter-gatherers between 500 B.C. and A.D. 500. This suggestion was based on superpositioning, panel subject matter (e.g., lack of bow and arrow depictions), and stylistic similarities with an Archaic rock art style found in the Pecos River region of west Texas. The Pecos River Style is now believed to date to at least 2000 B.C. (Shafer 1986:142).

Following Schroedl (1977:262-263), who used the similarity between Barrier Canyon anthropomorphs and indirectly dated, unfired clay figurines from Cowboy Cave (Jennings 1980) to posit an earlier Archaic origin,

Schaafsma (1988:18) revised her dating for the style to 2000 B.C.-A.D. 1. More recently, Schroedl hypothesized that Barrier Canyon rock art could be as much as 6000-8000 years old:

... At... Cowboy Cave, clay figurines of human form were found with tapering torsos lacking arms, identical in shape to the body forms of Barrier Canyon pictographs. In fact, one of the figurines had a series of parallel lines down the torso similar to those found on many of the Barrier Canyon anthropomorphs. These figurines were found in a layer dated to about 6000 years old....

... The date of the analogous clay figurines ... suggests that Barrier Canyon rock art...

could ... [date] as early as 6000 to 8000 years ago... [Schroedl 1989:17].

As both authors recognize, these are only best guess approximations.

Within the framework of the contract and our research design, we made a concerted effort throughout our multi year Canyonlands Archeological Project to find means of ascertaining the age and cultural affiliation of Barrier Canyon rock art.

The Barrier Canyon Anthropomorphic Style

Barrier Canyon Anthropomorphic Style rock art is typified by large static, ghostlike anthropomorphs, usually portrayed in front view with elongate bodies that either lack or have diminutive appendages. Figures with arms often hold elements that have been interpreted as serpents or plants such as wild grasses (Schaafsma 1971:69, 1980:64; Schroedl 1989:16). Normally, gender is not depicted.

While almost all figures are elongate, their shapes vary. The most common form in the Canyonlands area is a long tapering body with rounded shoulders and very infrequent lower appendages; the bottoms of these figures usually terminate in a rounded arc, horizontal line, or

point (see Figures 28 and 31; Cole 1990:Plates 18-19, 21, 23; Noxon and Marcus 1982:Figure 105). Figures with shorter tapering bodies and more pointed, wide shoulders are also common (see Figure 31; Noxon and Marcus 1982:Figure 105); they usually lack lower appendages but tend to be more elaborately decorated than those in the first group. A third common body style is an elongate, slender rectangle or tapering rectangle. These figures often have short legs and feet (see Cole 1990:Plate 21; Noxon and Marcus 1982:Figures 94, 114; Schaafsma 1990:Figures 4 and 6).

Heads vary from rounded with little constriction for the neck, to bucket shaped with no separate neck, to flattened ovals with pronounced necks. Unpainted circles depicting hollow, staring eyes constitute the only common facial feature. Mouths are sometimes illustrated. When present, head adornment is generally simple and common only in the form of antenna and horns that occur alone, in pairs, or triplets on either side of the head. Other less frequent head decorations consist of crowns composed of short lines or dots and plantlike images.

Solid figures with no interior decoration are the most common. Torsos of some figures are highly decorated with geometric and anthropometric elements including dots, animals, small mummylike forms, spirals, and straight, wavy, or zigzag lines, sometimes arranged in broad bands; a few appear to depict ribs, spines, or intestines in x-ray mode.

Single Barrier Canyon anthropomorphs may occur in isolation. Normally, however, these large to larger-than-life-size figures appear in rows or groups surrounded by small human images, naturalistic renderings of animated zoomorphs that appear to represent mountain sheep, birds, dogs, and snakes, and occasional abstract designs consisting of zigzags, dots, and circles. The smaller humans are sometimes static, resembling the large forms, but are often animated and depicted in side view. Unlike the static forms, these animated images frequently have appendages and are often holding implements such as spears. Barrier Canyon rock art is usually compositional and symmetrical. Cole (1990:76-77) believes it sometimes relates a story.

The vast majority of Barrier Canyon rock art occurs as pictographs. However, some panels consist entirely of outlined or solidly pecked forms (e.g., Cole 1990:71; Manning 1990:44; Tipps and Hewitt 1989:109-111). In addition, the painted images often have incised, abraded, and pecked details (e.g., eyes, mouths, outlines) that occur as part of the original artwork or as later embellishments. Most Barrier Canyon images were executed on unmodified sandstone walls. Sometimes, however, the

rock face was smoothed or painted before the artisans made the figures (Noxon and Marcus 1982:43).

The painted figures are normally dusky or dark red with frequent buff or white embellishments, and occasional green, blue, bluish gray, black, or yellow highlights (Cole 1990:71; Gunnerson 1969:158; Noxon and Marcus 1982:112; Schroedl 1989:16; Tipps and Hewitt 1989:109). Buff, orange, black, black-red, and black-red-buff figures have also been reported in the Canyonlands area (Brunsman 1986; Noxon and Marcus 1982:204; Tipps and Hewitt 1989:108-111; this report). Some figures are purple but this appears to be the result of the red figures being exposed to intense sunlight. Cook et al. (1990) report that pigment colors may alter with age due to oxidation, solar radiation, and exposure to differing moisture regimes, etc.

The characteristic dusky or dark red color of the majority of figures suggests that they were painted using ochre-based (iron oxide or hydrous iron oxide) paint. Indeed, the red pigment on a spall from the Flying Rug Barrier Canyon panel in the Needles District consists of hematite with a small amount of calcite (Swayze 1994).

Because the reflective properties of ochres vary with the state of oxidation and reduction, among other things, the present colors do not necessarily reflect the original colors when the figures were painted. The red figures may have originally been applied in yellow, orange, or brown (cf. Bednarik 1994:70).

Barrier Canyon Style rock art is believed to extend from the North Rim of Grand Canyon northeast in a broad band across much of eastern Utah into western Colorado (Cole 1990:Map 4). Thus far, it appears to be most common in the Canyonlands area of southeast Utah (Manning 1990:Figure 3).

Project History and Methods

Our first opportunity to address the age and cultural affiliation of the Barrier Canyon Anthropomorphic Style came in 1985 when we discovered Salt Pocket Shelter (42SA17092), a small overhang site with a simple Barrier Canyon anthropomorph (Figure 46)1 and dark, ashy, artifact-rich cultural deposits that could conceivably be coeval with the rock art (Tipps and Hewitt 1989:122-133). If we could demonstrate that the site was single component, and that the rock art and deposits were contemporaneous, then a date on the deposits could be applied to the rock art.

We obtained authorization to excavate a 1 by 1m unit at the site in 1986. The test pit contained up to 26 cm of unstratified cultural fill and an unlined hearth

that provided a radiocarbon date of 3340 +/- 100 years (Table 28). This date has a tree-ring calibrated age range of 1880-1410 B.C. at two sigma (Pearson and Stuiver 1993).

Based on an unauthorized and inaccurate personal communication from one of our crew members, Schaafsma (1990:215) erroneously reports that "... there was a convincing association between the fill and the rock art ..." (and hence the date) at Salt Pocket Shelter. Actually, the artifactual assemblage hints at an Early Archaic component in addition to Late Archaic materials so it is uncertain that the dated hearth and rock art are contemporaneous. In view of this, we concluded that "the association is certainly suggestive, but will be stronger if... other sites ...yield similar dates" (Tipps and Hewitt 1989:133).

The Claffin-Emerson Expedition apparently encountered a similar problem of uncertain association when they excavated at Horseshoe Shelter, a small site in Horseshoe Canyon with Barrier Canyon rock art and cultural fill. Evidence from the fill suggested

... that there may have been a nonceramic occupation of the site prior to its occupation by Fremont and/or Mesa Verde Pueblo II-III peoples. On the other hand, there may have been only two occupations, Fremont and Mesa Verde, or even a single mixed component ... [Gunnerson 1969:68].

The temporal placement and cultural affiliation of the Barrier Canyon artists were not clarified by the Salt Pocket Shelter test excavation.

Spatial and contextual associations between features, deposits, and/or artifacts and nearby rock art panels may imply contemporaneity, but temporal associations of this kind will always be suspect unless the pattern occurs repeatedly or special circumstances exist (e.g., the tools or paint drops actually used to create the rock art are recovered from dated contexts [e.g., Clottes 1994:3; Loendorf 1985, 1990]; or deposits burying or containing spalled fragments of rock art can be dated to obtain a minimum age [e.g., Clottes 1994; Cole 1988; Francis 1989; Kirkland and Newcomb 1967; Loendorf 1985; Morwood 1989; Tucker 1989; Walker 1989]). Shelter and overhang sites—the most common place for such associations—are particularly suspect because they are often used repeatedly through time. Even if features, artifacts, and deposits at a site are from a single occupation, it is still hard to prove that they are contemporaneous with extant rock art (e.g., Geib and Fairley 1992). Clearly, the most convincing data on rock art age will come from dating the panels themselves.

While several calibrated or numerical dating tech-

niques have been attempted (e.g., Bard 1979; Dorn 1994; Dorn and Whitley 1984; Francis et al. 1993; Loendorf 1991; van der Merwe et al. 1987; Whitley and Loendorf 1994), there is still no generally accepted, foolproof technique of measuring the absolute age of rock art. However, one promising technique is accelerator mass spectrometry (AMS) which requires only minute amounts of organic carbon (1 mg) for dating (Hedges and Gowlett 1986). Dorn (1994) and Francis et al. (1993) have used AMS carbon-14 techniques to date trace levels of organic matter incorporated into accreting varnish on petroglyphs and believe that it successfully estimates the rock art's minimum radiocarbon age. AMS can also be used to date pictographs providing the paint included an organic component supplying the radioisotope carbon-14 (e.g., Chaffee et al. 1994; Clottes 1994; Geib and Fairley 1992; Lorblanchet et al. 1990; van der Merwe et al. 1987).

AMS dating has a strong advantage over conventional radiocarbon analysis in that dating can be performed on minute amounts of organic carbon. This was an important consideration because National Park Service policy precludes collection of paint directly from intact pictographs and only trace amounts of paint are likely to be available on sandstone spalls from Barrier Canyon panels.

Barrier Canyon rock art appears to have been executed using at least two different techniques. One evidently involved coloring the stone with a lump of pigment much like a crayon; because the pigment was probably inorganic (e.g., hematite, manganese oxide, etc.), it is doubtful that figures created in such a fashion would contain organic carbon related to the date of their manufacture. This may be the reason that no organic binder was identified in the sample of red pigment recently tested from the Flying Rug Barrier Canyon panel (see above). To date, the "color-crayon" technique has only been observed on the red figures.

The other method involved the use of paint consisting of ground pigment suspended in a liquid medium. The paint appears to have been applied with fingers, brushes, and occasionally by blow-spraying (Noxon and Marcus 1982:256). While the pigment in such paint was likely inorganic, aboriginal peoples are believed to have used organic binders such as animal fat, vegetable oil, blood, urine, or egg white to mix paint (Grant 1967:14; Loy et al. 1990; Rudner 1982; Sanger and Meighan 1990:26; Watchman 1993a). Therefore, we thought there was a good chance of directly dating the rock art if we could locate samples that had been painted rather than colored.

We began looking for and soliciting fragments of

rock that had spalled off of Barrier Canyon figures to use for dating. The first sample became available in the fall of 1987 when a Canyonlands ranger, Gary Cox, discovered a chunk of painted sandstone that had spalled off a Barrier Canyon anthropomorph at the Great Gallery (site 42WN418). This site lies in Horseshoe Canyon, northwest of the Maze District in extreme northeastern Wayne County.

In the United States, AMS dating of rock art paint had been tried one time prior to our inquiry and the results were negative because the sample contained no organic carbon. This raised concerns about wasting accelerator time on nonproductive samples. As a result, Beta Analytic and the AMS facility in Zurich required that the paint on our samples be pretested to guarantee the presence of organic carbon (Murray Tamers, personal communication 1987). We were also concerned about the potential for contamination (cf. van der Merwe et al. 1987) by organic and/or inorganic carbon in the sandstone. Beta Analytic advised that the paint would have to be completely separated from the sandstone host rock to avoid contamination and potential overestimation of the age (Murray Tamers, personal communication 1987, 1988).

At the time, these two requirements presented an insurmountable problem. We knew of no procedures for cleanly separating the faint traces of paint from the sandstone and, even if we had, the amount of paint on the sandstone was insufficient for available organic content tests.

We began soliciting additional samples in hopes of finding one with a better preserved paint. Julie Howard, then Bureau of Land Management (BLM) archeologist, Grand Resource Area, sent us a sample from Dubinky Well (site 42GR382) in January of 1988. This site is situated in the Island-in-the-Sky uplands north of the park in southwestern Grand County. Gary Cox returned to the Great Gallery in May of 1989 and discovered additional pieces that had spalled off of the panel. None of these pieces retained sufficient paint for the available techniques so we continued to store the samples with the hope that improved techniques would eventually allow the paint to be dated. In the meantime, we kept looking for samples with thicker coats of preserved paint. A site with such samples, 42SA20615, was found during the Squaw Butte inventory reported in this volume.

The site 42SA20615 samples were sufficiently large for the required analysis but we were unable to process them because the fees charged to private consulting firms for the dating and analysis exceeded available funding in our contract. Fortunately, government agencies engaged

in research efforts could obtain such analysis and dating at minimal expense. A contract modification was initiated to delete this task from our contract and transfer it to the National Park Service. All samples were subsequently turned over to Canyonlands National Park.

The most serious technical difficulty in directly dating pictograph paint has been in isolating and extracting the organic binder without also incorporating carbon from other sources such as modern organics, atmospheric carbon dioxide, the rock substrate, or carbon-containing mineral overcoatings such as calcium oxalate and calcite that might be present in the paint (e.g., Whitley and Lendorf 1994). This is extremely important. Because such minute amounts of carbon are dated, the effects of any contamination are pronounced (Chaffee et al. 1994).

Chemist Marvin Rowe and his colleagues at Texas A&M University have been experimenting with direct dating of rock art for several years and have developed a procedure that selectively isolates the organic carbon from rock art paint (Russ et al. 1990, 1991, 1992). Briefly, this method uses high vacuum techniques and low temperature, low pressure, oxygen plasma to oxidize the organic component in the paint and collect the carbon as gaseous carbon dioxide (CO₂) which can then be dated using AMS carbon-14 techniques. This method makes it possible to extract organic materials from any type of pigment that contains preserved organic binders (not just charcoal pictographs). It also overcomes problems of possible contamination from inorganic carbon in the host rock and subsequent mineral overcoatings. Rowe and colleagues have had good success with this technique in some areas (Chaffee et al. 1994). However, in the Canyonlands area, there have been some problems with contamination from an organic component in the host rock.

Nancy J. Coulam, Canyonlands archeologist, submitted four of the samples (two from site 42SA20615 and one each from the Great Gallery and Dubinky Well) to chemist Marvin Rowe at Texas A&M University for initial processing. As noted previously, the site 42SA20615 samples consisted of pure pigment that had spalled off of Barrier Canyon figures. The samples from Dubinky Well and the Great Gallery consisted of faded traces of paint on sandstone spalls. After initial processing, the Dubinky Well and Great Gallery samples contained a large amount of sandstone debris (Rowe 1993:1). Rowe was concerned that the sandstone might contaminate the samples so he processed additional samples from the bare rock adjacent to the paintings on both the Great Gallery and Dubinky Well specimens as controls. These two control samples along with the four samples from the paint were dated at the Facility for Radioisotope Dating at the University of

Arizona.

Since the submission of the original specimens, Dr. Coulam has continued to search for, collect, and date samples relevant to dating the Barrier Canyon rock art style. As part of this ongoing effort, she has recently dated features on two sites with Barrier Canyon rock art—the Harvest Scene (42WN665) and site 42WN766. Neither date is on the rock art itself, but both add to the growing body of potentially relevant information, much like that provided by Salt Pocket Shelter.

The Sites and Dating Information

Site 42SA20615

As discussed previously in this report, site 42SA20615 is a multicomponent site that was intermittently inhabited from as early as circa 4000 B.C. until A.D. 1100-1275+/- (see Chapters 4 and 6). It has five rock art panels consisting mainly of Barrier Canyon Style anthropomorphs, zoomorphs, and zigzags, as well as dots, mountain sheep, and sprayed and stamped hands considered to be Anasazi (see Chapter 4 for a complete description). Anasazi pictographs overlie some of the Barrier Canyon figures at the site, but not those sampled for dating.

As noted in Chapter 4, the last few bits of thick mud paint or slip remaining on the orange horned Barrier Canyon anthropomorphs in Panel 5 were rapidly chipping off the shelter wall. Pieces of this exfoliating paint were collected from two of the figures for analysis. One sample (FS 5) is from the orange horned figure on the left in Figure 32; the other (FS 6) is from the orange horned figure on the right in Figure 32. Sometime after the samples were transferred to the National Park Service, they were renumbered as 42SA20615-1a and 42SA20615-2a so it is not certain which sample is from which figure. This may not be important, however, because everything about the two figures suggests they are contemporaneous.

One sample yielded a date of 2710 +/-75 years B.P. (see Table 28). Unfortunately, the other sample (AA-9178) was lost during graphite preparation at the University of Arizona when air was accidentally let into the CO₂ from the sample (Chaffee et al. 1993:71; Rowe 1993:1).

Inadvertent incorporation of older or younger carbon into a sample is a concern with AMS dating due to the minute amount of carbon being dated. Before placing faith in a date, one must know precisely what is being dated and the potential for contamination. The sample from site 42SA20615 consisted of pure paint; when

viewed under an optical microscope, it showed no sign of any other material (Chaffee et al. 1994:71). Therefore, contamination from carbon in the sandstone should not be a concern. Rowe (1993:1-2, personal communication 1994) confirms that there is no reason to suspect contamination from this source.

Other sources of visible contamination were lacking. The pictographs showed no outward evidence of fungus, mold, lichen, water stains, mineral accretions, fecal or other organic matter, bird or insect activity, smoke blackening, or overpainting. And, they are well protected from surface runoff. Therefore, it seems reasonable to accept the date at face value and conclude that Barrier Canyon artists painted the orange horned images at site 42SA20615 sometime between circa 1000 and 800 B.C.

The Great Gallery

The Great Gallery in Horseshoe Canyon in the Maze is a shallow, north-facing rockshelter with numerous Barrier Canyon anthropomorphs and quadrupeds, mainly arranged in groups or rows for a distance of approximately 30 m along the shelter wall (Gunnerson 1969:65-67; Malouf 1941; Schaafsma 1971:75, Figures 72-74, Plates 34-36). This site is the type locality of Barrier Canyon Anthropomorphic Style rock art. Unlike site 42SA20615, the Great Gallery is devoid of prehistoric cultural remains other than rock art.

The painted rock sample from the Great Gallery was found 3 m from the back of the shelter at the location shown in Figure 47. It had a solid red design and refit to the lower portion of the small red anthropomorph noted in Figure 47 (Gary Cox, personal communication to Alan R. Schroedl 1987).

The pictograph fragment sampled for paint had no visible contamination from smoke blackening, plant growth, animal matter, water, or carbonate, but the sample did contain relatively large amounts of sandstone after extraction from the rock (Rowe 1993:1). This sample yielded a date of 3400 +/- 65 (see Table 28). The unpainted sandstone control sample from the Great Gallery contained sufficient carbon to produce high levels of CO₂ and a date of 4010 +/- 55 years B.P. (see Table 28). Therefore, the date of 3400 +/- 65 years obtained on the paint is probably too old, having been contaminated by organic carbon in the sandstone host rock. There is no way to assess how much too old the date is; although the amount of sandstone contamination was high, it is uncertain how much it affected the date (Marvin Rowe, personal communication 1994). However, it is probably safe to tentatively use the date as a maximum date range

and conclude that the sampled figure at the Great Gallery was painted after 1900 B.C. (Rowe 1993:2). Referring to this sample and the one from Dubinky Well, which is discussed below, Chaffee et al. (1993:71) state, "... presumably the pictograph dates obtained can be taken as upper limits on their ages."

Dubinky Well

Dubinky Well in the Island-in-the-Sky is a large, north-facing overhang with Barrier Canyon rock art and evidence of occupation consisting of cists excavated into an indurated alluvial deposit, groundstone tools, a few flakes, and a yucca fiber bundle (Brunsman 1986; Delling and Delling 1963). Rock art at the site is composed of seven Barrier Canyon anthropomorphs: four executed in black, one in black-red-buff, and two in red only (Figure 48). Remnants of a black and red indeterminate and deteriorated image were also noted. The sample from this site was a large sandstone spall painted with parallel red stripes. There is only one red striped figure on the panel (the anthropomorph, the fourth from the left in Figure 48) so it must have come from that figure.

Like the Great Gallery sample, the Dubinky Well sample contained large amounts of sandstone (Rows 1993:1). Given that the unpainted sandstone control sample from the site dates older than the pictograph sample (see Table 28), the paint date of 2100 +/-50 is probably too old. There was no visible evidence of other contamination from the common sources discussed for the previous sites. Using the paint date as a maximum limiting age (cf. Chaffee et al. 1993:71), the red striped figure at the site would appear to date sometime around or after the turn of the millennium.

Other Sites

As noted earlier, radiocarbon dates are available from two features that lie beneath Barrier Canyon rock art panels in the Maze District of Canyonlands. The first site, 42WN766, is a long overhang that harbors a Barrier Canyon pictograph panel and a diverse artifact scatter (Cox 1994). This site is believed to have a single prehistoric component (Nancy J. Coulam, personal communication 1995).

Cox (1994:1-2) describes the rock art panel as follows:

The panel is crowded with figures. A row of four, tiny, Barrier Canyon style anthropomorphs, hovers directly above four plantlike forms growing up out of three rectangular clusters of dots. A zoomorph consisting of fingerprint

sized dots is superimposed over a cucumber shaped ghost figure.

A radiocarbon date of 2660 +/- 80 (Beta-75861) was obtained from an ash stain directly in front of the panel (Nancy J. Coulam, personal communication 1995).

The second site is the famous Harvest Scene (42WN665) or Bird Site (Schaafsma 1994) which Schaafsma (1971) used in her original definition of the Barrier Canyon rock art style. This site includes numerous life-size and larger-than-life-size anthropomorphs, often with wavy lines at their sides, small animals, flying birds and/or insects, and figures which appear to hold wild grasses. Some of the anthropomorphs are believed to either be stooped or carrying burden baskets and they hold objects that have been interpreted as tools (Castleton 1979:290-291; Schaafsma 1994:77). Most of the figures are painted but several are pecked (Castleton 1979:290-291). A radiocarbon date of 1860 +/- 50 (Beta-64818) was recovered from a large slab-lined hearth in front of the panel (Nancy J. Coulam, personal communication 1995).

The association between the dates and the rock art at these two sites is suggestive, but by no means definitive. It will be stronger if similar dates from better contexts are obtained at other sites.

Discussion

Barring some unexpected and heretofore unidentified problem with the plasma technique or contamination by modern organics, the date of 1010-780 B.C. probably provides a realistic estimate of the time period when the orange Barrier Canyon figures were painted at site 42SA20615. This date places the Barrier Canyon Style squarely in the Terminal Archaic period.

Though less certain than the site 42SA20615 evidence, other available data support this general temporal placement. The Great Gallery paint date of 1880-1410 B.C. is within a millennium (500-900 years older) of the site 42SA20615 date and, if it is too old because of contamination from organic carbon in the sandstone, the actual dates could be closer, lending more support to a first millennium B.C. time frame for the rock art.

The Salt Pocket Shelter hearth date (1880-1410 B.C.) is equally earlier than the site 42SA20615 date, but if the Salt Pocket Shelter date suffers from the old wood problem (Smiley 1985, 1994), the dates may be relatively contemporaneous. If we accept the site 42SA20615 date plus the Great Gallery date as an outside maximum age of the Great Gallery figure, together they lend support to

the association between the Salt Pocket Shelter date and the Barrier Canyon anthropomorph at that site.

Finally, the hearth date from site 42WN766 is statistically the same as the site 42SA20615 paint date at the 95 percent confidence level (Stuiver and Pearson 1993), lending credibility to the feature date-rock art association at this site as well. If old wood is a problem at site 42WN766, then the 42WN766 panel might be slightly younger than the site 42SA20615 panel. However, this difference should not be sufficient to reject the potential applicability of the 42WN766 date at the coarse level of chronological resolution at which we are working.

Together these four dates—the evidence from site 42SA20615 combined with the more tenuous evidence from Salt Pocket Shelter, site 42WN766, and the Great Gallery—suggest that the dated figures on these four sites were painted during the first or first and second millennia B.C.

With the limited dating evidence at hand, there is no way to accurately estimate the longevity of the style and, if it was protracted, whether these dates apply to the beginning, middle, or end of its maximum time span. However, given these four dates which potentially apply to the Barrier Canyon Style, the first and second millennium B.C. may represent the period of florescence when the majority of the rock art was produced.

The Dubinky Well paint date diverges from the other four dates—it is several hundred years later (340 B.C.-A.D. 10). In reality, this difference could be greater because the sample was evidently contaminated by older organic carbon in the sandstone. In light of the other four dates, this date will be more convincing when and if it can be confirmed through replicate analysis and dating of additional Barrier Canyon panels. However, it is obviously inappropriate to reject the date on the grounds that it diverges from expectations at this early juncture.

In the meantime, we do not have to look far for other evidence that tentatively corroborates the validity of the late Dubinky paint date. Without modifying the date to account for organic carbon contamination, independent evidence indicates that Dubinky Well was inhabited during the period indicated by the AMS date on the rock art paint. Six highly eroded circular cists are excavated in the alluvial hardpan on the shelter floor. Such cists are believed to date between circa 500 B.C. and A.D. 1 in southeastern Utah (Lipe 1970:100-101; Matson 1991:122-124).

Tentative support for the late date also comes from limited salvage work at the Rochester Creek site in central Utah (Smith 1980). This predominantly petroglyph site has one red, Barrier Canyon anthropomorph that was ex-

posed by pothunters digging along the cliff wall sometime after 1979. The pothunters also exposed a hearth.

In 1984, Loendorf (1985) profiled the pothole, sampled the hearth, and collected a small assemblage of artifacts—including a mano with a faint layer of red pigment adhering to it—from the soil the pothunters removed. The hearth provided a radiocarbon date of 1990 +/- 70 B.P. which has a tree-ring corrected age range of 170 B.C.- A.D. 200 at two sigma (Stuiver and Pearson 1993). Based on this radiocarbon date from a feature in soil that covered the pictograph and the ochre-stained mane that may have been used to prepare the paint for its production, Loendorf (1985:8) concludes that the red figure was painted around “the time of Christ.” The Rochester Creek date is statistically the same as the Dubinky paint date at the 95 percent confidence level (Stuiver and Pearson 1993).

The date of A.D. 70-320 from the Harvest Scene feature is slightly younger than the Rochester hearth and Dubinky paint dates. This may suggest that all three dates could be reasonably valid approximate estimates of when the Barrier Canyon figures were painted at those sites.

Let us assume for the purposes of argument that these three dates do represent the maximum age of or are older than the images. If so, they may well be giving us an indication of the style's longevity or showing that later people added to, embellished, refreshed, or emulated earlier Barrier Canyon figures for spiritual or other reasons. Ethnography and previous rock art research tells us that each of these scenarios is possible.

An example of a long-lived rock art style is provided by the Dinwoody petroglyphs found in the Wind River and the upper Bighorn River drainages of western Wyoming (Gebhard 1969; Gebhard and Cahn 1950, 1954; see also Tipps and Schroedl 1985). Recent AMS and cation-ratio dating suggests that it persisted from at least 6800 to 300 B.P. and was concurrent with other totally distinct styles (Francis 1994:39; Francis et al. 1993:731-732). Throughout its long history, the style evolved through time (see Gebhard 1969).

Without explicitly saying so, Cole (1990:70-72) implies that the Barrier Canyon Anthropomorphic Style was long-lived by her claims that it overlapped with the Glen Canyon Linear Style (Turner 1971), the San Juan Anthropomorphic Style (Schaafsma 1980), and Fremont rock art. Glen Canyon Linear is tentatively dated between 1000 B.C. and A.D. 500. The San Juan Anthropomorphic Style may date between 100 B.C. and A.D. 750. Fremont rock art is believed to date between A.D. 400 and 1350 (see Cole 1990:60, 109; Geib and Fairley 1992; Schaafsma 1980:109).

Australian literature contains numerous references to aboriginal custodians adding to, retouching, repainting, and renewing rock art images, apparently over considerable periods of time (e.g., Bowdler 1988; Elkin 1931; Layton 1992:17-26; Mowaljarlai et al. 1988; Utemara and Vinnicombe 1992; Walsh 1992; Watchman 1992). The best known examples are from the Kimberley area of western Australia though other examples are known (e.g., Watchman 1992).

In the Kimberley, aborigines tell of Wandjini, spirits that inhabited the land and created everything (Utemara and Vinnicombe 1992:25). When their time on earth came to an end, the Wandjini transformed into spectacular rock art images where their spirits still live (Crawford 1973:108). Placation of these spirits is of considerable importance to the aborigines because the Wandjini have great powers to send torrential rains, death, and destruction, but also to provide needed rain, an adequate food supply, and life itself (Crawford 1973:116). Retouching, repainting, and renewing the Wandjini images are part of the placation process.

... Art in the Kimberley is perceived as a tangible inheritance from the spiritual past for which the Aboriginal people have been charged with clear social responsibilities. They believe that for the intrinsic power of the image to remain effective, it must be cyclically renewed in the same way that nature is cyclically renewed. Life cannot be stagnated by study and preservation. Life moves in a never-ending cycle, and interruption of that cycle may result in chaos and death ... Aboriginal priorities lie with the spiritual power of the ancestral painting which, in order to remain powerful and meaningful to present and future generations, need to be spiritually recharged and freshened by repainting ... [Mowaljarlai et al. 1988:693].

Ethnographic accounts from the Kimberley district emphasize the association of retouch with adequate rain (Walsh 1992:50; Welch 1993:15). They also note the importance of retouch in ensuring an adequate food supply (Love 1930:7).

Where Wandjina made snakes or yams or honey or crocodiles, he painted them there. When we wanted to have plenty [of] yams or crocodiles, we would go back to that place and paint them again.... [Utemara and Vinnicombe 1992:25].

In the Kimberley case, the paintings were normally repainted just as they were, but sometimes, when the images were faded, the aborigines put in their "... own ideas of what had been there before" (Mowaljarlai et al.

1988:692). The long history of renewing the images has resulted in the addition of new motifs and noticeable stylistic shifts (e.g., Clarke and Randolph 1992:18), some of which are perhaps best considered emulations of an earlier style. An aborigine from the Kimberley district reports:

In some cases entire panels have been repainted, first obliterating the original panel under a background coating of white paint, and then repainting similar but not identical subject matter on top of the original paintings. One investigator identified paint up to 5 mm thick, with over 40 distinct layers in places ... [Mowaljarlai et al. 1988:693; emphasis added].

Confirming this archeologically, a researcher reports:

... In most cases, a bright white pigment (huntite) was spread over the faded image, and then the figure was repainted. With repetitious repainting over time some of these paintings have become 1 cm thick ... [Welch 1993:15].

Aborigines in the Kimberley are not concerned about stylistic shifts or modifications to the images because it is the process of renewing the figures and interceding with the spiritual authorities, not the product, that is important (Ward 1992:33).

Modern aboriginal modification of earlier rock art is not limited to the Australian continent. In northeastern Utah, modern Ute peoples are still adding to existing rock art (Blaine Phillips, personal communication 1987). Similar activities appear to have occurred in the past. Francis et. al (1993:731) document such a case in Montana. Schaafsma (1988:8) reports on another in Arizona: at Shaman's Gallery, there were "... numerous painting episodes ... Designs were frequently painted on top of previously existing ones, and old figures were added to or renewed."

There is ample evidence that Barrier Canyon images were also modified prehistorically through embellishments and renewal (Cole 1990:79-82; Noxon and Marcus 1982:141, 184; Schaafsma 1988:8; Steven J. Manning, personal communication 1994; personal observation). Noxon and Marcus (1982:153) suggest Anasazi emulation of the Barrier Canyon Anthropomorphic Style and it is possible that the style inadvertently evolved through repainting of similar figures after obliterating the earlier work with mud.

Some Barrier Canyon Style figures have been covered by mud.... In some instances, individual painted elements have been mudded over; in other cases, entire panel surfaces appear to have been covered with mud....

New images have been placed over mud in a few instances ... [Cole 1990:81].

Some Barrier Canyon Style figures have been painted on mudded surfaces.

Evidence to support these or other scenarios is equivocal at Dubinky Well. There is no obvious evidence of modification, repainting, or renewal but the figures are highly weathered, so later applications of paint may not be visible. Two of the anthropomorphs have unusual polychrome decorations and atypical L-shaped antennae that depart from standard Barrier Canyon characteristics. Could these represent a long standing tradition evolving through time or emulation of the original style by the original artists, their descendants, or a people of a different, and perhaps later, cultural group?

These questions cannot be addressed with the data at hand but they do point out the need and some potential directions for further research. First, we need to reexamine the definition of the Barrier Canyon Anthropomorphic Style. Schaafsma's (1971:65-82) original definition was based on less than 20 sites. Now there are potentially 155 or more known sites with Barrier Canyon Anthropomorphic Style rock art (Manning 1990:74). There is considerable diversity within this large group of rock art sites and upon close examination, it may be possible to isolate geographic or stylistic differences that have temporal significance. Such information will be critical in analyzing and interpreting additional absolute dates as they become available and placing the rock art in its proper cultural perspective.

Already, Schaafsma (1988, 1990) has posited the existence of a Barrier Canyon variant along the North Rim of Grand Canyon. This variant (as represented by Shaman's Gallery and a few other sites) shares many characteristics with the Canyonlands area Barrier Canyon style, but almost as many differences including, among others, more elongate body forms, narrower shoulders, round heads, large legs and phalli, extreme crowding and overpainting of the figures, and more frequent use of yellow paint (Schaafsma 1990:227-228). The age and cultural relationship of this variant relative to the classic Canyonlands Barrier Canyon images is unknown.

Even in the Canyonlands area, there may also be more than one temporally distinct type or evolution of the style through time. Note the three distinct body styles described in the introduction. Also, method of execution (e.g., painted, "colorcrayoned," solidly pecked, outlined by pecking) and color may be important. The occurrence of white Barrier Canyon figures super-imposed over weathered and faded red Barrier Canyon figures, among other things, led Manning (1990:59) to propose that

Barrier Canyon figures with white paint postdate those without it.

All substances used for white clay pigment poorly bond with rock faces and are, therefore, subject to more rapid exfoliation and deterioration than most other pigments. Ochre-based pigments such as hematite are the most long-lived because of their ability "... to penetrate sandstone pores, or to become chemically or physically bonded ..." (Bednarik 1994:70) to the rock. These pigment characteristics might provide independent evidence that white figures and embellishments are among the youngest of the preserved Barrier Canyon figures. However, it does not mean that white pigment was not used in older Barrier Canyon figures. It may have simply eroded beyond recognition. The poor bonding characteristics of white paint may have implications regarding the nature and breadth of the preserved rock art assemblage, especially if particular types of figures were executed solely in white. However, if white or other fugitive pigment composed only a small element of a figure largely executed in more long-lasting pigment, it should be possible to identify its former presence by consistent gaps in figures of other colors (Bednarik 1994:70-71; Welch 1990:111-112).

Subject matter may also be important in isolating styles or substyles that have temporal significance. Manning (1990:70-72, 74-75) claims to have found Barrier Canyon rock art with bow and arrow depictions and mounted horseman. These claims are hard to accept without better justifications of how and why they represent the Barrier Canyon Anthropomorphic Style and clear, scaled illustrations showing the figures in the context of the entire rock art panel. If verified, however, such panels might provide the very type of information needed to demonstrate the presence of multiple, perhaps temporally segregated styles within the group of rock art we now call the Barrier Canyon Anthropomorphic Style.

Second, we need to carefully look for evidence of evolution of the style through time, repainting, and modification. Each of these characteristics has a potential to provide insights on the longevity of the style and how the images may have functioned as part of a dynamic living culture. Reference to the work of Australian researchers, who have already considered and researched many of these types of issues, should be of considerable help in providing theoretical and methodological frameworks.

Third, while hypotheses and conclusions based on preliminary and tentative dating information may provide a starting point for further research, they require confirmation through replicate analysis and additional cases. Therefore, we need to be alert to dating opportunities,

especially those that may be lost because of weathering, erosion, vandalism, and theft.

For example, when site 42SA20615 was recorded in 1988, the thick mud pigment on the orange horned Barrier Canyon figures was rapidly exfoliating from the shelter wall. Today, nothing is left but staining. When Dubinky Well was recorded in 1963 (Delling and Delling 1963), a large piece of a Barrier Canyon figure had spalled off the panel and was lying on the floor of the shelter. This fragment was not present when the site was rerecorded by the BLM in 1986 (Brunsmann 1986).

Dating opportunities need not be limited to pigment spalling from panels or testing of features and deposits presumably associated with the images. Dating opportunities may exist in museum holdings. The 1930 Claffin-Emerson Expedition collected a rather large, oblong piece of modeled red pigment during their excavations at Cottonwood Cave (site SR 16-6), a reputed Basketmaker II site (Gunnerson 1969:47, 57, Figure 39f). This site has several Barrier Canyon anthropomorphs (Gunnerson 1969:56; Manning 1981) executed in what appears to be the same red pigment. If the presence of an organic binder can be confirmed through nondestructive reflectance spectroscopy, for example, and permission from the Peabody Museum can be obtained for destructive analysis, there will be another opportunity for dating the Barrier Canyon style.

Finally, we need to be alert to advances in rock art dating and new techniques that overcome weaknesses of earlier methods as well as techniques that approach the problem differently and, therefore, provide an independent means of dating the figures. An example of the latter is represented by the recent work of Alan Watchman (Watchman 1990, 1993b; Watchman and Lessard 1993). Noting that pictographs can only be directly radiocarbon dated when they contain preserved organic binders and that many paintings lack these constituents, he believes that the best approach is to date carbon-bearing substances in laminae that have accumulated both beneath and on top of the pictograph (Watchman 1993b:40). Watchman uses a focused laser beam to convert carbon-bearing substances in individual laminae into CO₂ which can subsequently be dated using the AMS carbon-14 method. The ability to sample and date individual laminae is critical, especially if the laminae developed over a protracted period of time; dating of an entire accretion would result in an average age for all carbon in the accreted deposit. Watchman advocates the dating of laminae above and below the paint layer, not only to provide minimum and maximum dates for the rock art, but also to ensure reliability of the dates by checking their internal consistency.

Dr. Nancy J. Coulam, the Canyonlands archeologist, is currently working with the U.S. Geological Survey Office in Denver to identify the pigment in various Barrier Canyon rock art panels (using nondestructive reflectance spectroscopy). If organic binders are rare or lacking in most Barrier Canyon paints, Watchman's approach may be well suited for future dating attempts. Accretionary deposits of the type dated by Watchman are known to exist at rock art in the park (e.g., Chaffee et al. 1994:769).

Conclusion

In sum, three AMS and four conventional radiocarbon dates relevant to ascertaining the age of Barrier Canyon Anthropomorphic Style rock art were presented and evaluated. While most of these dates are tentative for one reason or another (e.g., single-sample AMS dates, dates that could be contaminated by old carbon, and inconclusive associations), there are too many coincidental and squarely overlapping dates to completely dismiss all this evidence.

All seven dates cluster in a 2200-year time frame between approximately 1900 B.C. and A.D. 300 despite their being from widely scattered sites, a variety of contexts, and two organic mediums. This suggests that the problems of possible contamination of the AMS paint dates are not on the order of thousands of years but more likely a few hundred years. Considering where we started, with dating based only on stylistic evidence and superpositioning, I think this is an acceptable level of resolution from which we may begin additional research. Like any interpretation based on few dates and tentative evidence, it will probably require revision when the next batch of dates becomes available, but, in the meantime, we may have narrowed the range of possible ages from that proposed on stylistic evidence alone (Schroedl 1989).

One AMS date on pigment and three more tenuous dates (two conventional radiocarbon dates on features possibly associated with Barrier Canyon rock art and one AMS paint date that may be too old because it was contaminated by older organic carbon in the sandstone host rock) are clustered during the first and second millennium B.C., suggesting that this could have been a major period of production for the Barrier Canyon style. These dates are in accord with archeological inference based on style, subject matter, and superpositioning.

Another AMS paint date is several hundred years more recent than the aforementioned dates and may be more recent still because of contamination from organic carbon in the sandstone. Without correction for this con-

tamination, this date almost perfectly overlaps with other dating evidence from the site, as well as a hearth date believed to be associated with Barrier Canyon rock art at another site. It is slightly earlier than a hearth date from a third site that also has Barrier Canyon rock art. These overlaps and similarities may suggest that alteration of the date by old carbon was not substantial. If this is the case, or the correct date is even later, it raises questions regarding the style's longevity and whether the later people emulated, added to, or modified earlier rock paintings. Detailed studies of what should actually be included in the Barrier Canyon Anthropomorphic Style coupled with additional attempts at absolute dating may shed light on these issues. With additional research and more dating information, we should eventually be able to confirm, refine, or reject the dates and ideas proposed here and be better equipped to elucidate how rock art can help us understand past human behavior.

Notes

1 In a recent article on the age of Barrier Canyon Anthropomorphic Style rock art; Manning (1990:44) states that the figure at Salt Pocket Shelter resembles the Chihuahuan Polychrome Abstract Style more than it does the Barrier Canyon style. This suggestion is untenable.

As defined by Schaafsma (1972:61-71, 1980:49-55, 1992:43-46), the Chihuahuan Polychrome Abstract Style is characterized by multicolored paintings of informal abstract designs such as series of short, closely spaced, parallel lines and zigzags. The parallel lines are freestanding or joined to form "rakes." Circles, ovals, sunbursts, dots, and dot designs are also depicted as are few stick-figure humans. Elements are haphazardly arranged and generally independent of the others in the panel. The designs may be executed in any of the following colors: yellow, red, orange, black, and white.

Manning presumably believes that the Salt Pocket Shelter figure is one of the "rake" designs common in the Chihuahuan Polychrome Style but the design does not match Schaafsma's description. The descending lines are neither short nor parallel but, instead, long and radically converging forming a tapered figure. Close examination of the Chihuahuan panels illustrated by Schaafsma (1972: Figures 53-57, 1980: Figures 29-31) and Cole (1990: Plates 6, 8-9, 1993:9.4-9.6) reveals that most of the lines are indeed parallel as Schaafsma described, a few actually expand (e.g., see Schaafsma 1980: Figure 31), but none radically converge like the Salt Pocket Shelter to form a tapered figure. Tapered figures are, however, characteristic of Barrier Canyon anthropomorphs (e.g., see Figure 29;

Noxon and Marcus 1982: Figure 81; Schaafsma 1980: Figures 42, 44).

Close reexamination of the Salt Pocket Shelter panel on May 7, 1994, by Alan R. Schroedl and Nancy J. Coulam provided additional convincing evidence that the figure represents the Barrier Canyon Anthropomorphic Style and not the Chihuahuan Style. Although not noticed originally, the vertical lines converge into a faded wide red horizontal line at the base of the figure. Figure 34 from Tipps and Hewitt (1989) has been revised to reflect this new information and is included here as Figure 46. Chihuahuan Style "rakes" do not terminate in solid lines on both the upper and lower ends because they would not be classifiable as "rakes," but Barrier Canyon anthropomorphs do. (As an aside, also note that the horizontal pecked line described by Manning could not be located during the close reinspection, nor could any other natural or cultural pecking).

The figure is also of the wrong proportions for a Chihuahuan Polychrome "rake." Most of the "rakes" illustrated by Schaafsma (1972: Figures 53-55, 57, 1980: Figures 29, 31) and Cole (1990: Plate 9, 1993:9.4-9.6) are wider than they are tall owing to the short length of the vertical lines. The figure at Salt Pocket Shelter is much taller than it is wide. This is atypical of Chihuahuan Polychrome "rakes," but characteristic of Barrier Canyon anthropomorphs. The sizing and proportions of the Salt Pocket figure are within the range expected for a Barrier Canyon anthropomorph.

The absence of a head may be one reason Manning considers the figure a Chihuahuan Polychrome design rather than a Barrier Canyon anthropomorph, but not all Barrier Canyon anthropomorphs have heads (Schaafsma 1988:17). Reinspection of the figure in May of 1994 failed to reveal traces of a head. It was clear, however, that the upper right and center portion of the figure, including the expected location for a head, was more highly eroded than the surrounding area. Any paint originally present in this area would have weathered away.

In sum, after considering all the evidence, the figure clearly and unequivocally represents a Barrier Canyon anthropomorph, not a Chihuahuan Polychrome abstract element. The original assessment reported in Tipps and Hewitt (1989:124), that the figure is a Barrier Canyon anthropomorph, is correct.

Betsy L. Tipps, *Barrier Canyon Rock Art Dating* (National Park Service, 1994).

Archaic Occupancy of the Glen Canyon Region

by Phil R. Geib

Until recently little was known about Archaic period hunter-gatherers of the Glen Canyon region. Jennings (1966:38) fully anticipated that the Glen Canyon Project would yield "significant evidence of some local version of western Archaic culture," yet the only conclusive evidence of an Archaic presence found during the preinundation project came from Sand Dune and Dust Devil caves at the northeast foot of Navajo Mountain (Lindsay et al. 1968). Several authors believed that some of the numerous lithic sites recorded in the Glen Canyon lowlands must have been the product of Archaic hunter-gatherers, but the data were only suggestive in this regard (e.g., Gunnerson et al. 1959:21-22; Suhm 1959:223). Subsequent field studies, including those by NAU, documented Archaic remains throughout the Glen Canyon region (Agenbroad et al. 1989; Geib 1989a, 1989b; Geib and Bremer 1988; Geib, Fairley, and Bungart 1986; Schroedl 1981b; Tipps 1984, 1987). Increased recognition of Archaic remains is largely due to the establishment of an Archaic point chronology for the northern Colorado Plateau (Holmer 1978, 1980b), resulting from excavations at Sudden Shelter (Jennings, Schroedl, and Holmer 1980) and Cowboy Cave (Jennings 1980). Temporally diagnostic projectile point types have allowed researchers to assign numerous sites of the Glen Canyon region to the Archaic period. Such assignments are tentative, of course, due to problems with curation and site reoccupation. Moreover, there is J. J. Flenniken and P.J. Wilke's (1989) argument that point types are actually poor temporal markers (cf. Bettinger, O'Connell, and Thomas 1991).

More reliable than temporal diagnostics for documenting when various Archaic hunter-gatherers occupied the Glen Canyon region are the numerous radiocarbon dates processed in the past fifteen years. There is now an extensive array of preceramic radiocarbon dates available

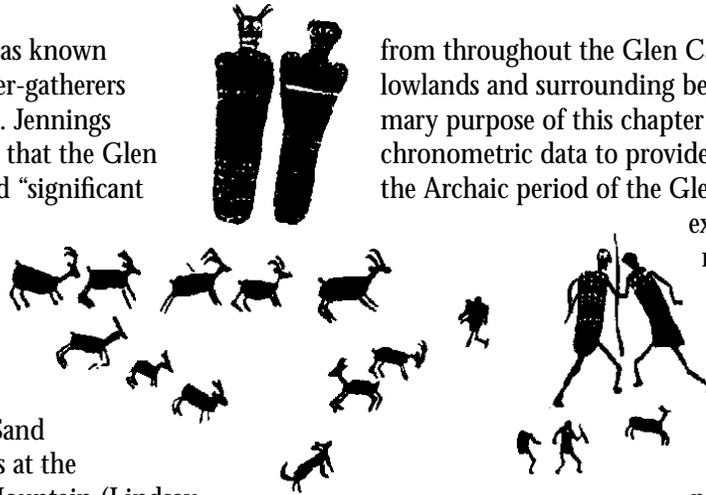
from throughout the Glen Canyon region (both canyon lowlands and surrounding benches and mesas). The primary purpose of this chapter is to summarize the existing chronometric data to provide a context for characterizing the Archaic period of the Glen Canyon region and for

examining two competing models of Archaic occupancy of the region. The first, regarded as the traditional concept of southwestern archaeologists, posits long-term continuity in hunter-gatherer occupancy marked by evolutionary

changes and other alterations. The second model, championed by Claudia and Mike Berry (1986), contends that hunter-gatherer occupancy was discontinuous; that the Archaic period was punctuated by a sequence of population abandonments and reoccupations, with new lifeways and material culture introduced by each successive wave of hunter-gatherers.

Background

The first solid evidence of the antiquity of an Archaic culture in the Glen Canyon region came from excavations at Sand Dune and Dust Devil caves in the early 1960s. Sandals of a previously undocumented style (open-twined) from Sand Dune Cave were radiocarbon dated from 7000 to 8000 B.P. (Lindsay et al. 1968). Identical sandals, plus two other distinctive styles (fine and coarse warp-faced), were found at Dust Devil Cave (see figs. 13 and 14 in chapter 3). Complete excavation of Dust Devil Cave in 1970 clarified the stratigraphic relationship of the Archaic sandals and other remains, extended the range of the Archaic occupation back to almost 9000 B.P. (Ambler 1984c; chapter 3), and provided much greater detail on subsistence (Van Ness 1986; chapter 7) and lithic artifacts (Geib 1984). Since the findings from Dust Devil Cave have yet to be published, the site has not received much attention from the archaeological



community. In an effort to rectify this situation in part, and because the site is important to understanding the Archaic period in Glen Canyon, Ambler summarizes his work at the cave in chapter 3 of this book.

Two sites of great importance to our present understanding of Archaic culture-history and lifeways on the northern Colorado Plateau are Sudden Shelter (Jennings, Schroedl, and Holmer 1980) and Cowboy Cave (Jennings 1980; Schroedl and Coulam 1994). Besides being relatively rich in material remains, both sites were excavated by natural rather than arbitrary levels and the results were published in a timely manner. Furthermore, the relative abundance of projectile points from the numerous strata at Sudden Shelter allowed R. N. Holmer (1978, 1980b) to delimit distinct shifts in point types through time. The Cowboy Cave evidence was fully supportive of the Sudden Shelter sequence; on the strength of these results, Holmer (1978) outlined a chronology for Archaic point types of the northern Colorado Plateau, while Schroedl (1976b) devised a phase system for the same vast region.

The general applicability of Schroedl's phase system to the Glen Canyon region was acknowledged in the Glen Canyon research plan (Geib, Fairley, and Ambler 1986:8), especially when contrasted with the Oshara phase system (Irwin-Williams 1973, 1979), which does not accurately represent the chronology and material remains found in and around Glen Canyon. Nevertheless, Schroedl's phase names were dropped in favor of more neutral temporal designations (early, middle, and late) until greater detail on Archaic culture history of the study area and surrounding regions is obtained.

The Chronometric Database

The most basic data for any discussion of Archaic chronology are radiocarbon dates. As Berry and Berry (1986:282) observe, "this impressive empirical base allows us to proceed inductively from chronometric evidence to chronological inference without reference to artifactual content." Furthermore, J. W. Rick (1987:55) argues that, since radiocarbon dates represent human activity at points in time and the number of dates is related to the "magnitude of occupation," then "it is possible to assess and compare, in a relative fashion, the occupation histories within and between regions." Almost 180 radiocarbon determinations from 74 sites of the Glen Canyon region (fig. 6) predate the use of ceramics and have clear cultural origins. These dates are listed in table 5 along with comments about context and associations. To allow inclusion of the first practices of agriculture in

the region (the Archaic to Formative transition herein designated as the Early Agricultural period), but exclude dates from the early Formative period (except perhaps for a few old wood determinations), 1600 B.P. was used as an appropriate time-line cutoff. Most of the dates listed in table 5 were obtained in the past ten years, so less than 5% have been included in previous summaries of Archaic radiocarbon dates (Barnes 1985; Berry and Berry 1986; Schroedl 1976b). All standard dates (Beta decay) are gas determinations made on wood charcoal from hearths or on perishable organics such as yucca. Some of the dates on perishables are accelerator mass spectrometry (AMS) determinations, where the ratio of $^{14}\text{C}/^{12}\text{C}$ was directly measured. Determinations on materials subject to isotopic fractionation (Stuiver and Polach 1977) were corrected by either measuring actual $^{13}\text{C}/^{12}\text{C}$ ratios or using an assumed delta value.

All dates used in this analysis have a cultural origin, but in cases such as buried hearths exposed in arroyo cuts there is little or nothing in the way of associated artifacts. A few of the dates listed in table 5 are excluded from further consideration because they are inconsistent with other evidence or for other reasons presented in the table. Some dates are on materials from multicomponent sites where stratigraphic context was lacking (surface artifacts) or obscured by poor excavation technique or prior disturbances. These dates are nonetheless useful for chronometric analysis because they are on materials of indisputable cultural origin, such as artifacts and human feces. Two dates on charcoal pulled up in an auger test of Bechan Cave (A-3513 and A-3516; Agenbroad et al. 1989) and another date on scattered charcoal from Rock Creek Alcove (Beta-8623; Nickens, Reed, and Metzger 1988) are perhaps the most suspect.

As most archaeologists now know, dates on hearth charcoal routinely overestimate the age of a cultural event by 200 years or more (Smiley 1985). This can lead to spurious conclusions about the chronology, use histories, and depositional rates of single sites, among other issues, and can be particularly confounding when attempting to trace the origin and spread of stylistic, technologic, and biologic innovations. In a regionally based examination of the radiocarbon record, such as this, age overestimation is not so critical, though one must be aware of the problem. The suite of radiocarbon dates for the Glen Canyon region includes many for organic remains such as yucca leaves that are not subject to age overestimation. In fact, the region is blessed by having so many dry shelters with excellent preservation of annual plant remains that ultimately the old wood problem can be circumvented.

The dates included in table 5 come from the entire

Glen Canyon region as defined in chapter I. Particularly important radiocarbon records for this region are those of Cowboy, Dust Devil, and Old Man caves, sites that geographically bracket the region on the north, south, and east. Sandal technology indicates that the Archaic groups who used these sites had similar material culture. Indeed, it is conceivable that some of the same families could have occupied these sites, which at about 120–160 km apart are within the potential annual range or longer-term settlement shifts of human foragers. Other sites contributing to the data set are scattered throughout the region, and therefore the temporal pattern reflects occupation of an approximately 43,000 sq km block of territory centering on Glen and Cataract canyons. This is a considerably scaled down study area from that examined by Berry and Berry (1986), yet the record for this central section of the Colorado Plateau should doubtless reflect the general trend on the plateau at large.

The temporal distributions of all acceptable cultural dates are shown in figures 7 and 8. The laboratory determinations plotted in figure 7 are uncorrected for secular variation in atmospheric ^{14}C , whereas those in figure 8 were calibrated to the tree-ring calendar using the CALIB Program (Stuiver and Reimer 1993). I use uncalibrated dates throughout most of this chapter for two principal reasons. First, because prior discussion of Archaic chronology uses uncalibrated dates, continuing to do so greatly facilitates communication and comparison. Second, all paleoenvironment research is couched in terms of uncalibrated radiocarbon years; until the various paleoenvironmental data sets and reconstructions are also calibrated, a calibrated Archaic archaeological record is dislocated from its environmental context. After plotting both the calibrated and uncalibrated dates, and even though the disparity between the laboratory determination and the true age of a sample increases with age, up to about 700 years during the early and middle Archaic, the basic temporal pattern remains unchanged. Using uncalibrated dates does not greatly alter our understanding of prehistory until the Christian Era, and then the chronologies established by radiocarbon dating have to meld with high-resolution tree-ring chronologies tied to the Gregorian calendar.

An interval width of 150 years is used in figures 7a and 8a, [figures not shown] whereas a 300-year interval width is used in figures 7b and 8b [figures not shown]. The numbers listed on the x-axis are the midpoints for the intervals. Other information in these figures includes the frequency of dates from open and sheltered sites (7a), the frequency of dates from “high-quality” and “low-quality” samples (see Smiley 1994:175-76), and the fre-

quency of dates on maize (8b). Figure 7a also shows three temporal subdivisions of the long Archaic period. The dashed lines mark the approximate breaks in the Archaic sequence, with the realization that these are arbitrary cut points during drawn-out transitions within an apparent continuum of occupation. Figure 8a shows an alternative partitioning of the Archaic period discussed at the end of this chapter.

The radiocarbon record for the Glen Canyon region starts abruptly at 9,000 years ago (ca. 8000 cal. B.C.), a consequence of the lack of radiocarbon dates for Paleoindian remains of the region. During the ensuing 3,000 years the record is filled in except for a short gap at about 8500 B.P. and two dips in the record at about 8050 B.P. and 7000 B.P. There is a significant decline in dates between 6,000 and 4,000 years ago and a few small gaps in the distributions graphed by 150-year intervals (figs. 7a and 8a). After 4000 B.P. the frequency of dates increases and remains moderately high but fluctuating until about 1500 B.P., at which point there is a dramatic increase to an all-time high. The record is arbitrarily cut off at 1600 B.P., and the short dip just before this is due to “edge effect.”

At this juncture it is worth considering the degree to which the patterning of figures 7 and 8 is due to differential preservation resulting from such postdepositional factors as erosion and burial by recent sediment. One aspect of the record is that the vast majority of dates earlier than 5,000 years ago are from natural shelters (caves, alcoves, and rockshelters) that have served to preserve the remains from this early time (fig. 7a). Early dates from unsheltered settings come from sites deeply buried by eolian or alluvial sediment, but none come from sites exposed on the surface. This is not to suggest that surface lithic scatters earlier than 5,000 years ago do not exist, simply that such sites have been so severely eroded that datable organic material is usually absent. Thus the early portion of the radiocarbon record is the by-product of both costly excavation of deeply stratified sheltered sites and chance finds of buried hearths or organic remains exposed by erosion.

In contrast, about one-third of the dates younger than 5,000 years ago are from surface hearths at open sites. The sampling of these features (see chapter 8 and Tipps ‘995) has increased the frequency of younger dates. Hearths were not sampled to provide a detailed late Archaic chronology; in fact, Peter Bungart (chapter 8) anticipated that the hearths he sampled in the Orange Cliffs area would reflect a wide range of ages. Natural factors have resulted in a greater accumulation of more recent dates since sites of this period are more visible (less buried

or eroded) and have a greater likelihood to contain datable remains because hearths are still preserved. In short, sites exposed on the surface have a greater chance of discovery and investigation and are more likely to date to the late Archaic or Early Agricultural periods.

What about the reduction in dates between 6,000 and 4,000 years ago? Could this be a consequence of postdepositional bias? The same sheltered sites that produced numerous early Archaic dates yielded few if any middle Archaic dates, suggesting that differential preservation cannot be evoked in this instance. Something apparently happened that prompted humans to abandon or seldom use shelters that were previously important residential bases. Although preservation bias may not be a significant factor in the middle Archaic decline in radiocarbon dates, sampling bias could well play a role. In other words, middle Archaic sites may be located in areas inadequately investigated as of yet.

Discounting preservation bias, the low frequency of middle Archaic dates may be the result of sampling bias related to another visibility problem. The archaeological record produced by foragers with a high degree of residential mobility and variable annual rounds might be so dispersed as to be largely invisible and thus rarely subject to archaeological investigation. Logistically organized hunter-gatherers will produce more visible archaeological traces than mobile foragers and consequently their remains are more likely to contribute to regional chronologies (Wills 1988:65). Thus changes in mobility and subsistence-settlement strategies during the Archaic may be partially responsible for some patterning in the radiocarbon chronology!

Archaic Origins

No apparent local antecedents exist for the early Archaic remains of the Glen Canyon region. It seems doubtful that the point types (Elko Corner/Side-notched, Northern Side-notched, Pinto), sandals (open-twined and plain weave), close-coiled basketry, and generalist subsistence remains (diverse small seeds, cactus pads, and small mammal bone) that characterize the earliest cultural deposits from sites such as Dust Devil, Cowboy, and Old Man caves were the cultural residue of local late Paleoindians turned foragers. Though the region apparently had a low-level late Paleoindian occupation, a break in occupation probably occurred before about 9000 B.P., and Archaic hunter-gatherers soon resettled the abandoned rugged canyon landscape.

This assumes, of course, that hunter-gatherers would not make an abrupt change in adaptive strategy

and that if such a change is evident it represents population replacement. Regarding the first issue, a body of theory exists that supports the notion that change is mainly a conservative process (see Wills 1988:36 for summary of this opinion with regard to hunter-gatherer adoption of agriculture). Regarding the second issue, little is known of the late Paleoindian occupation, so the degree to which early Archaic subsistence patterns and material culture vary from earlier patterns and remains is largely conjectural.

In contrast to the apparent situation for the Glen Canyon region specifically and the northern Colorado Plateau in general, a case can be made for Paleoindian to Archaic continuity on the southern Colorado Plateau in northwestern New Mexico (Judge 1982; Stuart and Gauthier 1981). Here C. Irwin-Williams (1979:35) defined the Oshara sequence, five sequential phases of Archaic occupation spanning the period from about 5500 B.C. to A.D. 400 (ca. 7450—1550 B.P.). She proposed that the Jay phase (ca. 5500-4800 B.C. or 7450-6750 B.P.) represented the first Archaic occupation of northwestern New Mexico following the Paleoindian abandonment of the region at about 6000 B.C. (ca. 7950 B.P.) (Irwin-Williams 1973:4). D. E. Stuart and R. P. Gauthier (1981:406) argue that Jay is at least partially contemporaneous with late Paleoindian remains and that the Jay materials actually represent a big game hunting adaptation. Even if one does not accept Stuart and Gauthier's (1981:406) argument that the transition to an Archaic adaptation happened during the ensuing Bajada phase (see Wiens 1985, cited in Vierra 1990), it does not take a wild imagination to see the stemmed Jay points as derivative from late Paleoindian stemmed points. Both K. Honea (1969) and W.J. Judge (1982) have commented on the similarity between Jay points and Hell Gap points. If the relationship is developmental (Stuart and Gauthier 1981:29-33), then there could well be a different origin for Archaic populations on portions of the northern and southern Colorado Plateau.

A plausible ecological basis for the above scenario is apparent in the post-Pleistocene plant communities that developed across different portions of the Colorado Plateau. The Plains-related grassland community that currently characterizes much of northwestern New Mexico (Brown 1982) probably evolved during the early Holocene. The development of this grassland would have helped to maintain bison herds and, by consequence, a focal hunting lifestyle, far longer than would have been the case in the Canyonlands Section of the Colorado Plateau, where a Great Basin desert scrub community developed. Only later, as bison herds continued to thin and

with less opportunity to migrate (perhaps about 8000—7000 B.P.), did the economy of northwest New Mexico native groups shift toward a greater reliance on plants and smaller game. In contrast, early Holocene environmental change had a more immediate negative impact on large game herds of the Canyonlands Section of the Colorado Plateau, so that by about 9000 B.P. a hunting tradition was no longer viable, except perhaps at higher elevations (Schroedl 1991:11). With low human population densities at this early time, Paleoindians simply moved on rather than alter their lifestyle, leaving open a vast chunk of territory for populations already employing a generalist subsistence strategy—foragers spreading out of the eastern Great Basin.

These hypothesized divergent origins for Archaic populations of adjacent regions on the Colorado Plateau could account for the low degree of correspondence of point types, chronology, and other aspects of Archaic culture history as reconstructed by researchers working in Utah (e.g. Ambler 1984b, chapter 3 of this book; Holmer 1978, 1986; Jennings 1980; Jennings, Schroedl, and Holmer 1980; Schroedl 1976b) and in northwest New Mexico (e.g., Cordell 1984; Irwin-Williams '973,'979). Other reasons for the lack of congruence come to mind (Matson 1991:142-45), but this certainly seems an issue worthy of further consideration.

Early Archaic

The early Archaic period in the Glen Canyon region apparently starts shortly after 9000 B.P., as evidenced by 8800 B.P. dates on yucca leaves from both northern and southern portions of the region. The oldest of these dates (8875 +/- 125 B.P.; SI-2416) is on a sandal from Walters Cave, immediately adjacent to Cowboy Cave. Unless there was unrecognized contamination (highly unlikely) or laboratory error in processing, this date accurately represents the time of artifact manufacture. Since other organic remains were found near the sandal, additional radiocarbon dates can eventually be obtained to verify this early determination. Unfortunately, the manufacturing technique for the sandal apparently was not recorded before its destruction, but my examination of a field photo of the artifact in situ suggests that it was open-twined. Another open-twined sandal found next to the dated sandals is still housed at UMNH.1

Jennings (1980:table 3) designates this sample as unprovenienced, but field notes on file at the Museum of Man, University of Utah, indicate that the sandal was quite specifically provenienced from near the bottom of a stratigraphically controlled test unit in this cave (fig.

9). This dated sandal is also important since it appeared closely associated with a painted, unfired clay figurine (Hull and White 1980:fig. 47a) that Polly Schaafsma (1986:225) and later Alan R. Schroedl (1989:16-17) offered as indirect evidence for the great antiquity of Barrier Canyon style rock art (cf. Manning 1990). Field notes reveal that the figurine occurred in a stratum (Fea. 54) that intersected the stratum with the sandal (Fea. 71); thus the figurine is more recent. It is still probably an early Archaic artifact based on its stratum of origin, just not as early as some have argued. Recent AMS dating of a plain weave sandal (FS 576) collected from the same stratum as the figurine reveals that the artifact was made during the end of the early Archaic (6350 +/- 35 B.P., Geib 1995).

The second early date, 8830 +/- 160 B.P. (TX-1266), comes from the lowest portion of Stratum IV in Dust Devil Cave (Ambler, chapter 3). As with the early date from Walters Cave, this one is also on yucca (in this instance leaves lining a storage pit) and thus does not suffer from age overestimation. This sample was not, however, corrected for isotopic fractionation. As a plant with a crassulacean acid metabolic (CAM) pathway, and depending on environmental conditions, yucca will not discriminate against the heavier carbon isotopes and therefore can be "enriched" in ^{14}C (Browman 1981). Yet all early Archaic yucca samples for which ^{13}C measurements are available indicate that age correction is not warranted (^{13}C values range from -21.9% to -26.2%). Another early date from Dust Devil Cave is 8730 + 110 B.P. (TX-1265) on charcoal from a hearth at the bottom of Stratum IV. This sample could well correspond to a fire several hundred years younger than its radiocarbon age. Thus, conservatively, only the yucca date provides firm support for occupation of Dust Devil Cave during the ninth millennium B.P.

There are eight other dates for the region that fall within the ninth millennium B.P., but only one of these is on material that will not result in age overestimation. This is the date of 8280 +/- 160 B.P. (Beta-31192) on open-twined sandal fragments from Rock Bar Alcove on the Spur, just 14 km northeast of Cowboy Cave (Geib 1994). The other five dates are on charcoal and provide equivocal evidence for occupation prior to 8000 B.P.

Most of the early Archaic radiocarbon dates fall within the eighth and seventh millenniums B.P., including numerous dates on yucca leaves or other materials not subject to age overestimation. Dates of this period come from many sites, though the most informative of these for fleshing out the chronological skeleton with details of material remains and subsistence are Cowboy, Dust Devil, and Old Man caves (chapter 7 summarizes the subsis-

tence data from these sites). Sand Dune Cave (Lindsay et al. 1968) has assumed less importance because of its excavation by arbitrary levels and the consequent mixing of materials from widely different periods. This site is of historic note, however, for it was here that archaeologists documented the first conclusive evidence of an early Archaic presence within the region. At this point, other early Archaic sites in the region have only been tested, so they have not added much to our understanding of this period except to fill out the radiocarbon record and reveal that early Archaic populations were residing throughout the region in all sorts of environmental settings. Several of these tested sites are dry shelters with stratified cultural deposits and have the potential to shed considerable light on this early period in Glen Canyon prehistory.

One aspect that seems more certain than ever before is the temporally diagnostic value of open-twined sandals. A.J. Lindsay et al. (1968:95-97, 120-21) identified open-twined sandals as a key diagnostic trait of the early Archaic Desha Complex northeast of Navajo Mountain. Excavations at Cowboy Cave, however, produced this sandal type from Units IV and V (Hewitt 1980a:table 12), dated between about 3600-3330 B.P. and 1900-1500 B.P., respectively. Ambler (1984c) suggested that these occurrences in later strata at Cowboy Cave were due to disturbance of early deposits by later occupants. Berry and Berry gave a similar argument (1986:309-10) to account for the presence of Gypsum points and split-twig figurines in Unit V at this cave. Since Ambler's contention, open-twined sandals from five separate sites (Atlatl Rock Cave, Bechan Cave, Good Hope Alcove, Rock Bar Alcove, and Old Man Cave) widely scattered in the Glen Canyon region were directly dated, and all are within the early Archaic period (see Geib 1995). Ambler is therefore probably right about the displacement of open-twined sandals upward in the deposits of Cowboy Cave into later cultural units. At this juncture there is sufficient justification to state that this type of footwear is restricted to the early Archaic and might be expected at any time within the general span of this period; direct dates confirm that this sandal type occurs from about 8900 to 6700 B.P. (or 9100 to 6500 B.P. based on two standard deviations).

Open-twined sandals are just one of three sandal types produced during the early Archaic; the other two are the coarse and fine warp-faced first described by J. Richard Ambler from Dust Devil Cave (Lindsay et al. 1968:118—19). Sandals of similar construction were also recovered from Cowboy Cave, but were designated as plain weave by N. J. Hewitt (1980a:58-61). The sandal she illustrates (fig. 26) resembles Ambler's coarse warp-faced type but not his fine warp-faced type. Hewitt's term

"plain weave" is more appropriate for the sandals that Ambler designated as coarse warp-faced, since it better describes the construction method. Ambler's term "warp-faced" may be applicable to those specimens of the "fine" category since the weft is nearly undetectable within the closely packed yucca leaf warps (see chapter 3). The construction technique is, however, plain weaving. These terminological quibbles aside, it is unclear from Hewitt's descriptions whether both of Ambler's fine and coarse warp-faced types occur at Cowboy Cave, lumped together as plain weave sandals, or whether only Ambler's coarse warp-faced variety occurs at this site. My examination of the Cowboy Cave specimens at the Museum of Natural History revealed the latter to be true.

Based on the Dust Devil Cave excavations, Ambler (chapter 3) postulates distinct temporal shifts in these three sandal types, with none being contemporaneous: fine warp-faced earliest, followed by open-twined, and finally coarse warp-faced. Direct dating of open-twined and plain weave sandals does not support this scenario (Geib 1995). Plain weave sandals were initially manufactured during the end of the early Archaic and slightly overlap in time with open-twined sandals. Plain weave sandals continued to be manufactured through the middle Archaic, extending into the late Archaic, up to 3,000 years ago.

The end of the early Archaic cannot be specified with any great precision except as sometime during the latter half of the seventh millennium B.P. No clear break exists in the radiocarbon record—just a reduction in the number of dates from 7,000 to 6,000 years ago. Besides fewer dates, a principal reason for identifying an end to the early Archaic is that cultural activity at several different caves apparently ceased during the seventh millennium and for the next several thousand years they were seldom if ever used. Dust Devil and Cowboy caves provide good examples (Ambler 1984c; Jennings 1980:17-26). The latest dates just prior to this hiatus at Cowboy Cave are in the late 6300s B.P., while at Dust Devil Cave they are in the 6700s B.P. Early Archaic occupancy of Atlatl Rock Cave apparently ended around 7000 B.P. (Geib et al. 1996)

Evidence from Old Man Cave (Geib and Davidson 1994) suggests that there was relatively heavy early Archaic cultural deposition at this site during the eighth millennium B.P. This cultural activity waned during the seventh millennium, as evidenced by the thinning of layers with cultural debris and their interspersions with layers of mostly natural deposition (i.e., tiny spalls and sand loosened from the ceiling, dust, packrat dung). Human use of the site essentially ended shortly after 6100 B.P.

and for at least the next several thousand years the deposits accumulated through natural agents with little addition of cultural material. The evidence for gradual change in site use and not abrupt abandonment probably applies to other caves in the region as well. In other words, there was a several hundred year long period of transition between the end of the early Archaic and start of the middle Archaic. This era of gradual change is hypothesized to be correlated with an increase in residential mobility, more variable annual rounds, a reduction in population density, and an expansion of foraging territories. In such a scenario, sites that were once key nodes in an annual subsistence round lost their former significance and were rarely used.

Middle Archaic

The middle Archaic is characterized by a significant reduction in radiocarbon dates. The start of this interval is placed during the latter half of the seventh millennium B.P. and lasted over 2,000 years until around 4000 B.P., when there is a marked increase in dates. The beginning of the middle Archaic is not fixed in time, owing to the extended transition from the early Archaic as described above. Besides fewer dates, a principal reason for identifying the onset of the middle Archaic is that sites that were once key nodes in annual subsistence rounds lost their former significance and were rarely used. This is well exemplified by Cowboy, Dust Devil, and Old Man caves. At Cowboy Cave there apparently was virtually no cultural or natural deposition between about 6300 and 3600 B.P. (Schroedl and Coulam 1994; cf. Jennings 1980). At Dust Devil Cave an essentially sterile layer of dune sand, Stratum V, buried the early Archaic Stratum IV (Ambler 1984c and chapter 3). A similar situation occurs at Old Man Cave, where a relatively intensive early Archaic occupation started drawing to a close early in the seventh millennium, terminating roughly 6,100 years ago (Geib and Davidson 1994). The one difference is that eolian sand did not accumulate within Old Man Cave after 6100 B.P.; rather, there was a slow deposition of small roof spalls, dust, and rat dung, with very little addition of cultural material.

Investigation of a recently vandalized cave at the southern edge of the study area also demonstrates a change in site use marking the end of the early Archaic (Geib et al. 1996). At this site, named Atlatl Rock Cave, a sterile deposit of roof spalls up to 80 cm thick separates a trashy early Archaic stratum dated between 8000 and 7000 B.P. from a thick late Basketmaker deposit dated 1900 to 1600 B.P. AMS radiocarbon dating of single oak leaves from the roof spall layer revealed that the deposit

had principally accumulated during the latter part of the middle Archaic (ca. 4800 to 4100 B.P.).

At least two other sites in the Glen Canyon region attest to a change in site use that marks the end of the early Archaic: Rock Bar Alcove (Geib 1994) and Good Hope Alcove (Geib 1989b). Both of these shelters have trashy early Archaic cultural strata buried beneath apparently sterile sediment. These strata are exposed in profile at the front of each alcove because of downslope movement of talus and sediment from dripline erosion. Good Hope Alcove was used later in prehistory, but there was an evident long break in occupation marked by a sterile-looking eolian sand layer, similar to that reported at Dust Devil Cave. At Rock Bar Alcove the only evidence of occupation is the early Archaic deposit. Had it not been exposed by erosion, the alcove would have gone unrecorded as a site.

The middle Archaic period lasted over 2,000 years until about 4200-3800 B.P., at which time there is a marked increase in the number of radiocarbon dates (fig. 7) and Gypsum points first appeared (this is discussed in greater detail below). With this time span, the middle Archaic period includes the apparent 1,000-year gap in radiocarbon dates for the Colorado Plateau noted by Berry and Berry (1986:fig. 14). As is evident from figures 7 and 8, the dates from the Glen Canyon region are beginning to fill this gap, as are dates from further north along the Colorado River (Barnes 1985). It still seems plausible that population declined to an all-time low relative to other periods (Schroedl 1976b:64), but with the partial filling of the middle Archaic gap in the radiocarbon record, there is good reason to doubt that hunter-gatherers completely abandoned the region 6,000 years ago as the Berrys (1986:315) suggested. The small middle Archaic break in the Glen Canyon region radiocarbon record is more likely due to sampling problems than to a lack of occupancy.

Sites interpreted as having been abandoned during the middle Archaic provide some of the most compelling evidence for regional abandonment. Nevertheless, there is reason to believe that a site such as Dust Devil Cave was used at least on occasion during this interval. An analysis of lithics from Dust Devil Cave showed that almost as many projectile points were recovered from the apparently sterile middle Archaic Stratum V as from the early Archaic Stratum IV (Geib 1984). Despite the quantity of projectile points, flake density was reduced (Geib 1984), as was the amount of most other debris (Ambler 1984c). Instead of a hiatus, it is plausible that there was a significant change in cave use: after 7000 B.P. the cave was used less and less frequently as a base camp and ultimately

became a seldom used way station for small groups of highly mobile hunters who added little debris to the eolian sand accumulating within the cavern.

The apparent middle Archaic population decline and the abandonment, or drastic reduction in use, of previously inhabited shelters (e.g. Cowboy, Dust Devil, Old Man, and Atlatl Rock caves and Rock Bar and Good Hope alcoves) probably result from regional climatic change. It is perhaps no coincidence that the middle Archaic occurs during the period that Ernst Antevs (1955) characterized as being warm and dry, his middle Holocene Altithermal drought. This drought episode and indeed many of Antevs's conclusions have been controversial (e.g., Barnosky, Grimm, and Wright 1987; Davis 1984; Hall 1985; Martin 1963; Mehringer 1967; Petersen 1981; Van Devender, Thompson, and Betancourt 1987). Antevs's tripart division of western United States climatic history is now recognized as invalid (Thompson et al. 1994:495) because "the periods of maximum warmth and moisture were time-transgressive, and the range of climatic conditions was much broader than the cool-wet versus warm-dry opposition seen by Antevs." As an alternative to Antevs's tripart model, Schroedl (1976b) and Berry and Berry (1986) used the Blytt-Sernander sequence of global climatic steady states and transitions for comparison with cultural events on the Colorado Plateau. It is interesting to note that changes in rates of cultural deposition at Old Man Cave correlate quite well with three episodes of climatic transitions as modeled by R. A. Bryson, D. A. Baerreis, and W. M. Wendlund (1970): heavy cultural deposition during Atlantic II (ca. 7740-6910 B.P.), waning cultural deposition during Atlantic III (ca. 6910-6050 B.P.), and essentially no cultural deposition during Atlantic IV (ca. 6050-5060 B.P.). Thus the intensity of occupation at Old Man Cave and the timing of changes in the intensity of site use certainly accord well with several of the Blytt-Sernander episodes. A similar pattern may characterize much of the Glen Canyon region, and on a larger geographic scale Berry and Berry (1986:315) find that significant occupation of the Colorado Plateau "continued through Atlantic I, II and III and terminated at the Atlantic III/IV transition." But what were the particulars of the climatic transitions (i.e., the directions of change—cooler to warmer, wetter to drier, or vice versa) that might have been the principal external factor precipitating the systemic changes leading to the middle Archaic period?

As the Berrys (1986:311) observe, "the timing of the [climatic] transitions is thought to be applicable on a global scale, whereas the direction of change and the nature of any particular quasi-steady state vary from con-

tinental to continental and region to region." The Berrys' (1986:312-13) choice of K. L. Petersen's (1981) climatic reconstruction for the La Plata Mountains as the best indicator of the Colorado Plateau paleoclimate is debatable. Furthermore, Petersen's study is just one of several paleoclimatic reconstructions for the La Plata Mountains (e.g. Andrews et al. 1975; Maher 1961), each of which presents a different picture of past conditions. P.J. Mehringer's (1967) effective moisture curve, which Berry and Berry also discuss, seems a better approximation of what appears to have been a warm and dry middle Archaic period for the Glen Canyon region, but his reconstruction is not based on data from the Colorado Plateau and there is a notably large data gap during the interval of interest. Unfortunately, there is no well-supported paleoenvironmental reconstruction specific to the Glen Canyon region as a whole that deals in detail with the early-middle Holocene transition and the middle Holocene. What can be offered at this time are small bits of information that in combination seem to suggest that the climatic pattern for the middle Archaic period was both warmer and drier than during the early Archaic.

There is general agreement that the middle Holocene for the world as a whole (Denton and Karlen 1973) and for North America (Wendlund 1978) was warmer than today and in other postglacial times (cf. Peterson 1981); on the Colorado Plateau there is also considerable support for the middle Holocene being a period of maximum warmth (e.g. Hall 1985; Lindsay 1980a; Scott 1980). What remains in dispute is whether the climate was wetter or drier than now. On a large spatial scale of comparison, R. S. Thompson et al. (1994:495) conclude that "effective moisture was at a minimum ... during the middle Holocene in the Great Basin and Colorado Plateau." S. Hall (1985) and G. W. Spaulding (1991) suggest that effective moisture was greatly reduced during the middle Holocene. On Black Mesa, T. N. Karlstrom (1988:69) documents a major postglacial drought that culminated about 6000-3500 B.P. With regard to the Glen Canyon region there are several lines of evidence that support the model of a hot, dry middle Archaic. Ambler (1984c and chapter 3) postulates that the period of dune deposition in Dust Devil Cave indicates a period of extreme aridity and/or increased wind severity. Alluvial dissection and eolian activity between about 7000 and 4000 B.P. in Bowns Canyon in the central portion of the Glen Canyon region also indicates a warm, dry period (Anderson 1988:98). These findings from Bowns Canyon seem to parallel those of past and recent alluvial stratigraphy studies immediately south of the Glen Canyon region (e.g. Hack 1942, 1945; Karlstrom 1982,

1988; Karlstrom and Karlstrom 1986). At least two of the sites radiocarbon dated to the middle Archaic period (42GA3I32 and 42KA2771) are deeply buried in eolian sand dunes, which might provide additional evidence of drought conditions. Finally, there is Kim Withers's (1989) study of late Quaternary macrobotanical remains from alcoves of the lower Escalante River Basin. She interprets her findings as reflecting a warming and drying trend at the end of the late Pleistocene, culminating in hot xeric conditions by the middle Holocene (ca. 7000 B.P.). Following K. L. Cole (1981), Withers believes that a northward shift of the summer monsoon and polar jet-stream could account for a dry middle Holocene in the Escalante River Basin.

If the Glen Canyon region experienced a drought (both hot and dry) during the middle Archaic, then resident hunter-gatherers might have made several adaptive responses. The most extreme response would be wholesale population movement over long distances to more favorable environments of adjacent regions—the Altithermal refugia model. The Colorado Rockies, which have numerous middle Archaic sites, could have served as an Altithermal refuge as J. B. Benedict proposed (e.g., Benedict 1979; Benedict and Olson 1978). The Berrys (1986:317) concur with Benedict's argument, but conclude that the eastern Great Basin, with its resource-rich lake margins, could have absorbed many more middle Archaic hunter-gatherers (Berry and Berry 1986:319).

With the recent accumulation of over a dozen radiocarbon dates during the middle Archaic, total emigration of hunter-gatherers is not credible. Without completely discounting long-distance movement of some of the populace, it is more likely that hunter-gatherers made more localized adjustments in settlement-subsistence strategies in response to increasing aridity. One likely adjustment could have been relocation of base camps to secure water sources. D. J. Meltzer (1991:259) relates that “a lack of water, and not food resources or foraging efficiency, is the limiting factor in arid settings.” Settlement patterns may have shifted as sites situated at a distance from reliable (i.e., drought-resistant) water sources became less desirable for residential bases. It is notable in this regard that two of the Glen Canyon sites dated to the middle Archaic are within Bowns Canyon, which has a permanent stream fed from numerous springs. Even during a protracted drought, the Navajo Sandstone aquifer of this canyon probably would have maintained its viability.

Even in the worst conditions, the Colorado, San Juan, Escalante, and Dirty Devil rivers would have provided resident hunter-gatherers of the Glen Canyon region with a plentiful water supply. If there was significant

tethering of Archaic populations to these principal river corridors or other stable water sources, then these are the localities where we need to search for middle Archaic sites. Further north along the Colorado River, sites such as Debeque Rockshelter (Reed and Nickens 1980) have middle Archaic cultural deposits. Alan D. Reed and Paul R. Nickens (1980:60) postulate that this site's proximity to the Colorado River may have made it a more suitable residence relative to other areas of the Colorado Plateau during a time of deteriorating environmental conditions.

Unfortunately, due to the creation of Lake Powell, sites along the Colorado River corridor for most of the Glen Canyon region can no longer be investigated to see if middle Archaic deposits are present. Moreover, little research effort was spent on preceramic remains during the preinundation Glen Canyon Project, so the collections and field notes from this undertaking may not shed much light on the issue. A few shelters along the river corridor that contained deep deposits were excavated but never radiocarbon dated; thus it seemed appropriate to date selected materials from these sites. Portions of plain weave sandals from the Hermitage and Benchmark Cave, both located in lower Glen Canyon, were recently submitted for AMS dating. The results have been incorporated into table 5 and figures 7 and 8, but a full report on this study is presented elsewhere (Geib 1995). Suffice it to say that the dated sandals confirm that these shelters had previously unsuspected middle Archaic occupations and support the proposition that Archaic populations shifted some residential bases to river corridors.

Ultimately, full understanding of the middle Archaic period will require new field studies. If new fieldwork is undertaken, then well-watered environments with known concentrations of Archaic sites would be an ideal place to start, and in this regard Bowns Canyon (see chapter 10) comes to mind.

Besides shifting residential camps to water-rich lowland settings, middle Archaic groups could have moved to the several higher elevation settings (those over 2,438 m [8,000 feet]) in and adjacent to the Glen Canyon region. These include Navajo Mountain in the southern part of the region, the Henry Mountains near the central portion, the Abajo Mountains and associated high mesas (e.g. Elk Ridge) to the east, the Aquarius Plateau (Boulder Mountain) to the west, and the La Sal Mountains to the northeast. The benefit of the high-elevation settings would have been their greater biotic productivity relative to the lower-elevation benchlands and canyons during a protracted drought. The presence of so many high-elevation settings, especially those of great areal extent such as the Aquarius Plateau (ca. 2,600 sq km above 2,750

m), might have been an important factor in the apparent continual hunter-gatherer occupancy of the Glen Canyon region during the middle Archaic.

In addition to changes in the location of residential camps, middle Archaic populations could have increased the frequency of residential moves, greatly expanded the territory of seasonal rounds, and decreased the periodicity of residential reuse. All of these factors could have led to a substantially less visible archaeological record, one greatly diminished in cultural remains and more spatially diffuse. The middle Archaic material record might be far more dispersed than that of the early Archaic and thus less subject to archaeological discovery and investigation. This might sound contrary to the notion of becoming tethered to water sources, which could result in more concentrated accumulations of debris. Nevertheless, if the truly reliable water sources in the Glen Canyon region during the middle Archaic were the linear easements of rivers, there would be less chance for point-specific concentrations. Along rivers, hunter-gatherers could have had the option to move camps frequently in response to lowered foraging return rates, without having to worry about finding water. Moreover, despite being tethered to secure water sources, expanded foraging territories, shorter stays at residential bases, and longer lapses between residential reuse still would have resulted in a diffuse archaeological record.

Late Archaic

The late Archaic began around 4,000 years ago and corresponds to a noticeable increase in radiocarbon dates (fig. 7). The middle-late Archaic transition may have happened at a quicker pace than the early-middle Archaic transition, though this is just an impression. The increase in radiocarbon dates is perhaps interpretable as an increase in population from the middle Archaic period and is temporally correlated with an increase in effective moisture during what has been termed the “sub-boreal interval” (Berry and Berry 1986:316-17). In addition to a possible population increase, settlement and subsistence strategies might have changed during the middle-late Archaic transition, thereby greatly increasing the archaeological visibility of late Archaic hunter-gatherers. This is basically the reverse of the scenario proffered for the early-middle Archaic transition, though the specifics of late Archaic subsistence and settlement may have varied from earlier patterns owing to the expanded range of the pinyon (see chapter 8) and other factors. Moreover, as discussed earlier, late Archaic sites have a greater chance of contributing to the radiocarbon record because of preservation biases with earlier periods.

Berry and Berry (1986:318) hypothesize that a major exodus is responsible for the apparent late Archaic population increase and suggest the Mexican highlands as one possible source region based on similarities between Gypsum points of the Southwest and the earlier constricting stem points of Mexico. Gypsum points appear on the northern Colorado Plateau sometime after about 4500 B.P. (Holmer 1986:105) and are key late Archaic diagnostics. They are among the more common type of point found in southeast Utah (e.g., Hauck 1979a, 1979b; Tipps 1988) and are the most common temporally sensitive dart-sized point found in Glen Canyon. (Only Elko points are found more frequently than Gypsum points, but these are poor temporal diagnostics except for Elko fared [Holmer 1978, 1986].) Many examples of Gypsum points were found during the NAU surveys, from the far southern portion of the recreation area at Lees Ferry (Geib 1986) to the far northern portion on North Point (Bungart and Geib 1986) and the Spur (Geib 1994). The frequency and distribution of Gypsum points alone indicate a rather significant late Archaic occupation of the Glen Canyon region. Nevertheless, it has yet to be demonstrated that a point style equals a people, and there are many examples of point styles spreading rapidly between different cultural groups.

Split-twig figurines are another important diagnostic of the late Archaic period, occurring over a broad territory centered along the Colorado River and its tributaries. Split-twig figurine discoveries since Schroedl's (1977) review have extended their range to the Mojave Desert of California (Davis and Smith 1981), the Black Mountains of the lower Colorado River (Geib and Keller 1987), and east of Lisbon Valley in southeast Utah just shy of the Colorado border Wett 1991). So far, no split-twig figurines have been found in Glen Canyon proper (the closest example is from Cottonwood Cave in the Waterhole Flat locality south of the Maze [Gunnerson 1969:fig 39g] but given the apparent extent of late Archaic occupation in the region, future archaeological excavations will probably change this.

The late Archaic is marked by heavy reoccupation of Cowboy Cave starting at about 3700 B.P., but cave sites in the far southern portion of the Glen Canyon region continued to be little used. Several Gypsum points occur in Stratum VI of Dust Devil Cave (Geib and Ambler 1991), but this layer also contains Basketmaker materials, and Ambler (1984c, chapter 3) interprets Stratum VI as essentially a Basketmaker II deposit. A few Gypsum points were recovered from Sand Dune Cave (Lindsay et al. 1968:fig. 23w), but the lack of stratigraphically controlled excavation precludes an accurate assessment of this

late Archaic occupation beyond the simple statement that there apparently was one. At Old Man Cave, too, there is little evidence of a late Archaic presence, though the strata that correspond to this interval were largely disturbed by Basketmaker burial pits and looters. Gypsum points are even more rare immediately south of the Glen Canyon region, with few examples known from the Kayenta region. For example, Gypsum points are virtually unknown from northern Black Mesa (Francis Smiley, personal communication 1991), and the three excavated late Archaic (ca. 3000 B.P.) sites of this area produced large, corner-notched, convex base points (Parry and Smiley 1990:55).

The introduction of agriculture marks the end of the late Archaic, a process that in Glen Canyon apparently occurred less than 2,400 years ago. As Berry and Berry (1986:319) observe, “the agricultural influx drastically changed the character of Southwestern subsistence systems and altered profoundly the trajectory of evolutionary development.... Hence, for all intents and purposes, the Archaic came to a close.” Direct dating of maize, cucurbits, and beans from Glen Canyon northward has yet to produce a reliable date before 2,000 years ago, but maize is dated to around 2,200 years ago immediately south of Glen Canyon (see chapter 4) and to around 3,000 years ago further to the south and east (Smiley 1994).

Schroedl (1976b:fig. 4) and Berry and Berry (1986:fig. 14) highlighted a break/dip in the Colorado Plateau radiocarbon record between roughly 3000 and 2500 B.P. Despite the apparent break in his plot of radiocarbon dates from about 3000 to 2500 B.P., Schroedl (1976b:68-73) saw strong evidence for cultural continuity in points, basketry, and other material remains from dated contexts on both sides of this 500-year gap. Thus he defined the Dirty Devil phase as spanning the possible hiatus. Berry and Berry (1986:309) took issue with his reasoning, characterizing it as “a typical case of phase-stacking to achieve the illusion of continuity.” Alternatively, they saw significant depopulation due to drought as the reason for the drastic reduction in radiocarbon dates between 3000 and 2500 B.P. and concluded that Archaic hunter-gatherers were subsequently displaced by San Pedro/Basketmaker II agriculturalists from some southern source area (Berry and Berry 1986:318-19). Rather than cultural continuity from the Archaic to Formative periods, as maintained by Schroedl (1976b:77), Berry and Berry argued for cultural replacement (see Matson 1991 for detailed discussion of this issue).

Some stratified shelters in the region still reveal a break in occupation between about 3000 and 2000 B.P. (e.g. Horn 1990:85; Janetski, Crosland, and Wilde 1991:

table I); but dates on hearth charcoal from open sites throughout the Glen Canyon region indicate a lack of wholesale abandonment at the end of the late Archaic. The Glen Canyon radiocarbon record does not exhibit a dip between 3000 and 2500 B.P., and even the Colorado Plateau record graphed by the Berrys (1986:fig. 14) lacks a gap. The basis for concluding that there was an occupational discontinuity at about 3000 B.P. is not, therefore, evident in the chronometric data.

A major point in Berry and Berry's (1986:309-10) argument for lack of continuity during the late Archaic-Formative transition is placing an upper temporal limit on the production of Gypsum points and split-twig figurines. The crucial evidence that has to be refuted by the Berrys comes from Cowboy Cave, where these twin late Archaic diagnostics were recovered from Unit V dated to the Early Agricultural period (ca. 1800—1500 B.P.). The Berrys are probably right that late Archaic artifacts were displaced upward from Unit IV into Unit V at Cowboy Cave and that Gypsum points and split-twig figurines were not produced much after about 3000 B.P., but their argument cannot account for the basketry sequence at the site, which mirrors the developmental sequence in Utah from Archaic to Fremont (Hewitt 1980:57). Early Formative basketry from the Escalante River Basin also represents a continuation and elaboration of Archaic basketry technology for Utah and supports the idea of cultural continuity during the agricultural transition north of the Colorado River (see chapter 4). As R. G. Matson (1991) describes it, the case south of the Colorado River is substantially different and seems to support the notion of an intrusive agricultural population.

Conclusions

Recasting Jennings's statement at the start of this chapter in light of the recent findings reviewed here, Glen Canyon emerges as a region of the Southwest with significant evidence of Archaic culture. Indeed, the earliest documented expression of an Archaic lifeway anywhere on the Colorado Plateau is found in the Glen Canyon region. The entire temporal span of the Archaic period seems represented in the region, and the three temporally discrete occupations separated by abandonments that Berry and Berry (1986) identified for the Archaic occupation of the Colorado Plateau are not apparent in the local radiocarbon record. Though major population movements might have taken place, at no time during the Archaic period does the Glen Canyon region appear to have been completely void of human inhabitants. There are significantly fewer dates between 6000 and 4000 B.P. than ei-

ther previously or subsequently, plus small gaps, but there seems little support for a complete abandonment during this interval as argued by Berry and Berry (1986:315). Rather, there may have been a reduction in population density owing to an expansion of foraging territories coupled with some migration. The apparent abandonment of previously used sites, which has provided some of the most compelling evidence for an occupation hiatus, may merely reflect a change in settlement pattern—residential bases relocated close to rivers and well-watered canyons of the Glen Canyon lowlands, and perhaps to the several high-elevation settings near the canyon lowlands. In addition, middle Archaic populations could have increased the frequency of residential moves, expanded the territories of their seasonal rounds, and decreased the periodicity of residential reuse. These factors would have led to a substantially diminished archaeological record. In essence, middle Archaic remains might be far more dispersed than those of other Archaic intervals and thus less subject to archaeological discovery and investigation.

It is also worth recalling Schroedl's (1976b:63) point about the possibility that archaeologists have missed the evidence corresponding to this interval (which he calls the Castle Valley phase) by incorporating middle Archaic remains with those of earlier or later occupations. Based on the Sudden Shelter sequence, he reasoned that greatly reduced depositional rates resulted in thin middle Archaic deposits and that "unless very fine-grained distinctions with tight controls are utilized during excavation of Archaic sites, the occupations associated with this phase [Castle Valley or the middle Archaic] might be completely missed" (Schroedl 1976b:64).

The other occupational hiatus recognized by Berry and Berry corresponds to the 500-year date gap identified by Schroedl (1976b) between 3000 and 2500 B.P., just before the introduction of agriculture on the northern Colorado Plateau. This was also the hiatus identified by D. B. Madsen and M. S. Berry (1975) as evidence for lack of continuity between Archaic and Fremont populations in Utah. No hiatus is apparent in the Glen Canyon radiocarbon record; the region was clearly not void of human occupants. Again, certain key sites such as Cowboy Cave and the Down Wash Site were apparently abandoned, but this does not necessarily mean regional abandonment.

It is important to acknowledge the spatial limitations of point-specific data sets when it comes to inferences about regional patterns of settlement. Few would infer the occupational history of a locality or even region on the basis of one or even several open sites. Yet site-specific occupational records are commonly used for this if

they derive from sheltered sites (caves and rockshelters), perhaps based on the implicit assumption that shelters would always be used for occupation if people were present. Occupational breaks at sheltered sites are commonly assumed to have implications far beyond their point-specific empirical basis, yet their occupational records can never vouch for that of a region, no matter how provocative and unequivocal they might be. As Wills (1988:155) put it, "we need to consider individual sites and artifacts as participants in and products of socioeconomic systems, not models for such systems."

At this point, I wonder whether the tripart temporal subdivision of the Archaic period is not too coarse for future research in the Glen Canyon region. These broad temporal periods and their implication of within-period stability potentially obscure any trends in adaptation in response to environmental changes, such as middle Holocene desiccation, or other selective pressures. Lumping together thousands of years of prehistory ensures that periods of transition are analytically lost. As a result, changes between periods seem abrupt and can engender false notions of human migrations and population replacement. The seven-part framework presented in table 6 and shown in figure 8a is tentatively advanced as a potentially useful partitioning of the roughly 6,500 years of hunter-gatherer occupation of the Glen Canyon region to describe change. These seven temporal subdivisions of the Archaic period should not be viewed as cultural phases in the traditional sense, though they may correspond to intervals wherein cultural patterns were relatively similar yet sufficiently different from earlier and later patterns. By partitioning the Archaic period in this way, it should be possible to isolate and more clearly define the temporal patterning and rates of change for those characteristics that changed: material remains, subsistence practices, mobility strategies.

It is important to note that the seven partitions of the Archaic period also correspond to some degree with the extent of current knowledge. For example, on a scale from 0 to 10, where 10 denotes detailed knowledge, the empirical underpinning for each of the seven subdivisions might be ranked as follows: 3 for the early and late Archaic, 1 for the two transitions and the initial Archaic, 0.5 for the terminal Archaic, and 0.1 for the middle Archaic. Once we have comparable amounts of information for the entire Archaic sequence, including a greater understanding of environmental conditions, more useful temporal partitions might become obvious. If for no other reason, the seven subdivisions usefully emphasize which portions of the Archaic sequence should receive concerted investigation.

In table 6 the breaks between the seven temporal subdivisions are also listed in calibrated years B.C. This reveals that some of these intervals are relatively longer than indicated by the radiocarbon dates, while a few are slightly shorter. For example, the 1200 year middle Archaic period actually spanned over 1,400 years. Overall, the Archaic period is lengthened by about 1,030 years with date calibration.

Having reviewed the current chronometric evidence for the Glen Canyon region, I find that the data are more in accord with the long-term continuity model of Archaic occupation. The radiocarbon record is sufficient to cast doubt upon interpreting the Archaic period as a sequence of population abandonments and intrusions on a pan-regional scale. Despite arguing for occupational continuity, I am unwilling to discount population immigration as a reason for some apparent changes during the Archaic. Migration still has something to offer archaeologists in understanding prehistory (see Anthony 1990), but not to the extent that Berry and Berry (1986:321) believe when they suggest that major population replacement “is the key to understanding Archaic prehistory in the Desert West.” Current knowledge of the Archaic period is still so limited and spotty that we cannot yet critically evaluate the issue of migrations during this early time interval. Furthermore, standard archaeological approaches to identifying prehistoric migrations (e.g. Rouse 1986) are severely limited by an absence of supporting theory (Anthony 1990).

I see no necessary linkage between long-term occupational continuity and gradualism (Berry 1981; Berry and Berry 1986:255), but find little evidence for sudden change during the Archaic. Even by examining change during seven temporal subdivisions instead of three, it is difficult to make a case for anything happening rapidly because the smallest time interval is of 500 years’ duration or about twenty generations. Berry and Berry (1986:320) apparently also believe that Archaic period culture change was a slow process.

But the Archaic hunter-gatherers saw only minor shifts in resource availability and, in response, made minor adjustments in exploitative range. In the process, they sometimes encountered new classes of resources that required modifications in extractive technology or a reorientation of relative resource dependency. None of these constituted major evolutionary developments.

Future research on the Archaic period in the Glen Canyon region should attempt to muster evidence for those portions of the Archaic sequence that are still poorly documented. Only by such an effort can we adequately describe the economic, social, and cultural

transitions that took place during the long Archaic sequence and thereby disentangle the various historical and evolutionary processes that might be involved in culture change. Even for those portions of the Archaic period that are more completely understood, the information is derived from a paltry site sample with primary reliance on two caves (Cowboy and Dust Devil) in largely similar environmental settings. The sample of excavated high-information (Thomas 1985:27) sheltered sites needs to be expanded to cover a diversity of environmental settings, with particular emphasis placed on well-watered canyon lowlands and on high-elevation settings (ca. above 1,615 m). Open sites also need to be investigated, but it seems evident that the sample of chronometrically datable early and middle Archaic open sites available for study is limited. Open sites are potentially assignable to these early periods based on point types; but even if such assignments are correct, the sites are often so deflated and otherwise affected by postdepositional processes that our ability to use them for interpretive purposes is limited.

In conclusion, the Glen Canyon region is one of the highly productive areas in the Southwest for studying Archaic hunter-gatherer adaptations and economic transitions, including the adoption of agriculture. The region is characterized by exceptional preservation of subsistence remains and perishable technology within numerous stratified dry shelters. Paleoenvironmental data abound from a variety of sources (alluvial stratigraphy, packrat middens, pollen, macrobotanical and faunal remains, etc.) and should eventually enable detailed climatic and biogeographic reconstructions for the Holocene. Our understanding of this period is not limited by a lack of potential data sources, though the best of these—dry shelters—are in serious danger of being lost to illicit digging. To gain the most benefit from the still-rich archaeological database, a longterm, region-wide research program is needed, designed to document not just the common lifeway patterns that form the basis of culture-history but also the variability that informs us about the organization of hunter-gatherer societies and how they change.

Notes

I. Walters Cave was tested during the time that Cowboy Cave was excavated and the findings are reported along with those of Cowboy Cave Wennings 1980). Hewitt (1980a:table 14) does not list any open-twined sandals recovered from Walters Cave, yet a field photograph clearly shows two open-twined sandals in situ in the lowest cultural deposit at the cave. One of these was

specifically identified as a sandal in the field notes and field specimen log and this was the artifact submitted for radiocarbon dating (FS370). The other artifact was identified as basketry in the field notes and specimen log, yet no basketry is listed as coming from Walters Cave (Hewitt 1980a:table 14). This discrepancy resulted because the field specimen number for this other woven artifact was written down by the analyst as 1370.2 instead of 370.2 (Nancy Hewitt's sandal analysis notes on file at UMNH). In the field specimen log, FS1370 is listed as a metate fragment from Cowboy Cave, not Walters Cave. Hewitt describes the 1370.2 artifact as a poorly preserved fragment of an open-twined sandal, which is exactly what the field photograph shows. There are no other artifacts in the collections with the FS370 designation, just the sandal fragment that Hewitt describes as 1370. Resolving this discrepancy also removes the one open-twined sandal listed as coming from Unit V of Cowboy Cave. It is abundantly clear that use of this type of sandal had discontinued thousands of years prior to the Unit V occupancy. It is now evident that a simple clerical error added the sandal to Unit V of Cowboy Cave instead of its proper provenience as Unit II of Walters Cave.

Phil R. Geib, "Archaic Occupancy of the Glen Canyon Region," *Glen Canyon Revisited* (Utah: University of Utah Press, 1996).

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The Curve-Tailed Canine

How Much Is That Doggie In The Picto?

Text and photos by Jim Blazik

There are relatively few examples of the canine figure in the Barrier Canyon Style, but of the dozen or so that exist, several questions naturally arise, and these questions are not easily answered. Though a wide variety of explanations and interpretations may be applied, as with most emblematic elements encountered in the rock art of peoples so long past that ethnographic evidence is completely unavailable, we have only the art to guide us. This

article will present not only a representative sampling of these depictions, but will investigate and discuss several of the varying aspects of the canine figure.

No archaeological evidence presently exists, neither bones nor burials, nor midden nor coprolytic remains, that provides us with data concerning what breed or breeds of dogs people of the upper Colorado Plateau may have had during the Archaic period. Considering the corresponding lack of human remains, it might be inferred that open air interment was the preferred practice concerning the honored dead, both human and animal. But the visual record that remains clearly shows the presence of canines, and furthermore, that it was the dog, not the coyote or the wolf, that was being depicted. Though abstraction of form (artistic license, so to speak) was occasionally employed, and several of the still remaining figures are difficult to discern, the usual composition is as seen in Figure 1 —the side



Figure 1

view of the dog in close association with a single major anthro-pomorph. More often than not, the dog will diagnostically have an up-curved tail, and will be of naturalistic size relative to the human form it attends, though one other variation (that relates primarily to size and degree of articulation) can be found.

The canine accounts for less than a few percent of the identifiable zoomorphic imagery in the Archaic art of the Barrier Canyon Style. Among quadrupeds, big horn sheep are easily the most commonly seen, and cervids of one kind or another also greatly outnumber canines within the imagery. Even

the strange, unidentifiable, mythic-type animals that are sometimes portrayed are more numerous in number, but none of these appear to fill quite the same iconographic niche as does the dog.

The Great Gallery, located in the Horseshoe Canyon Unit of Canyonlands National Park, is not only the type site of the Barrier Canyon Anthropomorphic Style, but also possesses the greatest number of canine motifs to be found at a single site anywhere. Though these dog-type figures vary somewhat, they fall into, and thus tend to define, two primary categories of iconographic use of the canine generally. These two categories indicate a consistency sufficiently notable, across the total range of the Style, that every possibility exists that the use of the dog

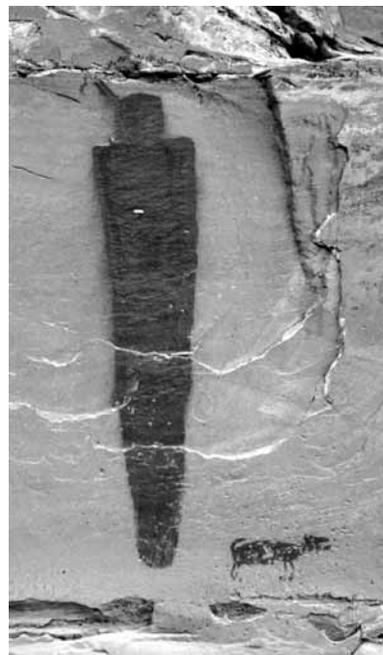


Figure 2

as a symbol had become a cultural convention, and was used to convey at least two specific meanings, though as usual, we are left to speculate what those meanings may have been for those who used them. At any rate, the massive size and heroic scale of the Great Gallery itself, its considerable antiquity, and its placement centrally within the heart of the areal range of the BC style, lends weight to a likelihood that this place was an important locus of ceremonial life in Archaic times. A further assumption, based on the similar and repeated use of this motif at other sites, would be that the dog held a special significance in the several realities of Archaic artist-priests.

Although Figure 2 illustrates the primary style of representation—the classic side view dog with an up-curve tail, of approximately naturalistic size—it is in this particular instance somewhat uncharacteristic in that generally the dog will be oriented toward the anthropomorph it attends rather than away from it. Regardless, it is notable that both figures in Figure 2 are of the same authorship, and hence form a formalized composition. There may be additional purpose in this composition since the dog is associated with largest figure at the Great Gallery, and points the way down canyon, away from all else. Furthermore, close observation reveals that both the dog and the abstracted human form have been equally ‘darted’—presumably (at least by ethnographic standards elsewhere) a form of ritual interaction between celebrants (or passers by) and the rock art itself, and which denotes a heightened importance attendant in (and gained from in the form of ‘power’) from figures thus ‘communicated’ with.

The Other Kind Of Canine...

The second category of canine depiction is typified by the smaller (i.e., not proportionately sized relative to the anthropomorph it ‘attends’) dog-like figure, again seen in profile view, and which tends to be more articulated than the static



Figure 3

larger dogs previously seen. While this closely parallels the two primary anthropomorphic types (the large, static, ‘mummy-like’ anthros -vs- the generally smaller, actively posed ‘Citizen Figures’), this way of representing the canine suggests a more naturalistic interpretation, although this is not absolutely conclusive.

Both Figures 3 and 4 are isolated segments from the Great Gallery, but each is best considered as separate sub-panels at the site. Sufficient differences are found between them visually (pigmentation, etc.), and the spatial distance between the two would indicate not only different authorship, but that each painter attached a different ‘meaning’ to their use, or choice of inclusion

in the compositions.

While the canine figure shown above lacks the up-curved tail—or for that matter, any tail at all—the figure below does not. In both instances, however, there is an upward movement or direction, a hovering in mid-air, or rising quality common to many figures (both zoomorphic and anthropomorphic) seen within the canon of the BC-Style, and both suggests and supports the ‘going above’ tendency often found in the iconography of the Style. Notably, the canine pictured alongside is quite uncommon—virtually unique—in that it is not in direct association with an anthropomorphic figure, and is instead seemingly more closely associated with the triangularly arranged group of bighorn sheep. It is tempting to conclude



Figure 4

that some type of hunting activity is being portrayed, especially considering the articulated human forms that appear to be holding spears, but whether or not this is actually the case, what is important is that another of the aspects of the canine is defined, and it relates primarily to the naturalistic, as opposed to the spiritual, world.

In both Figures 3 and 4, relative size, degree of articulation, and specific placement (above or below associated figures) within a



Figure 5

composition are important indicators, and may provide clues to our overall understanding of the function of each separate figure as it relates to each other. But further examples of the 'doggie in the picto' must be investigated before any symbolic function can be assigned, or before we can discern 'how much it may be worth...'

Slightly separated from the main portion of the Great Gallery, the grouping in Figure 5 diverges somewhat from the norm. Rather than being associated with a single anthropomorph, the dog here can be seen as being associated with a triplet of figures. Since the highest of the anthropomorphs in a panel is generally the primary figure in a grouping, it is odd that the dog would have been associated with a subordinate (lower compositionally) figure, and may in this instance represent merely a secondary theme within the panel, and is simply another of several attributes of a larger idea. Also, as had been done with many of the other figures at the Great Gallery, each of major elements in this composition had been incised (or 'darted') into at some time following the execution of the painting. Considering the precise placement of the pecking, it may well have been that some special significance was given to the head (especially in the area of the eyes) and feet of the dog, as well as in the human figures. The near obliteration of these areas poses several problems: did early people 'remove' these areas in order to somehow alter, perhaps to make greater or conversely decrease the power inherent in the figures, the 'magic'? Or did they save the bits they removed as momentos, as reminders, or as holy relics to be shared with others, and to be revered away from the site? Each of these is a possibility, in so



Figure 7

far as ethnography of more recent people has indicated.

In the relatively stylized canine depiction of Figure 6, once again the dog faces away from the primary anthropomorph holding a snake, and faces up canyon. Between the obvious canine and the human form, a smaller, secondary quadruped also suggests a dog, but this is not conclusive since the degree of stylization is extreme.

Though perhaps not viewable in the illustration above, individual 'hairs' had been painted on the up-curved tail. Details such as these are seldom included without some iconographic purpose, either as a defining accentuation of an attribute or for the purpose of underscoring some thematic or conceptual aspect inherent within a panel. The vertical 'stripe' (actually, an unpainted 'negative space') that had been included in the chest



Figure 6

area of the dog is completely enigmatic, but presumably this motif had meaning as well, for it is revisited in other figures in the panel as well.

Figure 7 shows what little remains of a panel located near Figure 6. Though badly exfoliated, and thus difficult to discern, we see again the 'classic' anthropomorph/canine composition as has been previously discussed. Though the quadruped seen here alongside the vague human form could conceivably be interpreted as something other than a canine, comparisons to like panels elsewhere suggest this is not the case. Compare, for example, the pairing seen here with the composition that follows.

Visually similar to several of the figures seen at the Great Gallery, the 'big shouldered' solo anthropomorph ("The Moqui Queen") in

Figure 8 epitomizes the anthro/canine theme encountered within the BC Style. Once again, the canine element is open to interpretation (it has even been described as a 'legless duck' by one researcher), and though the legs are now all but missing, the 'head' is somewhat bird-like, and the tail is not curved in the usual way, comparison with compositions elsewhere tend to render the ill-defined figure dog-like. No other elements exist at this site, and it is unlikely that any others had been included, despite the exfoliation that clearly has occurred here. Meaning - assuming there was an iconographic value attached to the composition - is conventionalized, whatever it may have been...



Figure 8

The petroglyphic example in Figure 9 is important in that there is a linking between major anthropomorph and dog by way of the arc-like segments of dots that 'connects' the two. The arc motif is often encountered in BCS panels, and the 'halo-like' arrangement as seen here is almost commonplace in the comparatively rare petroglyph panels of the style. The dog is given a heightened status within the 'statement' of the composition both by virtue of its being connected to the anthropomorph as well as its being found beneath its own arc. Significantly, numerous



Figure 9

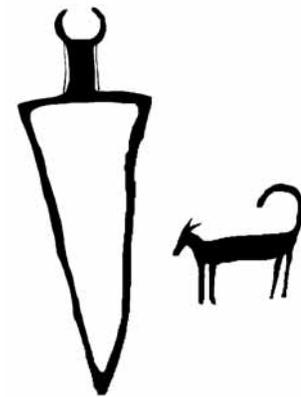
elements were incised to the right side, but the dog stands alone to the left.

The first time I saw the panel in Figure 10, it was in full light, and difficult to see. My initial assessment was that it was a fairly typical Fremont era figure, though I did not invest a great amount of time or thought beyond that. Several years later, upon my return to the site, the figures were in shade, and I was surprised to find the canine figure in attendance to the horned anthropomorph. While not completely BCS in appearance, I have since come to believe (lacking evidence to the contrary) that this composition may have

been done during an Archaic/late prehistoric transitional phase, and since the classic (as seen on preceding pages) canine/anthromorph composition is virtually unseen within the rock art of later eras, it may potentially represent an idiosyncratic BCS panel, an example of a late transitional phase, or the borrowing of an important iconographic theme by a painter of a later time.



Figure 10



A Later Kind Of Canine...

While recently scanning several images of a BCS panel in the western San Rafael region of central Utah, I was surprised to find, in association with the older BCS composition at the site I was primarily concerned with, the figures illustrated here. Though of Fremont origin, I was surprised to find, indistinctly, another example of the naturalistically sized (relative to the anthropomorph)

canine figure not unlike those discussed on the preceding pages. I am not aware of any other example of this motif in the immediate region, so the possibility is raised that whoever had created this composition had perhaps traveled a considerable distance through extremely difficult territory, and had gained elsewhere the seeds of an



Figure 11

iconographic idea which were brought to fruition in this place. The borrowing, re-use and re-adaption of ideas is as old as humanity itself.

Alongside is the full context of the rock art at the site. (Note the tiny [19cm in height] BCS composition in the right hand corner of the illustration - the so-called "Ascending Sheep" panel.)

Each of the panel details in Figures 13, 14 and 15 represent additional examples of the 'doggie in the picto', and each is located a considerable distance from the other. The first two are in many ways similar to those already seen — both are fairly typical compositionally — but the third is something of a departure from the usual, and as such gives rise to considerations of other possibilities in the iconographic use of the dog.

Though the upward tending 'movement' of the canine figure has been previously considered, this rising articulation in conjunction with an elongation of the body is, at first glance, not only rather unusual, but is very odd: none of the others so far seen in this article have been quite like it. And, that is a primary problem with only taking a first glance and going no further, not allaying the visual information gained from a single place with a wider body of comparisons from other sources. Take, for example, what should be an easy comparison: a consideration of the conventionalized use of body elongation seen among BCS anthropomorphs. Imme-

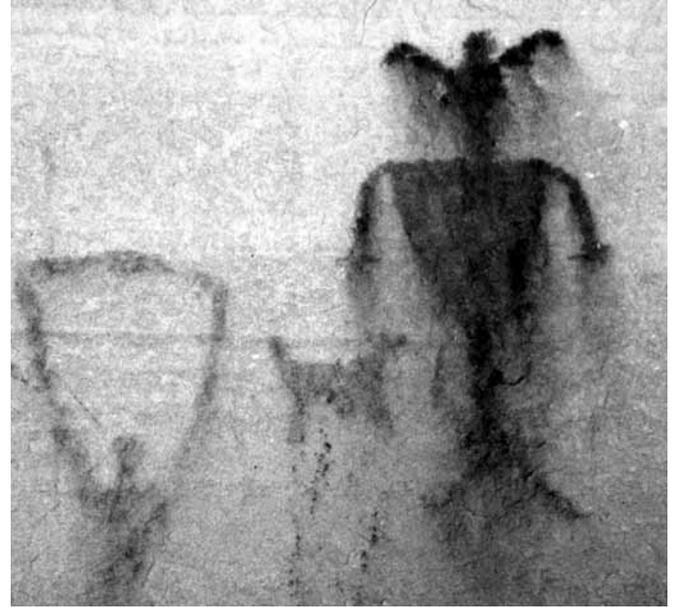


Figure 12

diately a parallel is encountered, and several possibilities arise.

Though there is scant evidence within the literature, the elongation of form has been cited by adherents of the Lewis-Williams psychoanalytical model as being indicative of the entoptic imagery suggestive of shamanic trance. Whether or not torso elongation can 'prove' these panels were painted as later, perhaps conventionalized, descriptions of the visionary material produced by the altered state of consciousness of a religious specialist, the final result is an iconography that promotes the idea of non-ordinariness or other-worldliness. In the instance illustrated above, there is additionally the suggestion that

this 'dog' is not a dog at all, but a transformation into non-ordinary, non-naturalistic form. This has considerable basis in the literature, and has been often cited as one of the subjectively described somatic experiences of trance, purposefully entered into for specific reasons by persons knowledgeable in specialized techniques — and is the ecstatic trance of the shaman.

One of the inevitable results of a close study of the Barrier Canyon style is that a great deal of the imagery is not meant to represent actual people, animals or things. True enough, these



Figure 13

various figures were painted by individuals, and may even have been meant to represent the painter him- or herself, not as portraits, but as abstractions in the purest psychological sense. As such, figures become symbols for concepts more than they represent the things encountered in nature, and each element, each morpheme and each concept in a panel forms — or reveals — one or more cohesive themes. So is the dog we have so far seen actually a dog, or does it represent more?

Figure 16 may be the most unusual of all BCS canines, and may as such provide a means by which other sites might be understood. The 'prayerful' or 'supplicating' stance of this canine suggests several things: first, the use of animal figures as messengers or as vehicles of communication between the natural and the supernatural worlds, and second, the representation of the belief in the celebrant's ability, in trance, to transform into animal form, both of which are common themes in the BC style.

The upright stance as seen in the preceding illustration has been interpreted by some as being suggestive of dance, a ritual activity in and of itself. One researcher has made the claim that the outstretched arms reach out to the point at which the sun clears the canyon wall on the summer solstice, and so perhaps a discernibly seasonal ceremonial may conceivably have been represented. Within the context of what can be seen in the rock art, however, the enigmatic stump-like 'false leg' gives the figure an almost animated quality, an upward tending movement, perhaps indicating the often described psychological state experienced in soul flight (though this is more commonly seen symbolized by birds or man/bird composites), and since one neither expects a dog to dance nor fly, the quality or suggestion of non-ordinary



Figure 14

reality is promoted. In any event, the arms and legs, replete with 'hands' and 'feet,' are not particularly dog-like, and the appearance is that of a therioanthropomorphic composite of dog/man, and the attitude, as well as the more human-like configuration of the extremities, with elbows and fingers and feet portrayed rather than paws and fore- or hind legs, so the theme of human transformation into animal form may be supportable. One result is, from the point of view of pure speculation, that this canine figure may symbolize the shamanic transcendence of ordinary reality.

The canine above lacks the up-curved tail; a tail may not even have been included in the original painting sequence. The white outlining that can today be seen is chalk, and this was applied earlier this century in order to render the indistinct figure more photographically recordable, a practice now recognized as unnecessary — what with modern films and specialized techniques —, obfuscating, injurious to the art, and outright illegal. Apart from this, the figure is unusually larger (again, relative to the accompanying anthropomorph) than the other more or less naturalistically sized dogs that



Figure 15

have preceded, and as such it hints at the proposition that this canine motif (as well those that have preceded in this article) was meant to represent a specific thematic concept as opposed to being mere portrayals of domestic 'friends' that aided and assisted people of the Archaic on the upper Colorado Plateau.

We cannot know the canine's precise role — ethnography has its limits — but parallels can safely be made with what is known from other regions. Their functionality in hunting is well established, as well as their usefulness as pack animals for nomadic peoples. Likewise, doubtlessly, the dog had trade value among individuals, and also, in times of duress,



Figure 16

was a valuable and necessary food source. They probably also offered companionship and warmth on a cold night, but these are practical concerns, and do little to address the possible ideological functions in ceremonial art. The (1930) Claffin-Emerson expedition recovered an unfired clay figurine which was interpreted as being canine in form from Red Snake Cave (in what is today Glen Canyon National Recreation Area), and several of the rare split twig figurines that have been found also seem to resemble canines, so analogous support may conceivably exist which indicates the other than naturalistic importance of the canine apart from portrayals in rock art. So consequently, whether used simply as a metaphor for fidelity or more complexly in visual symbolism as guide to the upper or lower realms of supernaturalistic existence in the tripartite universe of the shaman, the canine was clearly held in high ceremonial regard.

This article has been adapted for print from the original. It first appeared in the August/September 1999 issue of *42Gr532: A Rock Art E-Zine* (<http://www.42Gr532.com>). © 1999 Jim Blazik.

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