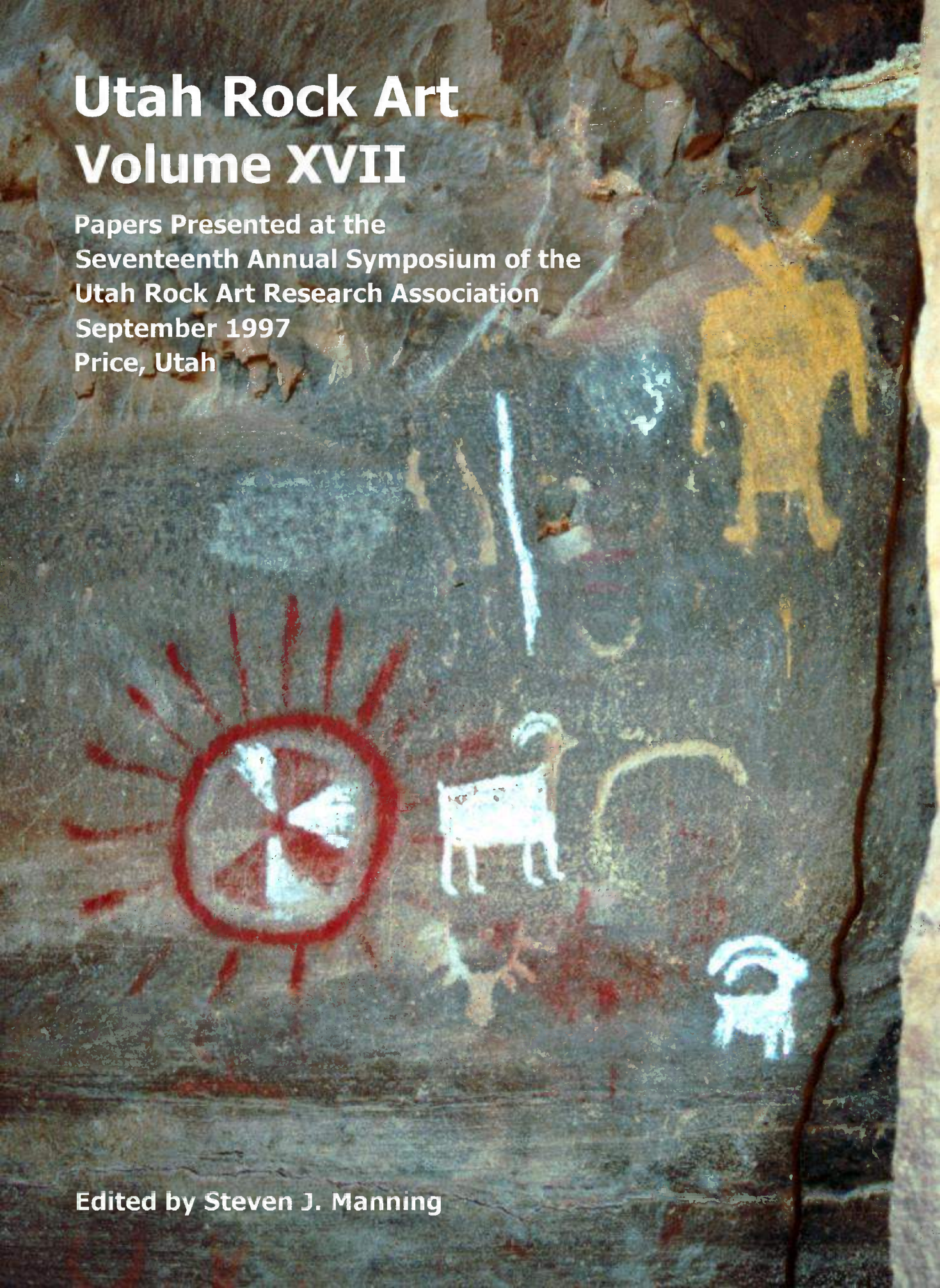
Utah Rock Art
Volume XVII

Papers Presented at the
Seventeenth Annual Symposium of the
Utah Rock Art Research Association
September 1997
Price, Utah



Edited by Steven J. Manning

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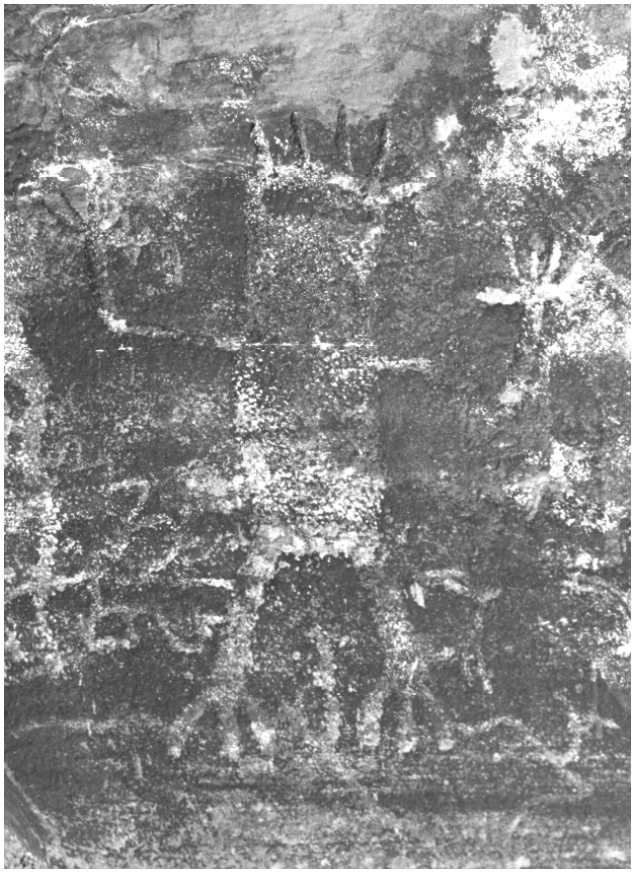

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TABLE OF CONTENTS

Cover--A pictograph from Nine Mile Canyon, Utah

PREFACE

The Utah Rock Art Research Association (URARA) held its seventeenth annual symposium in Price, Utah, August 29 through Sept 1, 1997 (Labor Day weekend).

URARA is an organization of individuals with common interests in prehistoric and early historic Rock Art. Symposia, which are held annually at a location in Utah, and have been since 1981, provide an opportunity for members to present their discoveries, ideas and research and share them with others. The public is welcome.

Special thanks are given to those authors who took time to prepare their papers for publication. All authors are responsible for their material published in this volume, except for Clifford's paper on Fremont Arrowheads. Editing was kept to a bare minimum, to preserve the individuality of each presenter.

Some papers, unfortunately, are not included. Some of these, according to their authors, were not intended for publication. Other individuals were not able to submit their papers due to unforeseen circumstances. The following presentations were not submitted for publication: Alex Apostolides—Alamo Mountain: Bridge to the Past; Nal Morris—Time; Mary Allen—Recent Discoveries of Grand Canyon Style Polychrome; David Susec—Animal and Plant Images with Spirit Figures; Polemics in Mexican Rock Art, Cecilio Orozco. Two of the papers included here were presented at previous symposia. One paper is included to honor a request by Clifford Rayl; the other is authored by Clifford Rayl, to whom the symposium and this volume are dedicated.

I would like to speak briefly to those of you who have presented a paper at our symposia, or who plan to present a paper at a future symposium. We all are diminished when a person goes to all the effort (and sometimes difficulty) to present a paper, but then never submits it for publication. We are unable to benefit from your research. Not everyone is able to attend every symposium to hear your presentation. Perhaps something you would have written in your paper would have sparked in us an idea that would have lead us to a great discovery. Perhaps we could have offered you an insight into your work that would have assisted you greatly, and may have led you to make a great discovery. Since your paper was not published, who knows what was lost? At the very least, we are unable to marvel over your brilliance, hard work and determination! I would suggest that as you prepare your paper for presentation, you also prepare it for publication. There are those in URARA that believe so strongly in publishing symposia papers that they believe that it should be a requirement that before a paper can be presented a copy for publishing must be submitted. Perhaps we should move in that direction.

Additional copies of this volume, or others in this series are available by contacting the Publications Committee at URARA, P.O. Box 511324, Salt Lake City, Utah 84151-1324

DEDICATION

The 1997, Utah Rock Art Research Association's Seventeenth Annual Symposium is dedicated to Clifford L. Rayl.

This volume is also dedicated to Clifford Rayl. Unfortunately, these dedications must be made posthumously. Clifford passed away doing one of the things he most enjoyed. He left us while attending the symposium.

Clifford assisted greatly with the Utah Rock Art Research Association. He shared our passion for rock art, and he was an advocate for preservation and research. His unique insights, coupled with an ample measure of humor, brought us an enormous amount of enjoyment.

Like many of us in URARA, I had the pleasure of associating with Clifford for many years—nearly as many years as URARA has existed. I count him as one of my friends, as do other URARA members. Clifford always had a spirited personality. Things were always more lively when he was around. I accompanied him as we visited hundreds of rock art sites, both on URARA field trips and as we traveled together. We always had long and involved discussions, sometime "spirited discussions", regarding rock art and the many aspects of its meaning, function, and ways of protecting it—or not protecting it. Other URARA members, I am certain, have had the same types of discussions, and we will all miss them.

I could write more, but I would only be repeating (and certainly not saying as well) what others have said. Therefore, I am including at the end of this volume some comments of URARA members concerning Clifford Rayl—a memorial. Some of these also appeared in *Vestiges*. I hope that you will take the time to read them, so that you may appreciate a unique individual. (Steven Manning, Editor)

Jane Bush, President

Ron Lee, Vice President

Solstice Marker Design Variations

Paul A. Allee

ABSTRACT

Summer and winter solstice markers produced by ancient artists of the Southwest can be placed in several categories: (one) an interaction between shadows and a pictograph or petroglyph at the time of the solstice event, (two) a depiction of a solstice event with a pictograph or petroglyph as viewed by the artist at or near the site, and (three) the directional indication at a site, i.e., the location on the horizon of a solstice event marked by a pictograph or petroglyph. Other methods have been noted by other authors, but are not a topic of discussion in this presentation.

The artists in placing the markers display considerable ingenuity in coordinating the solstice event and their presentation of a method of marking the timing of the solstice. A previously unreported summer solstice marker has been located on the Courthouse Wash pictograph panel in Arches National Park, near Moab, Utah. Its dual nature in marking the event can be classified as being in both categories one and two.

INTRODUCTION

The initial purpose of a series of previously published papers was to ascertain the probable meteorological knowledge of the prehistoric inhabitants on the Colorado Plateau region of southeastern Utah, as portrayed in the Barrier Canyon Style pictograph panels (Allee 1992a, b; Allee et al, 1996). It is assumed the inhabitants were animists—that every natural object, including clouds, had an immortal spirit. These spirits, when not in the sky, were to be found within cliffs, where natural symbols identified their abode. The Barrier Canyon Style pictographs are probably an anthropomorphized representation of an altocumulus lenticularis cloud—a mountain wave cloud, that forecasts a period of rain about one third of the time (Allee 1992a). It is hypothesized that such pictographs are invocations to the rain spirits, painted at the time of the onset of the monsoon season (Allee 1992a, b). Their observations of the seasons of the year would certainly have noted the coincidence of the summer solstice as being the date of the initiation of the monsoon rainy season, necessary for whatever agricultural endeavors were practiced, and to furnish forage for the browsing game animals that were so necessary for their subsistence.

Consequently, in order to time the date of the ritual for the invocation to the rain spirits, it became a practice to mark the summer solstice date by indicating on the cliff, in some manner, the time of the year when sunset or sunrise was farthest north on the horizon. If symbols on the cliffs can be deciphered, it is probable that every pictograph panel with Barrier Canyon Style anthropomorphs has a summer solstice date marker. Some sites appear to be primarily solar observatories (Allee et al, 1996), containing winter, as well as summer solstice

markers. The artists in designing their solstice markers displayed considerable ingenuity in their presentation of a method that marked the date of the solstice.

DISCUSSION

Summer/Winter solstice markers produced by ancient artists of the Southwest can be placed in several categories.

1. By an interaction between shadows and a pictograph or petroglyph at the time of the solstice event.
2. Depiction of a solstice event as viewed by the artist at or near the site of a pictograph or petroglyph.
3. Directional indication at a site, i.e., the location on the horizon of a solstice event marked by a pictograph or petroglyph.

Most of the major Barrier Canyon pictograph Style panel locations appear to have been chosen to fulfill certain criteria. First, there must be some evidence that the cliff has natural markers indicating that the rain spirits reside within when not up in the sky (Allee 1992b). Second, the panel is exposed to sunlight during a portion the daylight hours. Third, there is an overhang of the cliff above the panel resulting in a shadow of the overhang that moves down the cliff if it faces to the east or up the cliff if it faces to the west. And fourth, the shadow has a notch, or some other distinguishing feature that can be utilized in conjunction with the placement of a pictograph, or petroglyph, to indicate the timing of the solstice.

CATEGORY 1.
An interaction between shadows and a pictograph or petroglyph at the time of the solstice event.

Barrier Canyon. The Great Gallery more than fulfills the above criteria. There are three notches on the descending shadow that react with pictographs in the gallery.

That portion of the Great Gallery titled "Holy Ghost and Attendants" is located within a natural arch that is indented into the cliff surface. An imaginary outline containing the pictographs is framed by the arch in such a manner that the outline is equidistant from the contour of the arch. On the day of the summer solstice, the shadow of the arch on the left side and the shadow of the cliff above and on the right side falls between, and equidistant from, an outline of the figures and the arch (Orozco 1995). The "Holy Ghost and Attendants" is perfectly framed by the shadows and the arch. This event occurs at about 10:30 A.M. MDST.

The shadow of the overhang of the cliff above that moves down the face of the cliff toward the Barrier Canyon pictograph figures has two notches. At the summer solstice each notch frames one of the many pictographs. The first occurs at 11:10 A.M. MDST, and the second at 11:40 MDST. This takes place before the notches have moved down and off of the panel.

The number of pictographs on the panel leads to the speculation that with the passage of time the notches may frame other pictographs at the time of the winter solstice, the equinoxes and possibly cross quarter dates.

As at Buckhorn Draw (Allee 1992b), there are 273 large dots at the left end of the panel. But, unlike Buckhorn Draw, there is no apparent site where the additional 90 dots might be or are located to make up a 360-day calendar such as is found at Buckhorn Draw, and the Black Dragon sites.

Sego Canyon. During the summer solstice, at 11:00 A.M. MDST, a small notch in the shadow moves down over the panel and centers on the upper body of the uppermost pictograph on the panel, before passing down and off the bottom of the panel (Allee 1992b).

Buckhorn Draw. A very large notch in the shadow of the cliff moving down over the panel comes to what is possibly the pictograph image of a shaman wearing a belt that has a medicine pouch attached. As the upper shadow moves down, a lower shadow comes up from below, and the final bit of light on the pictograph is the illumination of only the belt. This occurs at 1:17 P.M. MDST (Allee 1992b).

Courthouse Wash. A notch in the cliff shadow moves up from the base of the west-facing panel, creating what appears to be an upward moving shaft of light. At one point in its upward movement it becomes a base of light, upon which is balanced a Barrier Canyon Style rain-spirit petroglyph. This event is discussed further in the next section.

CATEGORY 2.
The depiction of a solstice event as viewed by the artist at or near the site of a pictograph or petroglyph.

One of the innovative methods the artists have used to portray a solstice event is to replicate a view of the horizon, or some other nearby event.

Black Dragon. The artist here depicted two events — summer and winter solstice (Allee 1992b). The summer sostice event is portrayed as a pictograph on the panel that replicates a mountain peak on the western horizon. In addition there is a barbed line that indicates the exact path of the sun as it passes down in the western sky and disappears behind the mountain peak. The winter solstice sun shines into the depth of a nearby cave only at the time of the winter solstice. This event is portrayed as a pictograph on the panel that shows a ray of light passing down into the nearby cave.

On the overhang above the solstice markers is the representation of a sun ray that points across the canyon in a 225^{o} azimuth direction. The canyon rim is at angle of 30^{o} when viewed from the panel, standing below the sun ray. At this location the sun would set below the canyon rim 11 days after the cross quarter date between the winter solstice and the vernal equinox (or 11 days before the cross quarter date between the autumnal equinox and the winter solstice). There could have once been a marker below the panel where an observer would stand to place the canyon rim at an elevation of 45° and mark the dates of the equinoxes.

Courthouse Wash. Figure 1 is a sketch of the northwest skyline as viewed from near the south end of the pictograph panel. On Figure 1 is shown (in exaggerated form) the location of a block of sandstone that extends slightly above the skyline. An arrow points to the location of the last spark of sunset when the observer stands on the fallen block at the

base of the panel, just below a petroglyph that represents a drawing of the skyline to the northwest of the site.

On that panel, in the Impressionistic Style of modern artwork, is a petroglyph representing the outline of the skyline to the northwest of the panel (Figure 2). On that representation is an agglomeration of painted dots that probably symbolize the location of the position of the sun as its last spark disappears behind the skyline. Above the representation of the skyline is a single deeply petroglyphed mark that may represent the sandstone block noted on Figure 1. Connecting the two marks with a straight line crosses the "skyline" at what may be the location of the last spark of sunlight. This point on the skyline does not exactly match the summer solstice sunset of Figure 1. The angle of the skyline, and the angle of approach of the sun to the skyline, is such that the observer must be standing somewhere below the petroglyph in order to get the sunset to match the petroglyph's portrayal. Further examination at the time of the summer solstice sunset may provide a clue as to where the observer stood when viewing the last spark of sunlight on the northwestern horizon.

The uncomfortably intense summer heat up against the western exposure of the sunlit cliff, and the ambiguity of the location of the sun at the exact moment of sunset experienced by an observer at this site, may have led another artist to place the Barrier Canyon figure partially overlaying the northwestern skyline petroglyph. In late morning a notch in the shadow of the cliff rises from the base of the panel, and touches the base of the Barrier Canyon petroglyph figure, as shown by the strongly dashed line on Figure 3. The solstice event can then be watched in the relative coolness of the morning shadow of the cliff, until the light of the sun reached the base of the cliff, and the shaft of light progressed upward to the Barrier Canyon figure. The skyline petroglyph is made with a number of deep, bold, indentations. The Barrier Canyon figure is made with a less deep, more continuous line style of drawing. The Barrier Canyon figure also appears to be more recent in execution than the skyline petroglyph, considering the difference in development of desert varnish on the two petroglyphs.

CATEGORY 3. Directional indication at a site, i.e., The location on the horizon of a solstice event marked by a pictograph or petroglyph.

Shaw Butte Hilltop Site. On a trip to Phoenix, Arizona, there was an opportunity to visit the Shaw Butte Hilltop Site, a prehistoric Hohokam solar observatory within the city limits of Phoenix. Solar solstices are noted by alignment of a "center stone" with opening in the walls of now ruined rooms, and circular petroglyphs with a diameter extended beyond the circle on one side, pointing to the solstices. Curiously, one of the circular petroglyphs with an extended diameter points to Polaris, the North Star. On the east side of the butte is a small cave with marks on the walls of a cave that record solar events. A presentation at one of the URARA symposium on the subject of scratched lines in conjunction with petroglyph markings was an alert to examine such sites for scratch marks (reference unavailable.) On the hillside, south of the observatory, is a flat rock. Inscribed on the surface of the rock are two sets of eight to ten scratched lines, about twelve centimeters

long. One set of lines in one direction points to the horizon where the summer solstice sun sets, and in the other direction to the point on the horizon where the winter solstice sun rises. The second set of scratched lines points to Polaris, the North Star.

CONCLUSION

The quest to understand the probable archeometeorological knowledge of the prehistoric inhabitants of the Southwest has led to additional assessment of their capabilities. They probably had knowledge of short term meteorological forecasting, and of the climatology of the area (Allee 1992b). They knew that the monsoon season, with its seasonal summer thunderstorm showers with their welcome rainfall, followed the summer solstice. And so, they developed at most sites (maybe all, if we could but understand their inscriptions) summer solstice markers to indicate the time for the performance of their rituals of invocations to the rain spirits for rain.

Their dot calendars indicate they were also interested in measuring the year, dividing it into some sort of time periods that represented the seasons of the year. Their probable purpose was to give their shamans the knowledge to predict the time of arrival of the various seasons, i.e., when to plant their crops (Allee 1992b), when to expect the rainy monsoon season to start (marked by the summer solstice), the harvest season, when to store food and prepare for the winter to come, and when the sun would start its return from the far south to rejuvenate the earth and its growing season. The purpose of the markers then was to enable a forecast to be made to time the progression of the seasons, with their attendant weather phenomena. Each season having an identifiable climatology described by its temperature, humidity, cloud forms (or lack of clouds), precipitation amounts and the weather elements such as rain, hail, snow, frost, all vital information for planning for their future activities.

BIBLIOGRAPHY

Allee, Paul

1992a Invocations to the Gods, the Southeastern Utah Fremont Pictographs. *Utah Rock Art*, Volume *XII*, pp. 119-185. Utah Rock Art Research Association, Salt Lake City, Utah.

1995b The Barrier Canyon Style Pictographs: WHY, WHERE, WHAT, *and WHEN* They Were Painted. *Utah* Rock *Art*, Volume XV, pp. 31-44. Utah Rock Art Research Association, Salt Lake City, Utah.

Allee, Paul, J. Fountain and R. Seely

1996 The Black Dragon Solstice Markers and Calendar. *Utah Rock Art*, Volume XVI, Section 13, pp. 1-7. Utah Rock Art Research Association, Salt Lake City, Utah.

Orozco, Cecilio

1995 Comments during a lecture at the Utah Rock Art Research Association symposium, Blanding, Utah.

FIGURES

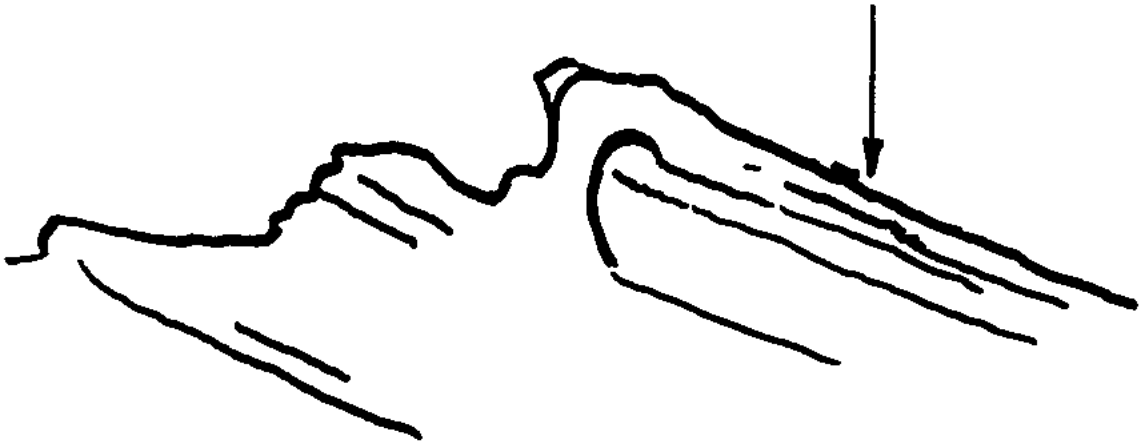

Figure 1. A sketch of the northwest skyline as viewed from near the south end of the pictograph panel. Shown (in exaggerated form) is the location of a block of sandstone that extends slightly above the skyline. An arrow points to the location of the last spark of sunset when the observer stands on the fallen block at the base of the panel, and just below the petroglyph that represents a drawing of the skyline to the northwest of the site.

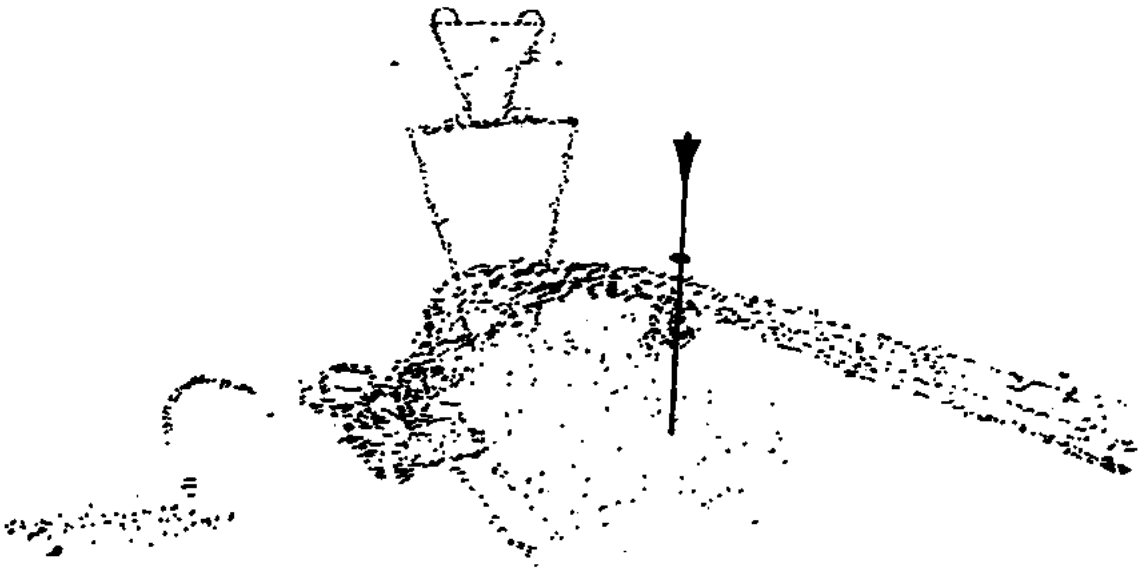

Figure 2. On the pictograph panel, in the Impressionistic Style of modern artwork, is a petroglyph representing the outline of the skyline to the northwest of the panel. On that representation is an agglomeration of petroglyphed dots that probably are the location of the position of the sun as its last spark disappears behind the skyline. Above the representation of the skyline is a single deeply petroglyphed mark that may represent the sandstone block noted on Figure 1. Connecting the two marks with a straight line crosses the "skyline" at what may be the location of the last spark of sunlight. This point on the skyline does not exactly match the summer solstice sunset of Figure 1. The angle of the skyline, and the angle of approach of the sun to the skyline, is such that the observer must be standing somewhere below the petroglyph in order to get the sunset to match the petroglyph's portrayal.

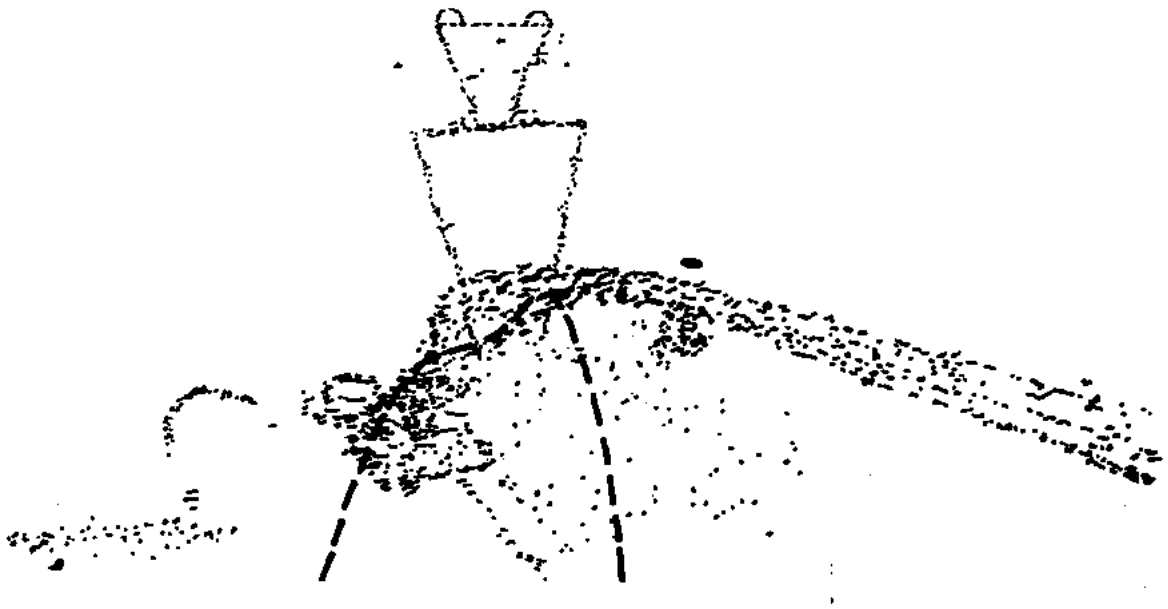

Figure 3. In late morning a notch in the shadow of the cliff rises from the base of the panel, and touches the base of the Barrier Canyon petroglyph figure, as shown by the strongly dashed line. The skyline petroglyph is made with a number of deep, bold, indentations. The Barrier Canyon figure is made with a less deep, more continuous line style of drawing. The Barrier Canyon figure also appears to be younger in execution than the skyline petroglyph, considering the difference in development of desert varnish on the two sections of the petroglyph.

By Hook or By Crook. More on the Shaman's Sacred Crook in Native American Rock Art

Rev. Galal R. Gough

INTRODUCTION

In Canyon de Chelly, near Sleeping Duck Ruin, is a petroglyph panel containing two large crooks (Figure 1). On the left side, next to one of the crooks, there appears to be a sprouted seed. At the right side, next to the other large crook, are two human-like figures, the upper one is upside down. In the center, moving right to left, is a rubbery-legged individual holding what appears to be a snake in one hand and a crook in the other. There are then two figures, both appearing to be blowing flutes, with the larger being hump backed and phallic. Finally, next to the large crook on the left, and facing in the direction the flutes are being played, is a snake petroglyph. Campbell Grant (1978) has the following caption under a drawing of this panel: “Great Pueblo petroglyphs near Sleeping Duck Ruin, site CDC-34. Note sprouted seed at left and crooked digging sticks. The snake and rubbery legs show strong Chaco-Mesa Verde influence" (Grant: 1978:203).

If the sprouted seed and crook were the only features, the "crooked digging sticks" could certainly be unquestioned, but the upside down figure, next to the larger crook on the right, suggests illness or death. In that context, the regenerative power of the Shaman's Crook might be involved. My Navajo guide, Daniel Staley, suggested that it might be better to refer to the crooks as "Ceremonial Staffs” rather than crooked digging sticks. Ethnographic data on the role of the Shaman's Crook in fertility has been discussed (Gough 1996). The Shaman's crook gave "to all the world a plentiful supply of plants bearing edible seeds" (Laird: 1976:153). They also provided regenerative, resurrecting and curative powers—for with a touch of the sacred crook, they "raised up their slain companions and restored them to life" (Laird 1984:370). The crooks in CDC-34 seem to have both generative and regenerative power, with the figure appearing to hold a crook in one hand and a snake in the other. The flute players pointing toward the snake, also possibly have a curative, life-giving dimension.

Kasner (1992) refers to "snakes to guard the people" and that for the Navajo artist-healer "the healing powers were in the forming of the symbols." She also wrote of how "Shamans placed pebbles in hollow wands where they rattled convincingly like aroused rattlesnakes—adding to the healers powers." She commented as well on the "reputed strength and power" of snake symbols (Kasner: 1992:113,124, and 128). Payne (1993) tells of Flute Society healing ceremonies, which involved curved sticks:

> Before the altar appeared various persons who were suffering from those diseases within the purview of the Flute Society. Sufferers from lightning

> shock (stroke?), stabbing chest pains (angina pectoris?), epilepsy, or injuries incurred by guns, arrows or other weapons, appeared for treatment. Supplicants for long life came to the altar and paid homage to the curved sticks with the dangling prayer feather known as the 'old men' (longevity crooks) (Payne 1993).

According to Payne, the ceremony culminated about the altar with "the music of singing and flute playing". Payne also provides a panel of pictures showing a "Kokopelli" with a crook in one hand and a rattle in the other, with a flute player and Flute priest on either side (Payne 1993:24-25, 49). These references from Kasner and Payne, which are illustrative of many types of ethnographic data available, are meant to at least offer sufficient insights into the generative and curative possibilities of the symbols in Canyon de Chelly. They support a more complex meaning than a simple "crooked digging sticks" interpretation might involve.

UTILITARIAN USES AND SACRED CROOKS

Nevertheless, the reference to "crooked digging sticks" by Grant does raise a question on utilitarian crooks versus the Shaman's sacred crook in rock art interpretation. Laird makes a case for the poro or sacred crook being the Shaman's "one indispensable piece of equipment," which revived the dead, was associated with fertility, and was an object of great power (Laird 1976:31). She further wrote that "In mythic times, the one essential piece of equipment for a shaman was the poro, the sacred crook or wand by means of which he restored the dead to life," and that even in the recent past the shaman was known as one who "carried the poro" (Laird 1984:273).

On the other hand, Laird (1976) refers to the utilitarian uses for a crook:

> Since Father Garces noted, on encountering a party of Chemehuevis in 1776, that 'They all carried a crook besides their weapons' (Coues, p. 225). It is obvious that a crooked stick for pulling lizards, gophers, etc. from their hiding places was an ordinary piece of equipment. Is it not possible that this implement, like the shepherd's crook in other times and in another part of the world, became in certain hands, the rod of power? (Laird 1976:244).

Carobeth in a further note observes:

> George Laird always translated poro as “crooked stick”, but I do not know if poro was the word used here in the Chemehuevi text. When we are told that Coyote used his poro to hook the North Wind down from the sky, a practical usage is implied. I do not know whether the tool used for hooking lizards or small rodents out of their hiding places, killing rabbits caught in bushes, or even beating seeds from plants was also the most sacred symbol of shamanistic power; but there would have been nothing contradictory in this dual usage (Laird 1976: 259).

McLane (1996) comments on different uses: "Canes, hooked sticks and crookneck staffs are some of the terms used to describe these curved features. Hooked sticks are of two lengths. The cane-size ones were used for pulling lizards and animals from burrows, and taller shoulder length ones were objects

of great power" (McLane 1996:1). Later in his paper, he develops this differentiation more fully:

> In the southwest Great Basin region there appears to be two predominant sizes of cane-shaped sticks used mainly for two different purposes. Those that are hip-high, around 120 cm and less, were used for taking lizards and rodents from burrows. Those that are longer, reaching head high, from about 140 cm to 180 cm in length, were either power implements, signifying ones high status, fertility symbols or signs of a long journey (McLane 1996:5).

Alvin McLane surveyed early references to hooked sticks by Francisco Garces, John C. Fremont, and others, relating not only to their use in pulling creatures from burrows, but also in agriculture, i.e., making holes for planting seeds. Moreover, he lists a number of archaeological sites where crookneck staffs have been found.

To differentiate between utilitarian crooks and ceremonial crooks based on length alone may not be always dependable, especially in diverse regions. In the San Bernardino County Museum in California, for example, crooks are exhibited which would fit the shoulder or head-height variety. These were used to reach branches with acorns and pine nuts. This would also be true for a crook found in a pinon pine tree on the Nevada test site.

However, with respect to Crooks found in rock art contexts, all have, I believe, shamanistic and ceremonial rather than utilitarian features, including the Canyon de Chelly sites. I have found five crooks in fertility contexts, four in curative/ regenerative context, five seemed to relate to a journey, six were in high/sacred places, three were associated with what appeared to be supernatural beings, and four were in ceremonial settings, with what appeared to be dancing or ritual events. In addition, in every case but one, the crook was grasped mid-staff, which in my mind suggests a ceremonial rather than utilitarian positioning.

WOMEN, SHAMANISM AND SACRED CROOKS

Gorden (1997) displayed a photograph of a petroglyph depicting a humpbacked woman holding a crook (Figure 3). Usually the humpbacked figure in southwest rock art is male, with a prominent phallus. However, the above-mentioned figure, which is in Ferron Box, Utah, has the pronounced breasts of a woman. If, indeed, a shaman is one who carried the poro or sacred crook, this petroglyph might depict a woman shaman.

While some archaeologists have insisted shamans were male, the existence of a petroglyph suggesting the possibility of a female shaman tends to complement ethnographic references to women as shamans. Laird (1976) notes several references to women as shamans:

> When a hunting party had failed to secure deer, a member who owned the deer song would be asked to sing. The singing would be a way of assuring success in the hunt for the next day. A very long time ago, a woman who was a deer shaman would sing in this way for and with the hunters (Laird 1976:16).

> Women shamans were not uncommon (Laird 1976:34).

> Tuukwatsi, Stretched, Herbert Chapo's wife, was suspected of being a shaman because of her power to will disaster or illness by use of the mangasuyaganuh (may that one...) formula (Laird 1976:37).
>
> Women's voices were heard at the Gatherings, and fierce and implacable women incited their men to take the warpath. The Chief, so it was said, was always a man. But in the older, darker and more awesome world of the shamans there were at least as many women as men (Laird 1976:213).

Laird (1984) also has a comment on the mythological stories:

> In the texts, no woman is called puh aganti, shaman; but George frequently referred to shaman's as those who "carried the poro". Coyote's daughter carried wolf's poro; Dove Boy's mother claimed to have killed a jackrabbit with her poro; and the mother of the two stars threatened the snake with hers (Laird 1984:314).

The relationship of crooks to known fertility symbols (the vulva and the enclosed and encircled crosses—emblems of fructification) by the Grass Valley panel in the Eastern Mojave, California has been illustrated (Gough 1996). A boulder in Bridge Canyon near Spirit Mountain in Nevada has three pairs of crooks on the same surface as vulva and enclosed cross symbols (Figure 4). Both ethnographic data and numerous instances of vulva and enclosed/encircled cross symbols in direct relationship have been reported (Gough 1994). Just as the humpbacked figure was thought to carry symbols of fertility, seeds and babies, in the hump, which would seem to apply to the humpbacked woman petroglyph as well; so also the relation of crooks to known emblems of fructification would add further insight, since the humpbacked woman also carried a crook.

TWIN CROOKS AND SHAMANISM

Patterson pictures twin crooks near Kachina Bridge in the Natural Bridges National Monument in Utah (Patterson 1992:190). High above the Kachina Bridge, as part of the Rock Ruin petroglyph panel, there are also twin crooks (Gough 1996:7). Both sites have shamanistic implications, not only because crooks have such associations, but also because of the powerful physical settings. In addition, twins were thought "to have special shamanistic powers" (Keyser 1992:77). Keyser also notes "a significant number of painted and carved twin figures that denote the supernatural aspects of twins" (Keyser 1992:78). In some traditions, if twins were born, one of them must be devoted to be a shaman.

Twin crooks also have implications for fertility and are found along with symbols of fructification. The twin crooks at the Grass Valley site (Gough 1996:5) are in proximity with vulva, and the encircled and enclosed cross symbols. Also, a boulder in Bridge Canyon, previously referred to, not only has the three pairs of crooks, but in proximity with the twin crooks are fertility symbols (Figure 5).

In Sevenmile Canyon near Moab, Utah, there is a petroglyph panel along a narrow ledge under a majestic overhang, which features a waterfall in rainy weather, and a pool of water was at the bottom when I visited the site. In the panel there were paired or twin figures

holding crooks. Precisely what these twin figures with crooks meant to those who carved them can never be known fully by us today, however, the site certainly lives up to known ethnographic data relating to the supernatural attributes of twins. In Mojave mythology, for example, twin supernaturals represent different dimensions of creation and the duality of life (Johnson 1993:1).

OTHER CROOK INSIGHTS AND USAGES

As just indicated, crooks may be present in places having high or sacred implications. The Sevenmile Canyon site is one example. The panels at Kachina Bridge and the Rock Ruin site towering high above the Kachina Bridge, in the Natural Bridges National Monument, are further illustrations. Another case in point is the crook in the lower left-hand corner of the pictograph panel in the Vallecito Potrero grotto in the Anza-Borrego Desert of Southern California (Figure 7).

Crooks are also found in association with what appear to be supernatural beings. A crook above such a design is found on the sandstone cliff west of Bluff, Utah (Figure 8). Even more provocative are two figures holding crooks in a panel which includes a figure with a unique headdress, located along the Little Colorado River (Figure 9). Such panels suggest great powers invested in the shaman's crook.

McLane (1966) suggests that crooks may be "signs of long travel," and the Cane Man Hill petroglyphs (Figure 10) may be an example:

> Based on the archaeological and ethnographic evidence from regions to the south and west, it is surmised that the Cane Man Hill Petroglyph canes represent a long distance of travel associated with a person or persons of high status. Like the Cane Man Hill panel, the staff is generally shown in other petroglyphs carried by its mid-section, which is analogous to the worn sections found in physical specimens in archaeological contexts (McLane 1996:5-6).

The travel hypothesis certainly holds true for the "Processional Panel" of Butler Wash in Southeastern Utah (Manning 1992), and the "Migration" Panel in the Coso Range (Gough 1996:4).

Payne (1993:24) referred to curved sticks with dangling feathers, as "longevity crooks". While visiting the Dickson Mounds Museum in Illinois, I saw two contemporary Indian paintings featuring crook-necked staffs with two feathers dangling from the crook end. One was by Dan Quiver, Sioux, and titled "Sioux Man in Old Costume;" and the other by Calvin Tyndall, Um-Pah, entitled "Horse Tail Dancers."

These references to crooks and feathers made me take a second look at a petroglyph panel located two miles downstream from Grand Falls on the Little Colorado River, northeast of Flagstaff. It was described to me as an "animal headed staff or crook with flute player to the left." Could the two ears on the crook (Figure 11) really be two feathers on a longevity crook? At least the question shows how tentative our assumptions must be.

I proposed a stratigraphy or layering of crook symbolism and usage, with the

oldest examples being Shaman's Crooks of great power, giving way in time to more widespread and secular usages, and finally being completely corrupted in Post-European Contact times, when the Spanish and American officials gave "canes" to Pueblo leaders to promote their own authority over the First Americans (Gough 1996). The presence of crooks in petroglyph panels of the Anasazi, the "ancient ones," certainly suggests antiquity. Grant, Baird, and Pringle (1968:17,18,24) place petroglyphs of atlatls in the Early Period (Before 200 BC) and Transitional Period (200 BC to 300 AD). Since crook petroglyphs in Renegade Canyon are found in relation to atlatl panels, we might assume an early origin. Given the difficulty in dating petroglyphs, of course, assigning an early date to crook symbols will have to be a tentative conclusion until more accurate dating is possible.

CONCLUSION

One of the finest bronze sculptures dramatizing the crook is "The Rainmaker," by Fritz White (Gough 1996). Fewkes (1914) illustrates such a crook: "A crooked stick is said to be used to draw down the clouds when the rain they contain is much desired" (Fewkes 1924:29). Perhaps the most interesting demonstration of the growing "mystique" and awareness of the Shaman's Crook is what I regard to be a fake crook "geoglyph" a half mile from the Field exit on Interstate 15, northwest of Afton Canyon in the Mojave Desert (East of Barstow, California). A crook about 25 feet long has been created, with the center raked clear and a ridge left around both edges in Intaglio style. Then rocks were placed along the ridge on both sides to outline the crook, in Rock Alignment style. The mixed styles, and the lack of patination on the rocks, along with the convenient proximity with a desert dirt road, suggests the work of a trickster, who has learned enough about the power of the Shaman's Crook to add a modern "graffiti" to the study of this fascinating symbol of shamanic office.

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REFERENCES

Fewkes, Jesse Walter
1914 *The Mimbres: Art and Archaeology*. Avanyu Publishing.

Gorden, Mary
1977 Prehistoric *Art - Old But Not Primitive*. California State University, Bakersfield.

Gough, Galal R.

1994 Native American Encircled and Enclosed Crosses Having Prehistoric Puberty/ Fertility Symbolism. San Diego Museum of Man Rock Art Symposium.

1996 The Shaman's Poro (Sacred Crook) in Native American Rock Art. *Utah Rock Art,* Volume 16. Salt Lake City, Utah.

Grant, Campbell

1978 *Canyon de Chelly: Its People and Rock Art.* The University of Arizona Press, Tucson.

Grant, Campbell, James W. Baird and J. Kenneth Pringle.

1968 *Rock Drawings of the Coso Range*. Maturango Press.

Johnson, Bomo

1993 Kumastamho: The Quechan Creator. Paper presented for the Ventura County Archaeological Association.

Kasner, Leone Letson

1992 *Spirit Symbols in Native* American *Art.* Ayers Mountain Press, Philomath, Oregon.

Keyser, James D.

1992 *Indian Rock Art of the Columbia* Plateau. University of Washington Press.

Laird, Carobeth

1976 *The Chemehuevi*. Malki Museum Press.

1984 Mirror and Pattern: George Laird's World of Chemehuevi Mythology. Malki Museum Press, Moronga Indian Reservation, Banning, California.

Manning, Steven

1992 The Lobed-Circle Image in Basketmaker Petroglyphs of Southeastern Utah. *Utah Archaeology 1992*, PP. 1-37.

McLane, Alvin R.

1996 The Cane Man Petroglyph, Esmeralda County, Nevada. Paper presented at the Nevada Archaeological Association 25th Annual Meeting, Tonopah, Nevada.

Patterson, Alex

1992 *A Field Guide to Rock Art Symbols of the Greater Southwest.* Johnson Books, Boulder, Colorado.

1994 *Hopi Pottery Symbols.* Johnson Books, Boulder, Colorado.

Payne, Richard W.

1993 *The Hopi Flute Ceremony*. Toubat Trails Publishing Company, Oklahoma City, Oklahoma.

FIGURES

Figure 1, top left. Drawing of CDC-34 Panel. Figure 2 top right, Photo of CDC-34 panel Figure 3, center left. Woman with Crook, Ferron Box, Utah. Figure 4, center right. Crooks with Vulva Glyphs, Bridge Canyon, Nevada. Figure 5, lower left. Twin Crook Symbols, Bridge Canyon, Nevada. Figure 6 lower right. Paired Figures with Crooks, Sevenmile Canyon, Utah.

Figure 7, top left. Vallecito Potrero Site, Southern California. Figure 8, top right. Sandstone Cliffs site near Bluff, Utah. Figure 9, center left. Little Colorado River near Holbrook, Arizona. Figure 10, center right. Cane Man Petroglyphs near Tonopah, Nevada. Figure 11, bottom left. Petroglyphs below Grand Falls, Arizona. Figure 12, bottom right. Crooks in Renegade Canyon, Coso Range.

Barrier Canyon Style Petroglyphs[1]

Steven J. Manning

INTRODUCTION

When the title of this paper was announced, I noticed that there were some whispered comments of skepticism. This suggests that most of you have never heard of Barrier Canyon Style *Petroglyphs*. Although, you may not have heard of them, I am most certain that many of you have seen them, but not recognized them. The purpose of this paper is to demonstrate that Barrier Canyon Style Petroglyphs do indeed exist and to discuss their importance.

The discovery of Barrier Canyon Style petroglyphs would be significant. The existence of petroglyphs of this style would provide us an opportunity to investigate dating from a new perspective. These petroglyphs likely would have a degree of patination, something that pictographs lack. Patination levels on Barrier Canyon Style petroglyphs have the potential to provide significant new information concerning the date that they were constructed. For example, the level of patination on Barrier Canyon Style petroglyphs could be compared with those on Glen Canyon Style 5 petroglyphs, which are most certainly Archaic (Turner 1963, 1971). If Barrier Canyon Style images are Archaic then patination levels would have to be consistent with Glen Canyon Style 5 petroglyphs (which mostly are completely repatinated). If the Barrier Canyon Style petroglyphs are consistently lighter in color, they would be younger than Glen Canyon Style 5, and if they are darker in color, they would be older.

It is important to note that the determination that the Barrier Canyon Style is entirely Archaic is without empirical evidence (such as radiocarbon dating). I would also like to add that I find problems with the way Barrier Canyon Style has been defined. It appears to me that the Barrier Canyon Style is a compilation of several very different types, or "styles", of images—perhaps from different time periods and maybe even from different cultures. I suspect these different types were grouped together because there were not sufficient cultures available to associate each type (or style) with a different culture—which seems to be the principal goal of style analysis (Schapiro 1953).

If Barrier Canyon Style petroglyphs can provide more secure data on age differences, it may also be possible to define divisions of the Barrier Canyon Style based on these age differences, and not just on differences of figure type and composition—which are the differences that I have noted. Differences in age would certainly be expected to exist over the hundreds, perhaps thousands of years that Barrier Canyon Style existed, that is, if it truly is Archaic. It would likely have existed until something replaced it, which would just about have to be images made by the Fremont, or the Anasazi in southern Utah. If age differences do exist, it may be possible to determine if Barrier

Canyon Style changed over time and what those changes were.

BACKGROUND

The Barrier Canyon Style was first defined by Schaafsma (1970). She stated, "Within the San Rafael Fremont region there are a group of panels or rock *paintings* in which life-sized anthropomorphic forms are dominant, but which are stylistically distinct from the Fremont tradition…" (Schaafsma 1970:65, italics added). She also named the style, "The name Barrier Canyon Style has been chosen as an overall designation for these *paintings* after the tributary of the Green on which the largest number of the striking panels had been recorded." (Schaafsma 1970:68, Italics added). Schaafsma's definition and analysis indicated that the Barrier Canyon Style consisted only of paintings, i.e., pictographs.

EXAMPLES OF BARRIER CANYON STYLE PETROGLYPHS

Perhaps the simplest and most convincing way to demonstrate the existence of Barrier Canyon Style petroglyphs is to show you examples of Barrier Canyon Style pictographs and then compare them with Barrier Canyon Style petroglyphs. The following, then, are five examples demonstrating the existence of Barrier Canyon Style petroglyphs.

Example One

The well-known Barrier Canyon Style site in Buckhorn Wash near Castle Dale, Utah (Schaafsma 1970: her Figure 69) contains what appear to be snakes with extraordinary and phantasmagoric characteristics, see Figure 1. The three snakes shown in Figure 1 have either horns or arms, or both. The largest of these has a mouth that is rectangular—more like the shape seen on mountain sheep than snakes. The three snakes have associated with them an apparent liquid substance. This liquid appears to come out of their mouths, and it falls downwards, and it perhaps also falls or drips from their hands, as easily seen in the largest image. This substance seems to have the characteristics of being fluid, because it is depicted as streams of dotted lines. This fluid might represent venom, saliva, water, or even blood.

Similar images have recently been discovered in the San Rafael Reef, roughly 35 miles southeast of the Buckhorn Wash panel (Figure 2). I would like to know if any of you have seen this panel. If you have, would you please raise your hand? (*No hands were raised*.) I think you will find this panel most interesting. The figures here are also painted. On the left side of the panel (shown here as Figure 2) there are two snakes. Both have arms, and one has horns. The larger snake (in the upper right center of the photograph) appears again to have a fluid substance dripping from its hands and also perhaps from its mouth. (Another snake with hands is farther to the right and is not shown in the photograph.)

Both of these panels are unquestionably Barrier Canyon Style. Both panels contain very distinctive and unparalleled images of snakes. (I should also point out that the snakes in both panels are about the same size.) The remarkable peculiarity or uniqueness of these images is very significant. They are not the de-

piction of a creature found in nature (horned snakes), so they are, therefore, the product of a cultures or a peoples unique imaginative ideologies. This uniqueness provides a very specific indicator for defining the particular style or type of rock art in which they occur, as well as relating them to the specific people who created them. Therefore, these images presence in Barrier Canyon Style is a reasonably explicit indicator of the existence of that style or type.

A *petroglyph* of a snake with an analogous form and context is shown in Figure 3. This image is located next to a large petroglyph panel at the junction of Muddy Creek and what Schaafsma calls Rochester Creek (Schaafsma 1970: Plate 29 and Figure 66; see also Castleton 1978:117-121; Smith 1980:108-109; and Gunnerson 1969:figure 25b). The image of the snake has the same extraordinary outstretched arms as the pictographs, and something is coming out of its open mouth.

Notice also that the largest and most detailed snake in the painting in Figure 2 is positioned facing a large anthropomorph. In the petroglyph panel, the snake is also positioned facing a large anthropomorph. Since the petroglyph has the same unique characteristics, form, size, and situation as the pictographs, it must also be defined as Barrier Canyon Style. (The other images in Figure 3 also have parallels in Barrier Canyon Style panels, but they will not be discussed here because of time limitations.)

Example Two

The Great Gallery in Barrier Canyon (Horseshoe Canyon) contains many images that are "life sized", or nearly so. A few of them are illustrated in Figure 4. These figures have been described as "ghost like", i.e., they have no arm or legs, and the bottoms of the figures are generally rounded. These figures are Barrier Canyon Style by definition (Schaafsma 1970:74-77). The images with this type of body seem to have a wide distribution within the range of the Barrier Canyon Style.

A petroglyph with the same body form, i.e., possessing a "ghost-like" lack of arms and legs, similar body decoration, and the same large size as the images in the Great Gallery is found about 35 miles to the southwest of the Great Gallery, see Figure 5. This petroglyph also has the same shape of head as is found on many Barrier Canyon Style pictographs. Since this petroglyph is analogous in form to the pictographs, it must, therefore, also be Barrier Canyon Style.

Example Three

In the Great Gallery there is a large rectangular figure that has a large cross (X) on its chest, see Figure 6.

A petroglyph much the same as the pictograph in Figure 6 is located about 35 miles to the southwest of the Great Gallery (Figure 7). There are also other similar anthropomorphs in the panel, but this is the best figure. It has the same rectangular body, the same absence of arms and legs, and the same cross across the chest as the pictograph. Both figures also have a horizontal line across the torso. (Since this line is about in the middle of the torso, it may represent a belt.) Both figures also have decorations below the horizontal line. Since both figures share the same attributes, both pictograph and petroglyph must be Barrier Canyon Style.

Example Four

The next example is located in Canyonlands National Park on the west side of the Colorado River in an area known as the Maze. Schaafsma refers to this Barrier Canyon Style pictograph panel as the "Bird Site" (1970:77, Figure 76). To the left and a little above the main group of painted figures there is a smaller group that contains an abstract, fierce, and strange-appearing quadruped, see Figure 8. The quadruped is very elongated, has an open mouth, and presumably a tongue, represented by a thin line, coming out of its mouth. (The line is similar to that shown in Figure 3 in the snake's mouth.) This line bends downward towards the end. Notice also that this quadruped is situated similarly to the snakes shown in Figures 1-3, i.e., it is in a nearly upright position facing a large anthropomorph. It also has its arms outstretched toward an anthropomorph.

There are also several other fierce-appearing quadrupeds at the site, but they do not show up well in photographs, see Figure 8 inset. The particular quadruped shown in the inset has a tail that distinctly bends up over the back of the animal, like the one in the larger photograph. Both of these quadrupeds have short pointy ears. These images are unquestionably part of and contemporaneous with the rest of the panel and are Barrier Canyon Style.

The main panel at the Rochester Creek site mentioned above contains the same abstract, fierce, and strange appearing quadrupeds (Schaafsma 1970: Figure 66), see Figure 9. They have short pointy ears, elongated bodies, and sometimes-short stubby legs coming out at a forward angle from their bodies. They also have lines/tongues coming out from their mouths that curve down at the ends, as do the pictographs. These unique, abstract and peculiar quadrupeds, like the snakes with outstretched arms, have been found only within a unique complex of images. The quadrupeds with shared characteristics in both pictograph and petroglyph panels indicate that they are both Barrier Canyon Style.

It is interesting that Schaafsma noted, when describing the panel at Rochester Creek, that "Many of the anthropomorphs bear a resemblance to Barrier Canyon Style figures in head and body form, in the presence of eyes which are round or `bugged,' and in their long, curved antenna" (Schaafsma 1971:61). Despite this conclusion, Schaafsma did not assign these anthropomorphic images to the Barrier Canyon Style, nor compare the zoomorphs to the site in the Maze. There is more here, however, than a mere resemblance. The figures mentioned by Schaafsma also exist as pictographs. The parallels argue that this petroglyph panel is principally Barrier Canyon Style.

It must be noted that the images in the panel are not all contemporaneous. Images were added to the panel at different times and likely by different cultures. Therefore, not all the figures in this panel are Barrier Canyon Style. Differences are obvious when the levels of patination are examined carefully.

Example Five

In a remote area located east of Ferron, Utah there is a panel of Barrier Canyon Style figures that have especially long tapering bodies, see Figure 10.

Note that these images have legs and "feet". Other examples of these images are found scattered in various panels in the Barrier Canyon Style area (see, for example, Figure 1, lower right corner, partly cut off).

Near the Rochester Creek site is a small panel of *petroglyphs* that are identical in form to the extremely elongated Barrier Canyon Style painted anthropomorphs, see Figure 11. Unfortunately, the images are faint and do not show up well in photographs. These are also Barrier Canyon Style. This example shows that even the long, tapering Barrier Canyon Style anthropomorphic type exists as petroglyphs.

Summation

These five examples illustrate *by comparison* that Barrier Canyon Style petroglyphs exist.

To this date, not all Barrier Canyon Style pictographs have petroglyph counterparts. Similarly, not all petroglyphs have pictograph counterparts. A good example of this is a panel located near Moab, Utah, see Figure 12. Note that the larger figure has the same body shape as those in Figures 4 and 5, but I have not yet seen painted counterparts for the smaller figures. (This lack of painted counterparts is not unexpected, since there are panels of Barrier Canyon Style pictographs containing images that do not have comparable images in petroglyphs.)

DATING DESERT VARNISH AND PATINATION

Pictographs, though sometimes spectacular and very interesting, have at present an inherent failing when it comes to determining their age. It is difficult, if not impossible, to obtain an absolute date for the images. At the preset time, pictographs cannot be dated unless carbon is preset in sufficient quantities to allow radiocarbon analysis. (A significant problem with radiocarbon analysis of pictographs is that collecting a pigment sample will in most instances severely damage the image, which is unacceptable.) Even when carbon is present, there is the problem of determining if the carbon came from a source (hopefully an organic binder) created at or near the time the image was painted. If the artist combined, for example, some charcoal from an ancient hearth with the pigment and the binder, the radiocarbon date obtained for the painting would be older than the actual age of the painting. Similarly, if the paint, while the figure was being painted, was mixed with organic material previously deposited on the cliff face by animals, insects, rodents, lizards, algae, lichens, etc., the obtained date would be incorrect. Furthermore, if animals, insects, rodents, lizards, algae, lichens, etc., deposited organic material on the paint after the figure was painted, the obtained date would also be incorrect. Even wind blown dust containing decomposing plant, insect or animal material remains could contaminate the pigment and give an incorrect date. Radiocarbon dating something that was placed on a cliff face that was covered with organic material initially, and that has been in an open environment since it was created, either a hundred years ago or a thousand years ago, may be impossible.

The existence of Barrier Canyon Style petroglyphs makes it possible to use the relative degree of intensity of desert varnish to roughly assess the age of the image. This is especially true where two

ages of petroglyphs occur close together. It is obvious to those of us who have seen many petroglyphs that differences in desert varnish levels in rock art are identifiable between different time periods. For example, differences are generally, readily identifiable between Archaic petroglyphs (about 6000 to 2000 years ago), the Fremont/Anasazi petroglyphs (about 2000 to 700 years ago), the more recent Ute/Paiute/Navajo (about 500 to 200 years ago) petroglyphs, and those from the historic period (the last 200 years). I believe that we have all seen petroglyphs from these different periods and noted the differences in desert varnish levels.

Desert varnish or patination levels, however, should never be considered an absolute and unequivocal indicter of age. The formation of either of these is dependent on exposure. I have seen several panels where a single figure, extending out from under a sheltered overhang, has several different levels of desert varnish, and the same situation exists for patination. These variations occur because of the different levels of exposure. Therefore, individual figures in a single panel that were made at the same time may give the appearance of being made at different times, or they may give different dates because of their different degree of exposure.

Despite these limitations, varying levels of patination on petroglyphs are very important. They can still provide relative dating information not available with pictographs. Petroglyphs from different periods on the same panel, that has the same level of exposure, can provide accurate relative dates *without* any superposition occurring, something that rarely exists with pictographs. For example, patination levels of Turner's Glen Canyon Style 5 figures always, in every panel that I have ever seen, has darker patination than either Anasazi Basketmaker or Fremont rock art, when they occur in the same panel with the same exposure. Thus, petroglyphs provide firm evidence that Glen Canyon Style 5 is older than either Fremont or Anasazi petroglyphs, as they are currently defined. When Glen Canyon Style 5 *pictographs* occur in the same panel as Anasazi *pictographs,* they appear as being the same age. At the very least, then, the presence of desert varnish, or any form of patination, provides a basis for assigning better dates than controversial superimposition and opinion of pictographs. (Sometimes superimposition is easily determined, but sometimes it is not.)

Although we are all familiar with the terms patination and desert varnish, I think it is appropriate to define these words, since I have observed that there is some variation in the way they are used. Many people use the two words interchangeably. I know I sometimes say *desert varnish* when I should be saying *patination*. We should understand that the two are not the same; you cannot use the terms interchangeably. Patination is defined as the, "sheen on any surface, produced by age and use; a change in appearance produced by long-standing behavior, practice, or use" (American Heritage Dictionary). Desert varnish is a form of patination, but not all patination is desert varnish. Other things produce patination besides desert varnish. For example, wood left exposed to the elements turns gray over time. Copper or copper alloys, such as bronze, form on exposure a thin greenish layer, which is

usually copper sulfate. Neither of these is desert varnish. Desert varnish, or more correctly *rock varnish,* is a brown to shiny black coating that forms in layers on rock surfaces in many areas of the world. It even forms in Arctic regions. It is about 10 to 500 microns thick. Desert varnish is composed of clay minerals (about 70%) and oxides and hydrides of manganese and iron (Potter and Rossman 1977, 1979). Trace amounts of many elements are also present, among them are: calcium, titanium, copper, barium, lead, aluminum and sodium.

According to current science, desert varnish begins to form when microscopic amounts of clay, along with iron and manganese are deposited on rock surfaces. This deposition occurs principally by the action of wind, but water can also place these substances on cliff faces. Many of us have experienced the blowing clouds of dust that frequently precede storms in our southern Utah deserts. This phenomenon is one of the essential components of desert varnish formation. Iron and manganese exist naturally in the wind-blown clay, or are added from the weathering of nearby sources. The sandstones of the desert areas of the Four Corners contain ample amounts of iron and manganese for this, as evidenced by their spectacular dark red, violet and yellow colors.

Following the deposition of clay, iron and manganese on the rock surface, rainwater comes into contact with them. Rainwater contains the weak, unstable acid, carbonic acid, which is produced by the absorption of carbon dioxide from the air: $CO_2 + H_20 \rightarrow H_2CO_3$. Some of the iron and manganese is dissolved by the carbonic acid. When the acidified and dissolved iron and manganese solution comes in contact with the cliff face, which is alkaline, a neutralization reaction occurs, and the dissolved iron and manganese, being no longer soluble, precipitate. (Both iron and manganese are soluble under acidic conditions but insoluble under basic conditions.) At this time, a little of the clay is also cemented onto the rock surface. In southern Utah, where there are so many sandstones with dark desert varnish, the alkalinity for neutralization comes principally from the calcium carbonate that cements the sand grains together. In other locations, the alkalinity comes from wind-blown alkaline soil. As stated above, the precipitated iron and manganese and other minerals cement some of the clay to the rock surface. This is why a substantial amount of clay is present in desert varnish. Since iron and manganese minerals are dark in color, the layers build up, and the rock surface darkens. The necessity for these conditions to exist before desert varnish will form explains why dark desert varnish is not found in sheltered areas like rockshelters and in areas of the world without alkaline soil.

The necessity of these conditions existing before desert varnish forms may also explain why desert varnish apparently is not forming as fast today as it did in the past. The industrial revolution has resulted in the release into the atmosphere each year of millions of tons of sulfur dioxide and nitrous oxides, etc., which in turn produce acid rain. The rain is so acetic that it is neutralized only with difficulty. Without neutralization, no desert varnish forms.

Once the desert varnish coating is removed from the rock surface, such as by

the creation of a petroglyph, the process begins again. The disturbed area slowly darkens with age as the desert varnish rebuilds in increasing layers. In time, a plateau or maximum intensity is reached, and both the disturbed area and the original surface reach the same color.

Desert varnish also forms a nearly impermeable layer on rocks that protect the rock surface from erosion. We have likely all seen examples where the pecked out area of an image has eroded faster than the surrounding desert-varnished rock.

The gradual darkening of rock art (either by desert varnish or repatination) is not always noticeable. It is most easily seen when an adjacent area is recently disturbed by bullets, names, or graffiti.

Confusion exists when the darkening of images is called desert varnish, when it really is patination. Patination takes only a little while to form when compared to desert varnish, which may take thousands of years to reach its darkest form. A specific example where patination might be confused with desert varnish and give erroneous dating estimates is shown in Figure 13. If you saw only the bottom half of Figure 13, you would likely reach the conclusion that the petroglyph was old because of the high level of "desert varnish". However, when you see the historic signature, S. G. Peay, and the date, 1911, above the petroglyph both having the same level of "desert varnish", you must reevaluate your estimate of the age of the petroglyph.

The perplexity of this situation exists because the coating on the names and the petroglyphs is *not* desert varnish. It is patination. The color comes from a coating of nearly microscopic lichens, algae and dark soil or dirt. The panel is in a somewhat moist, west facing, shaded location, which is a good environment for the rapid growth of lichens and algae, and the moisture retains dust and dirt. (In comparison, there are other dates (even the same name) on other rock surfaces along Indian Creek (where this panel is located), but the others have no, or very little, patination. These other names and dates are not in moist microenvironments, like those in Figure 13, and there are little or no lichens nor algae growing on them.) Without a careful examination of the figures it is easy to mistake patination for desert varnish, or to call it desert varnish when we mean patination.

There is one other thing that may look like desert varnish. This is stain resulting from the high iron and manganese content of soils washing over petroglyphs. These stains are often seen as darker, vertical, parallel lines on cliff faces where water runs over the surface. Many of these moist areas are also excellent environments for the growth of algae and lichens, which also darken the color of vertical, moist areas.

Finally, there is one other category or event that may be considered to produce the appearance of desert varnish or patination, but it is neither. This occurs when rain washes fine reddish-brown dust or soil down over the face of rock, and it coats or covers images. There is a place along Seven-Mile Wash where construction of the road cut through a section of the cliff. Rain washing fine reddish-brown dust down the face of the rock covered over some graffiti. At first glance the images appear to be very old,

100% repatinated petroglyphs, but they are *in* a road cut!

The point of this discussion is that we must be careful what we call desert varnish. If we are not, we may ascribe undue age to a petroglyph panel.

It should be noted here that lichens make the surfaces of rocks acidic. It is one of the mechanisms lichens use to break down the rock so they can extract the nutrients. Lichens, then, are destructive to desert varnish.

Paint can also be destructive to both desert varnish and patination. A good example of this is located south of Moab, Utah, at a popular tourist stop named Hole-in-the-Rock. The owners painted, among others, the words "Hole-in-the-Rock" high on the cliff face. Over the years, the paint has weathered off several times, and it has been subsequently repainted several times. Currently the paint is mostly weathered off. This cliff faces mostly north, so it is a moist location and therefore a good environment for algae and likens. The alkaline paint killed the microscopic life beneath it and so left a lighter area when it weathered off. Now the area where the old lettering was is much lighter in color than the cliff face where there was no paint and the algae continued to live. It is unlikely that the paint could remove the desert varnish.

CONCLUSION

The existence of Barrier Canyon Style petroglyphs has been demonstrated. What do they tell us about the age of the Barrier Canyon Style? If you examine the levels of patination on the images in Figure 12, I think that you can reach your own conclusion. The patination level on these figures is not consistent with images from the Archaic period. Therefore, apparently all of what we are calling Barrier Canyon Style is not Archaic. This panel, and others, suggests that there are major age differences within what we are calling Barrier Canyon Style. (Additionally, the images I have included here also suggest that they may be grouped into different categories based on form.)

Preliminary evidence suggests, therefore, that there are problems with the definition of Barrier Canyon Style—as we are using it. There appears to be different ages and different figure types combined into *one* category—the category we call Barrier Canyon Style. Is it possible that the Barrier Canyon Style is, in fact, several different entities (styles(?)) from several different time periods and cultures all lumped in to one category?

I hope that I have been able to demonstrate the existence of Barrier Canyon Style petroglyphs to your satisfaction, and that I have given you something to consider about their age, their definition, and how they were classified.

FOOTNOTES

1. I am including this paper to honor a request of Clifford Rayl that it be published. He asked me about it many times. This paper was presented in 1988 at the URARA Annual Symposium held at the College of Eastern Utah in Price. It was submitted for publication, however, in the process of reaching the editor, it was lost. I recreated it several years later and once more submitted it, and again it was inexplicably lost. Since it has never been

published, and several people have asked me about it, I am including it with the proceedings of this conference. This paper has historical significance, I have been told, because it is the first recorded discussion of the existence of Barrier Canyon Style petroglyphs and it chronicles the first report of some Barrier Canyon Style panels. It is also important that this paper be published because a second paper about Barrier Canyon Style petroglyphs is being written. This second paper will provide additional information and describe new discoveries.

REFERENCES CITED

Castleton, Kenneth B.
1978 *Petroglyphs and Pictographs of Utah*. Two Volumes. Utah Museum of Natural History, Salt Lake City

Gunnerson, James H.
1969 *The Fremont Culture: A study on culture Dynamics on the* Northern *Anasazi Frontier*. Papers of the Peabody Museum of Archaeology and Ethnology, Volume 59, Number 2. Harvard University, Cambridge, Massachusetts.

Potter R. M. and G. R. Rossman
1977 Desert Varnish: The importance of Clay Minerals. *Science* 196:1446-1448.
1979 The Manganese and Iron-Oxide Mineralogy of Desert Varnish. *Chemical Geology* 25:79-94.

Schaafsma, Polly
1970 *The Rock Art of Utah*. Papers of the Peabody Museum of Archaeology and Ethnology, Volume 65. Harvard University, Cambridge, Massachusetts.

Schapiro, Meyer
1953 Style. *Anthropology Today,* pp. 287-312. University of Chicago Press.

Smith Gary
1980 Utah's Rock Art Wilderness Lovre. *National Geographic* 157(1): 94-117.

Turner, Christy G.
1971 Revised Dating for Early Rock Art of the Glen Canyon Region. *American Antiquity* 36(4):469-471.
1963 *Petroglyphs of the Glen Canyon Region*. Museum of Northern Arizona Bulletin 36 (Glen Canyon Series No. 4). Northern Arizona Society of Science and Art, Flagstaff, Arizona.

Asia in America: The Puzzle of Similar Symbols

Alex Patterson

In an effort to understand the meanings of the rock art symbols found in the Southwest, I have been studying the symbols found elsewhere, especially Asia. It has been the accepted belief that the early inhabitants of the Americas came from Asia, either across the Bering Straits (by land bridge or by boat) or raft across the Pacific. Could they have brought their symbols with them?

Our research on the symbols of India, Tibet and China puzzled us. There seem to be surprising similarities with the symbols we find in the Southwest, particularly in the Anasazi culture area of Arizona and Utah.

India was the birthplace of Buddhism and the Buddha (born about 550 B.C). His teachings spread over Asia by 1,000 AD. Initially Buddha was considered too holy to be depicted in human form (Coosmaraswamy 1972:1). He was depicted only by certain symbols from his life: the Bodhi tree under which he was enlightened, the wheel of his doctrine, and the Stupa or burial shrine that held holy relics (Schulberg 1968:62) (Figure 1). Above each symbol was the topknot, made of parasol(s) against the sun and garlands of flowers, which honored any holy or kingly person on public appearances. This multi-level topknot idea evolved over the centuries into the Asian pagoda buildings of the recent past (Sechel 1964:114) (Figure 2).

In northern Arizona and southern Utah, there are numerous petroglyphs with single and multiple arcs appearing over the heads of anthropomorphs, similar to the topknots of Asian iconography (Figure 3). Grant (second image from right) attributes this pictograph in Canyon del Muerto, northern Arizona, to the Basketmaker/Modified Basketmaker period (AD? to AD 700). He also comments on the top of the head and left ear devices as being connected "with shamanic attributes, including 'power' of some sort" (Grant 1978: 261).

Multiple layers of heavens (and hells) seem to be frequent imagery in cultures around the world. Miguel Leon-Portilla describes the 11 levels of the 13 heavens of the Aztecs of Mesoamerica (Figure 3). "These heavens are comparable to a blue dome", separated by "celestial crossbars" (Leon-Portilia 1963:59). In the Buddhist universe there are the "Immeasurable spheres of the twenty-eight different heavens", arising around the sacred Mountain Meru in India (Lauf 1972:37).

Mystics through the ages have seen layers of colored light (Figure 4) around heads of people, especially those considered godly. Scientists today are studying this phenomenon (Brennan 1987: chapter 5).

Besides the topknot symbols there are others found on coins of India, circa 300 BC to 300 AD, which seem similar to rock art symbols of Arizona and Utah. The top row of Buddhist symbols in Fig-

ure 5, D 1-4, the *Stupa,* or burial mound seems like the Hopi cloud symbol (Figure 6) (Patterson 1992:60). The next symbol, C 1-2 and A 1-4, the wheel of doctrine and the lotus (Figure 5) are similar to the octagon symbol of *Muingwa,* the Hopi germination god (Figure 6) (Patterson 1994:235). Another symbol, B 1-4, the tree surrounded by a railing, signifying Buddha's received illumination (Figure 5), is found frequently (without the railing) as the tree or plant or centipede or one pole ladder symbols (Figure 6) (Patterson 1992:58).

J. Allan, Curator of the British Museum, produced a summary of the coins of Taxila, an ancient city in north India which lies at the foot of the Kyber Pass—the main trading entry and exit from India to Europe and Asia (Figure 7). Allan based his nomenclature on the work of Sir Alexander Cunningham, the original authority on Indian coins. Note that Allan uses "Mountains" for what Foucher had called *"the Stupa,* or burial mound." Allan adds the *Svastika (Swastika),* the Hollow Cross, and the River to his menu of Indian signs, symbols found often in the Southwest.

In summary, there are seven similar symbols: arc(s) over the head, topknot, clouds, Stupa or mountain, wheel or octagon, tree, swastika, hollow cross, and river. It remains an intriguing puzzle to us.

BIBLIOGRAPHY

Allan, John
1936 *Catalogue of the Coins of Ancient India (in the British* Museum*).* Trustees of the British Museum, London.

Brennan, Barbara
1978 *Hands of Light.* Bantam Books New York.

Coomaraswamy, Ananda
1935 Elements *of Buddhist Iconography.* Harvard University Press, Cambridge.

Foucher, Alfred Charles August
1972 *The Beginnings of Buddhist Art.* Ideological Book House Varanasi, Delhi.

Grant, Campbell
1978 *Canyon de Chelly. The people & rock art.* University of Arizona Press, Tucson.

Hermann, Ferdinand
1974 *Symbolic der Religionen: XIX Symbolik der Hinduismus unt Jainismus.* Anton Hiersernann, Stuttgart, Germany.

Lauf, Detief Ingo
1976 *Tibetan Sacred Art.* Shambala, Berkeley, California.

Schulberg, Lucille
1968 Historic India. Time-Life Books, New York.

Seckel, Districk
1963 *The Art* of Buddhism. Crown, New York.

FIGURES

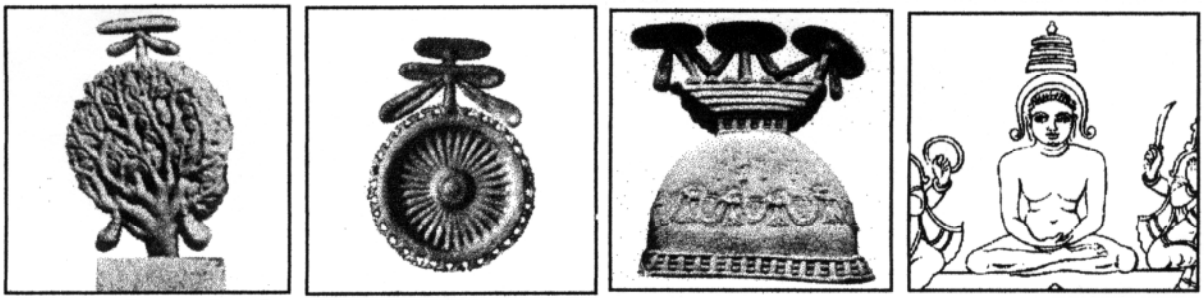


Figure 1. Buddha's symbols with topknots. Left to right: the bodhi tree where Buddha was enlightened, the wheel of his doctrine, Stupa or burial holding holy relics. All are Sanchi, India (Schulberg 1968). Far right: later Jain holy man (India) with topknots (Herman 1974:120).

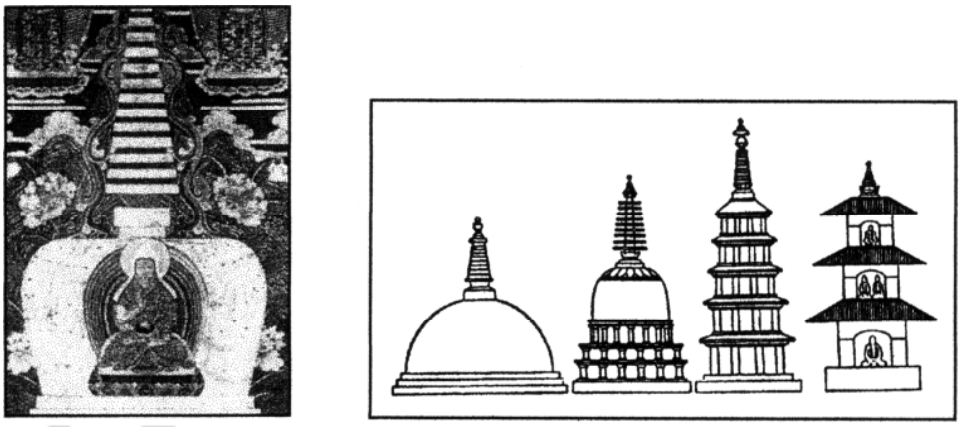


Figure 2. Left: Lamist painting of holy man and Stupa with multi-topknot Mongolia 18th century (Laut 1972:89). Right: Evolution of Indian Stupa with topknots, into Asian pagodas with multi-roofs (Sechel 1964:114)

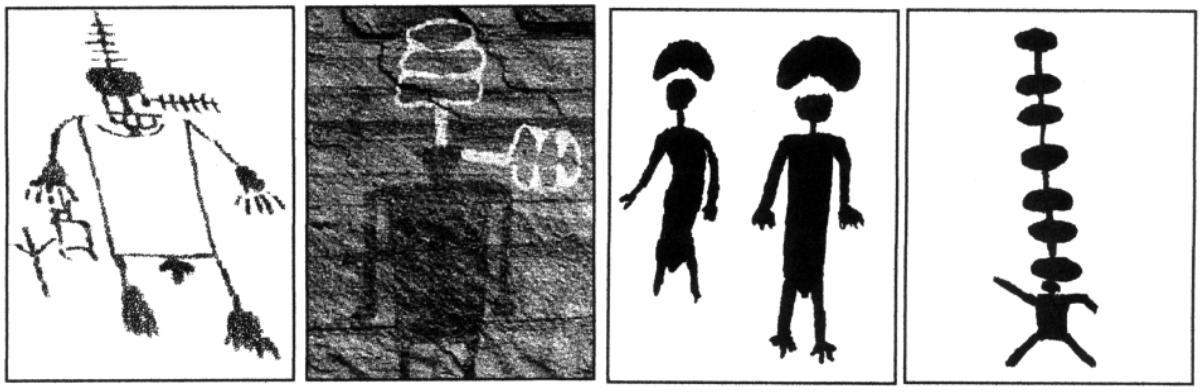


Figure 3. Topknots in Utah and Arizona Rock Art. Left to right: Butler Wash, San Juan River, Utah; Canyon del Muerto, Arizona (Grant 1978:261); figures at Dawwa Park, Hopi Res., Arizona. (From author's photos except Grant).

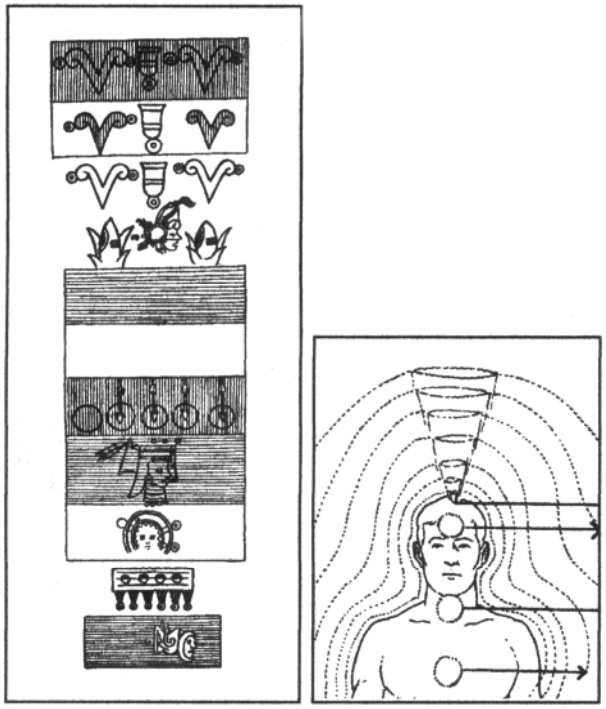


Figure 4. Left: The Eleven Levels of Heavens (from the *Vatican Codex A, Fol.* 1. Leon Portilla 1963:58); right: seven layers of colored auras. (Brennan 1987:47)

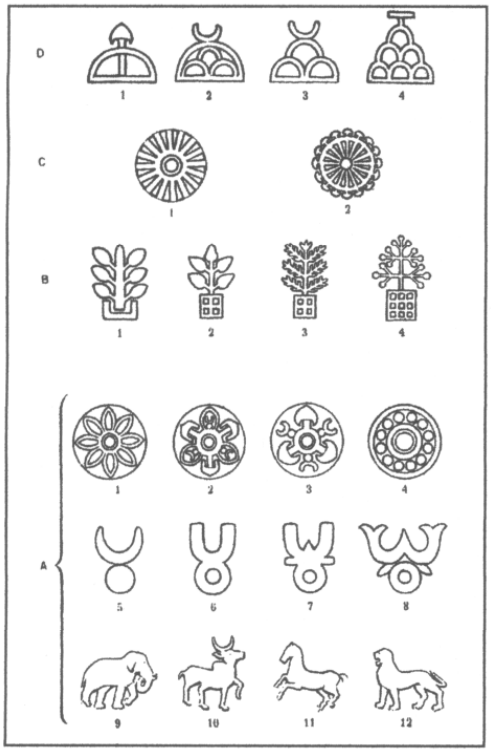


Figure 5. Symbols on coins of India, circa 300 BC to 300 AD associated with life of Buddha. Top to Bottom: D 1-4: Stupa, or burial mound; Cl-2: wheel of his doctrine; B 1-4: tree of his illumination; A 1-4: lotus, symbol of birth of Buddha; A 5-8: taurine symbol, for zodiacal sign of Taurus, the Bull, the month of Buddha's birth; A 9-12, sacred animals: elephant—conception, bull—nativity horse—great departure, and lion—leader of his people (Foucher 1972:Plate 1).

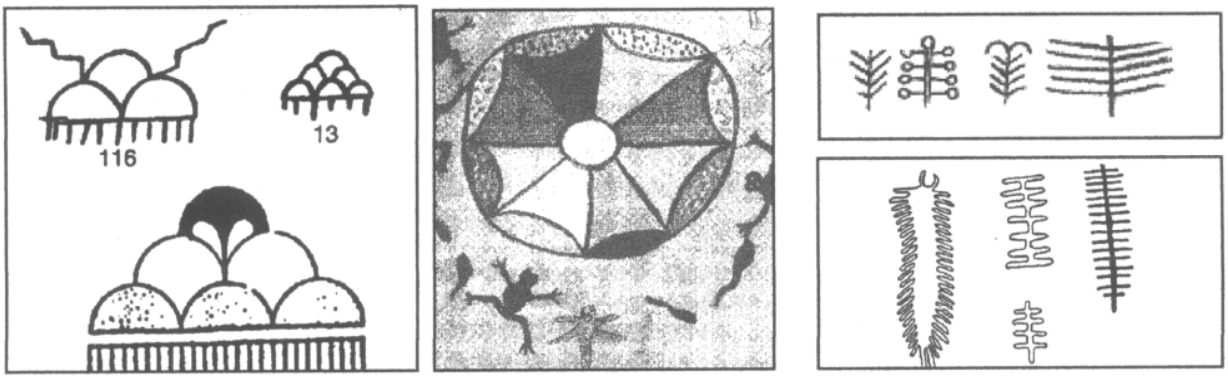


Figure 6. Left to right, top: rain-cloud (clan) symbols at Hopi from Fewkes 1897:1-10; bottom, rain-cloud with kachina face from O'Kane 1950:248 (quoted in Patterson 1992:60); symbol of Muingwa, Germination God from Stephen 1892 (quoted in Patterson 1994:235); tree or plant (Castleton 1984:xix); and centipede or one-pole ladder in Warner 1982 (quoted in Patterson 1992:60).

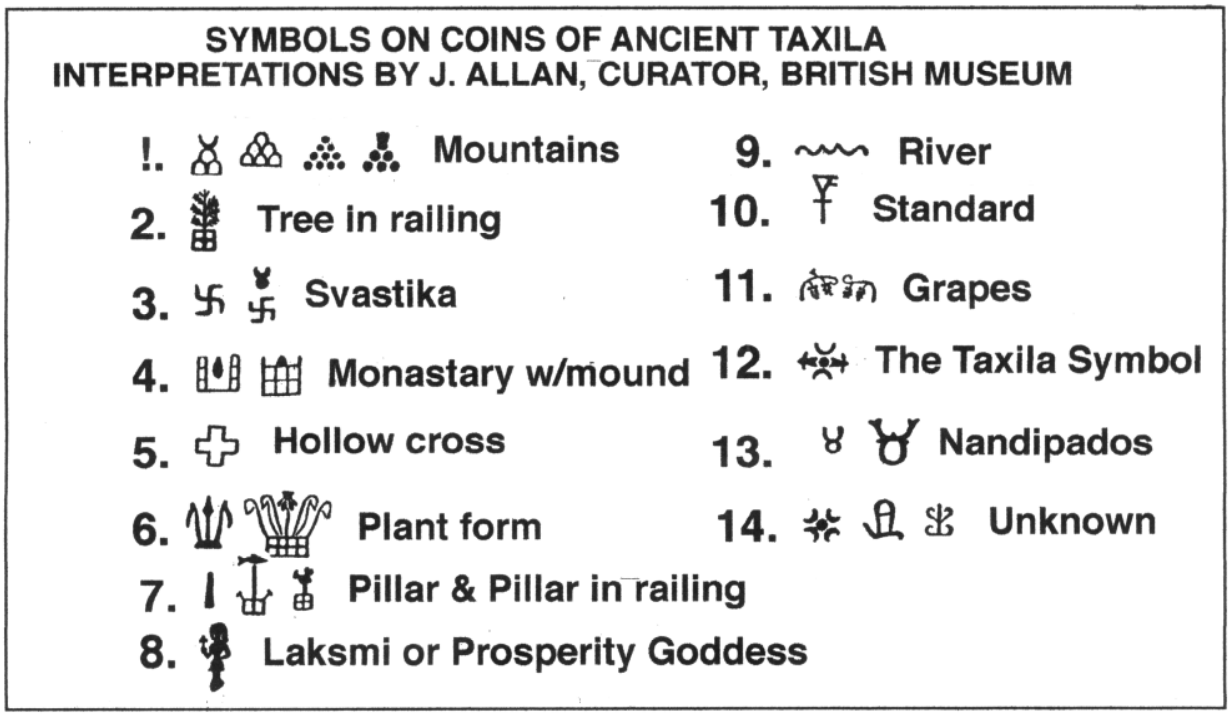


Figure 7. Symbols on coins of ancient Taxila, interpretations by J. Allan, curator, British Museum.

Unique Repetitions

Jesse E. Warner

INTRDUCTION

The name *unique repetitions* may at first sound like a serious contradiction or an oxymoron, since unique is often defined as single or sole, or being without a like or equal, and repetitions are a situation where it takes at least two or three somethings to repeat. I have defined unique repetitions, hereafter UR(s), as a set of figures that by their very nature, as a very limited group, are unique in their limited repetitions. These types of figures only repeat with an extreme minimum number of times. They are also a complex and unusual enough type of construction that they would be very unlikely to have originated independently by different individuals, so that any repetition(s) would seem to be related. Most often, they will repeat just once or twice (which makes two or three example, one original occurrence and one or two repetitions). Since that may be slightly restrictive, and because the evidence seems to predicate the placement of a reasonable limit on the definition, I have allowed its limit to expand; from three repetitions to as many as five in special cases, making a total of 5 or 6 examples. Any more than that and the element would come close to falling into the category of being a motif.

The first question is, why do such a thing as this? In my 1997 presentation of *A Few Curious Things* (to be published in the Patina series), I introduced the concept of URs and provided the framework and validity for considering URs as a valid category between the state of being an element and becoming a motif, but did not illustrate those comments with any examples. Let me review and expand on those thoughts and explain the reason for such a consideration.

ELEMENTS

The word *element* has been defined as a single, identifiable unit of production. With that definition, we have to assume that the idea behind an element can range from an isolated dint mark to a complex abstraction. Since the concept of an element is fundamental to this discussion let us examine it a little deeper than you have probably thought of it before. Before we can ever begin to understand these enigmatic symbols we need to begin to see what these ancient symbolists did in a way that is as close as possible to what they actually saw themselves doing. Without them that will be very difficult, if not impossible.

We talk about this and that as an element, but even on this fundamental level do we really see an element as the glyph makers saw and defined it? Moreover, are definitions really relevant? We consider an image as any definable, segregateable unit, when it is known from ethnography that the glyph makers did not see, define, or produce it that way. To them, each part of an element, and the individual element's part to the whole, was not segregateable as such. An element in our way of thinking is simply the most fundamental aspect of rock art terminology.

Even though the element is the lowest form of occurrence on the unique level of one, from a single dint mark to a single expression, but more complex form, combination, or context it is not just one simple idea or concept alone in-and-of itself. Elements are the common chaff that we throw into the intellectual hopper of the mill that grinds out meaningful facts and situations for us to then analyze and staticize. Even though elements can be isolated by us, they were not, as has been mentioned, isolated to the ones that made them. They're a part and a parcel of vast and rich symbolic packages, and we need to do what both Bill Dalton and Harold Tuchins (Native American consultants) said to do to find what I used to translate as meaning but knowing also fits. They said to look for every example of a specific aspect that can be found, then consider the similarities and study the differences. Why? Because similarities will help point out what is important (on the level of its motifness, on to becoming a convention), and the differences will teach us the most about the elements (how and to what they can be applied). That is what Dalton and Tuchins did, so that is what I try to do. For some reason, back then it sounded very scientific, and still does for the same reasons, but is it science, and does it need to be?

To be on the ancient symbolist's list (which did not really exist), of what an element is, consider that an element is not just what they produced alone, such as an anthropomorph. The person that anthropomorph represents had a character, a personality, a persona, a status and various relationships to other elements in a context with various masks hiding everything but the obvious. He also involves a positioning on the cliff to be involved with rock incorporations or incorporating forms of light and shadows forming Symbolic Solar Interactions (SSI), or solar flairs, that are also part of the form, context, and concept of its elementness. It is not uncommon that the forms of light and shadow predicated the size, form, placement, and context of an element. The SSI, hole, crack, ridge, bulge, or solar flare is not just a part of the element; they are also elements within or by themselves. That is the way the makers of the figures looked at it, and some of us continue to ignore that fact. However, it is none-theless a fact. And we only encapsulate what we see in the simple word, "element." That word without all this other vital information remains so crisp, and so clean, and so "scientific," but lacks so much of what we need to be seeing.

When we do what they did, we realize that isolation (i.e. a single human form on a rock face) is simply an abbreviation of a context and that no element, sign, symbol, icon, image, or SSI can ever be isolated. How many have ever thought of contexts as elements or motifs? Because of the evidence I have seen, I have been forced to accept that as well. Let me illustrate the importance of that, since it is so very important. Figure 1A provides a few examples of elements that are associated with rock features, but represented here without them. Figure 1A is the way we see them. Figure 1B illustrates why the natural feature is a major part of a glyph's elementness. The crack, or other forms of rock incorporation, the associations it has with other figures, the exact location, and then, last but not least, the time that it was meant to be viewed to complete the context, completes the concept that was being expressed, which is far beyond the essence of its form alone as an isolated element. Figure 1C illustrates light incorporated as a

vital part of what the meanings of these elements are.

With such considerations we have taken these figures out of the definition of a simple element and have put them into many different categories that each have become motifs or even conventions in-and-of themselves. Thus, the term element defined as an isolated figure is scientifically incompatible with the facts. If defined as any definable figure, as Schaafsma (1971:3) states, it, as a scientific term, is all right, I suppose. However, I am concerned about what is definable and how and from what areas of consideration it is defined, since many of our scientific definitions define things so differently and define so little. As long as we know that in our definition there will always be more than we currently realize and rock art elements are really, in the trueness of their original intent, undefinable, we are left to define what there is to define from our perspective, our vision, and in our words. We do this for all of our many unrealized reasons, not the reasons of the ancient symbolists, especially since the professional's vision of rock art is so low and when site reports ask for relatively nothing more than a presence of rock art, if that much. This will be expanded in detail in a future paper entitled, *Looking at Versus Seeing Rock Art*.

MOTIFS

The next category we have inherited by previous pioneers in this field of research is the next higher level in the progression of the percentage of occurrences of an element. That category is referred to as motif. Motifs are elements that have become major themes or concepts segregated from each other, as elements are by their forms, but that repeat enough times that they eventually become distinctive subjects in a particular style. At that point they may eventually become hallmarks of their various styles or shared traits between styles; then they are recognized as conventions or conventionalized symbols.

Again, in our efforts to elucidate and nomenclate these categories we often fail to see what the glyph makers were really doing. Of course, we think we are intelligent enough to know that what they were doing was not really what we can process directly over into a "scientific" procedure. Therefore, in our efforts to be very scientific in our research, we feel the need to take what they did apart. We bend it and often have to break it to make it fit into our view of what would be an acceptable scientific cubbyhole or what I facetiously call "clatures of nomins." Into all of our various scientific categories, we seriously try to put all of the little bits and pieces of seldom-understood evidence so we can better, in the end, understand it. Now that really makes sense. It is ironic that if we really understood what they were doing that would be the best scientific procedure to define and analyze it by, but we do not, so we do not.

UNIQUE REPETITIONS

Thus, feeling compelled to operate in the realms of scientificness, we quite often miss the point (their point), in our research. After the term element, because of my research, my scientific bias calls for the insertion of another cubby-hole that tries to express a more complete approximation of what I think I see them doing. At least I believe this new cubby-hole brings this and other related areas of the symboling process a little closer to the ancient author's way of thinking and better enables us to get

a glimpse of what was going on in their minds. That is where unique repetitions come into play. This Category helps to provide me with another slot for things to fall out of the hopper into. In my research, I have been trying to be conscious of the frequency of symbol repetition with minor variations, and the limits of what those variations imply. I have noticed that there are a few figures that, on their way to becoming motifs, fall short of what I have defined as the adequate definition and numbers to actually become motifs.

The problem is, as far as I know, no one has ever considered this aspect of the process before. It is very difficult trying to blaze a new road through well-established scientific procedures when it is already a well-traveled highway, even though it takes us in the wrong direction. We have been taught that when an element repeats often enough it becomes a motif. However, what happens when it repeats, but not "often" enough to become a motif? Moreover, who has made the determination of how many times it takes to repeat before becoming a motif? Is our definition or limit equal to what I believe I see them doing? Maybe it is time to look at our definitions a little differently and think about their adequacy.

In my research in different categories of SSI, I felt I needed to find an area of symbolic expression repeat at least 12 times before I could seriously establish it as a valid category, a motif, or convention of light interaction. Why? Mostly just to be sure that I understood what they actually meant, and then to satisfy the possibility that they might not have meant something else.

A leading anthropologist, Dr. Marvin Harris, once said that to have more information does not tell us any more about the subject (Harris 1989:vii). That is true if it is just a repetition of the same old information. This illustrates the importance of the "Limits of Variation," (next year's presentation), and was the basis for Tuchin's and Dalton's statement that it is the differences, the variations in those repetitions, that will teach one the most. Differences are not just more information; they are additional information. David Madsen and Asa Nielson, both prominent Utah archaeologists, made similar statements about the fact that another pit house or another arrowhead will teach us little more than we already know about who the Fremont Indians really were. It is very interesting that while many elements repeat so often and so similarly, the latter discoveries often tell us little more about their applications. That is what makes URs so very special, they are very seldom exactly the same. One or the other of the URs has the types of additional details to expand greatly our comprehension about them. In fact, they are very important in our use to determine the limits of variation, not only in form, but in application as well. Dr. Richard Cytowic (1993:138) in a similar discussion to this suggests that it is also very helpful to overwhelm the opposition with evidence.

Thus far I have identified 30 different categories of SSIs most of which have at least twelve repetitions. There are also a few categories that still have less than 12 examples present. Like URs, those SSIs with a lesser number of occurrences are probably motifs or even conventions, but the various degrees of repetition represent an aerial distribution of conventionality, or possibly fewer examples having been found. Those sparse numbers of URs and SSIs can also reflect areas where more exploration is needed, not just the lack of occurrence. Let

me restate that a little differently. It expresses a known number of occurrences, not the real number of occurrences. Low percentages of figures in the inventories are not always an indicator of nonexistence; they can equally represent a lack of recorded information. To be a true UR there will only be an extremely small number of occurrences, and thus it will be harder to find those repetitions, if in fact they do exist.

WHAT URs REPRESENT TO US

1- URs express the border between a simple presence at a site or in a style, and an element or its associated concepts becoming a motif or a convention.
2- URs express interesting concepts, ideas, and procedures, etc., that are not common to the site or common from the site level to that of the style.
3- URs illustrate the distribution or association of sites or styles not otherwise associated with only one occurrence of an element, verses two or three occurrences spread between different sites or styles.
4- URs illustrate innovations or different manners of representing an existing concept that did not succeed. These are ideas that may not have been an important association, form or context, to the style because it never grew or became accepted beyond the stage of the main level of the UR, the panel or site and sometimes beyond.
5- URs can express something in the intellectual (superorganic) domain, or the physical (organic) domain that were seldom or never expressed elsewhere.
6- URs illustrate the non-universal areas of symbolism. These areas were not generally shared between people or styles, or shared in the manner of the UR.
7- URs can also represent instances where the carrier of one symbol package moved from one area to another, producing the only existing examples of his URs. Since these are unique enough they may even provide a specific example of thumb printing of individual glyphmakers in relation to other associated glyphmakers.
8- URs can also represent one or two more contexts to help expand the present limited knowledge of the one or two previously known examples.
9- URs often provide us with different contexts, associations and variations that help us identify the limits of their variations, and more information to help us to extract more variables about form, meaning, application or function.
10- URs thus help us to better see and understand the symboling process. They help define the existence and use of a known reservoir of symbols that became a shared knowledge of their makers.
11- Rather than an examination of elements alone, URs are at the foundation of an analysis of symbolism, because they illustrate how extensive the association and situation is that they occur in and what form the association takes, as well as how well it was accepted. This cannot be delineated by a study on the level of elements or motifs alone.
12- Lastly, they can express the limits of expression of one concept and the beginning of the expression of that or a similar form in an another concept.

URs can occur in:

- The same panels.
- Different panels at the same site.
- Different but associated sites (same style).
- Different non-associated sites at greater distances (same style).
- More distant sites of different (contiguous) styles.

- More distant sites of noncontiguous styles (e.g., several states apart).

In the last situation there needs to be some serious consideration in respect to independent invention or diffusion. Examples that occur beyond contiguous styles may be part of what is called universal symbolism, and then the symbols will not be URs. This is a slightly different area than independent invention that I will not go into in this presentation, except to say that independent invention would preclude the possibility of its being a UR, since we are defining it as unique in that it would be complex enough a construct to be very difficult or improbable for another glyph maker to come up with the exact same design, configuration of form, or context. Because we are dealing with the human mind, and the possibility and problems with the principal of universal consciousness, that possibility cannot be ruled out.

The following examples follow the general categories expressed above rather than the meanings of URs to us, and illustrate the importance of considering URs as a new and important category for future use in research. Since this will be the subject of concern for a chapter of Volume 4 of *Rock Art and The Symboling Process*, there will only be enough examples here to illustrate the intended importance. In that volume, I will delve into URs from the view of those 12 points. In Figures 2-6, the illustrations have been broken down into the following categories without any discussion. Figures 7A-10B will be considered for their special contributions. These are by no means all of the examples. They were picked because they seem to represent a broad spectrum of problems encountered with URs. Their provenance has not been included because it is not important to the concepts being considered here beyond an association on the same panel to their occurrence in vastly distant areas. Provenances will be provided in the chapter that deals with them in Volume 4 of *Rock Art and The Symboling Process*.

These are some of the categories

- URs at the level of the same panel (Figures 2A and B).
- URs at the level of the same site (Figures 3A and B).
- URs at the level of associated sites of the same style, to more questionably related styles (Figures 4A and B).
- URs at more distant sites of the same or similar styles (Figures 5A and B).
- URs at more distant sites of what we call different styles (Figures 6A and B).

These categories may even become important in considering what we call style and stylistic associations. These examples represent the limit and the boundaries of URs. Many of these in Figures 6A and B are doubtfully URs.

Figure 7A for some time was felt by many members of our organization to have been modern vandalism. The human form looked too modern, and the arrow through him looked too phony. This figure occurs on a panel at the upper end of Buckhorn Wash. After finding just one other example of a very similar figure, produced in an identical technique at another site in the canyon without the arrow, it became more likely that it was not modern vandalism, but a more historic artifact.

There is one fact that provides good evidence that the second figure, and by extension the first, were not non-native productions. That evidence consists of the column-like figure with the partial rayed circle on top to the left of the figure (on our

right). This, as it turns out, no doubt represents a geographical feature (an inaccurate and misinterperative term without any proof). However, the existence of a similarly shaped geological feature helped in the discovery of this panel. While I was looking for the place to stand to observe the sunrise on the top of a pinnacle on the skyline on an important solar date, I found I was photographing the sunrise on the pinnacle right in front of this figure that duplicated me (the observer), the pinnacle and the sun. No other examples of this type of figure have been found within Buckhorn Wash, the rest of the San Rafael Swell, or beyond that area that I know of.

Three historic examples also illustrate the same problems that we are faced with in the study of more ancient symbols. Figure 8A, occurs in an overhang in Barrier Canyon. Figures 8B and C occur next to each other in Clear Creek Canyon. The time sequence of the last two are not exactly the same. All three of them, being very unique in shape, share the same symbolism. Figure 8C, was made with a metal tool, while the technique of Figure 8B, looks not that different from aboriginal work. In fact, the difference in repatination and weathering between the two that are side by side would make one believe that the left one was much, much older. That may be an example of the inability to trust either factor in dating, since all three examples of these are probably of Anglo production. This implies that there cannot be that great of an age difference between the two Clear Creek examples.

Figures 9A and B occur in one of the canyons on the Ute Reservation. They do not occur at the same site, but at sties in the same general vicinity. They pose one of the problems that we have in this type of research that involves the limits of variation. When an UR has achieved a certain degree of repetition, one can begin to explore the limits or range of its acceptable variations. That means, when does this symbol stop representing what the more identifiable form does and start to represent something else? Many times the symbol begins at that point to develop into either an extended application of the original symbolism or a markedly different symbolism altogether. An example of that is Figure 10. Many believe two joined triangles simply represent conflict or war; which can be a misinterpretation because they are much more complex than that. First of all these are not complete triangles. In addition, joined triangles may also represent several different objects and concepts. With URs we do not have the luxury of enough repetitions to make those judgements based on similarity of forms rather than their differences.

Since Figures 9A and B are the only two and they are so close in their proximity, it is felt that the negative eye-like feature has a greater influence on the identification and or semantics of the symbol than does the outline of the form that houses the eyes. Also, remember that orientation is not associated with what the object of consideration is, but how it is being used (i.e. orientation represents part of the meaning of a figure and not always what it is).

The differences in the X-like or joined partial triangle-like symbols from the same area as Figure 9 also illustrate these problems in the limits of variation just discussed. The compound elements in Figure 10 are probably Ute cattle brands, but that is an assumption of some researchers. After a study of other brands from the area, I have found that there were not any others that had a plus-like sign or equilateral cross

above partially closed X-like triangular symbols. Both of these X-like forms are very vulva-like in their own different ways, which may be part of their symbolism. Without more examples and contexts, it is impossible to say.

Figures 11A and B, includes the only two examples of one type of abstract human form of which I am aware. These two figures have looped lines that join the arms and feet on each side of the body to create what is very similar to and probably a representation of the lobed circle symbolism. The Lobed Circle (a descriptive term) or Lobed Pendant (an interpretive term) complex existed within a complex but finite frame of reference in the Basketmaker styles of the lower San Juan River area and a limited area beyond. The first and more complete figure comes from the banks of the San Juan River near Bluff, Utah. The second example comes from a panel in the Petrified National Forest, Arizona. This example of a UR, along with several other figures that were more successful in becoming motifs and hallmarks of that group, help tie those panels together with others of that style. These two distant sites and their associated styles are considered as separate styles by geography, and are generally felt to be of a different time frame. Can we here assume that because of their similarity they may be somewhat contemporaneous? Was there a diffusion of the idea? Those are tricky questions to answer, and without more information is impossible. If the Utah example ties into the Lobed Circle complex as it seems likely, these two figures add a few additional and different pieces of information to what was known about those symbols that is not obvious in other isolated or incorporated examples of lobed circles. If these do in fact belong to that more complicated Lobed-Circle complex, then they may represent other areas of extension of that symbolism not previously illustrated by them or considered by us.

In two independent research projects, neither author considered this application or several other incorporated examples of that form as a possible variation, exemplifying that the idea and importance of considering the limits of variations is an important point that others haven't caught on to yet (Manning 1990, and Patterson and Paterson 1993).

PROBLEMS IN PROPERLY DEFINING URs.

After looking at these illustrations, the thought arises; have I properly identified them? What exactly is, or is not, an UR? It is often easier to identify what something is by looking at what it is not. Those thoughts guided the decision of which examples to include and which not to include as URs. In conclusion and to exemplify that, take a moment and examine and contemplate the cases in Figures 12A-C that are not felt to qualify as URs. I will not explain the reason why not at this point, but leave them for you to ponder. Some reasons are obvious and others are not, depending on what one does or does not see, know, or understand.

ACKNOWLEDGEMENTS

I gratefully acknowledge my appreciation to Nina Bowen, and Judy Warner for their help in editing this paper.

REFERENCES

Cytowic, Richard E.
1993 *The Man Who Tasted Shapes*. Warner Books, Time Warner, N.Y.

Harris, Marvin
1989 *Cows, Pigs, Wars, and Witches the Riddles of Culture*. Vintage books, Random House. N.Y.

Manning, Steven J.
1990 The Lobed-Circle Image in Basketmaker Petroglyphs of Southern Utah. *Utah Roc*k Art. Vol. X. Utah Rock Art Research Association, Salt Lake City, Utah.

Patterson, Alex, and Mary Patterson.
1993 The Rock Art of Bluff, Utah and The Pendent Circle Complex. *Utah Rock Art*. Vol. XII. Utah Rock Art Research Association, Salt Lake City, Utah.

Schaafsma, Polly
1971 *The Rock Art of Utah*. Papers of the Peabody Museum, Vol.65. Cambridge. Mass.

Additional Information on the Willow Creek Observatory, Northern California.

John H. Rudolph, with contributions by Paul Middents

ABSTRACT

This paper provides additional information on an ancient observatory situated on the rim of Willow Creek Canyon in northeast California. Rudolf (1993, 1995, 1996) described the site and observed solar interactions. Two natural rock-roofed clefts in a basalt escarpment were utilized by placing various petroglyphs on the walls so that shafts of light formed by modified natural cracks and rock configurations produced light pointers that impinged upon specific parts of these petroglyphs at significant times of the year. The summer solstice is predicted by 59 days, i.e., two lunar cycles. The summer solstice is determined by a light pointer that lands on the sloping top of a standing stone at first sunlight. A light finger lands on the center mark of a seven-legged *Super-Pi Petroglyph* in the early afternoon. Only moonlight can reach the southernmost of the legs. Later, the sunlight lights only the top circle of the *Sun/Moon Gage*, the balance of the gage being illuminated only by moonlight, indicating knowledge of the 19-year lunar cycle. A computer program has been used to determine when the moon would be in a position to cast a beam of light on these two images. Near sunset, a light pointer moves around the outside line of concentric arcs to pull away at the top. At sunrise on the equinox, a light/shadow line runs exactly on the points of a stack of five chevrons. These and other interactions are dramatic indications that the site was used over a long period of time to mark the change of seasons with great accuracy, thus illustrating the importance of seasonal sky events to the early inhabitants of the area

INTRODUCTION

The Willow Creek Observatory is on northerly end of a basalt ridge, which is heavily embellished with petroglyphs. Many are invisible unless sunlight slopes across the rock face tangentially. Two natural "caves", i.e., fissures in the basalt are covered partially by large slabs and boulders, and are of particular interest. One, the *Sunrise Chamber* opens to the Northeast. The other, the *Sunset Chamber* opens to the southwest. The main events observed and the principle subjects of this paper are: a sunrise light triangle on a now removed target stone, 59 day summer solstice predictor light spear, the equinox light/shadow line on chevrons, and the late afternoon light-pointer on the *Sunset Mask*. Furthermore, the purpose and use of the mid-day light finger on the *Super-Pi Petroglyph*, along with the meaning of the five wavy parallel lines and the purpose and use of the *Sun/Moon Gage* are described below.[1]

DISCUSSION

During the 1995 summer solstice visit, I observed and photographed a light pointer shaped like a clenched fist with extended finger land on the S*uper-Pi Petroglyph* with the tip of the finger first touching a drilled hole then moving to

the short center leg. (Rudolph 1995) It then moved off to the right (east). This light pointer never moved farther to the west on the petroglyph, either before or after the solstice. The only source of light that would project the light finger to reach the westward three legs is moonlight. About 60 feet southwest of the sunrise chamber is another "cave" formed by a six foot wide fissure capped by large slabs of rock creating a rough sort of cave. The roof rock and an outer ledge form a light pointer that lands on various petroglyphs at certain specific times of the year.

Figure 1 illustrates a section through the sunset chamber. From right to left the petroglyphs are: the one-eyed *Sunset Mask*, the parallel wavy lines, the double-lined serpentine, and the *Sun/Moon Gage*. A light spear strikes the center lobe of the double-lined serpentine, 59 days before the summer solstice (Rudolph 1995). The light pointer moves up and around the *Sunset Mask* outer arc on the afternoon of the summer solstice as shown in Figure 2. At the vernal equinox, this shadow profile works across the arcs of the *Sunset Mask* (Figure 3). The *Sun/Moon Gage* is shown in Figure 4.

The expedition of June17-23, 1996 was undertaken to measure azimuth and altitude angles of assumed sun and moon light pointers that I postulated would impinge upon the *Sun-Moon Gage*. These were taken by first stretching a string from aperture to petroglyph with the help of Dr. Bob Fortner and then measuring more accurately with an optical K&E "mountain transit", actually a theodolite. The sunlight, shaped by the narrow aperture, was observed to fully illuminate the upper offset circled dot only at its maximum.

Figure 5 shows the view looking up at the *Sun-Moon Gage* from below showing stretched string. The view looking down from above at the string stretched down through the aperture crevice is shown in Figure 6. Figure 7 is the view of the author taking a sight down the stretched string with a modified theodolite. This rather crude method gave remarkably accurate results and was used by Paul Middents (1966). The analysis worked up by Middents gave tantalizing "proof" that the hypothesis was correct, namely, that this was indeed a gage to compare the angles of elevation of the moon throughout its nineteen year cycle to that of the sun at its maximum elevation at the summer solstice.

Because these angles were measured with stretched string and a crude sighting device, I determined to return to the site with Paul Middents, equipped with a better instrument later that year. I modified the theodolite by mounting an inexpensive telescopic rifle sight atop the telescope barrel of the instrument. Offsetting this sight above the barrel of the instrument allowed vertical angles to be measured up to 75 degrees. We visited the site on September 5-9, 1996 and spent most of our time making careful measurements of azimuth and altitude of both the *Sun-Moon Gage* in the *Sunset Chamber*, and also the angles of sun and moonlight pointers at the *Super-Pi Petroglyph* in the *Sunrise Chamber*.

Figure 8 a, b, and c show the light finger sequence of the *Super-Pi Petroglyph* on the day of the summer solstice. We now had careful and accurate measurements at the *Sun-Moon Gage* and the *Super-Pi Petroglyph* so Paul Middents could do an analysis of both. The last part of this pa-

per will be an abridged version of these analyses.

One fascinating "revelation" is worth noting before proceeding with Paul's part of the work. The parallel wavy lines in the *Sunset Chamber* had been an enigma to me. It looked as though it represented a river or a stream, but in this astronomic context, I thought that this might represent the Milky Way, the "river" of stars in the sky. This sort of wavy line petroglyph is found at sites elsewhere in the west, and is the sign for water in Egyptian hieroglyphs. But there was no proof. One especially puzzling aspect was that the right-hand line crossed over the other four and ended in a pecked hole in the rock face.

We were sleeping out under the brilliant stars on this trip, and I woke from a sound sleep to be perfectly awake, just as though someone had called my name. Without moving my head or eyes, I was looking at that part of the Milky Way that holds the constellation Perseus. I was looking at a great raveled rope of stars that led from the "right" side of the Milky Way across it in a great curve that led directly to the brilliant cluster of the Pleiades. This observation is, of course, subjective, but I offer it as a strong indication that the parallel wavy lines on the wall of the Sunset Chamber does indeed represent the Milky Way (Figure 9). The double-lined serpentine is in roughly the correct position to represent Cassiopeia. This suggests that one eye of the *Sunset Mask* represents Polaris.

AN ANALYSIS OF TWO PETROGLYPHS AT THE WILLOW CREEK SITE BY PAUL MIDDENTS

A set of data describing the alignment of the *Sun-Moon Gage* petroglyph has been analyzed for possible coincidences with celestial positions of the sun and the moon. On the summer solstice a shaft of sunlight was observed by John Rudolph to cross the upper three-inch diameter circle only. Middents and Rudolph's measurements of azimuth and altitude confirms the sunlight position at the summer solstice and supports a strong association between this petroglyph and the full moon on either side of the winter solstice. The alignments are such that the petroglyph is touched by a shaft of moonlight only at the full moon's nearest the winter solstice during about fifteen years of the nineteen-year lunar cycle.

The petroglyph seems to be recording the change in the lunar path as the lunar (Saros) cycle progresses. The data (Table 1) consists of the altitude and azimuth of 10 points on the petroglyph and the distance to these points to the tip of the crevice "aperture" that forms the shaft of light. The 11th point is a deep, 1/4" diameter hole located to the left of the petroglyph. Full moon declinations near the winter solstice range from about 18° N to 28° N during the 19-year lunar cycle. This produces meridinal transit altitudes from 67° to 78° at the latitude of the *Sunset Chamber* (40.4° N). The Lunar declination must be at least 23° N to produce a path across the sky of sufficient altitude to align with the crevice and the topmost part of the petroglyph.

The analysis was conducted using the planetarium software, "Dance of the Planets". Promising lunar alignments

near the winter solstice in the years 2005, 2006 and 2007 were analyzed first. The calculated paths were plotted using "Mathematica", a computer algebra figure. The results for January 2007 are illustrated in Figure10. This figure confirms that the sun produces a path of light that crosses the upper part of the petroglyph each year. The lunar path appears to cross the petroglyph several inches below the top (#9). However, no indication of how closely the shaft of moonlight might pass to the rest of the petroglyph can be gleaned from this plot.

A three dimensional analysis was conducted next. Figure 10 shows a planar surface calculated and plotted by Mathematica, which is a best fit to the eleven measured points on the petroglyph. The plotted points are projections on the best-fit plane of the actual points. The actual points all lie within one inch of the best-fit plane so the computer provides a reasonable approximation of the rock surface on which the petroglyph is pecked. This surface bulges out slightly near the center of the petroglyph and runs almost due east and west (Figure 10). In Figure 10 the star symbols are the first nine points on the petroglyph from Table 1. The diamond symbols show the full moon nearest the winter solstice in 2006 crossing the petroglyph several inches below the top. The triangle symbols show the sun crossing the top of the petroglyph near the summer solstice. Figure 11 is looking up at a plane approximating the rock surface on which the Sun-Moon Gage is pecked. Ten points on the petroglyph are shown together with rays emanating from the tip of the crevice, which forms a shaft of sunlight or moonlight. The leftmost point (#11) is a 2" deep, 1/4" diameter hole. Figure 12 shows the computer replication of the summer solstice solar path observed by John Rudolph. In Figures 11 and 12 the point where each ray intersects the plane represents the predicted path of the right hand tip of the light shaft generated by sun or moon light passing through the crevice. Each ray represents the position of tip of the light shaft at 15-minute intervals. The paths pictured would take from two to three hours to complete and would progress from bottom to top and left to right.

The December and January moonlight paths travel up the full length of the petroglyph (Figure 13). Figure 14 illustrates the path of the full moon nearest the winter solstice plotted for 12 successive years. The variation in lunar path is due to the changing declination (altitude) of the moon from year to year. The pattern repeats every 19 years. At the point of the lunar cycle when the lunar declination approaches 23° N in 1999 a path similar to the summer solstice solar path results. Each successive year the path starts lower on the petroglyph and proceeds upward toward the top. The moon reaches a maximum declination of about 28° N in 2006 and from that time on, the path starts higher up on the petroglyph until it no longer strikes the petroglyph at all. The winter solstice moonlight shaft will not strike the petroglyph again until 2019 when the entire cycle repeats.

No attempt has been made to analyze lunar positions in the distant past. The alignments will not be significantly affected by the very small changes in the inclinations of the ecliptic over the period the site might have been used (Figure 15 and 16).

A similar analysis has been applied to the *Super-Pi Petroglyph* in the *Sunrise*

Chamber. Altitudes and azimuths for eight points defining the tops of the legs and a hole are listed in Table 2. The hole, centered just above the petroglyph, is similar to the one associated with the *Sun-Moon Gage*. John Rudolph observed a summer solstice shaft of sunlight (the finger pointer) pass directly across this petroglyph from above, down and to the right with the point of the finger exactly crossing the drilled hole. The distance to the crevice forming the light shaft from the hole is 100 inches. Figure 17 shows the best-fit plane approximated by Mathematica with projections of the petroglyph points on this plane and rays emanating from the tip of the crevice. Figure 18 shows computer replication of the summer solstice solar path across the center of the petroglyph. The intersection of the rays with the plane represents the position of the tip of a shaft of sunlight at 15-minute intervals (Figure 18). Figure 18 shows the path of a shaft of light from the full moon nearest the winter solstice. As the declination of the moon approaches 23° N, the path approaches the petroglyph and crosses much like the summer solstice solar path. The lunar path remains below and to the left of the petroglyph for 6 years and then again crosses the petroglyph (Table 3). The moon replicates the summer solstice solar path when it is in the ecliptic; that is when its declination approaches 23.5°N. This also should indicate a period of potential lunar and/or solar eclipse activity.

The following eclipses (Table 3) will be visible near the winter solstice at the Willow Creek site during the period covered by Figure 18. Would our ancient observers have made this connection? If they observed five such startling coincidences in a 19-year period, I am sure they would. Not every 19-year cycle provides this many eclipses visible at the site, but 12 solar eclipses and 28 lunar eclipses will be visible during the next 100 years. I think this would provide enough evidence for our ancient observers to associate the return of the lunar shaft to the petroglyph with strong probability for eclipse activity.

CONCLUSIONS

Our investigations demonstrate that the Willow Creek site can confidently be called an ancient observatory. This site was used to note the summer solstice, the autumnal and vernal equinoxes, to predict the summer solstice by using two lunar months, to commemorate various asterisms, to compare both sun and moon cycles, to observe the 19 year lunar cycle, to mark the summer solstice with a second petroglyph that allows for a lunar observation, and to mark the summer solstice with a dramatic light pointer display. Recent observations made by Gordon Ponting also indicate winter solstice alignments.

It is now clear at this writing that not only was the sun being observed in its cyclic round during the year, but the moon's 19 year cycle was being both observed and measured with instruments of great ingenuity and precision. The native cultures who created and used this site over a long period of time were probably hunter-gatherers, attested by the many grinding holes and metates found in the area. They developed an elaborate and sophisticated method of noting, measuring and marking various celestial events. They found that this site lent itself to some unique alignments of the sun and moon so that with a little modification and embellishment, turned the natural rock "caves" into chambers to memorial-

ize various events that they observed and determined to be important. The "little embellishment" is not meant to disparage the tremendous amount of work and many years of observation that resulted in the creation of these clever devices which still work today.

The oldest or "Classic" petroglyphs seem to be very old, as evidenced by the depth of the pecked carving, the similarity of patina to the untouched adjacent rock and by comparison with the other, fresher, newer looking inscriptions at the site. How old is yet to be determined, perhaps by one or more of the dating systems available today, or perhaps by systems yet to be devised. While certain affinities to Old World sites, symbols and observations suggest themselves; no definite conclusion can be drawn at this time as to any influence from other than indigenous cultures. It is hoped that funding to provide scientific dating of some of the petroglyphs can be found, as the question should be answered to add another clue to the origin of the creators of this remarkable facility.

This complex, with its natural happenings, may have made the event of the sunlight penetrating the womb of the earth more magical and more significant to the people who first witnessed them than if a man-made construction had been erected to accomplish the same practical ends, i.e., marking the changes of the seasons. This was the Cosmos itself involving mankind in its miracles. These people, immersed in nature and its processes, may have come to believe that they could play a part, to maintain the balance, to influence the outcome, to preserve not only their fragile culture, but also the cosmos itself. The Chumash tribes of southern California studied the heavens and conducted regular ceremonies in order to provide "ritual sustenance for the community and to supply meaning to life itself" (Hudson and Underhay 1978). They suggest that these beliefs were common to many if not all of the California tribes.

At the very least, this investigation, which is only beginning to reveal the information about the *Willow Creek Observatory*, should demonstrate that some of the enigmatic petroglyphs throughout the western United States, can be better understood and appreciated if it can be shown that their context is astronomical. This new perception of the purpose of the site and its petroglyphs can move our appreciation and understanding of this ancient work from merely "art" into the realm of functional astronomical symbolism and notation which in turn can give us better understanding of the concepts of the Cosmos in the minds of the ancient "astronomers".

FOOTNOTES

1. Note that certain petroglyphs are shown as rubbings. These were done before objections were raised to rubbings. I subscribe to the protection of petroglyphs wholeheartedly, however, the technique using Tyvek, has revealed detail that otherwise would remain invisible to either eye or camera. In some cases, these “tyvostats” may be the only record we have of petroglyphs that will completely disappear from erosion, development or vandalism. Some petroglyphs at this site are in such cramped, tight conditions that this recording system is the only way to obtain an accurate image of the petroglyph. With the technique used, nothing touches the bottom of the petroglyphs

themselves; thus there is no impact to future dating efforts.

ACKNOWLEDGMENTS

I wish to acknowledge my debt to Robert and Francis Connick who introduced me to the site and who have produced several excellent papers about it. Also, Nal Morris and Rollin Gillespie for their help, support and encouragement since being part of the expedition of 1992. Dr. Robert Fortner, who helped immeasurably on two solstice trips, 1995 and 1996. Paul Middents, co-author of this paper, who shared the "hardships" of the 1996 expedition and whose help in measuring azimuths and altitudes together with his skills in analysis of the data has given confirmation of the hypothesis that the *Sun-Moon Gage* and the *Super Pi Petroglyph* are indeed devices to measure and compare various positions of the sun and moon during the moon's 19 year cycle. Thanks also to the Battle Point Astronomical Association for its moral support and encouragement. I also thank the Oxford V organization for allowing me to present an earlier version of this paper at their conference in Santa Fe, New Mexico in 1996. Special appreciation to Don Gilmore and the New England Antiquities Association who helped make the first presentation of this site at the NEARA America Before Columbus Conference at Brown University in 1992 and subsequent publication possible.

BIBLIOGRAPHY

Hudson, Travis and Ernest Underhay
1978 *Crystals in the Sky: An Intellectual Odyssey involving Chumash Astronomy, Cosmology and Rock Art*. Ballena Press, Ramona, California.

Middents, Paul
1966 Preliminary computer analysis of Willow Creek Canyon Archaeoastronomy Site. Presented together with a poster display at the Oxford V conference on Cultural Aspects of Astronomy in Santa Fe, New Mexico, August 3-9.

Rudolph, John H.
1996 Poster display. Fifth Annual Conference on Archaeoastronomy, August 3-9, Santa Fe, New Mexico.
1995 Willow Creek Observatory, An Ancient Solar Observatory at Willow Creek, California. *Utah Rock Art*, Volume 13. Salt Lake City, Utah.
1993 NEARA Journal, Vol. XXVIII, No. 1 & 2, Summer/Fall.

1992 America before Columbus. New England Antiquities Research Association Conference, Brown University.

FIGURES

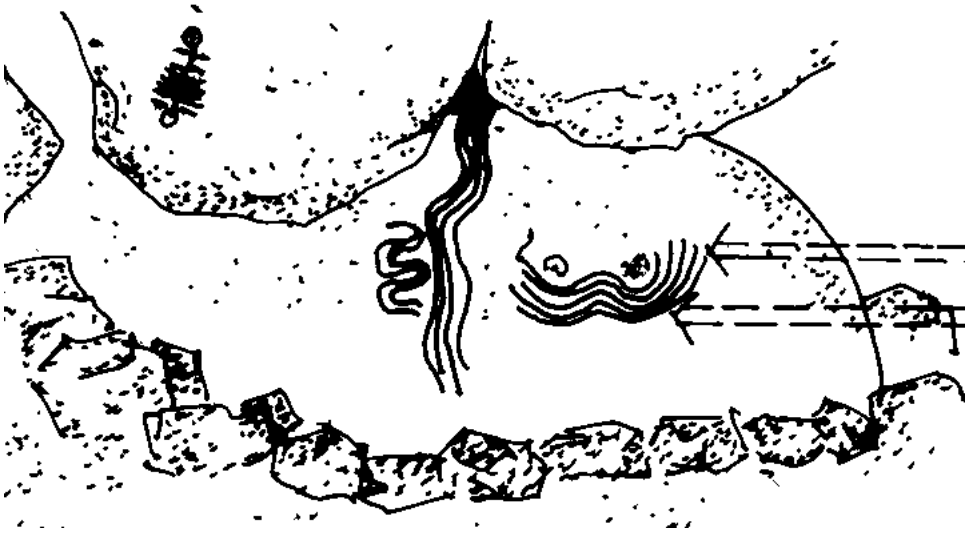


Figure 1. A section through the sunset chamber.

Figure 2. The light pointer moving up and around the *Sunset Mask* outer arc on the afternoon of the summer solstice.

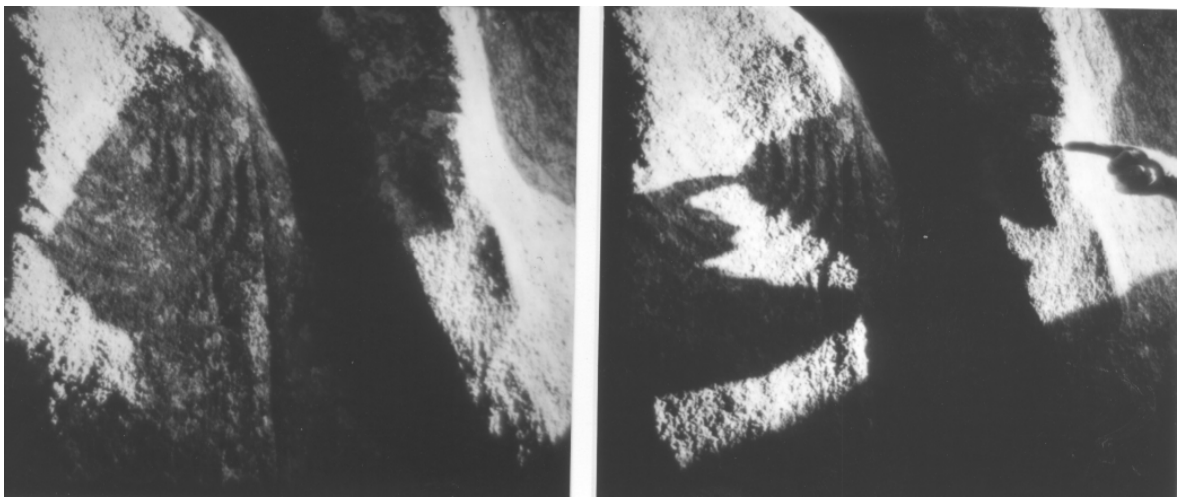


Figure 3. Shadow profile works across the arcs of the *Sunset Mask* at the vernal equinox.

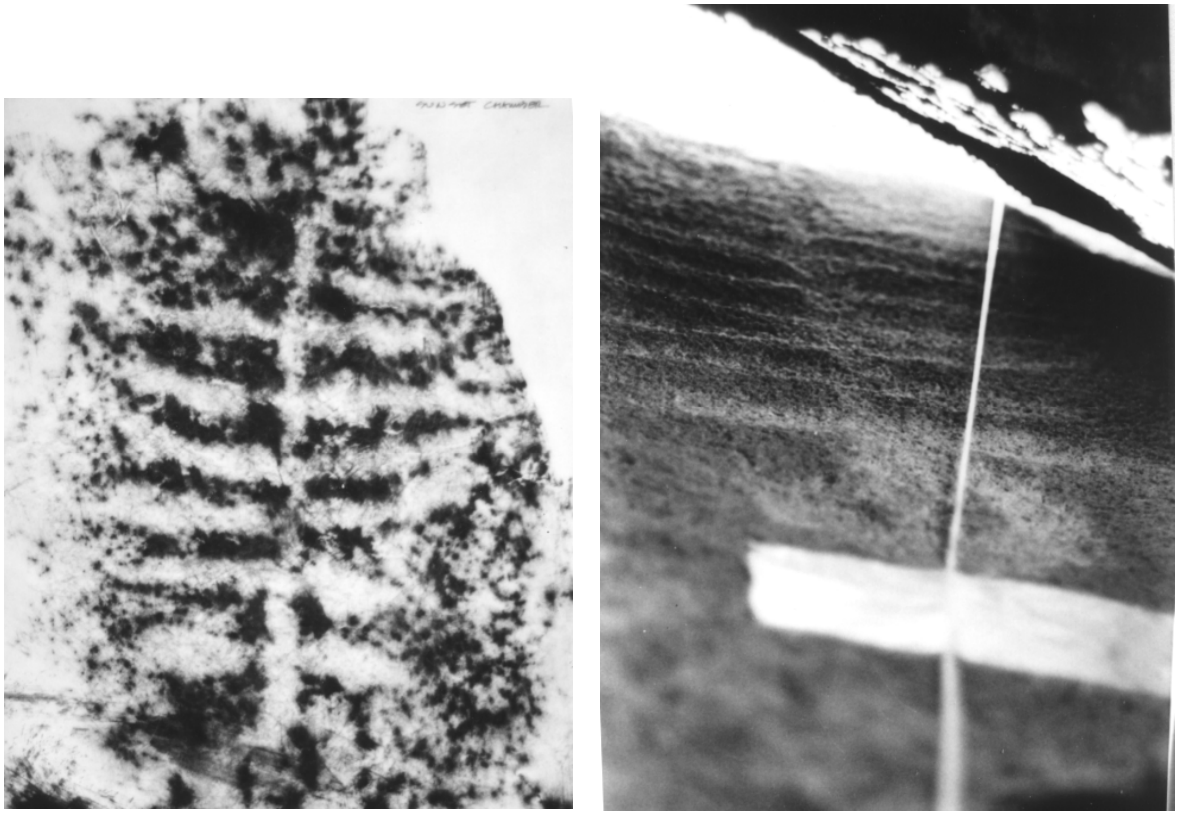


Figure 4 lower left. The *Sun/Moon Gage*. Figure 5, lower right. The view looking up at the *Sun-Moon Gage* from below showing stretched string.

Figure 6, left. The view looking down from above at the string stretched down through the aperture crevice. Figure 7, right. View of the author taking a sight down the stretched string with a modified theodolite.

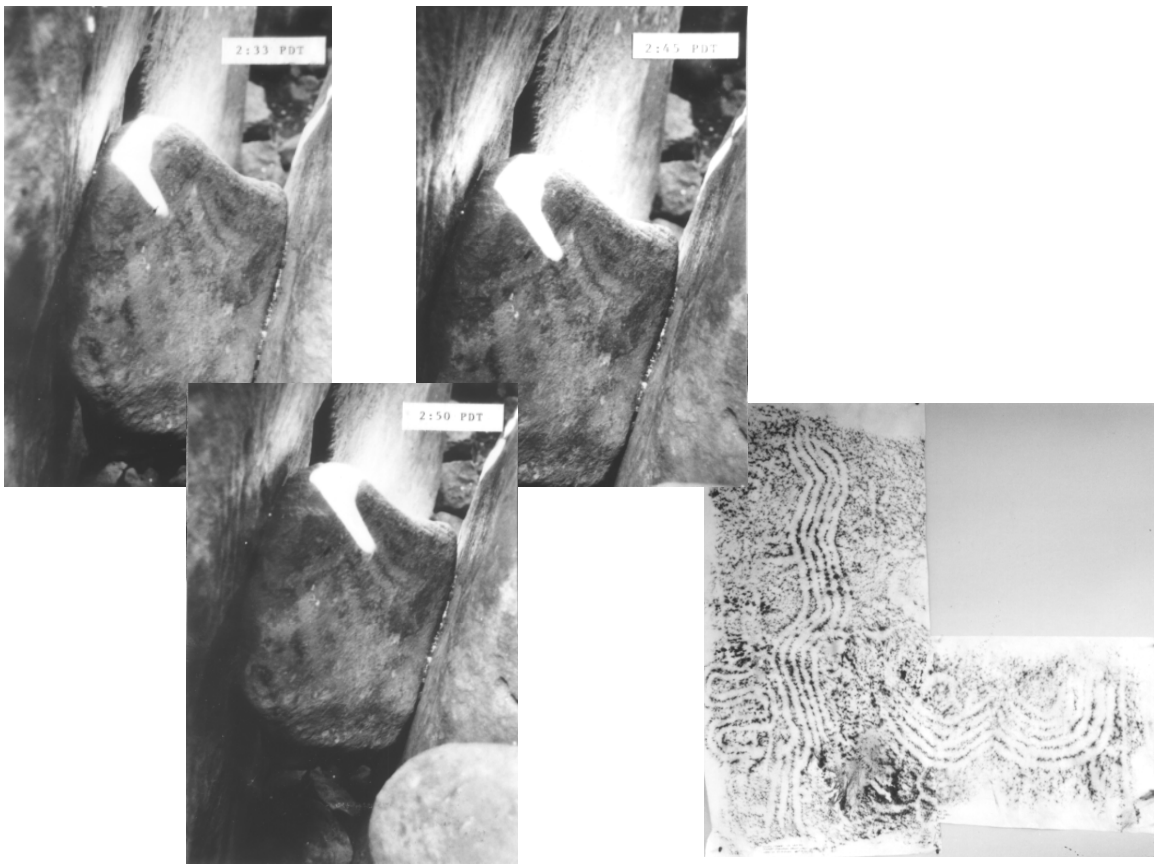
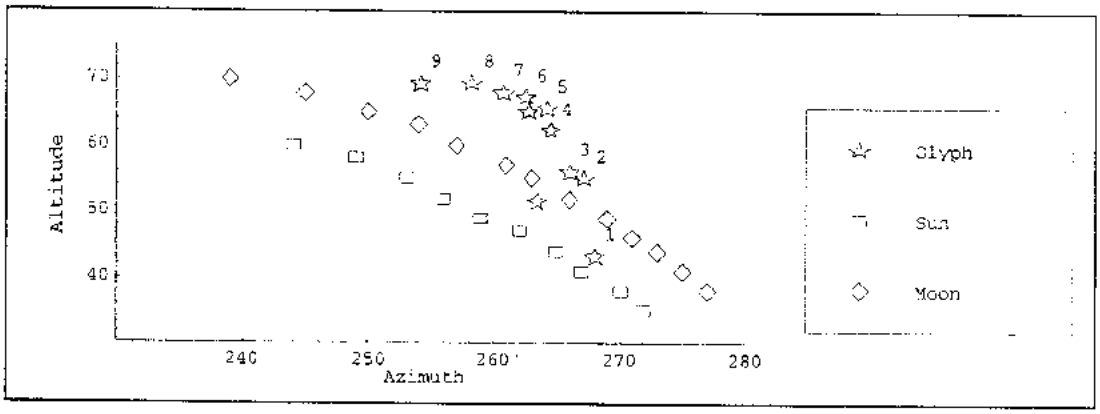
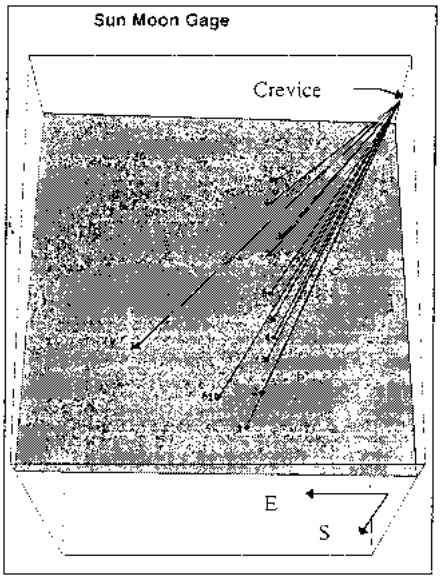


Figure 8a, b, and c left. The light finger sequence of the *super-pi* petroglyph on the day of the summer solstice. Figure 9, right. Parallel wavy lines on the wall of *the Sunset Chamber* representing the Milky Way.

Table 1

Point on the Glyph	Distance to the crevice inches	altitude in degrees	azimuth in degrees
1 -	7.25	43.1	268
2	8.5	55	267.2
3	9.75	56	266
4	11.75	62.2	264.5
5	13.125	65.6	264.2
6	14	67.3	262.5
7	15.25	67.9	260.7
8	17	69.4	258
9	19	69.3	254.1
10	18	65.1	262.7
11 (Hole)	17.25	61.5	263.4





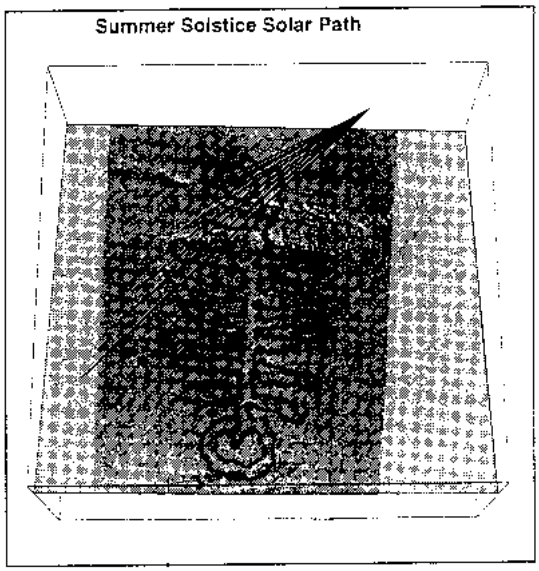
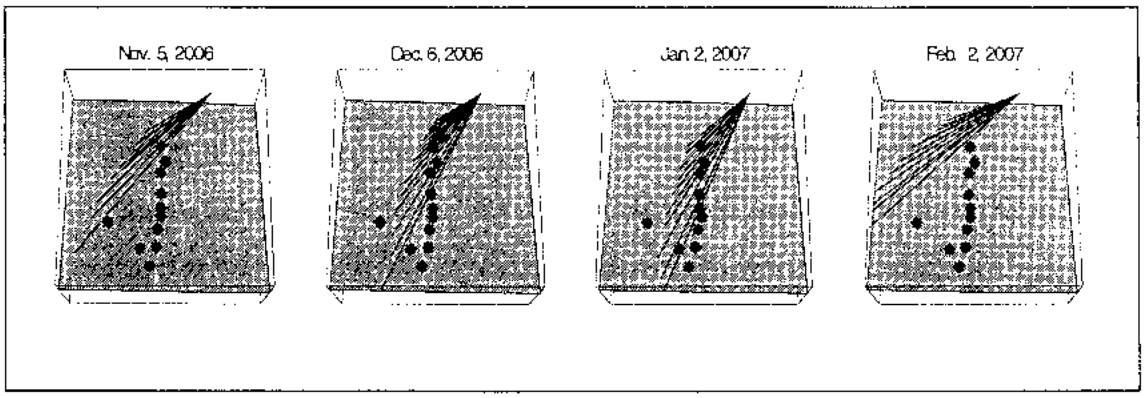


Table 1, top. Altitude and azimuth of 10 points on the petroglyph, and the distance to these points to the tip of the crevice "aperture" that forms the shaft of light. Figure 10, center, Lunar and solar alignments near the winter solstice for January 2007. Figure 11, lower left, and 12, lower right. The computer replication of the summer solstice solar path, looking up at a plane approximating the rock surface on which the *Sun-Moon Gage* is pecked.



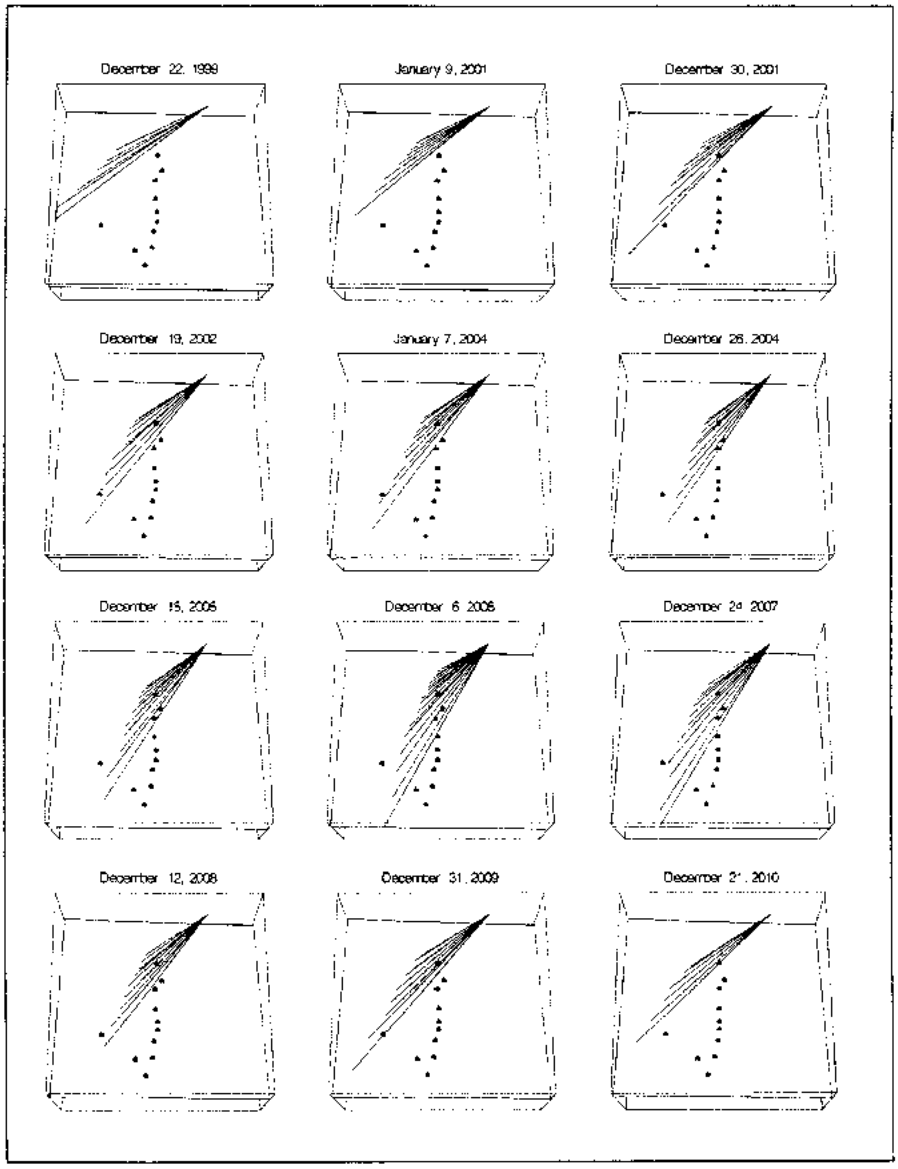
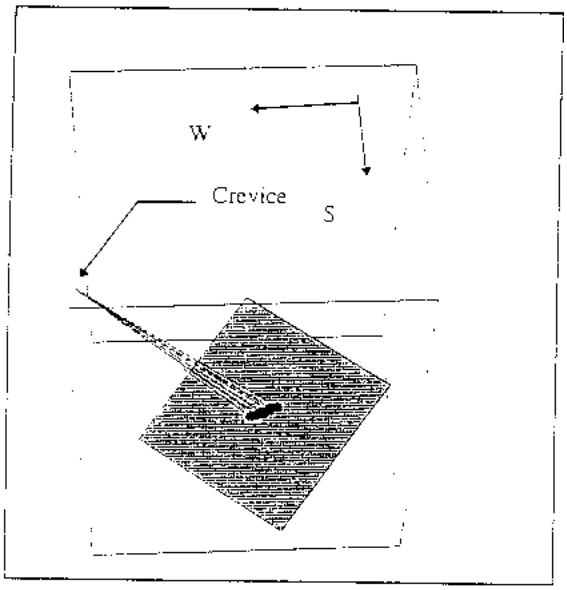
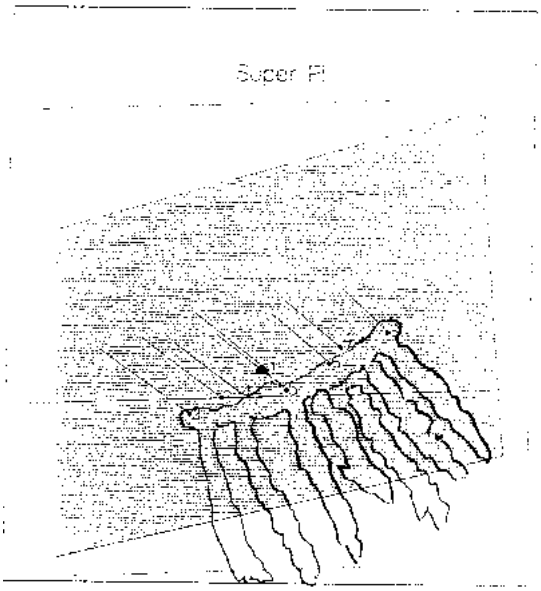


Figure 13, top. The December and January moonlight paths travel up the full length of the petroglyph. Figure 14, bottom. Illustrates the path of the full moon nearest the winter solstice plotted for 12 successive years.





Point	Altitude	Azimuth
1 (hole)	64.1	236.6
2	65.6	235.8
3	65.0	236.25
4	64.7	236.6
5	64.05	237.8
6	63.2	238.2
7	62.9	238.0
8	62.1	238.8

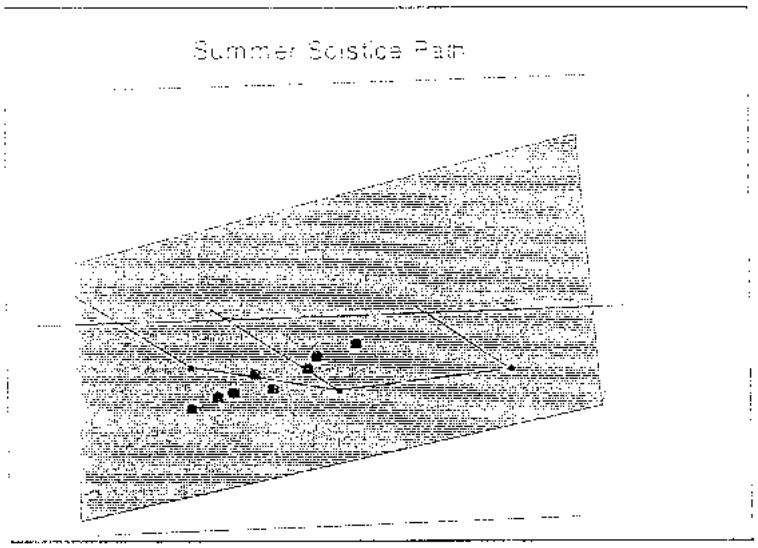
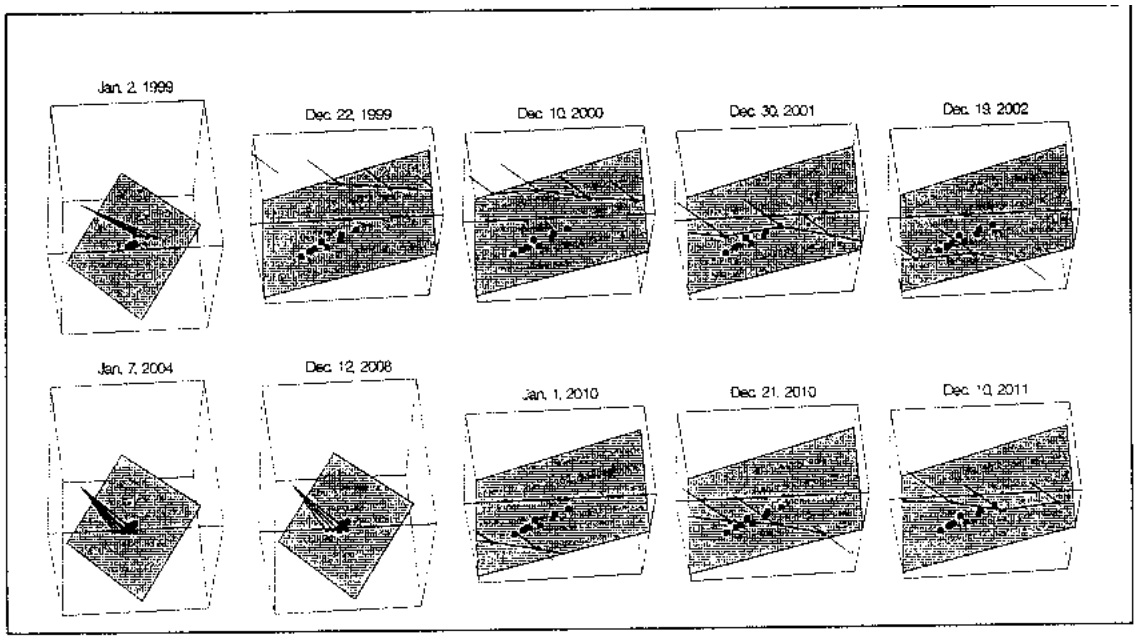


Figure 15 top left and 16 right. Show that the alignments will not be significantly affected by the very small changes in the inclinations of the ecliptic over the period the site might have been used. Table 2 center. Altitudes and azimuths for eight points defining the tops of the legs and a hole are listed in Table 2. Figure 17 bottom. Figure 17 shows computer replication of the summer solstice solar path across the center of the petroglyph.



January 21, 2000	Total lunar eclipse
December 25, 2000	Partial solar eclipse
December 14, 2001	Annular solar eclipse
December 21, 2010	Total lunar eclipse
December 16, 2011	Total lunar eclipse

Figure 18 Top. The path of a shaft of light from the full moon nearest the winter solstice. The intersection of the rays with the plane represents the position of the tip of a shaft of sunlight at 15-minute intervals. Table 3, bottom. The lunar path remains below and to the left of the petroglyph for 6 years and then again crosses the petroglyph.

Some Seasonal Elements in Uinta Fremont Rock Art

Clay Johnson

ABSTRACT

For rock art panels of interactive design, sun and shadow emphasis on element types and on specific parts of rock art figures varies by season. Some seasonal patterning is obvious; some may only be recognized through analysis of annual key day observational data from many panels. Some initial results from Northeastern Utah data are presented.

INTRODUCTION

Interactive rock art is rock art that has been designed to interact with physical systems of the site environment. In Utah, this typically takes the form of using shadows as templates for the shape and placement of rock art elements on specific days of the year (key days). Thus, on the key day of design, the shadow templates emphasize the elements of a rock art panel that were originally designed to match those shadows. Uinta Fremont rock art designed with this technology shows some conventions as to use of shadow shapes, and in association of particular elements with certain key days. This paper initiates the exploration of selective emphasis by key day, using data for the Uinta Fremont zoomorphs sheep and snake. The key days as used herein are Winter Solstice (WS), February Crossquarter (FWC), Vernal Equinox (VE), May Summer Crossquarter (MSC), Summer Solstice (SS), August Summer Crossquarter (ASC), Autumnal Equinox (AE), and November Winter Crossquarter (NWC). At a motif level, rock art alignments with shadow templates are essentially the same on FWC and NWC, on VE and AE, and on MSC and ASC.

DATA

My research in northeastern Utah pursues a split strategy. Fieldwork is divided between identifying and mapping sites to determine if they are interactive, and documenting all interactions for panels for all key days at each site. This paper is not offered as a statistically rigorous study. Data used range from completely studied sites through individual panels for which some key days (or some active events) are not yet documented. The data presented are from thirty-eight panels at ten sites in and around Dinosaur National Monument. These panels have both the requisite zoomorphic motifs, and acceptable levels of documentation at all key days.

I built a database for interactive rock art using Microsoft Access™ for Windows 95 to record interactive emphasis by key day on elements found in sheep and snake rock art motifs. The database form as designed allowed input of only four element emphases per interactive event. Since many interactions display more than four interactive alignments, some bias has been introduced through my selection of only four emphases from a larger set occurring during many interactions. In general, selection was biased in favor of repeated emphases on one element during an interactive event, and in favor of type A alignments (Johnson

1992.14). This may have obscured some minor seasonal patterning, especially of type C (simple linear) alignments. Microsoft Excel™ was then used to organize and tabulate the data.

SHEEP

On the thirty-one panels with sheep representations chosen, there is complete data for only about 64% (range 65% at WS to 51% at SS) of the active events on any given key day, or one hundred out of one hundred and sixty-eight active events. Sheep representations were organized for each key day by these motifs, sheep with trail, dead sheep, sheep group, single sheep, group of females with young, ewe with lamb, and female with fetus and pregnant sheep (combined below as "pregnant sheep"). Within each motif, each instance of element emphasis by shadow template was tabulated as plus one (+1) for the following elements of sheep representations, head, horns, eyes, mouth or nose, neck, all legs, front legs, back legs, all feet, front feet, back feet, trail, weapon, body, chest, belly, tail, cervix area, fetus, lamb, umbilicus, and mammary area. Instances of no key day interaction on a given panel may also be designer choices and reflect emphasis (or more precisely, negative emphasis) of a motif (Johnson 1990.39).

The rationale is that choice of panel surface, as well as which shadows are or are not used as templates, is a designer choice. Thus, I treated each instance of a motif being dark, lit, or non-interactive during an active event or on a key day as negative emphasis of that motif, tabulated as minus one (-1). This resulted in a spreadsheet matrix for sheep of eight by twenty-five, or two hundred cells.

I used the data matrix to approach seasonal variability of interactive rock art emphasis from three different directions. Figure 1 graphs the number of active events of positive or negative emphasis by season. The upper graph shows the active event emphasis on all motifs in the data set. I then graphed the same data as two sets of motif clusters a cluster including all motifs intuited to pertain to birth and young (group of females with young, ewe with lamb, and pregnant sheep), and a cluster composed of all other motifs (sheep with trail, dead sheep, sheep group, and single sheep). The overall patterning for all sheep motifs (the upper graph in Figure 1) suggests no (or negative) interest in sheep at WS, with most interest in sheep occurring during the summer half of the year, peaking during the May-August period. There is less overall emphasis at SS than at SC. The lower graph in Figure 1 shows there are some differences in panel activity by motif, the most pronounced being the lessened activity on the equinoxes for birth/young motifs.

As a second approach, I graphed the total number of individual emphases documented (to a maximum of four per interactive event for each motif on a panel) by season for each of the eight motifs separately (Figures 2-3). In Figure 2, the patterning for all the birth/young motifs is similar, although the females/young group motif shows stronger negative emphasis for the winter quarter of the year and at SS. The motifs not visually involving females and young (Figure 3) show different patterns, both from the birth/young motifs and each from the other. Note especially the dramatic difference between the single sheep motif in Figure 3 and the birth/young motifs on Figure 2.

Finally, I graphed (Figures 4-7) seasonal emphasis patterning for each individual element found in representations of sheep. These graphs show only the seasonal occurrence of each element emphasis; there is no score for negative emphasis on the elements, as negative emphasis can only be assessed for a motif as a whole. If there is no data for an element on a key day, the score is 0 (zero). Figure 4 covers the head and neck area Emphasis on head elements tends to peak on SC, while emphasis on the neck peaks at equinoxes and to a lesser extent at SS. Figure 5 covers the sheep body and two additional elements the trail and the weapon. Figure 6 graphs emphasis on sheep legs and feet. One instance of emphasis on all feet was combined into scores for front and back feet (even though the same shadow template seldom serves both legs and feet). The pattern for the back legs and feet differs from that of front legs and feet. Figure 7 graphs emphasis on sheep reproductive parts. One instance of fetus emphasis was combined with belly emphasis, as was one instance of umbilicus with new birth. Unlike the strictly birth-related elements, the mammary area is emphasized on SS as well as SC.

I have discussed above three relatively simple ways to view patterned variability of emphasis on sheep representations. They are:

- overall seasonal emphasis as reflected by the number and nature of active events
- seasonal motif emphasis calculated by tabulating the number of emphases (in this instance, to a maximum of four) a motif is subject to on each key day
- seasonal element emphasis calculated by tabulating the number of emphases (to a maximum of four) an element is subject to on each key day.

Even this level of analysis suggests several ideas:

- Uinta Fremont interest in sheep as expressed through rock art was nonexistent at WS and highest in summer, peaking at SC.
- Although interactive emphasis does vary somewhat by motif, panel designers often used a motif for multiple purposes (of seventeen cervical emphases, eight occurred on birth/young motifs and nine, including one equinox cervical alignment, occurred on animal with trail, group, or single sheep motifs).
- There appear to be clusters of elements, sometimes not intuitively related, with similar seasonal patterning Although this is immediately obvious for the top three graphs in Figure 7, look at the similarity between the graphs for weapon and neck elements, or for back legs and feet (even though the shadows that emphasize the back legs are not the same shadows that emphasize the back feet).

More sophisticated analyses based on interrelationships between panel elements, interactive patterning, and the patterning of natural cycles of climate, flora and fauna are beyond the scope of this paper. I will only suggest here the kind of information available through careful analysis. Any given motif depicts pictorially the general appearance of a seasonal concern or behavior. The interactions emphasize, with a variety of patterns, different elements of the picture at different seasons. Patterns of shadow template emphasis appear the same for MSC and ASC, for VE and AE, or for NWC and FWC, cycling twice annually. It is obvi-

ous that patterns of meteorological, flora and fauna behavior cycle only once annually. A given sheep representation, then, may have at summer crossquarters shadow emphases predicting seasonal aspects of sheep behavior some of which are applicable in May, some in August, and some (nursing of lambs) applicable to the entire period between MSC and AE. As an illustration of how careful analysis can solve this problem, examine the data and graph on Figure 8. The graph peaks at MSC, much of that data composed of cervix and other birth/young/nursing elements. The curve falls somewhat at SS. Much of the data, then, comprised of mammary and legs/feet, emphasizing ASC patterning is the same as MSC. The curve falls again at AE, with most emphasis on front legs/feet, horns, and neck. At WC the main emphasis is on the ewe's body—other emphasis is scattered. By WS, there is only one alignment on any of the selected panels that emphasizes the tail. To correct the curve for an annual pattern of bighorn sheep behavior as depicted by the Uinta Fremont, subtract at ASC the emphases of cervix, belly, fetus and umbilicus directly related to birth at MSC. The rather elegant result shown in Figure 8 predicts the onset of events in the annual pattern of lambing, infant care and weaning in mountain sheep, as described below.

A brief summary of the natural history of bighorn sheep applicable to northern Utah condensed from Zeveloff (1988 349-351) is as follows: Mountain sheep breed in November and December (between WC and WS), the only time rams and ewes are together. A single lamb is born 180 days after breeding takes place (between MSC and SS). Ewes and lambs form groups for the summer (between MSC and AE), and the lambs play with each other in nursery groups. Sheep avoid predation and protect lambs mostly by striking with their legs and feet, or by climbing. In the summer, they sometimes migrate to higher elevations for food. Lambs are weaned beginning around 6 months of age (about NWC).

One panel depicting a person holding a dead, headless sheep is a clue to a number of element-emphasis connections. The sheep's neck ends raggedly at a crack or small ledge on the panel surface. The interactive patterning documented at equinox both reinforces the idea of a hunting scene, and dramatically emphasizes (during both of two active events) the area where the ragged neck ends. Thus shadow emphasis on sheep necks, especially when the emphasis suggests cutting off the head, might by convention relate to hunting. The compiled data support the idea through emphasis on the dead animal motif at equinox, and through similar curve shapes for weapon and neck elements (Figures 3-5). Tail emphasis also seems to follow this pattern.

That the scene described above is about AE, rather than VE hunting activity is supported both by clues in rock art and by subsistence studies. A nearby hunting scene portraying both sheep and deer, interactive at equinox, has a hunter shooting an antlered deer. Local deer populations have their antlers at AE, but have lost them by VE. For subsistence, Speth (1983) points out that the food value of meat and marrow from large hoofed mammals varies throughout the year, with populations balanced near the edge of death from starvation during from mid winter through spring. Efficient subsistence strategies then must

involve either planning the times and targets for hunting efforts, or in the case of mass or non-selective kills, utilization of the meat only from selected specimens. To apply this to mountain bighorns, males are in very poor condition from after rut until at least June. Females decline after rut as they devote body mass and energy to gestation, calving, then lactation. Females thus begin to recover somewhat later in the summer than males. Males are probably in best condition from SS to NWC, females from AE through NWC. The most efficient annual hunting strategy for mountain sheep would be to hunt rams (or yearlings) beginning in late June, ewes that had lost lambs (and meat for winter storage) beginning in late September, with no hunting effort expended on sheep from late December through June. The lower peak in the weapon and neck curves at SS might then portray selective hunting of rams beginning in late June.

There is yet another type of variability present on some interactive panels. In some cases, a shadow template will simultaneously emphasize elements of several different panel figures or motifs. In other words, a continuous shadow supplies an association between apparently separate panel figures or motifs. This occurred for twenty of the sixty-five sheep interactions studied here. These associations are listed in Figure 9. It intrigues me that these associations offer additional support for postulated relationships between sheep and humans (and for some observed annual patterning of emphasis in anthropomorphs).

SNAKES

I have included a brief discussion of snake motifs to make a point about using interactive data for rock art interpretation and hypothesis testing. Snake motifs were: animal-with-hole and single-snake. Elements subject to emphasis were head, eye, body, tail, and hole, with negative emphasis tabs for dark, lit, and non-interactive events. Data used for snake patterning comes from fifty active events on eight panels at three sites. Two of those panels (panels 1 and 2 at McKee Spring) are roughly elliptical blobs on two sides of a low, protruding rock that looks to me like the head of a rattlesnake, the blobs representing its eyes. To classify these two panels as a snake representation is thus an act of interpretation in itself. Does the seasonal curve for snakes support the interpretation that these two panels represent a snake? The patterning of positive and negative event emphasis for all data (including McKee Spring panels 1 and 2) by season is shown as the top graph on Figure 10. In the lower graph on Figure 10, the curve for McKee Spring panels 1 and 2 is compared with the curve for all other snake data. As can be seen, the patterns are nearly opposite. The bulk of the snake data fits very well with reptile behavior in this area: snakes emerge as early as late March, and are almost never sighted after late September (perhaps the peaking emphasis at SS represents some symbolic connection between snakes and human concerns). This exercise argues strongly against the interpretation of McKee Spring panels 1 and 2 as a snake representation.

SUMMARY AND CONCLUSIONS

Variability in seasonal patterning of both quantitative and qualitative emphasis for

interactive rock art, especially when studied in conjunction with interactive associations and with cycles of flora, fauna and climate, has great potential for both interpretation of rock art itself, and for other archaeological endeavor. The asymmetry between the shadow template cycle (repeating twice annually) and annual cycles in flora, fauna, and seasonal change, coupled with the relationships found within and between panel pictorial elements, motifs, element emphases and interactive associations offers a potentially vast source of sound, repeatable empirical data for analysis, hypothesis building and testing, and application to a broad range of archaeological questions.

For the Uinta Fremont panels discussed here, it appears that although there is some variation in seasonal emphasis (and inferred "message" or purpose) by motif, the Fremont sometimes also used any sheep motif to convey seasonal information about sheep behavior in general. Emphasis to *elements* of sheep motifs, however, is more consistently patterned. Analysis of seasonal element emphasis suggests seasonal or behavioral connections between elements not intuitively related. The strongest seasonal patterning apparent is that of birth and lamb care, beginning in early May and continuing through November. Additionally, patterning seems to portray other seasonal aspects of mountain sheep (and Uinta Fremont) behavior. Sheep seem not to have been a concern of rock artists at Winter Solstice. Emphasis on snakes in Uinta Fremont rock art agrees well with their annual behavioral cycle, although a peak at Summer Solstice may have a symbolic explanation.

What is now needed is additional data for the Uinta Fremont (Johnson, work in progress), seasonal interactive data from rock art from other places or of other "styles", analysis of other rock art figures, motifs, and elements, and some statistically rigorous analyses of the data.

REFERENCES CITED

Johnson, Clay

1992 Coincidence and Alignment Examining, an Alternate Hypothesis to Explain Interactive Panels. *Utah Rock Art*, Volume XII, Second Edition, Edited by Frankie Harris. Utah Rock Art Research Association, Salt Lake City.

1990 Methodology for Identifying, Observing, Recording and Reporting Solar Interactive Rock Art Panels. *Utah Rock Art*, Volume X, edited by Nina Bowen. Utah Rock Art Research Association, Salt Lake City.

Speth, John D.

1983 Bison Kills and Bone Counts, Decision-Making by Ancient Hunters. *Prehistoric Archeology and Ecology Series* edited by Karl W Butzer and Leslie G Freeman. University of Chicago Press, Chicago.

Zeveloff, Samuel I.

1988 *Mammals of the Intermountain West.* University of Utah Press. Salt Lake City.

Fremont Arrowheads

Clifford Lamont Rayl

Transcribed and edited by Steven J. Manning

Clifford Rayl presented this paper at the URARA Symposium in Green River, Utah on Saturday August 31, 1996. Clifford passed away before it was published. Since many URARA members appreciated Clifford's humor and enjoyed his presentation, I felt it appropriate that it be published in this volume. Transcribing Clifford's presentation, determining how to edit the text, and assembling the presentation in a form suitable for publication was a most difficult task. Clifford presented this paper extemporaneously. Usually before a paper is published, the speaker has time to polish his remarks, put them in a suitable form, and organize his slides into suitable figures. Clifford's death made this impossible. A videotape of Clifford's presentation apparently exists, but I was unable to locate it. Without the videotape it was not possible to determine which pictures Clifford used. The slides used in his presentation also could not be located. Therefore, I have included three arrowhead figures from his library, the rock art slides are from my own. Fortunately, an audiotape of the symposium had been made. Following the transcription of his presentation, I was uncertain to what extent I should edit it until Layne Miller told me of a situation involving a presentation of an old river runner Clifford knew. The river runner died shortly after giving a presentation, which Clifford attended. His presentation was later edited and published. Layne told me that Clifford was extremely critical of the publication because he felt it was edited to such an extent, and made so formal, that it was as if a different person gave the presentation. The old river runner's character and personality were gone. With this in mind, Clifford's presentation is reproduced here with only minor editing and a few added comments, which are indicated by square brackets.

I never knew anybody who could change a trend. [Referring to Sally Cole's disapproval of the term "rock *art*". Sally presented the preceding paper.] I don't know what we'd do without the term rock art.

The purpose of my being here today is solely to preserve the amateur status of this organization.

I had a very traumatic experience that I have to tell you about. Nina called me up and said that she needed the symposium paper that I gave last year, and I said, "That's no problem, I have it on video". So I took the video out and looked at it. Rule number one: Never watch a video of your symposium presentation. Rule number two: Never suppose yourself to be anything but an amateur. Rule number three: Don't take yourself too seriously. If we can get started on that note, why then before I am done here, I will have preserved the amateur status of this organization.

You're going to wonder what in the heck arrowheads have got to do with rock art. (Oh, if I act confused on some of these slides—I haven't seen them either.) I want to show you these [arrowheads]. This one right here is called an Adena, and it's got about a six thousand year BC

date on it, and most of them come out of Missouri, Ohio and Illinois. That just about flipped me. Now, what caused all of this—they put these [arrowheads] in cases and in all of these books I got—these fancy books—you always have these arrowheads pointing away from you [pointing up]. If you take and turn the book over—well if you don't know what side of the book is up you know [you might have a problem]—if you turn the book over, they start looking like that (Figure 1).

Boy this is going to be exciting! It was exciting to me. I thought, hay, every year I look for an irony; and I thought, boy, this is about as irony as you can get. So anyway, looking at this one figure right here—some of you have already guessed—it doesn't take much to see where we're going. I'm going to show you a whole bunch of these as "The Collection". I'm going to show you a little bit of "The Collection" and we are going to go real fast. Not every arrowhead—except the one over on the right—not every one of these looks like what I'm talking about. Here's some that a are different size. A couple of these—that one, this one, this one down here, are called "Narrow Notch". I found that in a book. Look at this one here. When we get over to the panels you say, "What am I leading to"? I've already given away my secret. When you get over to the panels, you will see that they [the glyphs] don't have any arms, legs or nothing on them. You say, "Well, good grief, they must be something different".

This is the Thorn Collection (Figure 2). You can see they just took them and put them in the case. I came to find out that they are from three ages. They are Paleo, and they are Archaic and Woodland, and if you can start picking these out when I get down to the pictures, you can see what I am talking about. By now, some of you will even know in what age group, what archaic age group that we're talking about. Here is a whole bunch of them. They are all different sizes. These were all found in and around Vernal, and therefore they came out of the Fremont area. We are not going to restrict these to Fremont, but I would like to show you which one I think is Paleo, which one I think is Archaic, and which one is the rock art that matches that one, and some of these that specifically come out of the Fremont period. Like I say, it is just according to which way you look at these.

I'm going to run these [slides] real fast, because I don't want to use all my time on the Thorn Collection. I did promise the museum that you people would come up there and look at these. That's the only way I got to take these pictures. That is the reason why I am doing the commercial. They are at the Heritage Museum in Vernal, and they would just be tickled to death if we would come up there and do something like we're doing here.

Look at these points (Figure 3). What is really funny is when we go down the canyons—and look at that one the left—and we see those on the cliff wall. I might show you the same one twice because I put it in twice—but each one of those is a different slide. Like I say, if I act confused it's because, I don't know if I looked at them real good.

This one right here is a Mojave. You say, "Golly dang; they found that up to Vernal?" This one is an archaic Mojave point. I don't know anything about arrowheads. So if anybody wants to jump

up—after the meeting of course—and start telling me about arrowheads, I probably won't even listen, because I'm really not interested. My main thing is rock art, and you're going to see in a minute just exactly where I am going with this. Then I am going to switch off on Archaeoastronomy, and you are going to say, "This guy is not very consistent", but people that know me think I am.

Now this is starting to get mundane. What we're doing right now is establishing from this large collection [about 28 slides]—I'm establishing an arrowhead form, and where am I going? I am going to take it to the wall in about two seconds. I want to take these figures right over there, and they don't have any [appendages]. These could be—if you were really describing them—these could be spirit figures, because they don't have any arms or legs or whatever else, and that's not where I'm going.

I am getting into the bigger ones now to show you that some of the bigger arrowheads are starting into a different form. This one here, you might want to see if you don't see that one on the wall someplace. Here are some more that fall into the Paleo category and run into the 6,000-year dates.

There is one thing that bothers me about dating arrowheads. Virgil, down in Monument Valley, said his father was a medicine man, and I asked him, I said, "Virgil, did you ever find any arrowheads?" He said, "Yes." "What did you do with them?" He said, "I took them home and gave them to my dad, and he put them in that little medicine pouch"—those little leather sacks that they have. So to me this really brakes up [i.e., destroys] any consistency in the dating of these. Dating really isn't related to anything because of the value that they give them. It's the same thing that Tom Freestone was doing in taking the sand off of the wall and tapping into the power of grooves [Freestone 1996]. They also were doing that in the fact that they revered these old arrowheads. There was a lot of power and a lot of prestige that went with these old arrowheads in terms of medicine. They put them in the pouch.

This is the one right here that I want to start on (Figure 4). I was up at Tom's ranch one time. I asked Sally if she remembered [what she told me to do], and she said yes, and I'll bet she didn't, because that's been too long. Sally Cole one day gave me an assignment. She said, "Clifford, I want you to…"—it must have been an archaeological climate because I was supposed to use that format. I was supposed to record where every one of these was at. This is at Fish Creek Cove (Figure 5), and there should be another one. There are three of these. I was to record the position where it was found and all the information I could get. And whether she knows it or not, I took this assignment serious. I will show you what has developed in the last few months. That was five years ago, and I was so serious I only did it just the other day. But anyway, I want you to look at that first form. We are back again to an Adena point—I think the book calls it—at 6,000 BC.

Now I am going to show you rock art. This is my living proof. This is where I want to start my argument. I don't want you to believe me. I want you to just get out there and prove everything I am telling you. You go out and come back and tell me where I am wrong. This happens to be—Layne Miller told me this was

down to Ferron Box (Figure 6). Is that correct Jesse? [Jesse replied, "Yes."] That's Ferron Box. What date it is? I don't have the slightest idea. Right at this point, it is not important, but that is in the Ferron Box. There are no arms, there are no legs, there are no eyes, there are no shields, there is no nothing—there is a row of arrowheads. [*Statement from the audience:* "That's on equinox".] That is on equinox. They had a row of arrowheads at every equinox. They had two a year. This is were I am coming from. This is where I am doing. This is what I am trying to show you, and this is my whole argument. I am going to take this in a minute to the slide that was just before. I'm going to show you something I found on August 26, so you think that I have been really working heavy on this. On August 26, I had another clue, and I am going to give you one more clue, and all you are supposed to do with this is put it into your mixer and mix it up and whatever it comes out, you are stuck with it.

Here we go to the points. I am going to show you some points, and then I am going to show you some rock art. That's just strictly for the one. What one am I taking about? It is specifically that one right there. And do I have some more? You bet. I will have to hurry. Here we go back to this Adena point again, this white one. And some more of them here, and here we come back to that one. What is that? Possibly Barrier Canyon? I don't know. I am not going to try and identify it. The only thing I put this in for is that Nina took this slide for me. She went out after I discovered this, and I didn't know when I was going to get to Vernal, and her camera seemed to be better than mine. And here we are back again.

This is a Fremont figure here, and there should be another one by it. We start getting the shapes, but these have arms and tops on them. This is a nice one that is rather like the Barrier Canyon. This is getting in more to the Fremont shape to show you that it was used over a period of time; it wasn't restricted to just one certain time.

That is Steve Manning. I don't know what he is doing, but it looks fun. There are some small figures over there. This is Indian Creek. This is the first time I met Steve, and Sally and Chuck, and Ray Williamson. We were at the Edge of the Cedars [Museum].

Look at this form here. This form is more into the Fremont style than we are into the Barrier Style in terms of the point, but they haven't changed their concepts. Start looking at these—no arms, no legs and whatever else. When we get to a point here, I will tell you what I—there is some more Barrier stuff here. Somewhere I need to stop and just tell you what I think these are—look at these. They have put something on them—they have bird wings on them—tail feathers.

Maybe I ought to read you what Von Dell Chamberlain has to say. He's wonderful. I hate to admit it, but he is. He quotes the "Song of the Stars". He says, "We are the stars which sing". We are going to go over to a different idea now. [I am going] to establish why the arrowhead has become part of the rock art. He published this last Sunday. It may or may not even work. If it doesn't work—just throw it out. [Clifford's comments while he read the following quote are indicated by {}.]

To Hear Song of the Stars, Gaze Upward and Listen

Today I want to share with you a gem from my treasure trove. In 1882, Charles G. Leland, journalist, essayist and folklorist, began collecting legends from the northern Algonquin Indians. He published his findings in 1884, prefacing the stories with the statement that the old people said the tales were once sung and that many of them were poems. Leland's book ended with a poem that is as beautiful and insightful, at least for me, as any piece of literature I have ever known.

The Song of the Stars

"We are the stars which sing
We sing with our light;
We are the birds of fire,
We fly over the sky.
Our light is a voice.
We make a road for spirits,
For the spirits to pass over.
Among us are three hunters
{Why arrowheads? Why hunters?}
Who chase a bear.
There never was a time
When they were not hunting.
We look down on the mountains.
This is the Song of the Stars."

{I am going to read you what he has to say because I aren't this smart.}
The story about the hunters chasing a bear has been widely publicized since Leland's time. Indeed, it has been in Boy Scout books for many years. {I was a Boy Scout—for many years.} This is a story relating the stars to the Earth and the seasons. One fine spring day, three hunters began chasing a bear, quite unaware of the journey they had embarked upon. The elusive creature led them northward, keeping out of reach ahead of them. So intense was the chase that the hunters did not even notice when the bear stepped from earth to sky: they followed, rising above rocks, trees and mountain tops. The longer they pursued, the more determined they became. After many months, they got close enough to wound the bear.
{The panel that I was showing you near Cove Fort, had blood coming out of a deer. The Indians used whatever they had available locally—when you're adapting this thing. Bears were all over this continent for the early part, but when you were applying blood—you could apply it to sheep—you could apply it to the deer. Those deer on the Cove Fort are absolutely still dripping the blood.}
Blood dripped down, captured by leaves, transforming the landscape in crimson glory. The bear swooped down to Earth. Hidden in a cave, it rested, healed and gained strength. When spring arrived, the hunters found the bear and took up the chase again. Every year the story is retold by movements of the sky and cycles on the ground. The bear, formed by the four stars of the bowl of the Big Dipper, rises upward in the northeast on spring evenings. The three hunters, {That's what we are interested in—three hunters that look like arrowheads, that don't have any arms and legs or anything.} the handle of the Dipper, follow. By summer, they are high over the North Star as darkness comes. When autumn arrives, the hunters' arrow finds its mark, as the bear moves low in the northwest and forests blush in fulfillment of the year. On winter evenings, the bear passes under the Pole Star, brushing the horizon to disappear from easy view. With the blossoms of spring, however,

> bear and hunters are rising again. Every year the drama repeats to help us remember the order of things, as well as the stories that connect children to their ancestors. The poem reminds us of the concept that the Milky Way is the road for spirits traveling to the next world. This Algonquin idea is common to many other North Americans, and it is found across the waters in Scandinavian lands (Von Del Chamberlain 1996).

The point I am making is that these figures on the wall are depicting these arrowheads and are depicting something to do with hunting—possibly like the three hunting, and this could be a teaching aid. If it's not, then the connection between the earth and the sky [could be shown] with this type of a symbol on the tail here. In the San Francisco Peaks area, when the clouds come down and settle on the peaks, the spirit helpers go up on the San Francisco Peaks and transfer messages from the seeds into the clouds, so the clouds will carry them back to the creator. So we know that these people were dealing in the transfer of a message, and possibly we are looking at some of those; either the three hunters or possibly something that is transferring the messages from earth up to the sky.

Now I will show you some more which runs into the Barrier, and we will just run it on through to make my point that I do have enough evidence in rock art to support my idea. This was back to this Paleo point again, and as you can look around the wall on the rock art, you can see these figures. They are not all the figures. Most generally, there is only one or two, and these could possibly be those, if you use the Indian interpretation. I had the medicine man tell me that these panels—you don't go around the rock art panels, ([which] is the thing that you hear the most)—because they have spirits, and there are good and bad spirits. Last weekend we showed a Ute boy a whole bunch of these pictures here and he throwed the book on the ground and he said, "Stay away from those!" That was his admonishment—this was Chunky out to Roosevelt. He said, "Stay away from those spirits". So, if these on the wall are spirits, then they would be the spirits of the arrowhead. Then these would contain the spirits, and they would go there to converse and become acquainted and to solicit the aid and the help of the spirit in this rock art to help them in the hunt.

This is Indian Creek, and I will show you a couple, and if you will look around on the panel there is one clear over there. Look all through that jumble, there is one of those spirit helpers. Here we are again. This one is more Fremont than Barrier, and look at this one. This is really neat because there is an arrowhead inside of an arrowhead (Figure 7). That is in Indian Creek, and it is open for inspection if anyone wants to go and look. Take lots of water.

This is one of the Mojave points that was in the collection [Heritage Museum in Vernal]. I was quite taken by this because of the fact they're finding this at Vernal, and yet they call this a Mojave archaic point. This is back to the same thing, and if you will, and why I want to comment on this. I don't want arrowheads this time. This looks like it has been superimposed. It has been superimposed for a reason. If we start giving new meaning to that glyph right there, and it goes over the animal, then to me that gives—that is telling me that it is a hunting glyph, because of the fact that it is superimposed right over the animals,

and it is part of hunting. That is a supposition that an amateur gets to make.

Look at this one. This is really neat. Look at the head. They call that a "Square Notch" back in the east—if you were in—I think it was Maine. This book that Rob Bartlett gave me yesterday before he died—I don't know if he knew where he was going or not—but he gave me this book, and all of this is Maine rock art of Maine arrowheads. This stuff has the type of head that we are looking at here and it came out of the area of Maine, Illinois, Missouri and Ohio. And they found an abundance of it in the Vernal area. Here we go again. Pretty much the same thing. You can see the figures. You can see a nice figure over here and you can see one here. No arms and legs. No anything—in an arrowhead position. [*Comment from timer:* "Your time is up".] Is that it? Give me just enough to get off.

This is some of the Barrier Canyon Style. This is the Buckhorn panel—the one that has been cleaned—since it's been cleaned. You can see the shapes there. Some of these have arms on them and some of them don't, so every one of those is not an arrowhead. Not by any means. This is the little guy right here that's shaped like an arrowhead, but he has the tail of a bird. I am positive that he is a spirit helper, and that his main function is to carry those messages back to the creator—back to the sky at least. This is Spur Canyon. That is Virgin Springs. This is Peek-a-Boo Springs. Nice big figures—no arms, no legs, no feet, no nothing. There are three figures right there, and only one would qualify as an arrowhead, really—even these figures here without arms and legs. I don't put any interpretation on this, but here they are, and this is the evidence of the Barrier—most of the Barrier Canyon type stuff. As you scan this panel, you can find what I am telling you. Here's some that are more—a little fatter and more Fremont looking.

REFERENCES CITED

Chamberlain, Von Del.
1996 To Hear Song of the Stars, Gaze Upward and Listen. *Deseret News*, Sunday, August 25, Deseret News Publishing Co., Salt Lake City, Utah.

Freestone, Tom
1996 Groovy Grooves. Paper presented at the Utah Rock Art Research Symposium in Green River, Utah.

Nine Mile Canyon—Past and Present

Layne Miller (Presentation by Layne Miller and Clifford Rayl)

Few places offer researchers more opportunity to study rock art than Nine Mile Canyon. No one really knows exactly how many rock art panels are located in its 40-mile length; however, we can get a mouth-watering glimpse. One archaeologist estimated the number of cultural resource sites in the canyon at over 10,000. A 10-year survey being conducted by Carbon County has surveyed about four miles of the canyon and has recorded nearly 1,000 sites. The annual 10-day survey involves crews of up to 40 people and uses professional archaeologists and dedicated amateurs.

Those who know the canyon well indicate rock art styles can be found there from the Desert Archaic, Basketmaker, Fremont, and modern Ute cultures. Additionally, many freighters stopped alongside the road and wrote their name using the black, sticky, axle grease that lubricated their wagon's wheels. I believe it can be safely said that the rock art in Nine Mile Canyon covers a period of at least 2,000 years. Some experts say Nine Mile Canyon represents an intricate record of 10,000 years of man on the land.

If you consider the enormous number of sites found in Nine Mile Canyon, then add to the equation the numerous cultures represented there, and add in the fact that all this information is concentrated within just a few miles, then Nine Mile Canyon is a fabulously valuable outdoor classroom.

There is, however, one important factor I have failed to mention. Some of the panels in Nine Mile Canyon were photographed in 1930, and those photographs are still available. If these are compared to the present conditions of the panels, what can we learn?

Before I get into the research conducted by Clifford Rayl and I, let me tell you a little bit about the man who took these photographs. Leo Thorne (Figure 1) grew up in Dry Fork Canyon near Vernal, where his mother was a schoolteacher in a small school. As a young boy he became fascinated with the pictographs and petroglyphs that he found adorning the nearby canyon walls. That fascination sparked a general interest in the Indians who lived in the Uintah Basin, which prompted him to begin collecting arrowheads and other artifacts and thus begin his lifelong research into their culture. His life took a permanent turn when he took up photography and eventually opened the Thorne Studio in Vernal.

"My dad loved everything about the out-of-doors," Leo's daughter Rhoda DeVed told me as we talked about her father recently. Rhoda and her husband, Lawrence, are dedicated members of the Utah Rock Art Research Association.

Leo became a trusted friend to the Indians. He helped them by giving them food during hard times, and he assisted them every other way he could. That trust and friendship, and his interest in their history and culture, led him to doc-

ument, as best he could, their customs, lifestyle and especially the rock art he found on the walls of the Uintah Basin and Nine Mile Canyon.

Thorne was born on February 11, 1883 and died at the age of 83 in July of 1969. During his life, he played an important part in documenting the rock art of Utah and the lives and culture of the Ute Indians. The purpose of this information is to promote the important part Thorne played in documenting the rock art in Nine Mile Canyon and the Uintah Basin. He saw, photographed and recorded many hundreds of panels before most of them were vandalized in one form or another.

Thorne made at least two field trips into Nine Mile Canyon with Brigham Young University professor, Albert Regan (Figure 2). The two probably met when Reagan came into the Thorne Studio looking for a photographer to help him document the rock art. Their work resulted in several hundred early professional quality photographs of the rock art of the canyon. After seeing some of the photographs and realizing how important they are to rock art researchers today, I was forced to examine who this man was and to find how he became interested in the prehistoric and historic Indians of Utah.

Thorne's family came into Utah when he was just four and a half years old. He played with nearby Indian children and grew up believing they were just like him. He realized that they possessed a culture that was disappearing and was little known to whites.

Quoting Rhoda again, "Dad was riding a horse when he was 18, and the horse stepped in a hole and fell on him. The accident injured his back and made it so he could not do any physical work. That's why he took up photography." After that, Thorne never went anywhere without his trusty camera.

The Thornes have an interesting history of their own. Leo's grandfather disappeared after his wife died of tuberculosis. He fled into the gold and silver fields of California. His family did not know of his whereabouts for years, but Leo heard one day that there was a Thorne (with an "e" on the end) living in the Ashley Valley. He took his family and went there to see if it was his father. Lo and behold, to his surprise, it was.

Rhoda's mother was instrumental in starting a Protestant church in Vernal, which still exists today. Furthermore, she helped organize a literary society that also is still functioning. In addition, her high standards prevented the cowboys from smoking in their home, only allowing it in the bunkhouse.

Early rock art recorders like Thorne and Reagan were at a real disadvantage when photographing Utah's rock art. They initially used sheet film that was nitrate based. Not only was it unstable to begin with, it gradually degraded and became potentially dangerous.

Regan's route through Nine Mile Canyon became obvious as we followed the numbered photographs and retraced their footsteps. Thorne and Regan ventured down Gate Canyon, turned east in Nine Mile Canyon, then eventually backtracked and followed the main canyon west to just below Harmon Canyon.

Leo did not talk much about his trips into Nine Mile Canyon with Reagan. He did not even mention it to Lawrence when the two of them spent time in Nine Mile Canyon, and Rhoda does not remember her father talking about it with the family. "I do remember going into the canyon with my father on one trip," said Rhoda. "I remember Mrs. Nutter give me a peacock feather from one of the many peacocks."

Thorne did more than simply photograph rock art. He also documented the activities around him. His historically valuable photographs show daily life in the Uintah Basin and many photographs of the Ute Indians fascinated visitors to his Main Street studio for years.

His first photographs were taken in black and white, the only kind available at the time. He took painstaking efforts to hand-color them. One of his prized photographs shows a large eagle painted on rocks near a firepit and Indians dressed in typical Native-American, buckskin clothing gathered around. "We took the photograph from inside the tent," said Rhoda. "They, the Indians, told him to pray first, then take the photograph. He felt it was a privilege to take it and he never did sell a copy of it to anyone because he thought it was something very special."

Lawrence eventually met Leo and took over the Thorne Studio. Needless to say, he met and married Rhoda, and took her over too.

Thorne deserves the same respect and consideration afforded other early rock art researchers and documentors. He left a valuable legacy that most do not know about and few appreciate. It has been interesting for me to note that wherever Reagan went, he left behind a legacy of chalked panels. The Emery County residents who spearheaded the cleanup of the Buckhorn pictograph panel were told the chalking of that fabulous panel was performed by a Brigham Young University geology student by the name of Lee Stokes under the direction of professor Albert Reagan. Stokes went on to become a famous geologist who wrote the definitive work on the geology of Utah.

Some of the sites documented by Reagan still bear the recording number he assigned to them. I know of at least three sites in Nine Mile Canyon with his "NP" numbers clearly visible on their face.

After visiting all but a couple of the sites for which we have photographs, Clifford and I discovered that nearly all show some kind of vandalism. Many have names and dates scrawled on them, natural decay has taken its toll on a few, and we found that in two places individual petroglyphs have been chiseled from the cliff and are no longer there.

In one case, a mystery was solved. Located in the mouth of Sheep Canyon is a date that appears to be either 1818 or 1878 (Figure 3). Nearby are the initials "FR." Many debates have raged over the date and even the initials. An early history of the area uses it as "proof"' that visitors have used Nine Mile Canyon since very early times, and some even pointed out that (either accurately or inaccurately) the French trapper Antoine Robidioux had a brother whose first name began with "F". They suggested that maybe the brother of the famous trapper traveled through Nine Mile Canyon and carved his name in the mouth of Sheep Canyon.

We were totally surprised, therefore, when we visited the site and noticed that not only does the famous pictograph found nearby carry the scars of some natural defacement not visible in 1930, but the controversial date began life as 1918, and has been changed to 1818 (Figure 4). Debate resolved!

Many sites show that even though chalking the figures was necessary to bring the panels to life on the early low contrast films, the chalkers did not accurately record what was on the cliff. By comparing the old photographs to what is actually there, it becomes obvious that some panel portions were not chalked and other areas were chalked inaccurately.

Some differences in geology were also noticed. In one case, a large rock, located at the base of a panel, has only a tiny crack in the early photograph, but now it is entirely split in two and the two halves are separated by several inches. At the same site, one large rock has slipped several feet farther away from the panel.

Another panel that was very distinct in the 1930 photographs now has a large portion of the right-hand side covered with algae. It is now difficult to discern the figures.

The most interesting discovery, however, centers on a large petroglyph panel located about a mile below the Nutter Ranch. The panel (Figure 5) contains a humpbacked anthropomorph, with a bow and arrow in its hand, that is sneaking up on a couple of bighorn sheep. High up in the panel is a large spiral, and below the panel is a large net. At present, lines and dots surround many of the figures.

Members of a crew that documented the large and complex panel during the survey sponsored by Carbon County debated the meaning of the marks and wondered if they were meant to indicate that the figures were standing in a snowstorm. After examining Leo Thorne's 1930 photograph, it became obvious that the "snowstorm" was created after 1930 (Figure 6).

That led to additional speculation. Was the panel intentionally defaced? Is it a case of ritual defacement, or simply a case of someone taking out their frustration on the lovely panel? Careful observation reveals that not only was the "snowstorm" added to the area surrounding the defaced figures, but also all the figures were repecked, and they now appear fresher than their surrounding counterparts.

The conclusions about these features of the panel, however, are not so simply made. It is true the "snowstorm" marks are not found on the 1930 photographs of the large panel, however, they are obvious now. A small panel located just east around a corner complicates the entire issue. The figures are often called, "Ducks in a Corral," or some other similar comedic name. They do appear to be ducks, and they are surrounded by an enclosure—that I do not dispute. However, the problem is that the small panel does show the "snowstorm" marks in the 1930 photograph, and the photograph is so plain the recorders did not have to chalk it to make it show up on film (Figure 7).

Not only does this small panel muddy the waters; it also creates several other problems and inspires a whole new set of questions. Why does one panel show the defacement while the other does not?

Did the vandalism to the small panel occur some time around 1930? Had the vandal altered the "Ducks in the Corral" panel, but not the "Rabbit-Net Panel" when the photograph was taken, or was the small panel created originally with the "snowstorm" marks, then did the vandal simply copy the marks onto the "Rabbit-Net Panel?" "Research" as they say, "is continuing."

The large spider web or group of concentric circles, shown on the left of Figure 5, is now marred by over two-dozen bullet holes that are not found in the early photograph (Figure 6). It appears, from my observations, that bullets fired from the guns of unthinking "hunters" are now the most common form of vandalism taking place in the canyon.

Some additional comments about the panel are appropriate here. I believe the large net figure found at the bottom of the panel is just that—a rabbit net.

Enthnographic evidence reveals that rabbit hunts were community affairs. Many families would gather at the rabbit drive site, combine their family-owned net sections so they stretched all the way across the chosen location in the canyon. Large numbers of rabbits would then be driven into the nets. The reports also indicate that the families wove their nets according to family tradition, and the designs often varied. A close examination of the net shows it also bears several different types of weaves. The panel is also located at a narrow neck in the canyon where there is an excellent site for a rabbit drive.

Nine Mile Canyon continues to be one of the best places to conduct rock art research. Not only are the sites easy to find and close to the road, there are several different styles present. Now you can add to that, the early photographs that document how the panels appeared nearly 70 years ago.

Nine Mile Canyon (SJM)

FIGURES

Figure 1. Leo Thorne.

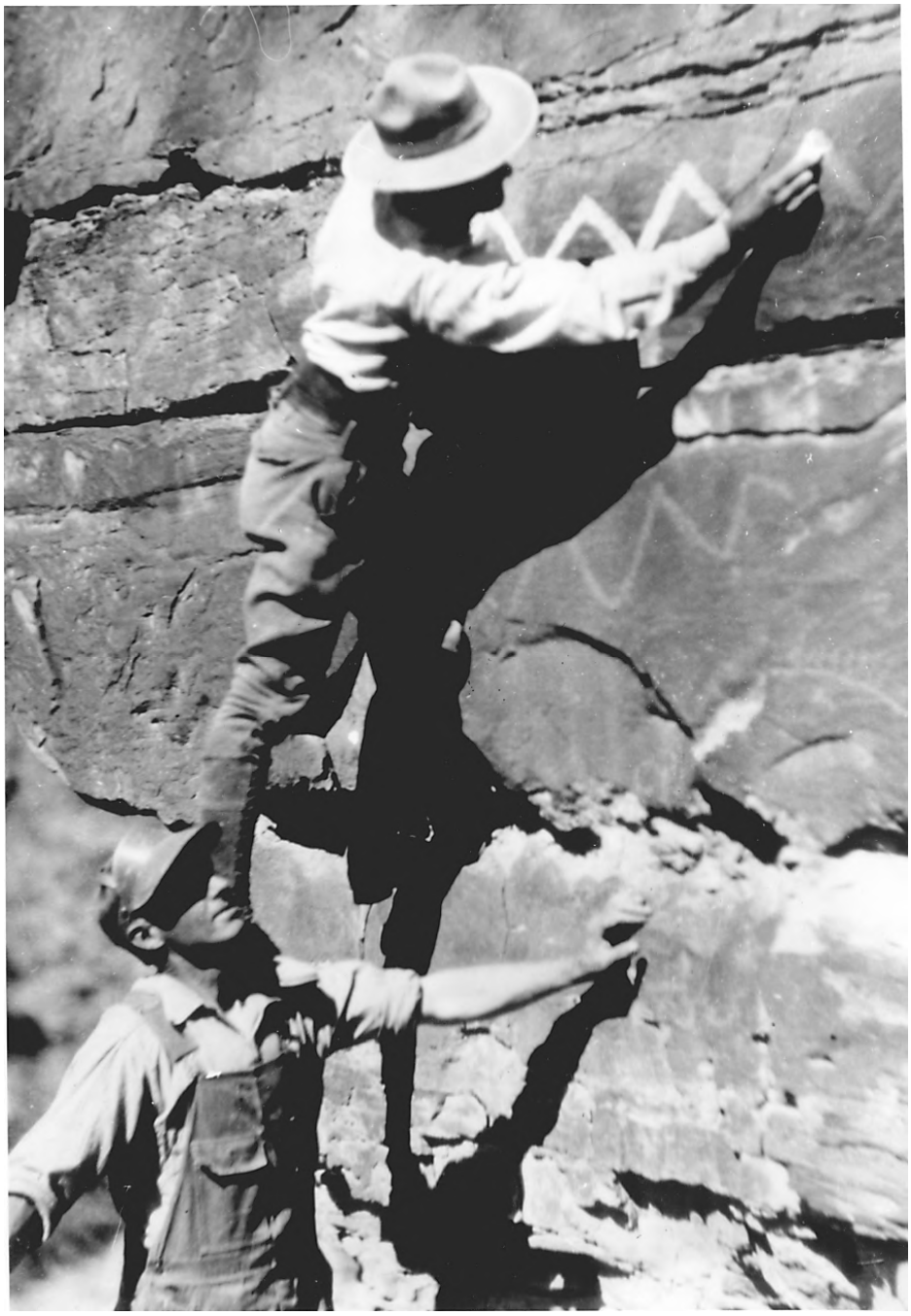


Figure 2. Albert Regan chalking panels from the shoulders of Leo Thorne.

Figure 3. Recent photograph of vandalism with historic date “1818” or “1878”.

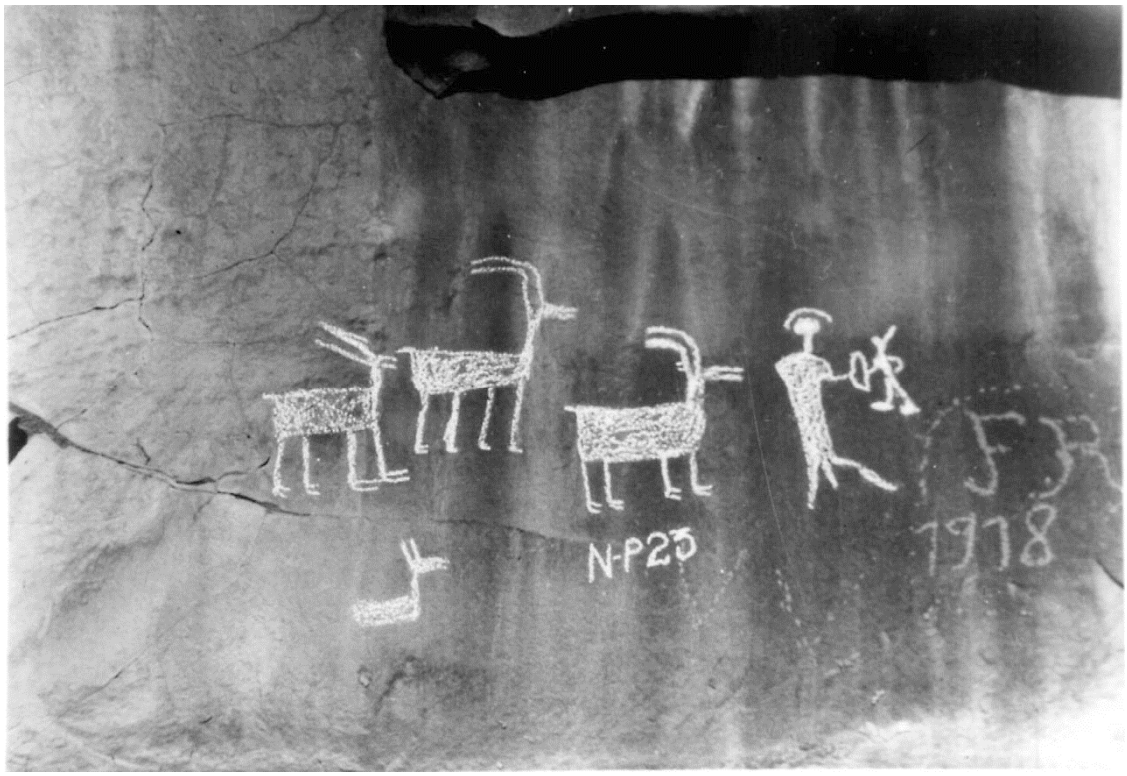


Figure 4. Early Leo Thorne photograph showing the date as 1918.

Figure 5. Recent photograph of the “Rabbit Net” panel.

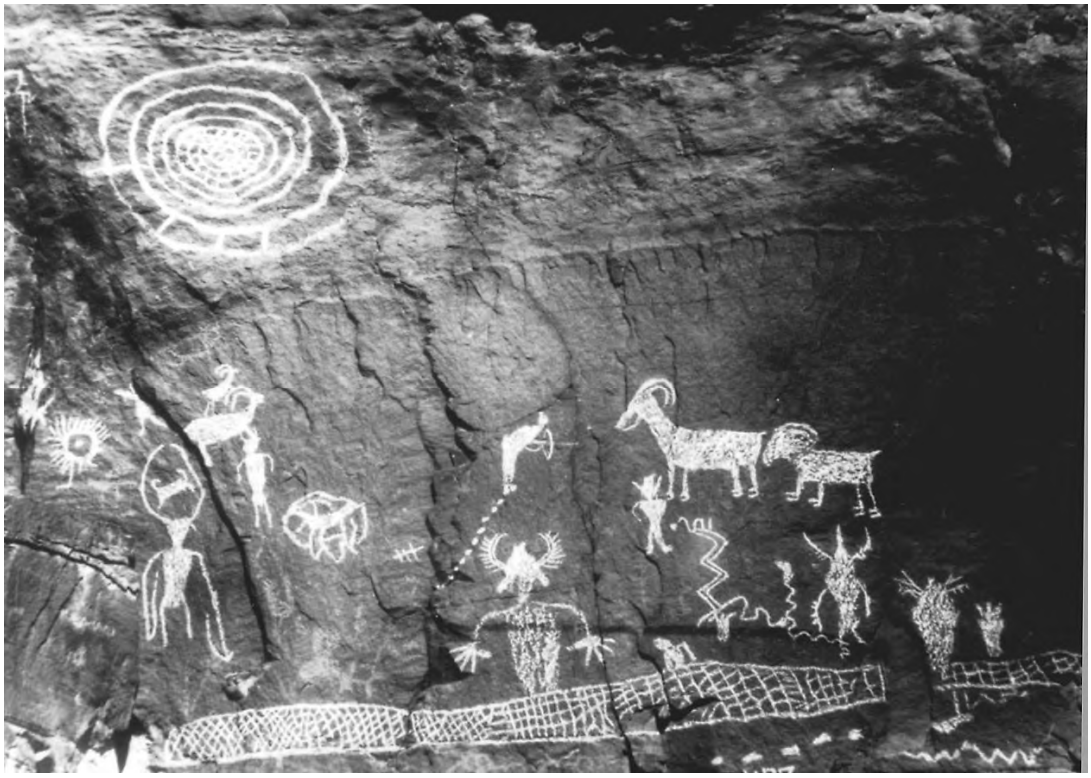


Figure 6. 1930 photograph by Leo Thorne. Note absence of bullet holes on spiral.

Figure7. “Ducks-in-a-Corral” panel, Leo Thorne photograph, 1930.