# IDENTIFYING SOLSTICE AND EQUINOX PETROGLYPHS IN NORTHEASTERN UTAH AND THEIR CULTURAL RELATIONS

by
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## THEORETICAL APPROACH

Students of the Fremont culture have been left a rich heritage of rock art for helping discover the ancient lifeways of this region. In viewing such illusive works we may be well advised to acknowledge of the originators of this art:

> your ways are not my ways; your thoughts are not my thoughts; your time is not my time; yet I might comprehend you, If I but learn to see through your eyes.

Ethnographic data must be our window. A recent simple reminder of the reality of this approach occurred while I was recording a Proto-historic Indian petroglyph of a train in the Willow Creek area of the Uintah Basin (see Castleton 1978, Fig. 2.113). One feature was oddly out of context on this train. In place of the wheels, curving lines extended down, terminating in circles. I was suddenly struck with an awareness that I was not merely observing a train, but probably an iron horse, legs and all, executed by an Indian who had no conception of movement by wheels without also having legs attached. More likely, in his communication system, legs were symbols of the power of movement for an inanimate object.

Except for generalized impressionistic descriptions, rock art of Utah has virtually defied interpretation. Schaafsma (1971) observes the obvious depictions of hunting scenes and presumed associated ritual, and possible mapping of trails, concluding that for most rock art we have no clues as to their meanings or even why they are found where they are. Castleton's (1978) recently published impressive two volume collection of Utah petroglyphs and pictographs is a valuable cataloguing effort, but without interpretations.

Progress in probing the mysteries of rock art must depend in part upon applying new techniques of observation, comparative analysis, and in discovering avenues for formulating testable hypotheses with adequate research design. This paper examines only three petroglyph sites not to only demonstrate a significant new discovery, but also to demonstrate the viability of one research design in hopes of accelerating future related research.

Three years ago I came into Great Basin archaeology after 15 years of research specializing in Izapan iconography of southern Mesoamerica (Norman 1973, 1976). At the outset I formulated a testable hypothesis for examining selected rock art of Utah based upon my findings in southern Mexico. My basic hypothesis is that some circles in rock art are sun symbols and may have calendrical significance related to directional orientations toward the horizon positions of the solstices or equinoxes.

## FIELD STUDY

In the mouth of Westwater Creek Canyon at the southern base of the Book Cliffs of eastern Utah near the Colorado border, are a variety of petroglyphs and pictographs. I visited the site in 1978 with the express interest of looking for circular motifs on a rock face that might be oriented toward horizon positions for the solstices or equinoxes. I was not disappointed. One panel contains four circles, two of which are concentric, facing due west (Fig. 1). In the Anasazi area the concentric circle is widely recognized as a sun symbol which probably diffused from Mexico (Ellis 1975: 62). Associated with the four circles are three groupings of short horizontal and vertical lines, and one line of dots. Is this panel a recording of equinox sunset observations?

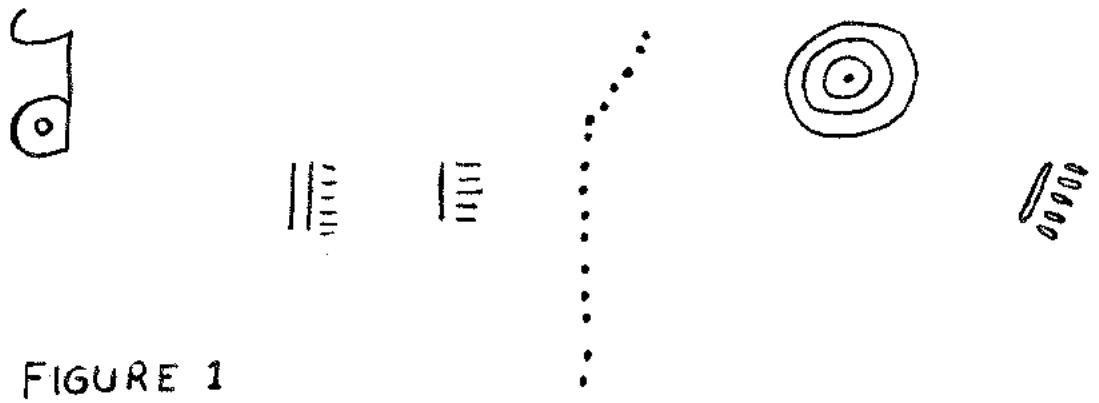


FIGURE 1

The nearest ethnographic data available for comparison is from the neighboring Anasazi Pueblo region. According to Ellis (1975: 79-80), at the Zuni sun shrine of Matsakya, sun-priests observe the rising sun on the horizon and place a mark on the shrine wall as a record of the observation. Each sun priest keeps a separately grouped tabulation of observations for the duration of his office. The observation is presumably to a fixed point on the horizon as a predetermined position for the solstice or equinox as among the Hopi and variious pueblos (Ellis 1975: 72-74).

Could this be the meaning of the Westwater Creek petroglyphs? The ethnographic comparison and astronomical orientation are striking parallels. Similar circular petroglyphs with numerical tabulations are found in Nine Mile Canyon, Utah, and elsewhere. If these are vestiges of an ancient tradition common with the Pueblo-Anasazi, then other related motifs are likely to be found in this region.

In 1979 I was field survey director for the BLM Mapco River Bend Cultural Resources study in the Uintah Basin (Norman and Hauck 1979). Our field crews surveyed over a hundred 40-acre sample units located in the Wild Horse Bench/Willow Creek area east of the Green River, and in the Twenty Mile Flats locality west of the Green River. Among our discoveries were two petroglyph sites in particular that lured me back several times to study in greater detail. Both are associated with washes draining into the Green River.

The first petroglyph (42Un842) is located on a small sandstone cliff facing west on the bend of a wash draining west into the Green River (Fig. 2). Because there is no local name, I have named it the "Yearsly site" after a survey crew member, and with an interest for its possible calendrical significance. The central motif is a serpent spiral 18 inches in diameter. The body executes three clockwise turns terminating in a serpent head at the top. A second, saw-tooth shaped serpent at the right also has a raised head, with open mouth. The sharp body undulations resemble a lightning motifs. These

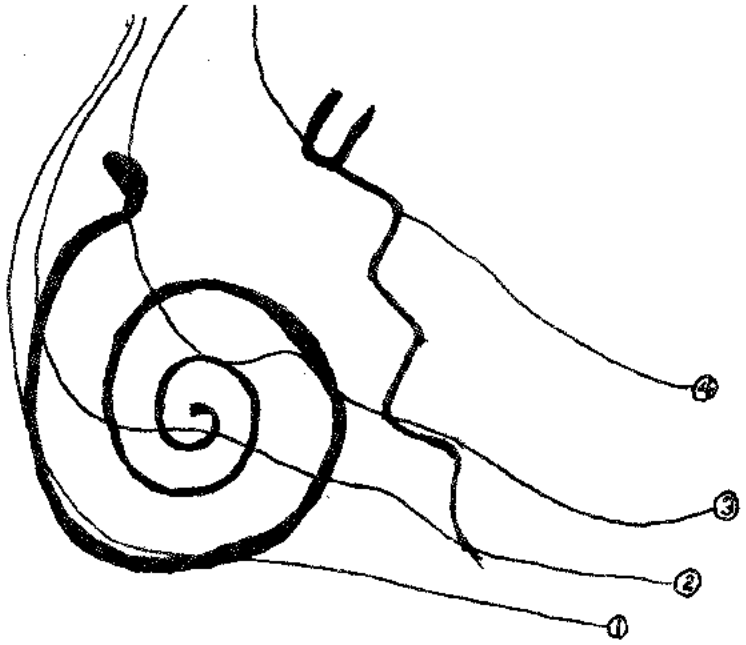



FIGURE 2

are familiar motifs in the Fremont area, and in the Anasazi area which I have observed in examples from Bandaleer, New Mexico, and the Cross Canyon locality of San Juan county, Utah.

The petroglyph panel faces a little north of west, so the late afternoon sun casts a shadow across the petroglyph from a rock protuberance at the upper right (south). I conjectured this shadow might dissect the spiral at the equinox, based upon compass plottings and a suggestion from a recently discovered spiral at Fajada Butte at Chaco Canyon which is dissected by a light shaft on the equinox passage (Sofaer, Zinser and Sinclair 1979, Figs. 5, 9b). This spiral is structurally almost identical, executing 2 1/2 clockwise turns with an extended projection terminating at the top.

I returned to the Yearsly Site and was able to observe the shadow affect on March 25th, three days after the equinox. I first observed the shadow forming around the spiral. At 3:30 P.M. a shadow crossed the center of the spiral at the same moment the left vertical edge of the shadow came into alignment with the left raised side of the serpent body. As the shadow progressed to the upper right with the waning sun, the shadow came into direct alignment with two surfaces of the saw-tooth serpent's body. Spalling on the rock protuberance has altered much of the original surface, but remaining age hardened surfaces confirm it retains its original shape and the spalling has been confined to the thin hardened surface.

To test the hypothesis further and perhaps derive further meaning from these petroglyphs, ethnographic data can be examined for possible relationships between equinox calendrics, and raised serpent and lightning motifs.

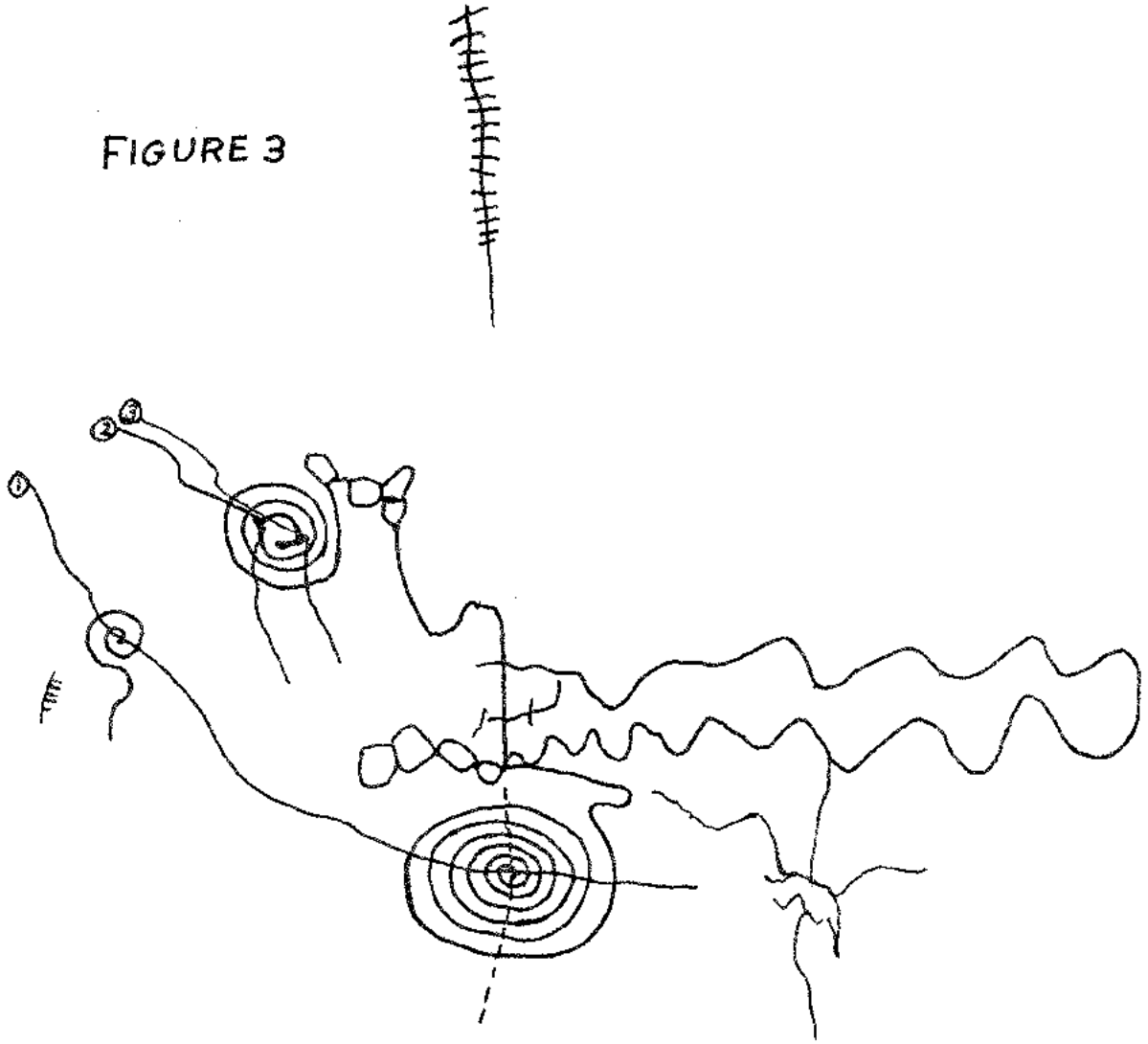
The serpent, in what appears to me to be a calendrical symbol is illustrated at petroglyph site 42Sa9179 in the Cross Canyon area of San Juan County, which I recorded in the spring of 1980. On a slanting rock facing to the southwest, is a raised undulating serpent with a disk (possible sun?) over its head. To the side are three parallel horizontal lines of dots, two with 32 each, and one with 19. I believe this is a calendar watch station used to record the annual sunset probably at the winter solstice most easily observed from the site.

According to Frank Waters and Hopi informants, in the Hopi Snake Dance the serpent represents the power to call up the creative life force for both man and nature. As the serpent power is taken up into the sky, the rain comes down. The last strike of a serpent in the ceremony relates to the first stroke of lightning which releases the spring rain and initiates another growing season (Waters 1970: 321,323-24). Interpretation of the Yearsly petroglyph serpents by analogy is this rendering could pertain to the spring equinox with the serpent

of lightning, gaping jaws raised to the heavens, striking to bring the rains.

The second petroglyph, site 42Un843, is only a couple of miles from the first, overlooking the Green River on a south facing sandstone outcropping at the mouth of Sheep Wash (Fig. 3). A rather involved panel contains two spirals connected by a maze of meandering and interconnected lines. When we first discovered the site in the fall of 1979, I hypothesized that the sun's shadow could cross the larger spiral from a rock projection on an alignment with the last gleam of winter solstice sunset. I returned to the site at the winter solstice and discovered the shadow producing rock was broken off where the shadow would probably have dissected the spiral. By

FIGURE 3



artificially reconstructing the missing rock with a stick and paper, projected along its straight, flat surface, I produced the shadow which dissected the spiral as I had anticipated, illustrating the presumed original effect (Fig. 3, vertical dashed line).

I speculated the upper spiral with 3 1/2 turns, like the Yearsly petroglyph, was likewise probably an equinox marker. On the morning of spring equinox, March 20, 1980 (I was at the site with Alan Carpenter), as the mid-morning sun rose to illuminate the rock face, a shadow line formed at the far left, simultaneously dissecting the large spiral and a small one at the top left (Fig. 3). The shadow formed a right angle at the upper left which traversed downward on a 15 degree elevated axis. This angle progressively dissected the spiral precisely on line with two small knobs on either side of the inner turn. (Here we thrilled to observe through the action of the sun, for the first time in Utah in perhaps hundreds of years, precisely what creators of these calendrical petroglyphs had observed.)

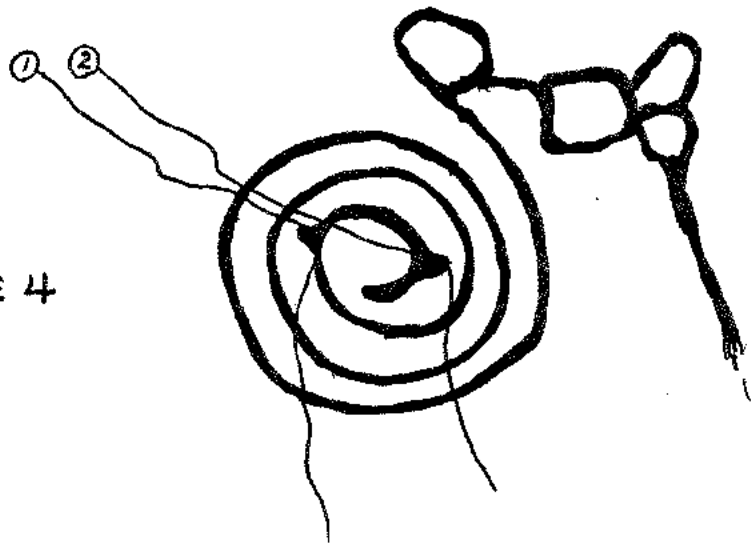



FIGURE 4

Proof of this equinox spiral almost assuredly confirms the connected larger spiral as a solstice marker with 6 1/2 turns and likewise relates it to a solstice marker at Fajada Butte which has 9 1/2 turns (Sofaer et al, 1979: 285, Fig. 4b). Directly above is a pole ladder with the horizontal lines possibly recording annual calendrical observations.

Obviously, comparative data can be expanded. But we can still conclude at this stage of analysis, that petroglyphs in the Uintah Basin for the first time demonstrate functional

calendar watch stations in Utah, culturally tied with the Anasazi. The direction of influence is logically a probable local borrowing from the Anasazi, perhaps by way of the Book Cliffs and into the Uintah Basin to the east of the Green River, if not directly up the River. But this is not a forgone conclusion. Future research must determine to what extent this cultural connection existed through time and space through coordinating data from other sites and with other kinds of archaeological data.

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