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A SOLSTICE SITE ON FERRON CREEK

In the Ferron Creek area is an inconspicuous petroglyph site. This panel, one of several along the cliffs, has a spiral, a vertically bisected circle, an anthropomorph with no legs, three fingers on one hand, and a footprint-like element. The spiral has four revolutions turning to the left from a central bulbous end (Figure 1).

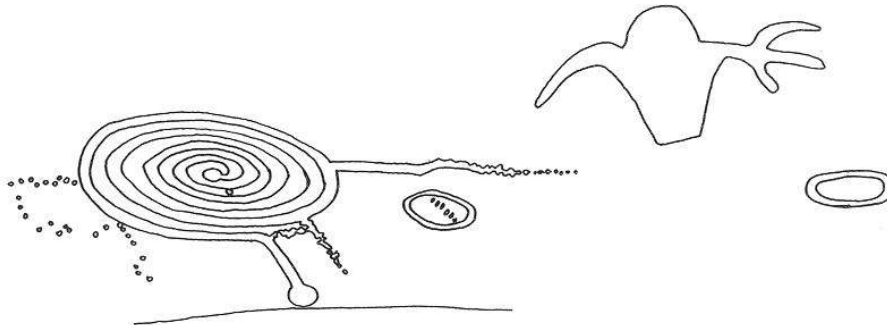


Figure 1

The tail of the spiral turns down 90 degrees from the bottom of the spiral. This vertical extension also ends in a ball at the base of the cliff about seven feet above the ground. At point P (Figure 2) where the tail bends downward another less precisely pecked line added later follows the curve of the spiral and joins a line parallel to the tail. The added line rises to join the body of the spiral and closes off the spiral's entrance.

On the central right outside edge of the spiral at point D (Figure 2) is an attached horizontal line. Nine inches from the spiral it makes a very slight arc as it becomes more randomly pecked. Below the ball-shape at point H (Figure 2) in the center of the pecked line is a natural hole. On the outside left central portion of the spiral (Figure 2, point J) is a very randomly

pecked line that extends horizontally seven inches to the left. It then turns downward another seven inches and then back into the outside loop of the spiral where it drops straight down for about nine inches.

In looking at a glyph it is hard to assess whether or not it is a solstice site. Norman

(1981) suggested a few clues. His main point was that when spirals, concentric circles or other such symbols occur in contexts where physical features of the site create uncoincidental and precise patterns of light or shadow the

chances are good that the site was an ancient solar observatory. Even when the physical features are obvious the only way to tell is to observe the site.

As we (Steven Manning and I) first looked at these glyphs, trying to anticipate the way the shadows would interact, we were unable to determine what would happen. I measured the two points of the step-like projections of the shadow at points Y and Z (Figure 2) and then matched them to where the two lines are attached to the spiral—since they formed the same angles (Figure 2 points D and S). We thought that this would be an important conjunction but they never joined. Since these are exactly the same angles and distances it still seems too coincidental. It seems logical that they may have been the inspiration for the tail and the horizontal line.

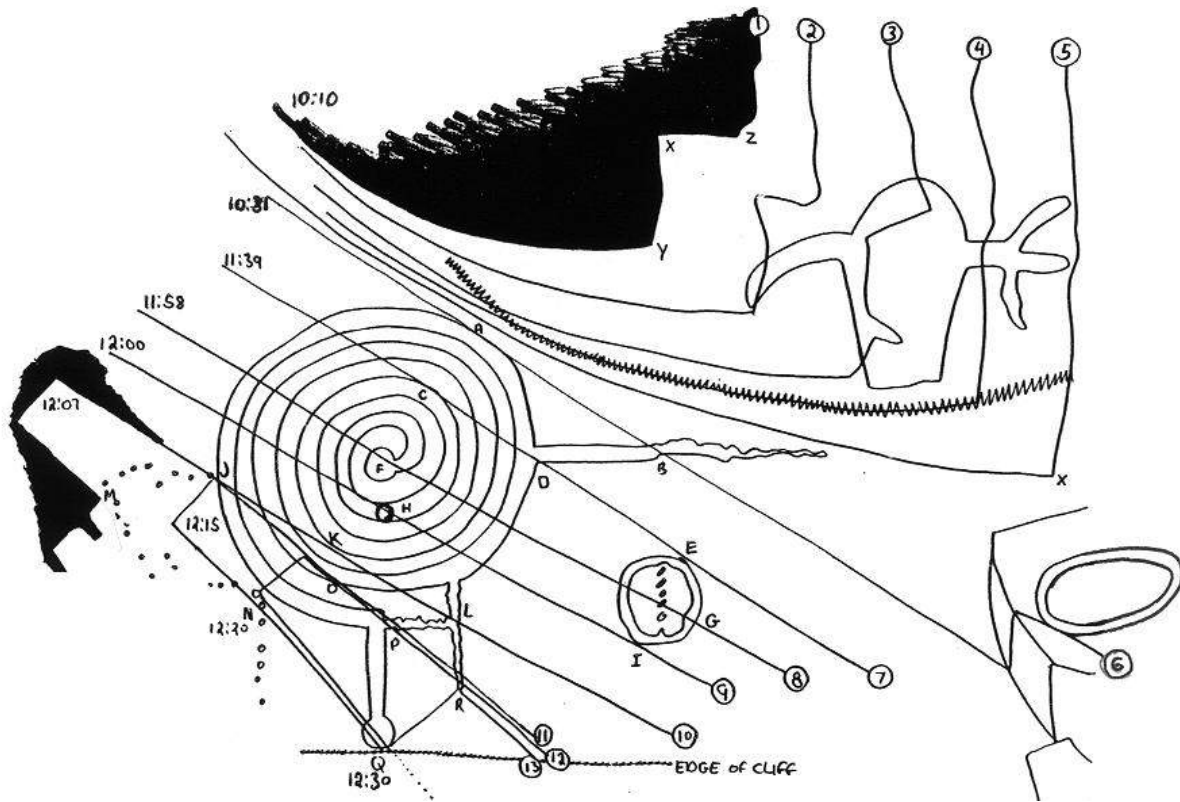


Figure 2

At this point we began to notice the unique interaction between the right angle notch just mentioned and the anthropomorph above and to the right of the spiral. This was the *first* important interaction of the panel's composition and the progression of the shadow. At 10:10 A.M. on December 22, 1981 (Figure 3) the shadow, shaped like an open jaw, was descending at a 45 degree angle toward the lower right to devour the anthropomorph. Since the jaw-like notch was such a prominent feature of the shadow we naturally assumed that it would basically remain in that form and gradually change as it progressed toward the base of the cliff. However, as the shadow moved toward and across the anthropomorph from point X (Figures 2 and 3) the inside corner of the

shadow progressively changed form and expanded to engulf the anthropomorph.

At first the anthropomorph was half framed by the shadow with point X at the top left. The shadow progressed across the anthropomorph, changing shape as it moved, until it was in total shadow and half framed by sunlight. point X reached the lower right at about 10:35 A. M. (Figure 3).

This interaction of shadow and panel is unique and distinctive and its significance is uncertain. It would be nice to think that it possibly relates to the Pueblo mythical account of the younger Hero Twin pushing his brother down the snake-like monsters jaws so the sun could set (Tyler 1964:218-219). The function of the shadow-like monster's jaws closing over the anthropomorph is not obviously calendrical, even if it does not swallow him during winter solstice. It is therefore assumed to be mythical.

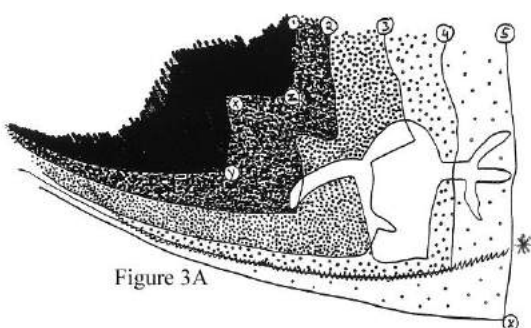


Figure 3A

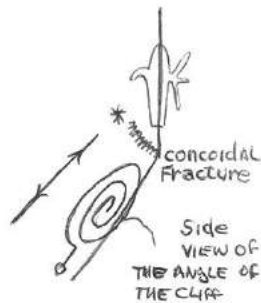


Figure 3B

Figure 3

The *second* unique and distinct relationship of the shadow with the panel occurred at the moment the anthropomorph was boxed in. At that time the curved bottom edge of the shadow descended into an identical natural conchoidal fracture in the cliff face. The anthropomorph is on a vertical face and the spiral is on a slightly sloping face that angles away from the cliff (Figure 3B). The fact that the shape of the shadow matches exactly the curve of the cliff seems too coincidental. However, no man-made modifications of the projecting rock that produces the shadow could be perceived. This coincidental matching of cliff features and the actions of the shadow's notch were probably very important in the selection of this spot as a solar observatory.

At 10:39 A.M. the shadow made three points of contact in the panel: one, the top outside edge of the spiral at point A; two, the middle of the horizontal line to the right of the spiral where it begins to arc at point B; and three, the outside of the footprint-like element is not known—although its location seems significant (Figure 2 line 6).

At 11:39 A.M. the shadow touched the following points: the top of the line at the point where it makes its first one and a half revolutions outward at point C; the point where the right horizontal line joins the spiral at point D, and the top of the small bisected circle at point E (Figure 2 line 7). After thinking about the differences in size between the spiral and the circle it became obvious that the panel was composed while the artist watched the shadow move across the face of the cliff. The addition of the horizontal line, the tail and the size and placement of the bisected circle, had to have been done when the points of the shadow reached specified places in the rest of the composition.

At 11:58 A.M. the shadow cut through the center of the snake-like head at the center of

the spiral and also through the center of the bisected circle (Figure 2 line 8 and 4A line 8). Both centers being bisected by the shadow at exactly the same time. These may be the most important points the shadow intersects during its entire progression. The uneven rate at which each extreme end of the shadow descends determines the difference in the diameters of the spiral and the small bisected circle.



Figure 4A

By viewing the illustrations it will be noticed that the shadow on the right side of the composition moves much slower than did the shadow on the left side as it moved through the center of the spiral. Points C and H (Figure 2) on the spiral are equivalent to the outside edges of the bisected circle. With the differences in the sun's angle at every successive days' rising this angle would change daily, moving farther from the spiral's and circle's center until the Summer solstice. After reaching this extreme angle at Summer solstice, it would then slowly return to the same bisecting alignment on December 21. The angle of the shadow at Summer solstice should be viewed to determine if any of these points also line up. That the division of both the spiral and bisected circle took place at the sun's highest point also seems important. Whether this is coincidental or pre-determined is unknown.



Figure 4C

At 12:22 P.M. the cradle of light slid further down until its lower edge cut in half the ball-like element on the bottom of the tail (Figure 2 line 12 and Figure 4D line 12). The cradle of light touched the bottom of the spiral between points N and P and rose diagonally to point O and again joined points P and R.

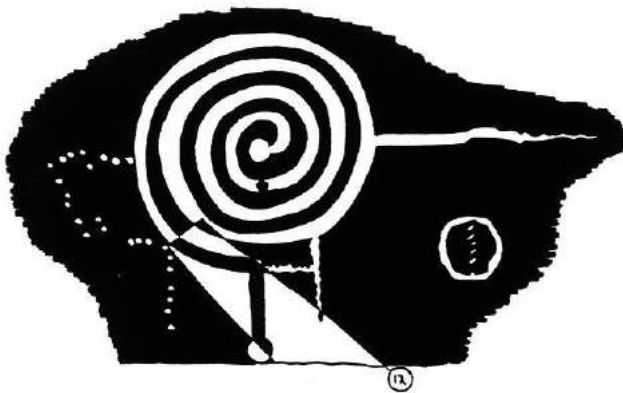


Figure 4D

After 12:30 P.M. the cradle of light continued down until, I presume, that the diagonal angle at the end of the cradle joined points Q and R (Figures 2 line 13 and 4E line 13).



Figure 4E

Just before this conjunction the sun went behind a cloud and those points of contact could not be photographed and positively verified. However, they were in the direct line of the shadow's progression.

The movement of this cradle of light down toward these two vertical lines almost gives the effect and impression that it may have served as a symbolic opening, exit or passageway for the sunlight to descend out of. Even though the light did not descend directly down and out precisely between the two pecked lines, its last point of contact would have been Q and R. The ball on the tail is directly on the bottom edge of a cliff and the upper corner of the remaining cradle would have formed a triangle with point R at the top. Thus as the light left the composition it would have descended from between the two walls of this portal.

It would have been nice to see two diagonal lines on the cliff face that would have actually marked the movement of the cradle of light. If the lines between points P and Q, and L and R had been placed on the diagonal to match the cradles movement, then other features would have to have been added to make the important conjunctions between K and L, O and R, etc. This gives us the implication that this concept was thought of after the spiral had been completed. This would then provide a reason why the lines between P and L and between L and R were later additions, as well as the randomly pecked lines to the left.

With the analogy of the anthropomorph being swallowed up by the shadow to the story of the Hero Twins representing a sunset, it would be interesting, though speculative, to think of the last part of this drama as representing the sun's emergence from the earth at sunrise or its submersion at sunset. In other words, it could be the sun's passage either into or out of this portal as the light literally drops off the cliff. It is

interesting that both the first and last interactions of the light and shadow could be directly related to the same basic idea of descending or emergence. However fanciful or factual we will never know (Tyler 1964).

This composition implies several important points. One, that it took at least two visual observations to complete. Two, that it may directly imply a more formalized religious structure within Fremont culture that was dedicated to solar observation similar to the Hopi religion than was previously thought. And three, that implications of mythology could be incorporated very abstractly into some of these solar oriented compositions.

REFERENCES CITED

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