

NOTCH CANYON AS A SOLAR OBSERVATION SITE

BY

JESSE E. WARNER

In the eastern rift of the San Rafael Swell, many small canyons would be ideal locations for solar observation sites. The Notch Canyon Site occurs on the north side of the canyon just inside its entrance. There are several water tanks below the panels, and on a small flat bench below and to the right of the panels is some lithic scatter. The panels occur on a curved cliff face. They range from the floor up the side to slightly above reach. Most of the panels are obviously Basketmaker. By glyph repatination there are at least two distinct time periods and possibly three. One of these was Fremont. It was probably the Fremont who reworked some older pecked areas on some panels, thus providing excellent evidence of glyph maintenance. This site is one of the best examples of this phenomenon.

The main reason for selecting the Notch Canyon Site for possible solar interaction was to test a suggestion of Norman (1982) that connected sets of concentric circles are probably prime solar site indicators. The Notch Canyon Site has five sets of line-joined concentric circles, as well as several other sets of closely associated concentric circles (Fig.1-2). Because of the complex nature of the contents of the panels at this site, it is obvious there are a wide variety of topics other than solar observation present. Other than those symbols mentioned, there are only a few other symbols which are obviously solar related. At this point we have only made observations during Equinox and Summer Solstice. These observations involve only four panels.

As the sun rises, the eastern and top edge of the cliff acts as the gnomon casting the shadow, a slightly diffused line on the base of the cliff. As the sun continues to rise, the shadows rise up the side of the bowl. On Summer Solstice the first panel to interact consists of a two-ringed concentric circle next to a dot-centered circle (Fig.3a). At 12:23 p.m., the shadow makes a perfect center-to-center alignment. At 7:30 a.m. on Equinox, however, the angle of the shadow was very

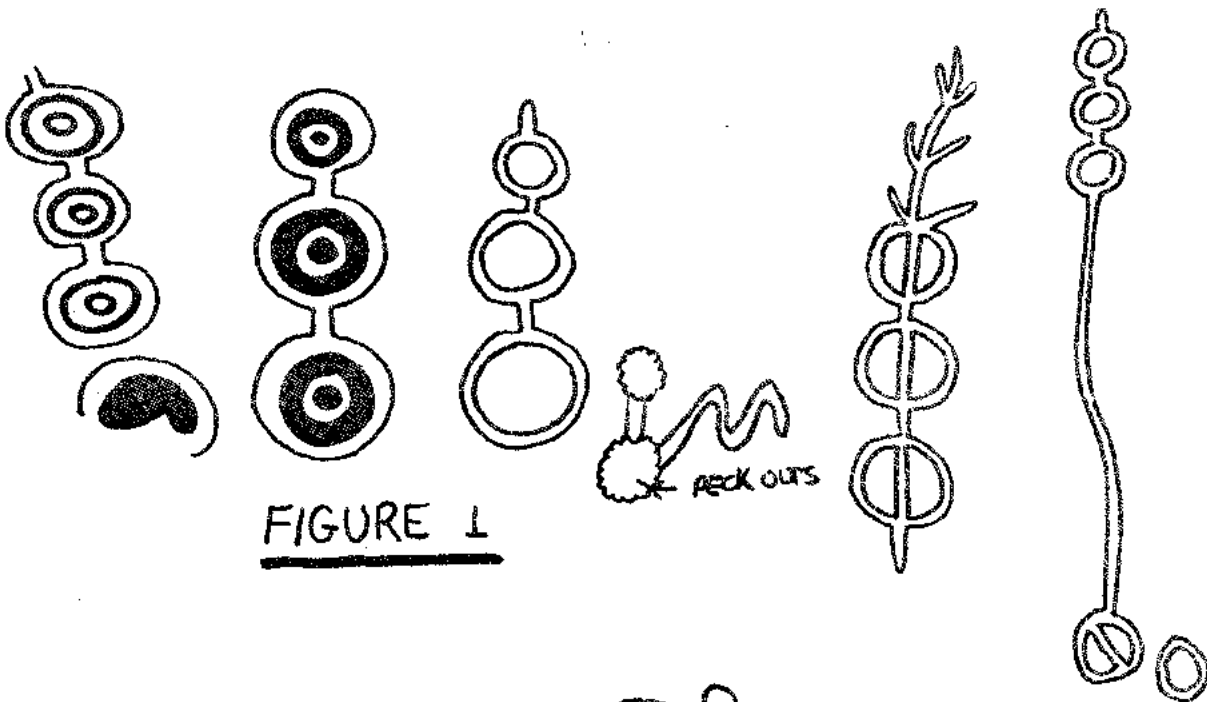
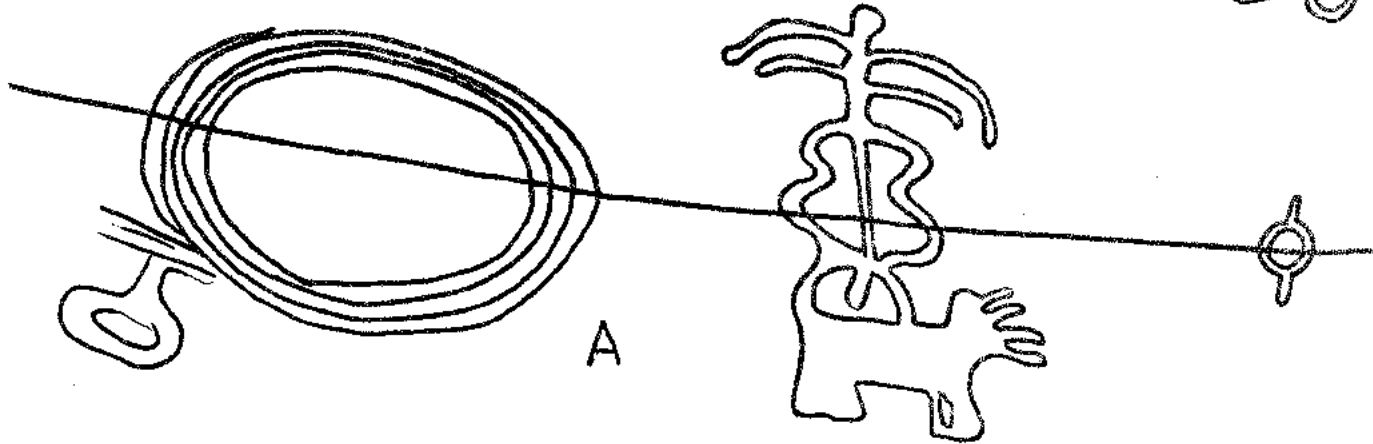


FIGURE 1



A

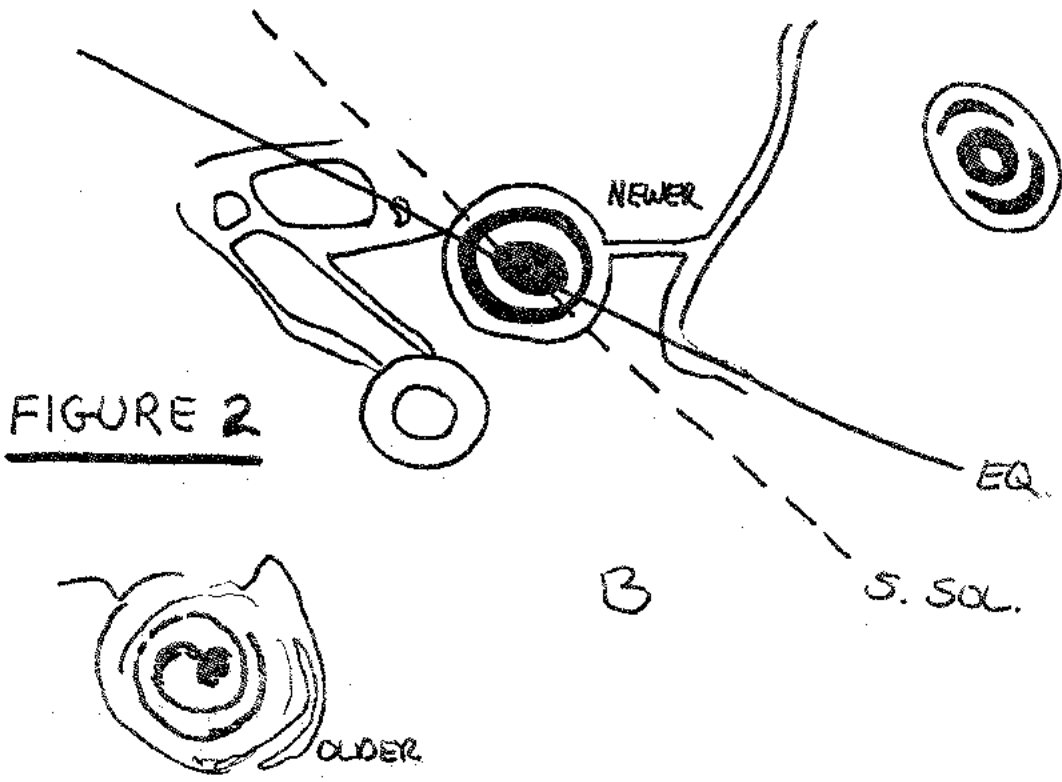


FIGURE 2

B

EQ.
S. SOL.

OLDER

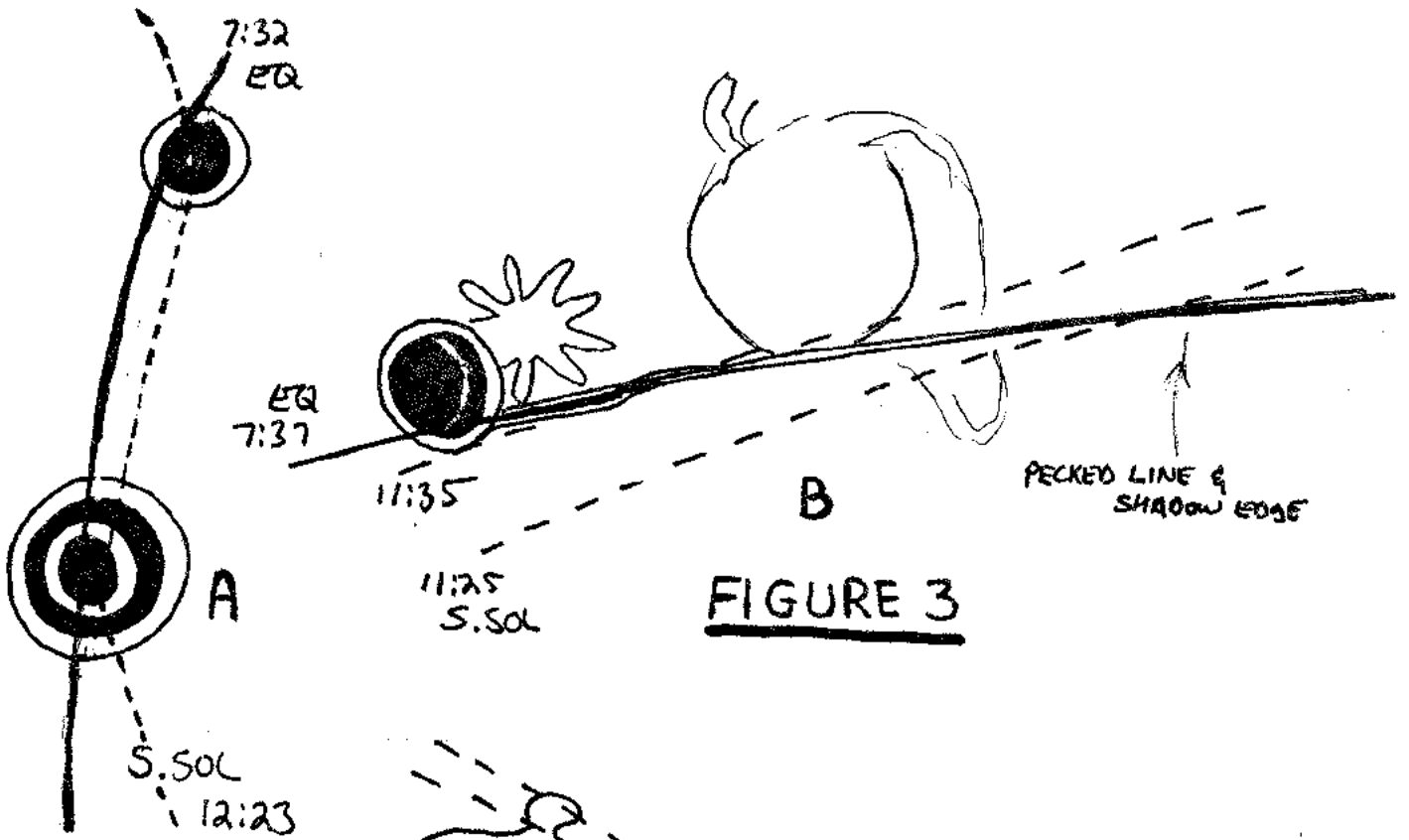


FIGURE 3

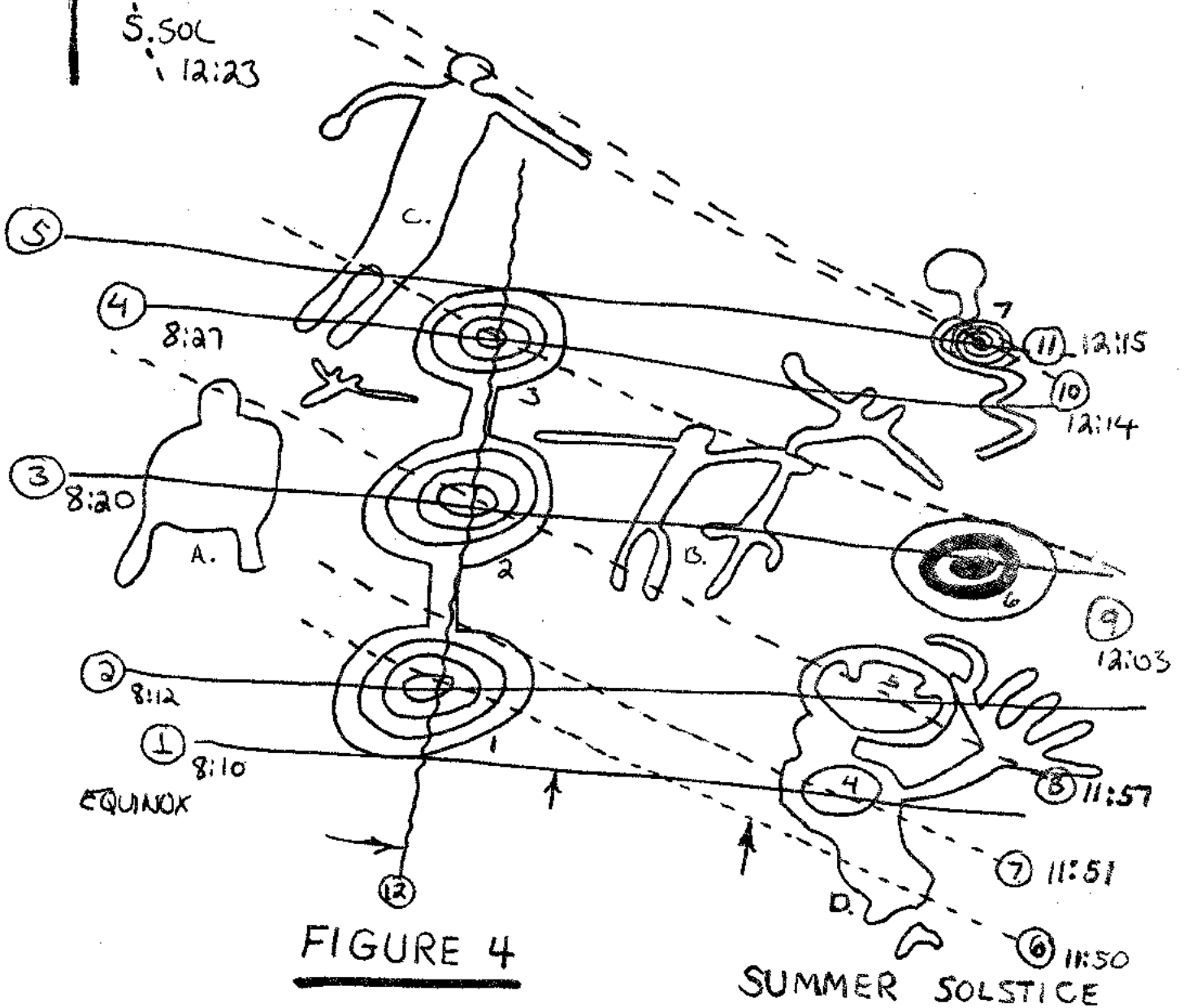


FIGURE 4

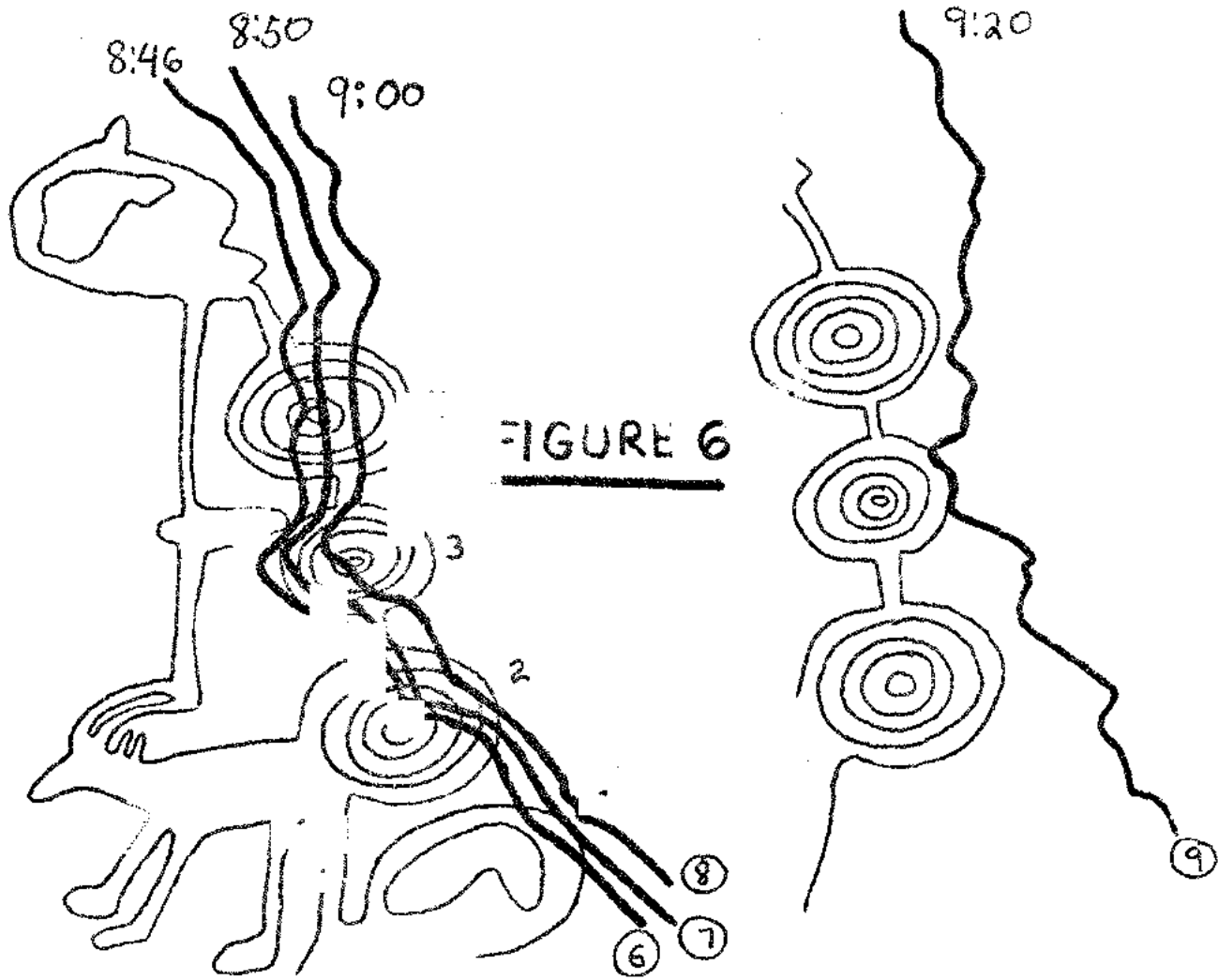
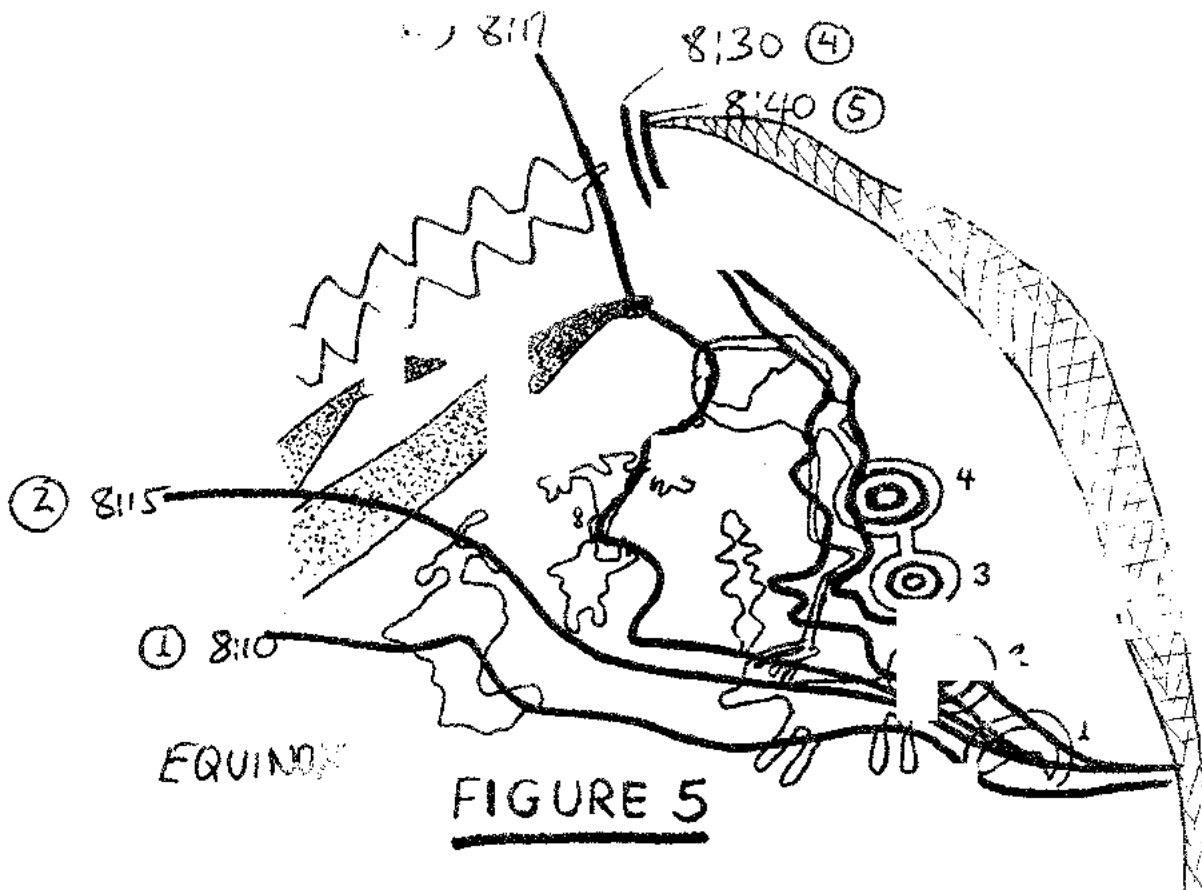
close to a center to center alignment. Consequently, this panel can not be used as a diagnostic marker.

The second panel observed on Equinox has two distinct time periods reflected in very different degrees of repatination (Fig. 3b). The circle on the left has a crescent inside, and an element with rays to its right. At 7:37 a.m. on Equinox, the shadow comes up and aligns perfectly with a pecked line that extends to the right to touch the bottom of the right circle. It gives the impression that the line was pecked on the cliff along the shadow's edge when it came in contact with the two circles.

The difference in the angle of the line on Summer Solstice is so minimal that between Equinox, Summer Solstice and Equinox again the slow movement of the shadow would make this a poorer diagnostic marker. It would, however, align only with the pecked line on Equinox.

The third panel observed for interaction on Equinox is at the left side of the site. It consists of three line-joined, concentric circles (Fig.4). To their right is a stylized anthropomorph-like figure with two circular motifs on the area of its chest and one attached to its head. Above this is a two-ringed, concentric circle. Between this and the center of the three joined concentric circles is an anthropomorph holding an odd object which is repeated on the other side of the center line-joined circle, next to a bulbular, armless anthropomorph. Above the concentric circle to the right is a snake with a loop curving around a spiral. This context is very reminiscent of all the shadow notches that cup circular motifs in Indian Creek (c.f. Warner, 1985, this vol. page 124). It was this context that created a high priority to observe this site. Above and to the left of the top of the line-joined circles is a long anthropomorph.

When we first recorded this panel, the anticipated shadow interaction occurred on Equinox. At 8:10 a.m. (Line 1) on Equinox, the shadow came up and touched the bottom of Circle 1 and bisected the circular chest area of the stylized anthropomorph (Circle 4). At 8:13 a.m. the shadow bisected Circle 1 and Circle 5. At 8:20 a.m., the edge of the shadow bisected the center of the three joined circles (Circles 2 and 6). At 8:27 a.m., the line bisected Circle 3 and touched the two horn-like protrusions of the object held by Figure 8 and about 10 centimeters below the spiral cupped by the snake. When Spiral 7 was bisected, the shadow's edge touched the top of Circle 3 and aligned with the base of anthropomorph C's torso. The Equinox shadow's alignment on this panel is very interesting.

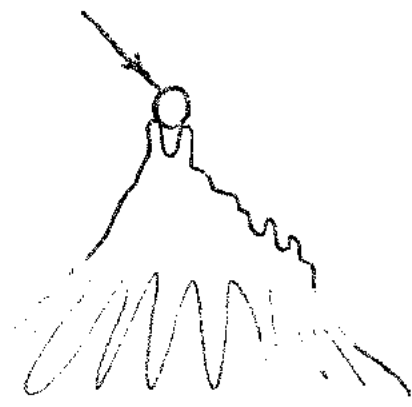


At Summer Solstice, the real genius of this panel becomes obvious. At 11:50 a.m. on Summer Solstice (Line 6 Fig. 4), the shadow bisects Circle 1. At 11:51 a.m. (Line 7), the line touches the top of Circle 1 and bisects Circle 4. At 11:54 a.m. the shadow touches the bottom of Circles 2 and 5, while at 11:57 a.m. (Line 8), it bisects both of them. At 12:03 p.m. (Line 9) the edge of the shadow bisects Circle 3 and touches the top of Circle 6, an off-set alignment.

The next relationship is a unique one. At present it is without other similar incidents on record. When the edge of the shadow bisects the spiral within the snake (Line 10), the edge of the shadow follows directly down Anthropomorph C's left arm (the arm on our right). It thus gives the distinct impression that he is pointing out the moment of bisection. Notice how his arms do not hang evenly. With his left arm raised and pointing to the spiral cupped by the snake, it seems to say that this will be an interactor. At 12:15 p.m. (Line 11) (since the left edge of the shadow had been rising faster than the right), the edge of the shadow has now moved from the center area of Anthropomorph C's arm to his face as though he was not only pointing out the bisection, but actually visualizing it. Line 8 may also have this relationship where the edge of the shadow moves from the head of Figure A (the left anthropomorph) through Circles 2 and 5. Line 9 similarly provides a line of sight for Figure B to the top of Circle 6 and the center of Circle 3.

This makes the second or third rock art anthropomorph now known to be pecked or painted on the cliffs in such a way as to observe solar interactions (c.f. Warner, Warner 1985). The way these alignments cross from horizontal at Equinox to diagonal at Summer solstice, conveys a brilliant and unusual way to construct a dual solar interacting panel.

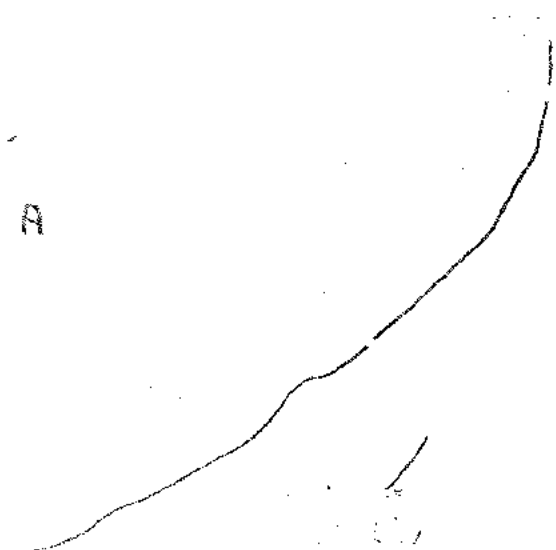
The last panel to be considered is probably the most impressive and complex panel at the site (Fig. 5). Since it is composed of so many different types of elements it would need a detailed narration for its creator to relate all the concepts contained. It seems to be one contiguous unit, probably made at one time by one individual. Note the stippling technique on the two elements below the connected row of diamonds. Since the stippling is more intense at the right and becomes more random toward the left, it creates the impression of motion, almost comet-like.



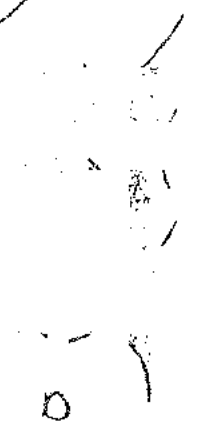
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C



B



D



On Equinox at 7:45 a.m. the sun lit up a section of cliff below the connected circles. By 8:10 (Line 1) the shadow had moved up to touch the bottom of the disconnected circles. As the shadow moved across the main panel there was no obvious interaction between elements and shadow. Watching these types of movements often makes me wonder if the shadow might not provide the base line that acts as the stage for other glyphs to interact on without obvious interaction. By 8:17 (Line 3) the ridge on the right of the panel was all that was casting a shadow across the concentric circles. The pattern was a triangular form that became less pronounced as the sun rose. At 8:30 (Line 4) the lower edge bisected Circle 2 but returned above Circle 4. Since the top edge of the shadow moved faster, it started to move toward a closer, more precise interaction. At 8:46 (Line 6, Fig. 6) it had a very close center-to-center bisection between Circles 2 and 4, while it formed a notch of light over Circle 3, the center circle. With the edge of the shadow on the outside of the central dot at the same time that relationship would be a definite equinox marker. By 9:20 (Line 9) the most impressive junction of this set of line-joined circles took place. When the notched tip of the pointed shadow form touched the right edge of the center circle, it seemed some other type of symbolism was present.

Since some of these symbols are often used to actually represent the sun itself, this careful composition revealed the relationship of what could be the sun set in the notch of a mountain peak. The incidence of sunrise over the Three Sisters in Indian Creek (Fig. 7a), sunset on North and South Sixshooter Peaks from Davis Creek are prime examples of this type of conjunction (Fig. 7c). Also the last relationship of the pedestal of light under the Double Spiral in Indian Creek (Fig. 7b) convinces me of the possibility that the relationship represented in the Notch Canyon panel could also represent the sun setting on top of a notched mountain peak. I immediately turned around and viewed the top of the canyon wall opposite this panel. It had an almost identical outline to the form of the shadow. At that moment the sun was still too high to determine how close it would come to setting in the notch. An hour later the sun set in the side of the upper part of the peak as viewed from the panel (Fig. 8b). Moving down a little on the bowl, below the joined-circle panel moved the sun up to the notch (Fig. 8c). The solar disk, and other similar examples provides sufficient evidence to support the supposition that the interaction in Figure 8 does represent the sun on the notched mountain peak. By that time the sun was also moving a vertical shadow across the three line-joined circles in Figure 4 (Line 12).

At that time, while looking at Anthropomorph C (Fig. 4), I thought the purpose of that figure might be an indicator of where to be to see the sun on top of the peak but by then that

relationship had passed (that was before the Summer Solstice interactions were observed). In order to fully understand the significance of Figure 5, we would need to observe it a short period before and after Equinox. It is possible that the notch in the shadow could touch the upper circle after Equinox and the lower circle before Equinox like it did the center circle on Equinox (Fig. 8d). Just before Equinox the sun should also be high enough to set higher in the notch on the opposite canyon wall, which could be viewable from the panel itself. There are two sets of footprints on the bottom of the bowl where one might stand to observe these events. Perhaps they were used in prehistoric times for this purpose. Further research will be needed to verify these and other alignments.

Because of the extremely unique and so far unusual interactions, the last two panels by themselves make this an extremely important site and one that definitely deserves more study. There are other panels at the Notch Canyon site that have either questionable or possible interactions but because of a lack of precise and convincing interaction their Equinox and Summer Solstice performances did not appear significant (Figs. 1,2).

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