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ARCHAEOASTRONOMY SITES IN INDIAN AND DAVIS CREEKS

In the sandstone canyons of southeastern Utah there are two adjacent areas where ancient sun watchers used majestic formations as backdrops for their solar observations. In Indian Creek there are several sites where rock art and ruins mark observation posts. Toward the mouth of Davis Canyon there is a cluster of 13 masonry structures. Prior to the Utah Rock Art Research Association's survey of Indian-Davis Creeks these were not recorded on any state records or in the original survey of Nickens and Associates. Many of these sites are unique to the area. Some structures are built on mushroom-like pedestals, similar to those at nearby Pinnacle Village.

The most impressive structures are those which have an axis aligned to where prominent astronomical observations have been documented. These archaeoastronomical ruins are extremely unique because they contain information about the ancient cosmological use of this area.

This paper contains observation information of three solar events during 1982, where from a ruin or rock art panel the sun was observed to rise or set on the horizon, rather than interact with a rock art panel. These ruins will be described by the observations made first from summer solstice, second from fall equinox and third from winter solstice.

The Davis Creek Solstice Village

The first observation I made was a summer solstice sunrise from the South Observatory Ruin (42SA10695) (Figures 1-2). Because this ruin has its axis pointing toward the

notch in South Six-shooter Peak my immediate impression, since this was an accurate solstice alignment, was that the main observation to be made from this ruin should be at winter solstice sunset. Up to this time no one had considered looking for a summer solstice sunrise through this observatory in a northeasterly direction. The observation I made on June 21 was unique since the Morning Star, the moon and the sun all rose at nearly the same place on the horizon. The successive risings of all these were visible by looking toward the northeast through the 38 foot corridor of the 8 to 10 foot wide structure. According to my calculation this would be a once in a lifetime observation, a very significant fact if the crescents and dots were derived from these multiple risings.

In Indian Creek there are large numbers of moon-like crescents and dots. The unique rising of the moon and the morning star from the same point on the horizon may have a relationship with these crescents and dots (Brandt 1977). Many of the crescents in Indian Creek occur at solar observation sites. The Indian Creek crescents are very similar to those reported from Pleasant Creek, Utah (Wellmann 1976, 1979). Brandt (1977:36) and Brandt and Williamson (1979:S7) state that crescents with dots are astronomical indicators and are relatively rare. Brandt (1977) also states that three crescents and dots occur in one panel in Fern Cave, Lava Beds National Monument, California. According to Brandt (1977) this represented 10% of all known sites with crescents and dots until we recorded those in Indian Creek. In Indian Creek there are

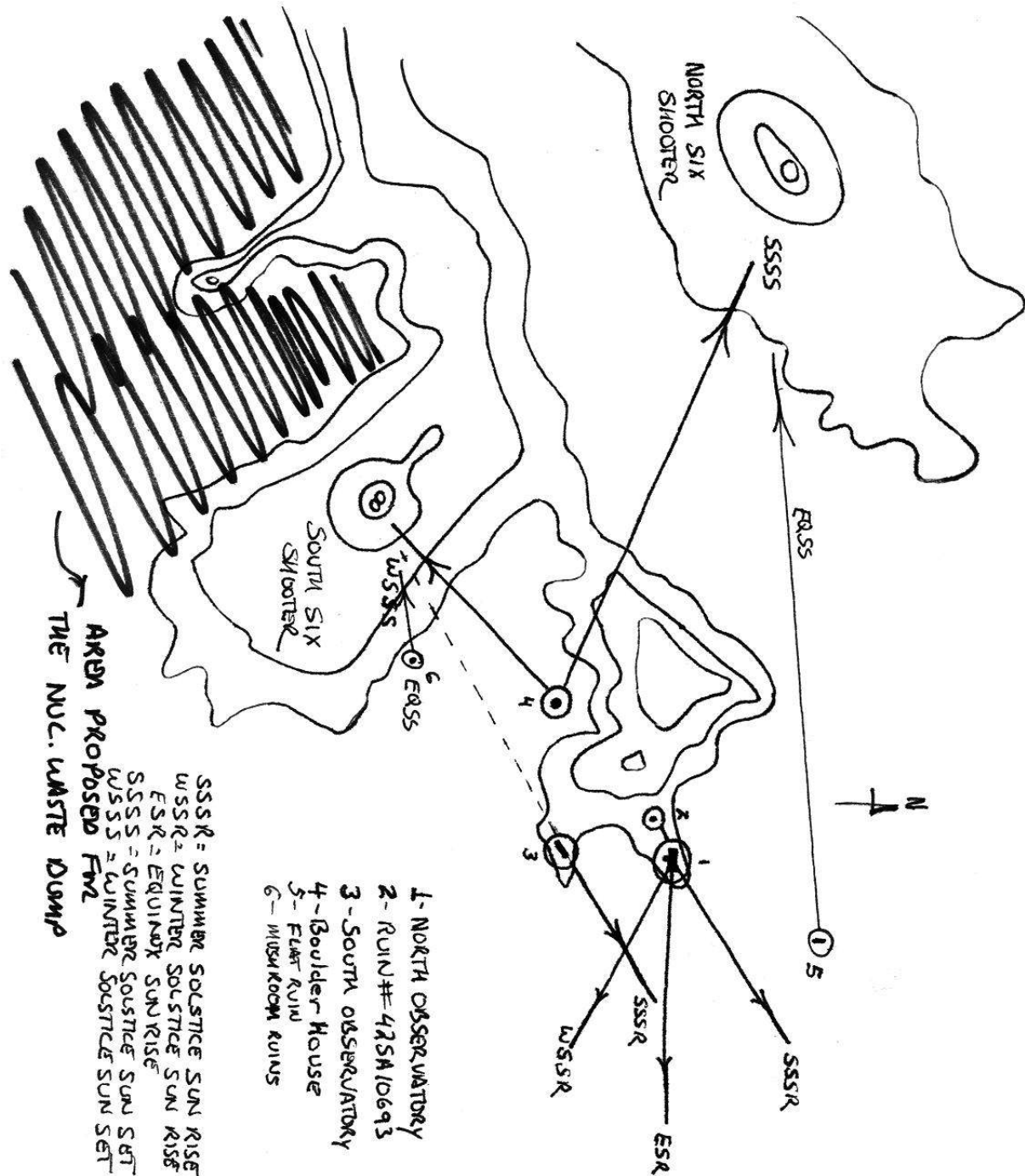


Figure 1

about 20 crescents and dots. There are also several other sites in Utah where crescents and dots occur.

The next observation during summer solstice was a sunrise from the North Observatory Ruin (42SA10692). At first,

this siting was felt to be unimportant, since it was a diagonal alignment from the southwest corner to the northeast corner of the ruin (Figure 3). Another observation was made by looking over the top of the North Observatory from 42SA-10693. This siting showed that these two ruins are in

exact alignment for a summer solstice sunrise. The north ruin retains only a fraction of its original height. When occupied, it may have been high enough to block the visibility of the horizon from 42SA10693 making the sun appear to rise over the North Observatory.

On summer solstice from Boulder House (42SA10696) the sun set in an arc until it balanced on top of the large spire of North Six-shooter Peak. Within the last decade a large section of this spire was seen collapsing. In spite of this last change in the spire the sun still makes a precise contact with its apex. To test whether this is the exact location to see the sun in a balanced position on top of the highest spire I moved about 100 feet to the northeast. At this point the sun was visible to the right and would set to the north, completely missing the top of the spire. By moving to the southwest about 100 feet, the sun would appear to set on the left talus (Figure 4). Only at Boulder House would the sun be balanced on the highest spire of North Six-shooter Peak. The sun's setting in an arc naturally moves off its balanced position and continues its descent to the right of the spire. Three sunrises and one sunset were recorded from these sites for summer solstice.

During sunrise on equinox, September 22, 1982, the sun rose directly through the central corridor of the North Observatory. With its orientation directly toward sunrise, it establishes that this ruin served as an equinox marker for those who built it. No other structures in the immediate vicinity were checked for equinox alignments.

One problem facing the modern day ethnographer is proving that a ruin was really an observation post. The fact that the sun, when viewed from a ruin, rises through a notch on the horizon does not provide sufficient evidence to prove that it was an

observation post. Only under circumstances like Boulder House, where the structure was placed so as to have a unique alignment with such an impressive geological feature, can its identification as an observation post be assumed.

My first winter solstice observation was a sunrise from the North Observatory. Standing at the northwest corner of this ruin the sun was seen to rise over the southeastern corner of the building, an observation that needs careful consideration to determine its full significance. It is interesting that the ruin's alignment for summer and winter solstice could possibly have determined both the width and the length of this structure (Figure 3). No ruins for a sunrise observation over North or South Six-shooter Peaks were located in the immediate vicinity. Some ruins in Canyonlands National Park do have alignments with these features but have not been checked.

It was originally assumed that since the South Observatory was aligned with the notch in South Six-shooter Peak that this alignment also provided an orientation for a solar observation. However, the trajectory of the setting sun missed the notch in South Six-shooter Peak and set into the left talus at a point that would have been observable through the tunnel of the South Observatory if South Six-shooter was not there (Figure 5).

After making the above observations, I realized that the purpose for the unusual lengths of North and South Observations was to fix points of sunrise on the horizon. The length of the ruins was to provide the tunnel effect to fix these points. At this location the sun rises on the distant horizon where no particularly unique geographical feature exists. Therefore, the tunnel effect is necessary to fix the sun's appearance without question. Boulder House and the ruin at site 42SA10693 had alignments with

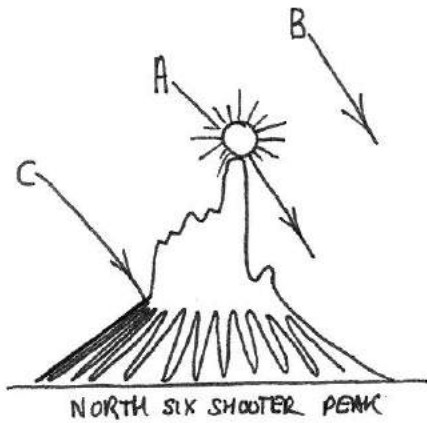
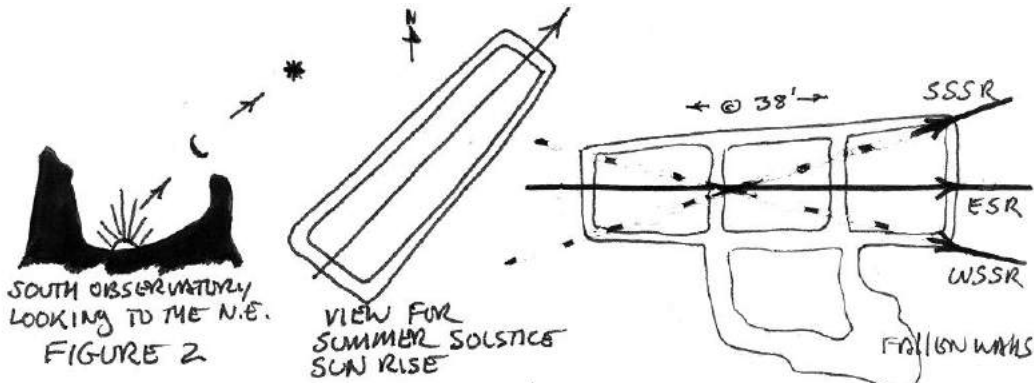
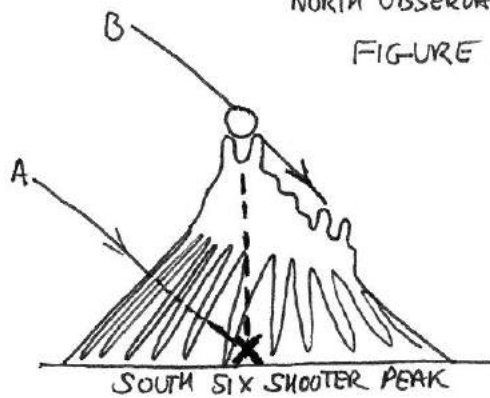


Figure 3A



A - VIEW FROM SOUTH OBSERVATORY
B - VIEW FROM BOULDER HOUSE

FIGURE 5

VIEW FROM POINTS A-B & C IN FIGURE 3 B
A - VIEW FROM BOULDER HOUSE
B - VIEW FROM ABOUT 100 FEET TO THE RIGHT OF BOULDER HOUSE
C - VIEW FROM ABOUT 100 FEET TO THE LEFT OF BOULDER HOUSE

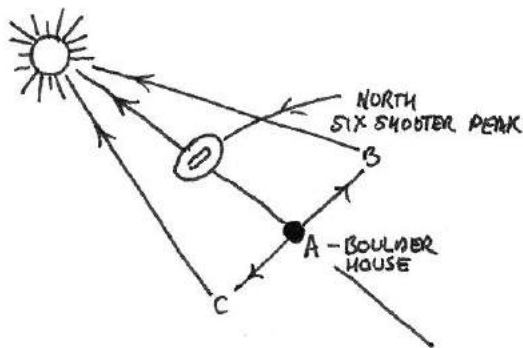


FIGURE 3B



See Page 41

Figures 2 - 5

North and South Six-shooter Peaks and also the North Observatory and, therefore, did not need the tunnel effect to isolate the points of the sun's interaction.

We made two observations from these ruins at the same time of the 1982 winter solstice. This made a total of eight observations: four

at summer solstice, two at equinox and two at winter solstice.

Indian Creek Sunrise Observations

Since the sun's rising and setting were so important at the locations in Davis Canyon, it seemed reasonable to assume that it had the same importance in nearby Indian Creek. In lower Indian Creek there is a double-spiral that sets on top of a pedestal of light during summer solstice. This event is similar to the solstice sunsets from Boulder House where the sun sets on top of North and South Six-shooter Peaks. To test the hypothesis that the rising and setting of the sun at these three times of the year were important, I searched the horizon for prominent features. There are several geological formations that should be checked. Only sunrises over The Three Sisters were recorded. The reason the Three Sisters was elected was that they are the most unique geological feature in that area.

During summer solstice a sunrise was viewed over The Three Sisters from a unique tongue-like projection of rock. There are no ruins on that alignment. Also, no cliffs suitable for rock art are present. In short, there is nothing to indicate that this spot was an actual observation post (Figure 6A).

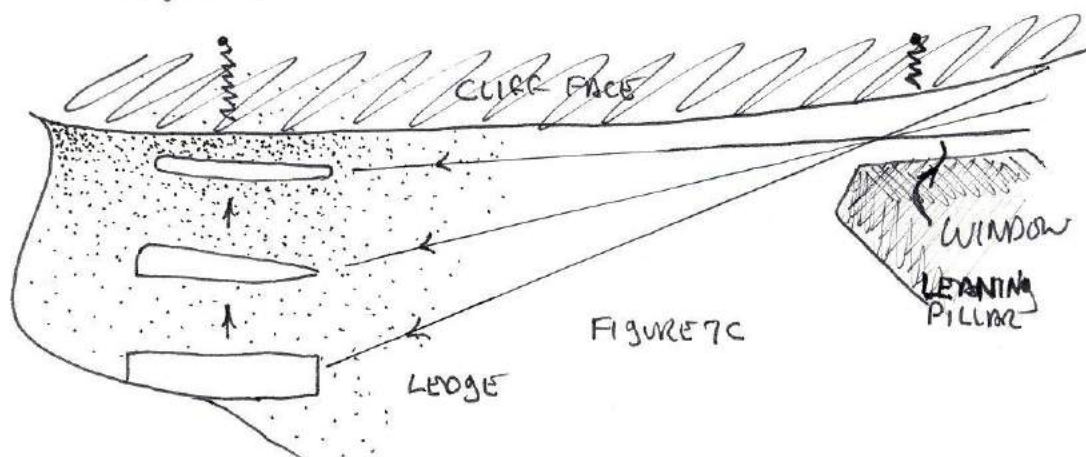
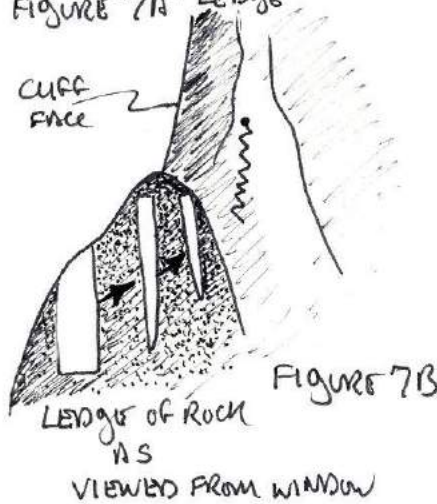
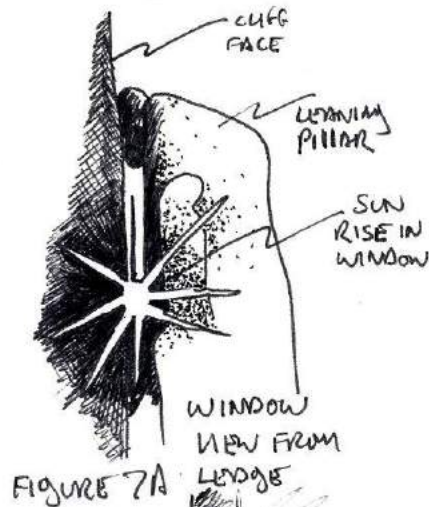
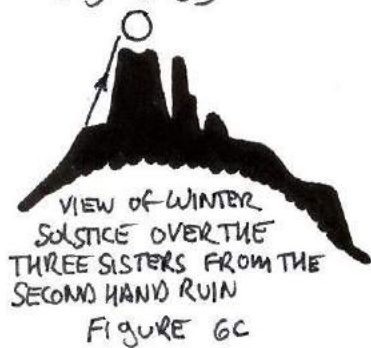
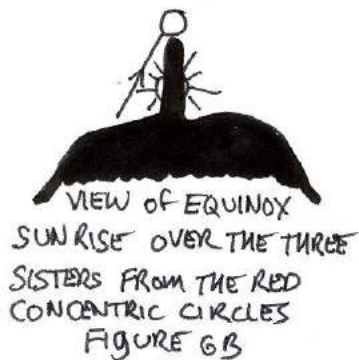
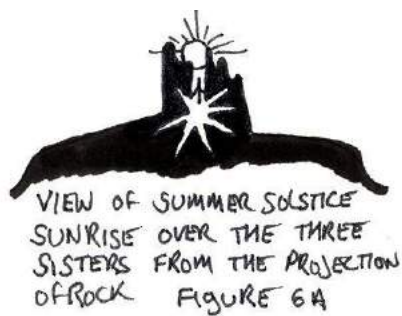
Because of the lack of any associated archaeology, some have doubts that this was an actual observation post. To increase the probability that this tongue-like rock was an observation site I felt that an observation of the sunrise over The Three Sisters for equinox and winter solstice should also have been observed. Hopefully, these sites would have been marked. If they were observed from locations where there were either ruins or rock art with solar symbolism that would provide more validity for the fact

that the tongue-like projection was actually an observation post.

The Indian Creek location for observing sunrise during equinox was determined from a previously known red pictograph site that has sets of concentric circles above a small structure. At sunrise at that point the sun rose over The Three Sisters making it an equinox sunrise observatory (Figure 6B). During the day the movement of the shadows vertically bisected each concentric circle without any interactions. These and other similar sites in the canyon show that not all rock art with solar symbolism was intended to physically interact with light and shadow. Instead, these may simply mark locations where solar sittings can be observed.

Winter solstice sunrise over The Three Sisters was made from the Second Hand Ruin (Figure 6C). There are four panels of rock art in the immediate vicinity of this structure. On the back wall the Second Hand Ruin there are two negative hand prints that give the ruin its name. On either side of the ruin are complex petroglyph panels.

The next observation was at the McCreery Site where I viewed the sun's appearance through a window during its most southern sunrise (Figure 7A). As the sun appeared it cast a rectangle of light on a lower ledge (Figure 7B and C). As the sun continued to rise the rectangle became a narrow dagger of light that disappeared when it touched the cliff face below a rising snake. In the window is another snake rising upwards. On a higher level between these two glyphs are other glyphs assumed to be relevant to solar observations. For more detailed descriptions of this observation see McCreery in this volume.



Figures 6 and 7

At the Indian Creek Barrier Canyon Site during winter solstice it was noticed that the sunrise would be visible through a man-made notch over a point separating a side canyon and Indian Creek. This same man-

made notch was observed to cast a cup-shaped shadow around a dot-centered circle during Equinox (Warner n.d.). To test if the original position of the sunrise was important, I walked back along the cliff toward the main canyon that I had already surveyed



EAST SIDE OF INDIAN CREEK
 VIEW FROM POINT A TO POINT B
 AS SHOWN IN FIGURE 8C
 FIGURE 8A

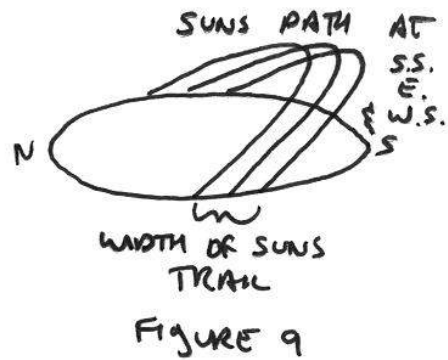
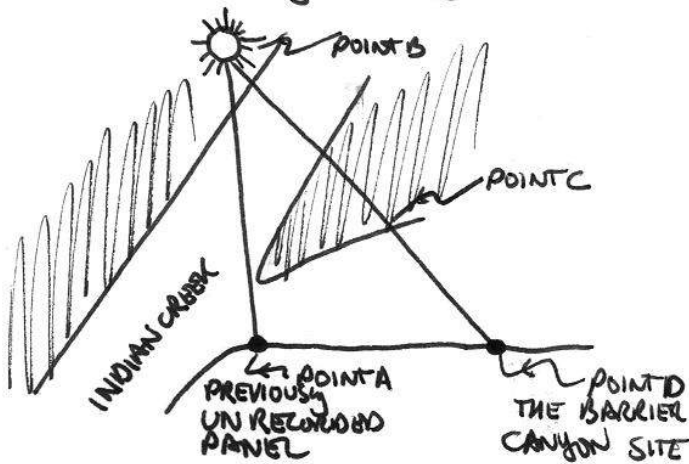
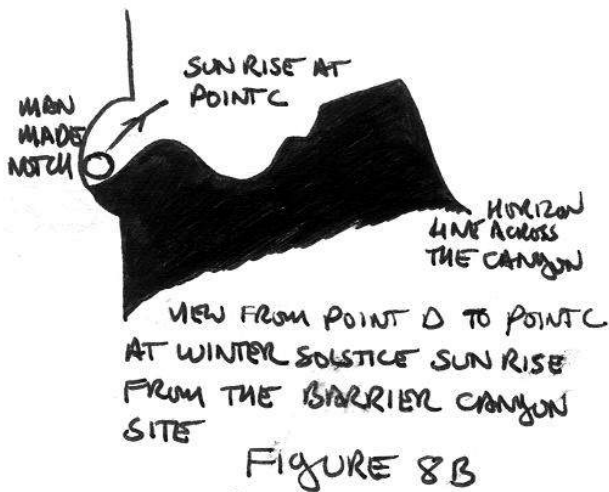


FIGURE 8C

FIGURE 9

Figures 8 and 9

for rock art and stopped at the point where I could see the sunrise (Figure 8A). On the

cliff above was a small set of glyphs that were hardly noticeable. Because of their

elevation and indistinctness these glyphs were missed at least twice by four different rock art surveyors. This panel is centered in at least four hundred yards of cliff that contains no other rock art until the Barrier Canyon Style rock art panel is reached. It appears more than coincidental that this panel would occur at the exact location where the sunrise at winter solstice is visible. A diamond-like grid in this panel is identical to a large number of grids at the Barrier Canyon Style Site. After recording that unique finding I returned to the Barrier Canyon Style panel in time to see the sun rise through the man-made notch (Figure 8B). This sunrise was on the rim of the side canyon opposite the Barrier Canyon panels (Figure 8C).

CONCLUSIONS

The theoretical importance dealing with the rising and setting of the sun in and out of notches probably carries mythological symbolism and was touched upon in a previous paper (Warner 1983, n.d.). Here I need to stress a few more points not considered in the earlier paper. Most present day Pueblo structures have the concept of center with the four cardinal directions encoded into their structure. We as outsiders look at this symbolism with an uninitiated indifference. However, early ethnographers like Lewis Henry Morgan (1881) noted that architecture dichotomized and reinforced roles in social structure. Modern ethnographers such as Eliade (1959) and Nobokov (1982) explain the habitation and shrine as an attempt to duplicate the original world. Volumes have been written about the Indian's concepts of society, habitation and cosmos, the idea of emergence, of creation, of center, of direction and of maintaining harmony. The observatories in Indian-Davis Creeks, without doubt, contain the essence of that spirit. They fill the landscape with a sense of sacred space and places of power.

These observatories incorporate in their architecture a symbolism of the world with its center. The location of these observatories is equidistant from the sun's position on horizon at sunrise and sunset. Observations from summer solstice through equinox to winter solstice mark the limits of the sky dome. The northern and southern extremes delineate the width of the sun's trail. Depending on the time of year, the sun will rise north of east, east and south of east and then move diagonally southward overhead. At each position of rising and settling from summer solstice onward the sun is observed to rise at a lower angle farther to the south as it marks its path along the sky dome. Thus it travels the upper edge of this reversed bowl.

This solar center makes up a microcosm, a spiritual grid and consequently an observation center for worship and ritual as well. By the location of the sun ancient astronomers set the calendar for agriculture and ceremony. When these locations were first discovered by the ancient sun priests and star gazers, they must have known its potential and power. When the tunnel observatories were laid out and raised rock by rock, the ancient priests placed a wedge of time into the primordial mass of cosmos. This wedge, like the daggers of light and the passing of shadows, marks time by providing a known reference for the sun's ritual passage. The observance of the sun at specific times also helped to maintain a universal order and helped to avert chaos.

As one visualizes the concentration of archaeoastronomical sites along Indian-Davis Creeks, thoughts keep returning to the question of why so many in what is assumed to be an area of comparatively sparse population as opposed to a center like Chaco Canyon. Other than Fajada Butte, that serves to mark solstice, equinox and the lunar cycles, there are only a few

other known observatories in Chaco Canyon.

There can only be four answers to why Indian-Davis Creeks have such a high concentration of solar observatories. One, not all of the observation sites in Chaco Canyon and elsewhere have been located. Two, a few sites were sufficient for the long and extensive habitation at Chaco and other areas. Three, the inhabitants of Indian-Davis Creeks were far more concerned with the sun worship and solar phenomena than their counterparts in other locations. Or four, there were many more people living in the Indian-Davis Creeks area than is now assumed. The final answer is probably various degrees of the above.

With discoveries of new sites such as those at Petrified National Forest, Arizona and Waterflow, New Mexico it is felt that there must be many sites yet to be found and documented. Until all of the solar observation posts and rock art sites that remain to be found at centers of concentrated Anasazi habitation are documented, we will never be able to determine that relative degree of concern this culture had for the sun. Each area has many such sites yet to be discovered. Whether that number will approach that of Indian-Davis Creeks will take several years of research to determine.

The analogy of the solar observation sites in Indian Creek to those of Chaco Canyon may be an invalid comparison. Jennings (1963) states that concentrated centers of habitations like Pueblo Bonito are not representative of the Anasazi life way that a New York skyscraper is of American life style. The average Anasazi way of life is the small ranchieras spread all over the Southwest, not the large high density dwellings like Pueblo Bonito. Indian Creek is a prime example of the average type of Anasazi habitation. To make an accurate compari-

son other areas that represent this average population situation should be surveyed.

In *Further Archaeological Investigations in the Gibson Dome Study Area of Southeastern Utah*, by G. C. Tucker (under the direction of Nickens and Associates) archaeological sites in the Davis Canyon area were further investigated after the initial survey of Nickens and Associates. One of the purposes of this later survey was to locate and evaluate nine sites that were recorded by the Utah Rock Art Research Association. Their subsequent evaluation of our assessment was that only one site was significant and that six sites were non-significant. The comments they made on the North and South Observatories, 42SA10693, Boulder House and some of their conclusions as presented below typify the general attitude. Only comments on those ruins in this complex that are now known to have solar observations have been included.

The North Observatory (42SA10692): The solstice observatory hypothesis, while plausible, is by no means the only explanation for the function of this site. We believe it more likely, considering its location on a topographic eminence with a commanding view of lower terrain to the north, east, and south, may have served as a defensive outpost or observation facility. We consider the site to be non-significant and not likely to contribute information important to a further understanding of regional prehistory. The site lies well above and west of regional prehistory. The site along the latter should have no direct, and little indirect, impact upon it.

The Ridge Site (SA10693): The locations of the standing walls on the south and east sides, where the structure is most visible from the lower

slopes, suggest that it may have functioned as an observation post. This function seems to us to be more likely--given the information we now available--than astronomical purpose which has been postulated by Manning and associates. We consider the site to be non-significant since it is not likely to yield additional information important to an understanding of regional prehistory.

The South Observatory (42SA10695): The astronomical alignment hypothesis advanced by Mr. Manning and his associates is plausible but by no means a foregone conclusion. The structure on this site does indeed point directly toward South Six-shooter Peak and we cannot deny the latter must have played an important role in the everyday lives of the prehistoric inhabitants. We cannot affirm, however, an astronomical purpose for this alignment: it would be equally plausible to posit mundane, less exotic reasons for its construction. We consider the site to be significant because of its peculiar alignment but more work is necessary to determine the validity of the astronomical hypothesis. The site's distance from direct impact including so-called "ground vibration" by heavy equipment.

The Boulder House (42SA10796): The purpose of the structures on this site seem again to be primarily defensive. The highest portions of the standing walls on Room 1 are located on that side of the ruin which faces towards the small drainage valley to the south; it is obscured by various topographic features on the other three sides. We consider this site to be non-significant since it does not appear to possess characteristics which

would further our understanding of local prehistory (Tucker 1982:10).

While I maintain that one of the prime functions of the Davis Creek ruins was for solar observations, I do not contend that all the ruins were, or that their only function was, for solar observation. That other mundane functions must have also occurred in the immediate vicinity cannot be denied. I am certain that there were quasi-permanent habitations in the immediate vicinity. The presence of corn in nearby granaries, and in a cave, indicates that both horticulture and grain storage were practiced in the immediate area.

I feel that I, and others, have successfully established reasonable doubt regarding the credibility of Dr. Tucker's reassessment of these sites as non-significant. It is interesting that during the four to five day period spent in the area during summer-winter solstice and equinox no person affiliated with any other survey group were seen in the area checking for solar alignments. However, there were some individuals from environmental groups present for observations. We believe the foregoing evidence establishes a firm case for a reassessment of the importance and uniqueness of these sites.

Upon request for the addendum under the public information act we received a letter from the Division of State History, dated August 16, 1982, from the desk of Melvin T. Smith, Director and State Historic Preservation Officer. In this letter he stated:

These sites were originally recorded by a para-professional archaeological group, including the site recorder, Mr. Steve Manning. Steve Manning assessed eight of the nine sites in the project area as of National Register significance. The Assessment of significance was based on their geo-

graphic location, being a complex of unusual and important ruins which they termed "Solstice Village", thus relating them to an astronomical alignment.

Of the total nine sites that Dr. Tucker revisited, he reports two of the sites not being found, (these are lithic scatters) one was recommended for stabilization, one was assessed of National Register significance, and five were reassessed as non-significant by Dr. Tucker, an opinion which disagrees with Mr. Manning's assessment of significance.

Of the five sites Dr. Tucker and Mr. Manning disagree on, with respect to significance, there is a question of significance concerning three of the sites. These are 42SA10691, 10692 and 10696. As mentioned, these sites were originally recorded by Mr. Manning as part of an important complex he designated "Solstice Village"

The three ruins, along with the assessed significant site, 42SA10695, are located in such a geographical location that Dr. Tucker assessed them as not part of the "Solstice Village", an opinion he did not entirely abandon, but rather as "defense oriented observation posts". Dr. Tucker assessment of these sites as defense oriented observation posts strengthens rather than lessens the point of argument for National Register significance of these sites.

To the Preservation Officer's and the State Archaeologist, Dr. David Madsen's knowledge, there has been little or no work done in Utah studying defense oriented observation outposts of the Anasazi during any time of

their occupation in this southeastern area of Utah.

Both singularly and as a group these sites can yield important information about the prehistoric practices of the Anasazi...

Although the sites are in a state of deterioration, information of their function as either defense outposts or as possible astronomical phenomenon can be determined (Smith 1982).

Hopefully these sites will receive sufficient attention before it is too late. Since the announcement of these sites was made public the western wall of the South Observatory has fallen or was pushed over.

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