

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/342393493>

The Hooper Ranch Pueblo Sun Dagger Shrine Revisited – Revealing Greater Regional Significance

Conference Paper · June 2011

CITATIONS

0

READS

88

1 author:



John Ruskamp

Epigraphic Research

4 PUBLICATIONS 9 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



EPIGRAPHIC RESEARCH [View project](#)

The Hooper Ranch Pueblo Sun Dagger Shrine Revisited - Revealing Greater Regional Significance

By

John A. Ruskamp, Jr., Ed.D.

© 2013

Updated January 24, 2018

Abstract: Located above the Little Colorado River in east-central Arizona, a natural rock formation casts a dynamic shadow-line onto a panel of ancient rock art during the summer solstice. Two hours later a rock chimney allows a narrow beam of sunlight to pass through, forming a Sun Dagger that illuminates the petroglyphs beneath it in a dynamic manner, similar to the solar marker located upon Fajada Butte in Chaco Canyon. Although this solar marker is considerably older than the one on Fajada Butte, here in succession both the early morning shadow-line and Sun Dagger itself appear to emanate from the hand of an anthropomorphic figure, first bisecting a spiral and then, a few minutes later, an S-shaped image.

Symbolically, the centerline of each of the three nearby Hooper Ranch Pueblo kivas aligns with this ancient Sun Dagger shrine. Significantly, recently a large effigy of Quetzalcoatl which was removed from the site prior to the Field Museum's 1961 excavation has been recovered, and the embellishment of the shrine itself as an equinox marker has been noted.

Site Overview

On the top of a ridge above the Hooper Ranch Pueblo ruins north of Springerville, Arizona, there is a cluster of ancient petroglyphs pecked into a small, east facing ledge protected by an overhanging rock. During the summer solstice, the shadow cast by this overhanging formation (Figure 1) and a dagger-shaped beam of sunlight (Figure 2) both cast their images upon this rock art panel, forming identical meaningful patterns of light at different times of the day.



Figure 1
Shadow-line connecting the panel glyphs
on June 21st



Figure 2
Sun Dagger illuminating the panel glyphs
on June 21st

Immediately above this curious panel of rock art, and facing southward toward the Hooper Ranch Pueblo located in the valley below, are three additional glyphs: a kokopelli, a snake, and a rain-like stickman with a drilled hole as its head (Figure 3). The location of this fabricated hole suggests that Native prayer sticks (pathos) were once offered at this site.

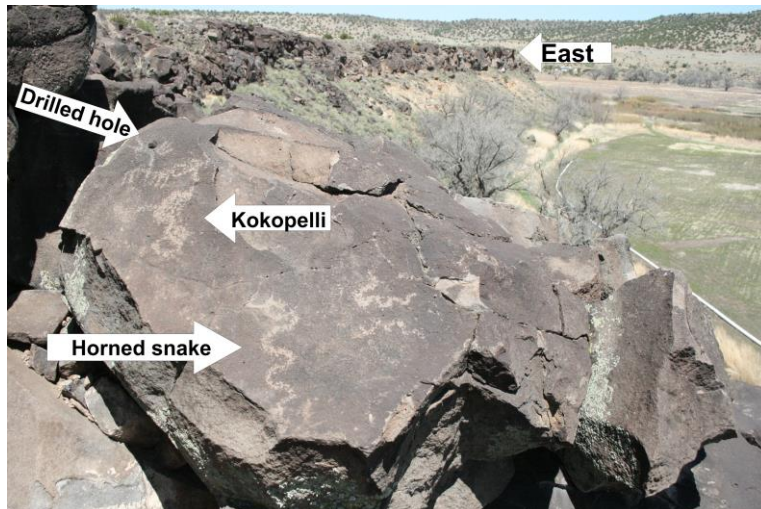


Figure 3
Embellished rock surface above the Sun Dagger shrine panel

When viewed together, the surface features of this site, the east facing of the main rock art panel, and the dynamic play of light upon the panel's glyphs by both the Sun Dagger and shadow-line fulfill all of the requirements (Chart 1) for classifying this site as a sun shrine (Zeilik 1985:S95).

In his article on solar markers, Zeilik notes that "In addition to establishing a ritual calendar, the Sun Priest also uses solar observations to establish a planting calendar (Stephen 1936), which, at Hopi, runs from roughly the middle of April to the summer solstice (Beaglehole 1937)" (Zeilik 1985:S72). Importantly, it is during this time of the year that the sunlight at this location most actively interacts with these purposely-placed glyph images.

Chart 1
Characteristics of Sun Shrines
By Michael Zeilik

- Places where offerings to the Sun are deposited
- Located away from the pueblo
- Consist of a natural or man-made pile of rocks
- Sometimes are marked by rock art
- Frequently face east
- Mostly natural formations
- Generally on mesa tops where they mark key times in ritual or planting in view of the pueblo

The Sun Dagger

Beginning in April, as the sun rises higher each day in the sky, for only a few hours a narrow chimney located immediately above this panel of rock art allows a beam of sun light to pass through and illuminate the highly decorated rock panel below. During the following three months, this sun light beam grows from a tiny speck (Figure 4) into a sharply pointed Sun Dagger achieving its maximum length of over 30 centimeters on June 21 (Figure 5).

During the spring as the sun moves northward in the sky, daily the path followed by this Sun Dagger shifts increasingly southward across the rock panel's imagery. As this beam of sun light falls upon the rock art, it illuminates various glyphs linking them in continuously evolving visual patterns. Then, on the date of the summer solstice, its transverse movement ceases, and the Sun Dagger halts its southward progression, pausing for just a few days, before retracing its path across the rock art panel during the late summer months until it finally disappears from sight by early September.



Figure 4
Sun Dagger on April 18th



Figure 5
Sun Dagger on June 21st

Yearly, on the date of the summer solstice, this sunlight dagger connects the petroglyphs on which its light falls into a pattern recognizable from Native folklore. Now, as the pecked Sun Father glyph holds his shield with his left arm and this spear of sun light in his right hand, he

calls upon the sun to reverse its movement and return to the south by splitting both a spiral and sinusoidal S-shape glyph exactly in half (Figure 5). Then, over the next hour, the Sun Dagger's light slowly drifts away from these images and further down the rock art panel (Figure 6), shrinks, and, after approximately three hours of panel illumination, vanishes from sight.



Figure 6
Sun Dagger exiting the panel on May 21st

The Sun Shadow

On each sunny day of the year, a rock overhang above this panel of petroglyphs casts an independent shadow (Figure 1) upon the pecked imagery below. Approximately two hours before the Sun Dagger begins to form, the light-dark demarcation line formed by this shadow also links the panel glyphs into meaningful patterns. Operating independently, daily, this shadow line traverses the rock art panel. Remarkably, on the date of the summer solstice the paths followed by these two sun light phenomena exactly coincide, as they link together the same petroglyphs in exactly the same manner. The unique natural precision of this dual marking of the summer solstice establishes this site as symbolically very meaningful.

After a brief pause in its lateral movement during the summer solstice, as the sun reverses its seasonal path across the sky, as the Sun Dagger described above, this shadow also retraces its sideways progression across the rock art panel. However, unlike the Sun Dagger, it does not disappear during the winter months, but continues to cast an increasingly northward slanted form across the rock art until the time of the winter solar stand still, when once again it halts and reverses its path.

Additional Rock Panel Imagery

In addition to the pecked images connected by the sunlight shadow-line and dagger on the summer solstice, this rock art panel contains depictions of four connected bull's-eyes, the image of an eagle, a second stickman image, a "Quetzalcoatl cross" enclosed within a rectangular border, and a rectilinear design which, on certain dates, forms the carved "hilt" of the Sun Dagger (Figure 7). Of all these secondary images, only the image of the dagger's hilt interacts with the Sun Dagger, yet, each day they all pass under the pattern of the overhanging rock

shadow-line. What other alignments are generated by this shadow are, to date, still unknown. However, Native populations tracked the movements of the Moon as well as those of the Sun, sometimes ascribing greater importance to their lunar observations. Frequently many Pueblos planted prayer flags at full moon, especially at the winter solstice, stressing the significance of the moon in their ritual life (Sofaer 2008:47). What interactions moonlight has throughout its 18.5-year cycle with the images at the Hooper Ranch Pueblo Sun Dagger shrine await further investigation.

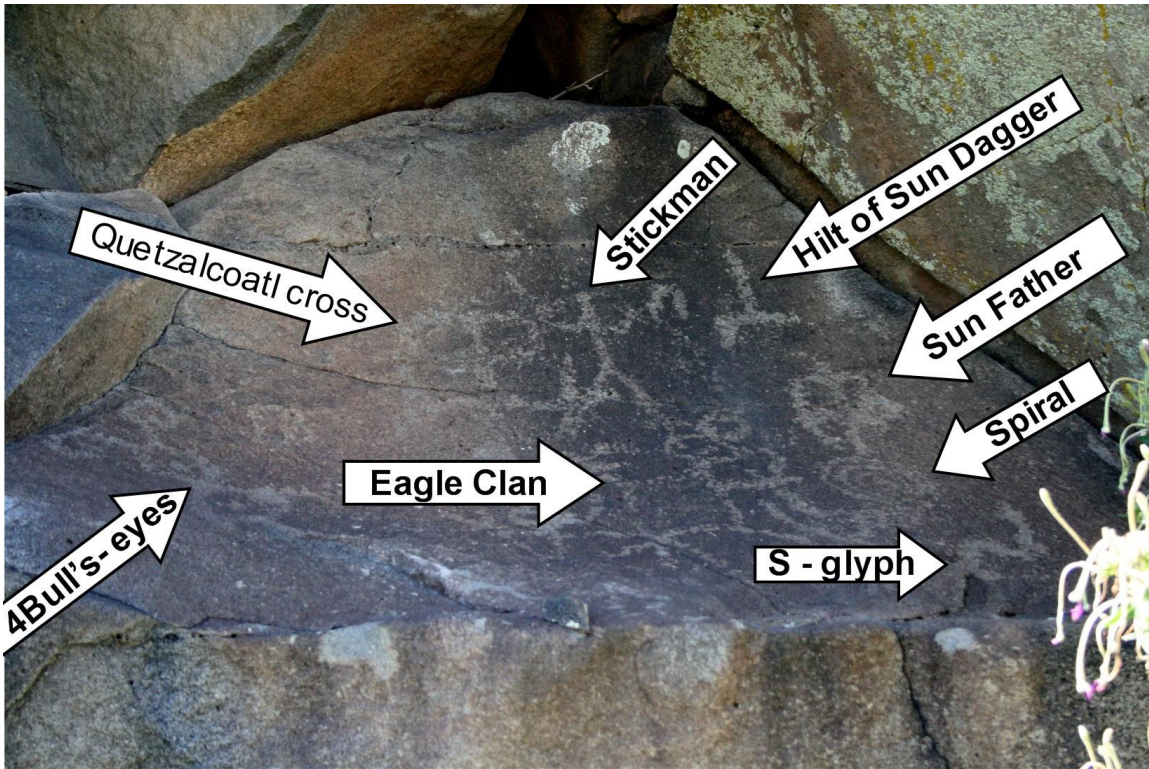


Figure 7
Sun shrine panel petroglyphs

Features Located Above the Rock Art Panel

As previously mentioned, drilled into the highest point of the large rock immediately above the rock art panel is a fabricated hole, approximately two inches deep and one inch in diameter (Figure 8). A considerable amount of wear is evident immediately around this fabricated opening. In addition, the hole is embellished by several rectilinear lines which, when viewed together, form the image of an unusual stickman. With the hole as its head, this image has two sets of long, pointy fingers and two legs with large, rake-like feet.



Figure 8
The drilled hole and stickman

There is a second illustration drawn alongside the stickman that depicts a kokopelli playing a flute. Additionally, a large, horned-snake glyph, not unlike the symbol for the Snake Clan, and two smaller wavy lines likely representing snakes or water (Patterson 1992:181) were pecked into the adjoining surface of this rock (Figure 9). Importantly, the documented close association of the Snake and Water Clans with nearby sites may explain, in part, the presence of these additional rock art images above the Sun Dagger panel.

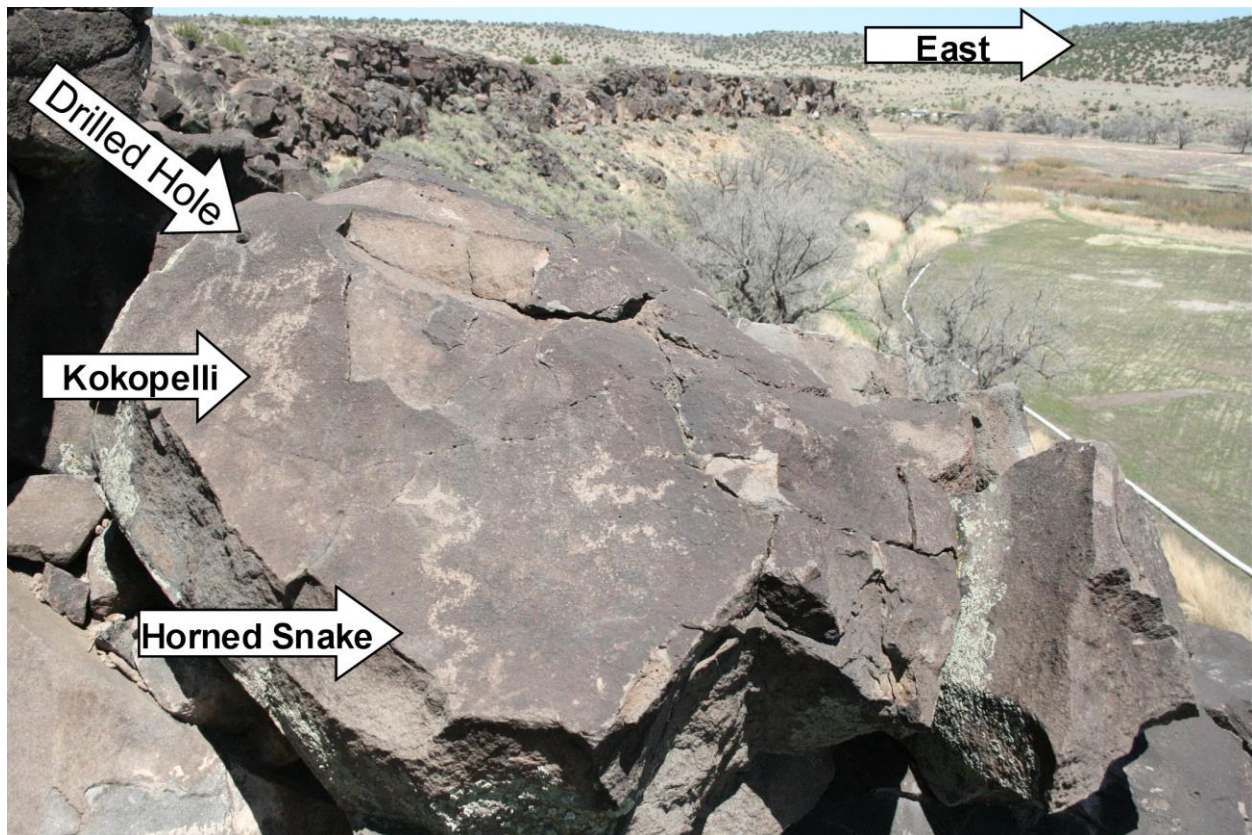


Figure 9

The Site's Equinox Alignment

During the biannual solar equinoxes a small hole located a few feet below the top rock at this location, and several feet to the south of the Sun Dagger shrine's main panel of glyphs, aligns with the rising sun as it emerges above the distant eastern ridge. Twice a year a narrow beam of light passes through this natural tunnel (Figure 10) and illuminates an adjoining basalt rock ledge (Figure 11). While no evidence has been found upon this ledge indicating that it was marked as a solar calendar, the ancients would certainly have observed the bi-annual nature of this important fleeting shaft of sunlight.



Figure 10
Equinox sunrise beam of light



Figure 11
Equinox sunlight illumination

Site Artifacts

Years before the Field Museum's 1960-61 archaeological excavation of the Hooper Ranch Pueblo (Martin et al. 1961) a very large serpentine statue, embellished with a pair of carved eyes, nostrils, a "blow hole," and a slightly smiling mouth (Figure 12) was removed from the site of the pueblo (Knight 2012). The features of this massive ancient effigy are recognizable as those of the great Mesoamerican water serpent, Quetzalcoatl (Figure 13), a fact confirmed by professional archaeologist Doug Gann, Ph.D.

The Zuni people of North America refer to this water serpent god as "Kolowisi" (Figure 14), and the Hopi call it "Palulukang." Even into modern times, Native tribes continue to direct their prayers and rituals to the water serpent for the blessings of rain and snow.

For many years, this carved stone effigy of Quetzalcoatl was on public display outside of the Becker Mercantile Company in Springerville, Arizona (Figures 15 and 16). Demonstrably, the very size of this statue indicates that it was of particular importance to the ancient people who created it. However, its prior existence upon the Hooper Pueblo ruins was not revealed to the Field Museum archaeologists and they make no mention of it in any of their reports.



Figure 12
The Hooper Pueblo Serpent Effigy



Figure 13
Water Serpent effigy at Templo Mayor, Mexico City
(Photo: Messiah Divine)



Figure 14
Zuni Water Serpent
(Source: Fieldiana, Vol. XXIII)



Figure 15
The Hooper Pueblo serpent effigy as removed from atop the ruins
(Photo: Courtesy Roxanne Knight)



Figure 16
The serpent effigy as it was publically displayed in Springerville, Arizona

In addition to the snake effigy found at the Hooper Ranch Pueblo ruins, various other items decorated with images from Native folklore have been recovered from the site. One bowl commemorates the younger Hopi Warrior Twin, Paluñhoya, with multiple images of his "bow tie" reflection (Figure 17). A second polychrome bowl found at the ruins depicts three "Sunflower Maidens" rising out of the ground above the richly irrigated farm fields which were at this location around A. D. 1200 (Figure 18). In addition, during the related 1960 excavation of the slightly older and smaller Rim Valley Pueblo, located only several hundred yards to the west, a bowl was uncovered embellished with depictions of the bow carried by the elder brother Warrior Twin, Püükoñhoya (Figure 19). When viewed collectively, the religious decorations on artifacts such as these indicate that this area was a prominent ceremonial site, rich in regional tradition and of particular cultural importance.



Figure 17
 Paluñhoya's "bow tie"
 (Photo: Courtesy, The Field Museum)



Figure 18
 Sunflower Maiden bowl



Figure 19
 Püükoñhoya's bow
 (Photo: Courtesy, The Field Museum)

In addition, what appears to have been an altar stone (Figures 20 and 21) has been identified under a larger boulder located several yards away and down the slope of this basalt ridge. In a traditional manner, this sacramental stone was placed under a rock for storage and protection, most likely when the Hooper Pueblo site was abandoned around AD 1200. Three of the four sides of this oval 4.375 pound stone are marked by a single line of color; in the sequence of turquoise, red, and white. The fourth side of the stone shows no evidence of coloration. However, it was the exposed portion of the stone and it is likely that any such painted line would have long ago weathered away from its surface.



Figure 20
 Altar stone with turquoise painted line



Figure 21
Painted red line on the altar stone

For the Hopi turquoise is associated with the direction west, red with south, and white with east. This order of colors agrees with the arrangement of the three painted lines on this stone. Such an altar stone would have been placed in ceremonies, in this case probably upon the flat portion of the Sun Dagger panel ledge, with its colored sides aligned with the corresponding cardinal directions.

Architectural Alignment of the Hooper Pueblo With the Sun Dagger Shrine

Analysis of the architecture of the nearby Rim Valley Pueblo reveals that its walls are aligned with true north. This is the common building orientation used for much of Native American construction; and could have been utilized during construction of the neighboring, and slightly newer, Hooper Ranch Pueblo, if the inhabitants had desired to do so. However, they did not. Rather, recent measurements of the site along with a 1961 excavation site diagram (Figure 22) and photo (Figure 23) confirm that the pueblo rooms and kivas are aligned with the location of the sun shrine. These pueblo-shrine alignments were evidently unknown to the 1960-61 excavation teams led by Paul S. Martin, as the location of the nearby Sun Dagger shrine was not mentioned in any of their reports.

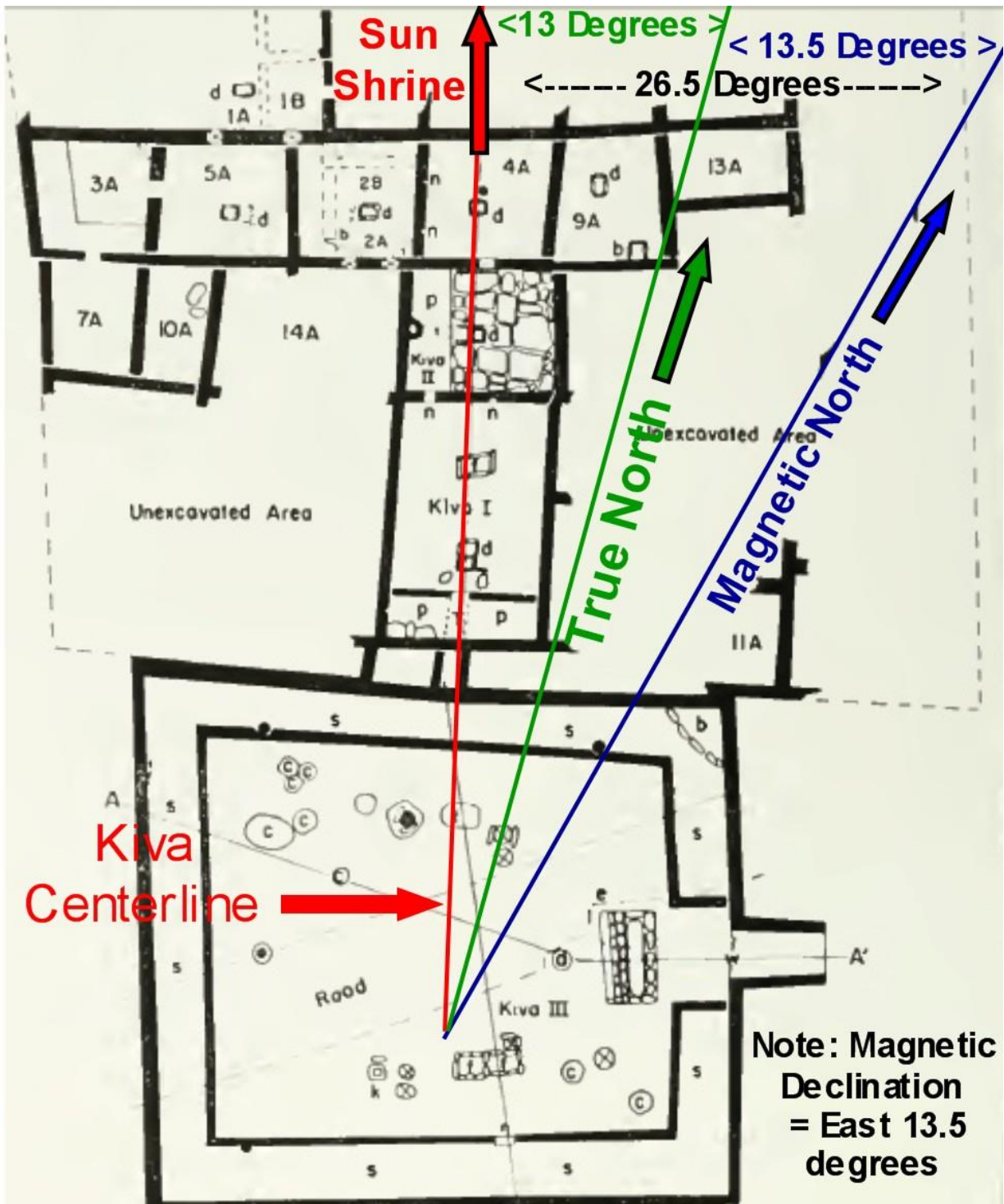


Figure 22
 Diagram of the Hooper Ranch Pueblo ruins (black) with added (colored) orientation lines
 (Original diagram: Courtesy, The Field Museum)

... features of Room C seem to indicate that it was used for ceremonial as well as secular functions. The association of ventilator, firepit and vaulted ceiling with the location of the ladder-pit(?) with arm-like stone



FIG. 32. Hooper Ranch Pueblo, showing Great Kiva in foreground and dwelling rooms in background. Meter stick stands against north wall of Great Kiva.

Figure 23

Photograph of the Hooper Ranch Pueblo kivas, location of the sun shrine, and true North
(Photo: Courtesy, The Field Museum)

Panaiyoikyasi

The purposeful orientation of the Hooper Ranch Pueblo with the sun shrine shown in the above photo suggests that the shrine was of considerable ceremonial importance. Significantly, in 1960, when the floor of the pueblo's largest kiva was uncovered, a carved sandstone effigy of the Water Clan god Panaiyoikyasi ("Short Rainbow") was discovered lying face down in a small specially engineered, covered crypt (Figures 24 & 25). Traditionally, only the most important villages surrounding the Hopi center of Oraibi buried an effigy of their god prior to their abandonment. To date, this is the only known example of such a historic practice, here, at what some believe is, for the Hopi, the fabled "Red Cloud City of the South."



Figure 24
Panaiyoikyasi effigy
Original color as found Enhanced coloration



Figure 25
Effigy as it was found in the crypt
(Photo: Courtesy, The Field Museum)

Finding Panaiyoikyasi in a kiva constructed so that it would be in alignment with the sun shrine demonstrates the relationship between this deity and the sun shrine's imagery. Together, the Panaiyoikyasi effigy, the large carved stone snake effigy, and the specific depictions found on the pottery artifacts and upon the sun shrine, provide important clues for understanding the regional religious and cultural significance of this special site in prehistory.

Regional Importance of the Overall Site

Significantly, Martin et al noted what they termed the "pan-village" nature of the Hooper Ranch Pueblo as follows:

"Further, since the cult-deity was found in a "miniature great kiva", sealed in the floor of an actual great kiva, one might assume that it was associated with a cult of pan-village significance, with one major ceremony, and that the great kiva was the center of a community cult." *The Kiva*, Vol. 26, No. 4, p.6, 1961.

More recently, in his comments upon the plethora of pottery types found among the villages of the upper Little Colorado River, Andrew Duff concludes that the people of the Hooper Pueblo region were actively involved with numerous and distant peoples.

"Several of these wares were thought to have been produced elsewhere, suggesting widespread cultural networks. ... It is impossible to be certain, but these transfers probably occurred during feasts and dance rituals that brought together residents of neighboring villages. These data also reveal a complex web of connections with more distant villages." Archaeology Southwest, Vol. 16, No. 5, p.6, 2002.

Certainly, the widely dispersed origins for the pottery found at the Hooper Ranch Pueblo, the exceptionally large dimensions of its most recently constructed kiva along with the unique presence of the Panaiyoikyasi effigy buried within it, collectively led each of these researchers to the same conclusion; that the Hooper Pueblo held special regional significance for the people of its time. In light of the newly revealed fact that in pre-historic times a large carved stone snake effigy was present at this location further supports this conclusion.

Interpreting the Sun Shrine Imagery

During each year, as they progressively connect the rock art figures carved upon the Hooper Ranch Pueblo sun shrine panel, the sunlight and shadow images at this location follow a calendric pattern, marking the significant dates of the yearly summer solstice. First with a shadow line, and then with his more powerful sunlight dagger in hand, the Sun Father image upon this rock bisects a spiral, and then splits a sinusoidal S-shape into two equal parts. This marks the middle of the Native ceremonial year and the turning back of the sun from its high point in the sky at the time of the summer solstice. For only a few days in June, these two dynamically opposed light patterns connect with the rock art imagery in exactly the same manner, forming the same meaningful pattern.

In addition, the large rake-like feet of the stickman image on the surface of the rock above this shrine's panel of glyphs suggest that this site was closely associated with water. To represent rain, ancient rock artists frequently used this rake-like glyph pattern (Patterson 1992:165). With a hole for a prayer-stick as its head, this specific anthropomorphic depiction was clearly involved with spiritual communication. The placement of such a "watery" stickman alongside the images of a kokopelli and horned snake indicates a connection between this drawing and the alternating yearly Flute and Snake Dance ceremonies. Significantly, these ceremonies are held as pious prayers for rain and water during the mid-summer growing season, and the time for each is based upon the observed date for the summer solstice.

Nearby the Sun Dagger shrine are panels of rock art comprised of images of Hopi Water Clan identifiers (Figure 26), estimated by some to have been created as early as A.D. 900 (Eaton 1999:186). Of great importance is the central image of this grouping, depicting the Hooper Ranch Pueblo crypt deity, Panaiyoikyasi, with upstretched arms and mirror image downward directed legs. The proximity of these special drawings to the effigy of Panaiyoikyasi in the nearby kiva crypt, and the purposeful orientation of the pueblo kivas' walls with the sun shrine, strongly support interpreting the stickman image carved upon the top rock of this shrine site as a depiction of Panaiyoikyasi, or at least something to which prayers for rain and water were directed.



Figure 26

Water Clan glyphs showing Panaiyoikyasi (left) and four migration images (right)

Discussion

This paper describes a previously unknown sun shrine site located upon a volcanic rim above, and within sight of, the Hooper Ranch Pueblo ruins. This sun shrine site demonstrably marks, with two diametrically opposed dynamic light features (shadow-line and Sun Dagger) the annual occurrence of the summer solar solstice in the northern hemisphere. In addition, it contains a natural sunlight tunnel, which marks the date of the biannual solar equinoxes. To the ancient people of this region such solar markers functioned dually as agricultural calendars and religious timetables.

Augmenting this sun shrine site are the ancient images of a kokopelli, a snake, and a stickman. Importantly, each of these characters is closely associated with the religious Flute and Snake Dance ceremonies performed by the indigenous people of this region, the date for which is determined, in part, by noting the passing of the summer solstice. Significantly, the presence of such items as these at this location conforms to the statement that: "It is common to find rock art of a related character near (Native) shrines." (Zeilik 1985:S85).

Additionally, buried within the local pueblo kiva in its own special crypt was the ancient people's water cult deity, Panaiyoikyasi, accompanied by his magic water jar. Nearby lay a very large snake effigy, suggestive of the Hopi god Baloolookong and the Snake Dance prayer for water. The close physical association of these unique items, along with the Pueblo's wide array of pottery, and its purposeful orientation with the Sun Dagger Shine, indicates that this was no ordinary site.

Curiously, located only 2.25 miles south of the Hooper Pueblo along the Little Colorado River are the contemporaneous ruins of Casa Malpais. With a large kiva and a large circular walled area, this location was once thought to have been the site for a complex Native American solar observatory. However, a recent astronomical survey of the site fails to support many of the celestial alignments previously reported at this location (Zoll 2011:13). In light of the newly revealed and highly specialized predictive solar aspects of the Hooper Ranch Sun Dagger Shrine, such an evaluation for Casa Malpais is not surprising; as a redundancy of local effort would have served no purpose for the ancient people of this region.

Significantly, the recently discovered straight-line alignment of the Hooper Ranch Pueblo sun dagger, the Hooper Pueblo's large kiva, and the kiva at Casa Malpais (Figure 27), and that the

habitation periods for Casa Malpais and the Hooper Pueblo overlap, informs us that it is highly probable that these three sites were inhabited by the same people and possessed closely related functionalities.

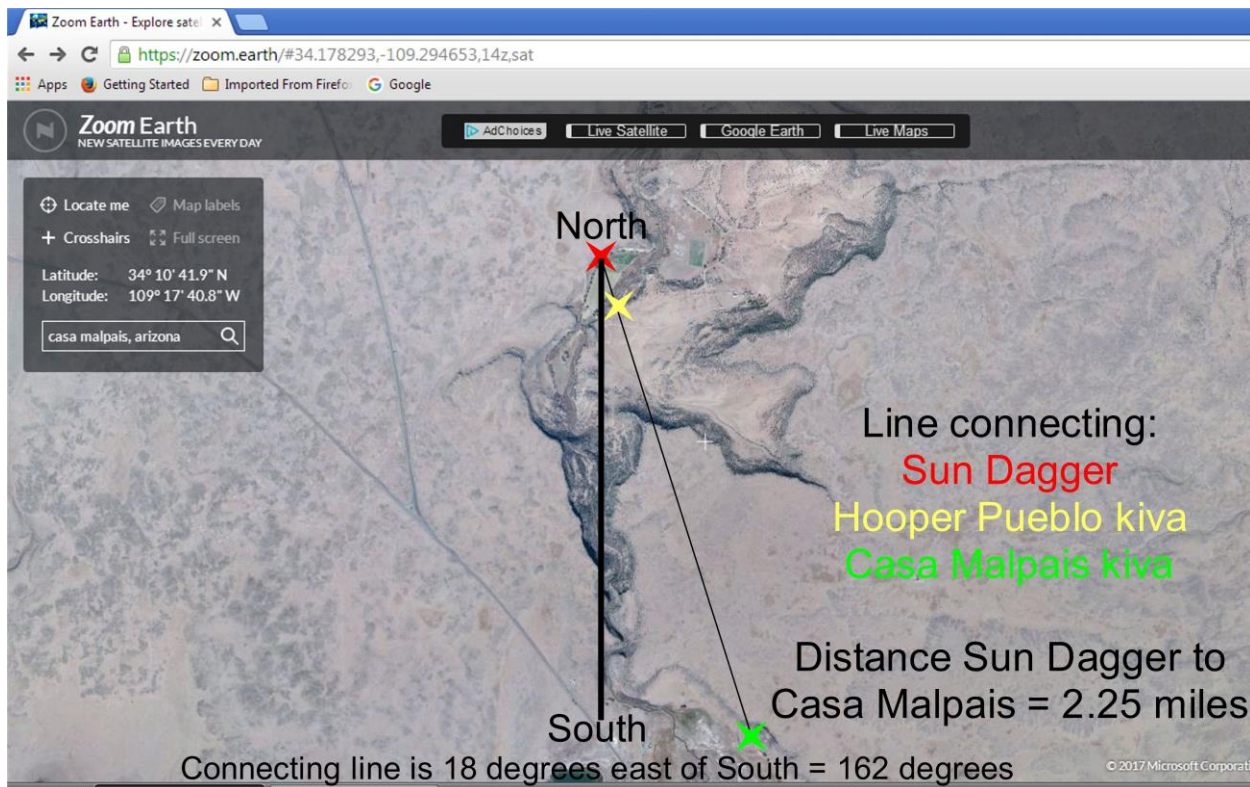


Figure 27

Alignment of the Sun Dagger site with the Hooper Pueblo and Casa Malpais kivas

In the summary report published for their excavations at the Hooper Pueblo Martin, et al. (1961) state that there is evidence indicating that at least some of the inhabitants of the pueblo migrated northward into what are today Hopi and Zuni lands. They suggest that “a northern movement of Mogollon peoples up the Little Colorado Valley” took place, and that “this late Mogollon influx into the plateau resulted in a very strong influence upon the Anasazi centers of the present Zuni and Hopi areas. Here, the Chaco-influenced Anasazi traits mingled with the Mogollon traits to produce in these two areas a florescence extending into historic times” (Martin et al. 1961:16). Martin et al reference earlier research in this same region supporting this view stating that while: “Working on the chronology for the Zuni area, Leslie Spier suspected Zuni antecedents in the Little Colorado River Valley. A brief survey in the area was undertaken in 1917. Time was spent visiting selected ruins in the area. From the results of his work, Spier suggests that the antecedents to historic Zuni were, indeed, the later ruins in the Little Colorado Valley.”

Recent research focused on the early habitation patterns of this area has found considerable evidence for long-term regional interaction. Andrew Duff (2002:1) has found that: “The upper Little Colorado River region possesses a rich archaeological heritage that documents the arrival and departure of thousands of Pueblo people. Zuni and Hopi oral histories relate

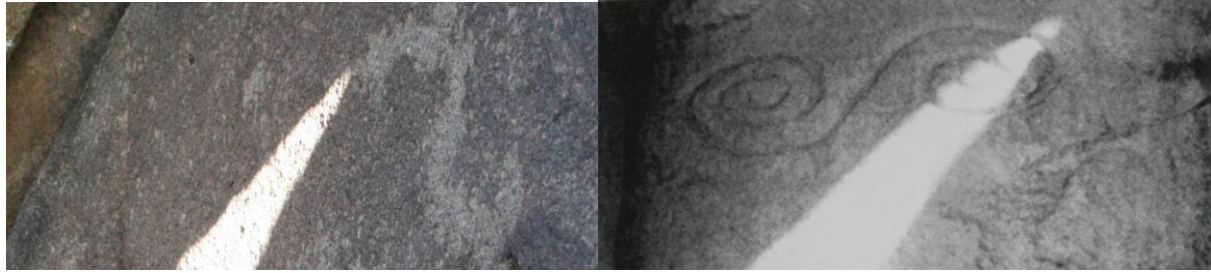
connections to many of the region's latest prehistoric sites” (Duff 2002:1). In a related article, he further states:

“From about A.D. 900 to 1150, the Chacoan regional system influenced populations throughout the Colorado Plateau, including those in the upper Little Colorado region. Chacoan developments had the greatest effect in the eastern part of the region, where several Chacoan great houses along Carrizo Wash are located in areas with little previous settlement. These are of interest because they are among the southernmost Chacoan great houses and also because they are dominated by plain ceramics characteristic of southern origins” (Duff 2002:4).

If these migrations occurred as suggested, it is highly probable that the earlier residents of the Hooper Ranch Pueblo site were familiar with the land located immediately to their north and the people living upon it. Having experienced the usefulness of the natural sun shrine as a timepiece for marking religious and agricultural dates, the early Pueblo occupants may have shared knowledge of it with their allies. In their final report upon the archaeological investigation of this site, Martin et al. (1961:169) speculate that such events probably took place as: “Commonly, we have assumed that the Mogollon peoples were forced, by some as yet unspecified reason or causes, to migrate from the Pine Lawn-Reserve area to the Little Colorado River drainage and later to the Zuni country. Perhaps they were asked by a disturbed community to join with it to create a stable, purposeful society.”

The knowledge the occupants of the Hooper Ranch Pueblo had of their Sun Dagger shrine, with its shadow and light dagger timepieces and its equinox light beam, would have been of great regional importance. As a natural prototype for making additional solar timepieces, those who knew how to duplicate these forms and then use them for religious and agricultural purposes would have possessed unique advantages. Considering the religious nature of the large kiva at this site, one of the largest in the Southwest and containing a blend of Anasazi and Mogollon attributes, the presence of both the Panaiyoikyasi and snake effigies, and the purposeful alignment of the Pueblo's three kivas with the Sun Dagger shrine, it is apparent that this location was, from its inception, an important destination for both cultural and religious activities. Notably, there is a modern Hopi saying that when it rains, Panaiyoikyasi, also called "Short Rainbow", is standing to the southeast of Oraibi in the direction of his home at Wenima, which, along with its designation as the "red cloud city of the south," is another name for the site of the Hooper Ranch Pueblo.

The early date for the occupation of the Hooper Ranch Pueblo, before A.D. 900 (Doyel 1981:150), and the knowledge that the inhabitants residing along the Little Colorado River exchanged information with the Anasazi people to the north, suggest that the naturally occurring features found at the sun shrine site could have been used as a template for creating other regional solar markers. Curiously, the dimensions of the Hooper Ranch Pueblo's sun shrine light shaft (Figure 28) are highly similar to those of a Sun Dagger found on the west side of Chaco Canyon's Fajada Butte (Figure 29), which J. McKim Malville dates to the later period of occupation for this site, after AD 1250. The shaft of light forming each of these light beams appears as a seventeen-degree angle of light traversing an S-shaped petroglyph.



(Note: These images were recorded on different dates)

Figure 28

Hooper Ranch Pueblo Sun Dagger

Figure 29

Fajada Butte Sun Dagger

(Photo: adapted from Sofaer 2008:62)

While daggers of all sorts will exhibit similarities, the correlation between the Hooper Ranch Pueblo and Fajada Butte images may not be purely coincidental. In chapter six of the 1962 summary report on the excavation of the Hooper Ranch Pueblo John Rinaldo suggests that there is evidence of an early exchange of information between these two locations. He notes that: "Such traits as hachured black-on-white pottery, a crude sort of banded masonry, full-grooved axes, and certain features of the Great Kiva (deflector and masonry-lined vaults) make it appear that there was also trade between the Little Colorado and the Chaco district to the north" (Martin et al. 1962:115). Further research on the congruencies of these two sites, and especially on the ceremonial relationship of the Hooper Ranch Pueblo ruins, its effigies, pottery, and glyphs with the Sun Dagger shrine site are encouraged.

References

Bunzel, Ruth

1929 *The Zuni, Southwest American Indians*. Smithsonian Institution, Washington D.C.

1932 Zuni Origin Myths. 47th Annual Report, Bureau of American Ethnology, pp. 545-609. Smithsonian Institution, Washington, D.C.

Cushing, Frank H.

1901 *Zuni Folk Tales*. The Knickerbocker Press, New York.

Doyel, David E.

1981 Prehistoric Environment, Subsistence, and Land Use in Dead Valley, East-Central Arizona. *Kiva* 46(3):143-153.

Duff, Andrew

2002 The Upper Little Colorado Region. *Archaeology Southwest* 16(3):1.

2002 Late Prehistoric Settlement in the Upper Little Colorado River Region. *Archaeology Southwest* 16(3):4-6.

Eaton, William

1999 *Odyssey of the Pueblo Indians*. Turner Publishing, Paducah, Kentucky.

Fewkes, J. Walter

1895 The Destruction of the Tusayan Monsters. *Journal of American Folklore* Vol. 8, No. 29.

Geertz, Armin W.

1987 *Hopi Indian Altar Iconography*. E.J. Brill, Leiden, The Netherlands.

Hough, Walter

1915 *The Hopi Indians*. The Torch Press, Cedar Rapids, Iowa.

Knight, Roxanne

Historical commentary provided during a meeting of the Little Colorado River Chapter, Arizona Archaeological Society, March 28, 2012.

Malville, J. McKim

Personal conversation, June 17, 2011.

Martin, Paul S.

1961 A Human Effigy of Stone from a Great Kiva Near Springerville, Arizona, *The Kiva* Vol. 26, No. 4.

Martin, Paul S., John B. Rinaldo, and William A. Longacre

1961 Mineral Creek Site and Hooper Ranch Pueblo, Eastern Arizona. *Fieldiana: Anthropology* 52.

Martin, Paul S., John B. Rinaldo, William A. Longacre, Constance Cronin, Lislle Freeman, Jr., and James Schoenwetter

1962 Chapters in the Prehistory of Eastern Arizona, 1. *Fieldiana: Anthropology* 53.

Patterson, Alex

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

Sofaer, Anna

2008 *Chaco Astronomy*. Ocean Tree Books, Santa Fe, New Mexico.

Voth, H.R.

1905 The Traditions of the Hopi. *Field Columbian Museum Publications* 96. Anthropological Series 8.

Zeilik, Michael

1985 A Reassessment of the Fajada Butte Solar Marker. *Journal for the History of Astronomy* 16(9):S69-S85.

1985 Sun Shrines and Sun Symbols in the U.S. Southwest. *Journal for the History of Astronomy* 16(9):S86-S96.

Zoll, Kenneth J.

2012 A Cultural Astronomy Study of the Casa Malpais National Historic Landmark Site in Springerville, Arizona. *The Arizona Archaeologist*, No. 38.