

SEASONS OF THE SACRED SKY: MOAB'S ANCIENT ASTRONOMERS

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Figure 1. The Snake on Summer Solstice, Behind the Rocks Wilderness, Moab, Utah.

TABLE OF CONTENTS

Forward...Page 3

Introduction...Pages 4 - 6

Chapter 1. The Astronomers...Pages 6 - 12, Figures 7 -16

Chapter 2. Astronomical Markers...Pages 17 -20

Chapter 3. The Snake...Pages 21 -103, Figures 8-88

Chapter 4. The Goose Panel...Pages Pages 104 -179, Figures 89 -155

Chapter 5. Hidden Valley...Pages 175 - 260, Figures 159 -239

Chapter 6. Hellroaring Canyon...Pages 261 - 315, Figures 240 - 292

Chapter 7. Misses and Maybes...Pages 316 -360, Figures 293 -335

Conclusion...Page 361

FORWARD

This book charts the rediscovery of astronomical knowledge embedded in the art and traditions of some of the ancient inhabitants of the Moab, Utah area. The volatile alloy of astronomy, imagination, and faith has compelled humans to forge memorials of it from time immemorial. Moab's astronomers deserve a place in this pantheon of heaven-driven creators and I hope this work helps accomplish that task.

The reader should know that I am not a trained astronomer, archeologist, anthropologist, and so on, and this book is not a scientific text. I devised most of the methods, interpretations, terms, names, and so on that I use. I cite other individuals and sources when I draw information or ideas from them. The time notations for some observations are not always exact, but are relatively accurate. This was possible because of the built-in clocks in digital cameras, not any planning or intentional effort on my part. A scientist would have done a better job. Still, compiling and analyzing the data took years of observation, pattern recognition, and hypothesis...the scientific method. None of this makes me a scientist. Natural Philosopher is an older term that may apply.¹

Another reason this isn't a 'science book' is because I want to include elements of Memoir, Opinion, and Personality.

Memoir because getting the work to this point has been a physical and intellectual adventure some people might enjoy hearing about.

Opinion because people are always arguing about matters of opinion so I'm getting in first licks.

Personality because, when I access my inner child, I find him to be a sassy brat with poor learning skills. Sadly, he grew up to be my Boss and, while maintaining his childish bad habits, also became ruthlessly curious. Without his goading I don't think I could have persevered in this work. I'll try to confine most of his bad behavior to footnotes, Footnote 1 being the first example, but he is The Boss and could show up anywhere at anytime. You've been warned.

¹Alas, I have not shed the academic affliction of using equivocal grammar to cover one's ass, such as the word 'may' in this sentence. Why won't I just call myself a Natural Philosopher? Repetitious modifiers in the text include 'may', 'seem', 'might', 'suggest', 'possible', and so on. However, even as I try to hide the truth with such obtuse verbiage, it is easy to detect the underlying smugness and ingenuous humility in my writing. Rhetorical camouflage aside, the astute reader will recognize in this statement that I deny any claims of objectivity for this document.

INTRODUCTION

I grew up in rural southeast Wisconsin in the 1950's. My mother's family lived in the small city of Beloit on the Rock River. Here I had my first encounter with Native American art. Two thousand years ago, from Lake Michigan to the Mississippi River, people built tens of thousands of dirt effigy mounds in southern Wisconsin.² Only a few survived the plow. Some of the survivors were on the campus of Beloit College on a bluff overlooking the river. I was told that one, with four short legs and a long tail, represented a turtle. But since I knew turtles have short tails I never believed this. I considered these mounds an engaging curiosity but gave them little thought.³

In 1971, I moved to Oregon and got a job on a fire crew. Between fire seasons in the winter of 1974-1975 I visited the Southwest and spent time in Chaco Canyon, Bandelier National Monument, Taos, Espanola, Santa Fe, Los Alamos, and the Grand Canyon. My excursion took me to some of the many rock art sites in the region. Although I had little idea of who made these pictures or what any of them might mean, I was drawn to them nonetheless. I began to pay more attention to the art and culture of the continent's early inhabitants, especially in the Northwest where I was living, and the Southwest where I had visited. I also began reading ethnological authors like Joseph Campbell, John Niehaus, and Jaime de Angulo.⁴

In 1977, two summers after I visited Chaco Canyon, an artist named Anna Sofaer volunteered to help record the canyon's rock art. There, she made a remarkable discovery on Fajada Butte - an unmistakable Summer Solstice alignment of light and shadow on spiral petroglyphs. This display of light, shadow, and art became known as 'The Sun Dagger'. It was soon a topic in American media, print and broadcast, and touched off a chain of astronomically inspired observations, articles, and books.

Having recently visited Chaco Canyon and hiked on Fajada Butte myself, Sofaer's discoveries added further piquancy to my incipient curiosity. I kept my eye peeled for articles by and about Sofaer and began to pay attention to other astronomical arrays such as Stonehenge and the Pyramids of the Nile and Central America. I began visiting rock art sites

² Birmingham, Wisconsin Mounds

³ Now I suspect that mounds of this design represent large cats, like a pumas or panthers, and were part of those peoples' hunting-magic symbolism. Similar designs appear regularly where these mounds survived. I discuss symbolic feline interpretations in *Moab Basketmaker Rock Art: A Codicon of Interpretive Elements*.

⁴ *The Hero with a Thousand Faces, Black Elk Speaks, Indian Tales*.

in the the Northwest.⁵ Still, I did not make rock art viewing a priority occupation and I was not looking for astronomical alignments or anything else. My motivations at that point were a general interest in ancient cultures, a love of hiking in remote areas, and the curiosity-riddled constitution of my character.

In November 1993, I landed in Moab, Utah, on the Colorado Plateau.⁶ Among my first acquaintances was Jose Knighton who was running the Back of Beyond Bookstore. Moab being a small town, we soon learned of our mutual interests in hiking, anthropology, literature, and shared opinions - jaundiced, satirical, cynical, and sardonic - of certain elements of human nature. We hit it off. Over the next ten years Jose and I hiked together about a thousand miles a year. As a mentor, I consider Jose on a par with the many pairs of boots and sandals I wore out over this period.

One of the first big hikes Jose took me on was in March 21, 1994. Jose's friend, Devin Vaughn, had conceived the idea that a large, remote petroglyph that Jose had shown him might be an astronomical marker. (Devin, if I recall correctly, was also inspired by the work of Anna Sofaer.) The petroglyph depicts a snake nearly twenty feet long. We took the challenging Snake Route into the site with the intention of seeing whether or not this glyph had been used as an Equinox marker. That afternoon we decided that it was not and returned to town.

The site includes other archeological evidence; rock art, artifacts, and ruined structures. In addition to being fascinating and remote it is exceptionally beautiful. I was back a week later camping out. That evening I watched the sundown from the most obvious ruin at the site and saw something that made me suspect that there might be an astronomical alignment here. It would be six months, the Fall Equinox, before I could test this hypothesis. When I visited at the next Equinox, in September 1994, my suspicions were confirmed. The next morning I observed several other likely astronomical markers at the site. This set me off on a series of observations over the next seven years entailing more than two hundred visits to the site. I discuss this effort in *Chapter 3: The Snake*.

⁵ Cressman and Loring

⁶ The Colorado Plateau's geography loosely includes the Little Colorado River Basin, San Juan River Basin, and the central Colorado and lower Green River drainages.

In 1997, at the suggestion of Jose's wife, Diane Fouts, I visited another site on the Equinox. This site, in Arches National Park, also turned out to be astronomically functional. I discuss this in *Chapter 4: The Goose Panel*.⁷ In the ensuing years I have also identified Hidden Valley and Hellroaring Canyon, *Chapters 5 and 6*, as astronomically oriented sites.

I have gone to several sites which piqued my interest but did not, as far as I can tell, turn out to be astronomical. Several more that I visited may be astronomical but need more observation. Some of these negative observations, close calls, and further possibilities are addressed in *Chapter 7: Misses and Maybes*.

In 1997, while still studying the Snake site and just beginning at the Goose Panel, I came across a large panel in the remote reaches of Mill Creek, which I subsequently named the Rosetta Panel; an homage to the famous Egyptian Rosetta Stone which unlocked the knowledge contained in hieroglyphs. The Rosetta Panel contains symbols about hunting and sex which are fundamental for understanding Basketmaker art and its cultural roles. Interpretations derived from the Rosetta Panel also suggest a symbolic applications of such subsistence symbols in astronomical displays. Why this might be is an open question.⁸

⁷ Except for the Snake, Bean Hole, and Goose Panel, the names in this document are my own devices. Hence, I do not spend time qualifying them with phrases like 'I call such-and-such this-or-that for whatever reason'.

⁸Symbols from the Rosetta Pane, and their associated interpretations, set me off on a twenty year project centered on hunting-themed rock art. I write about this elsewhere, especially in the companion pieces *Moab Basketmaker Rock Art: A Codicon of Interpretive Elements* and *Rock Art in the Mill Creek Game Drive Corridor: An Interpretive Exercise*. Throughout this book I refer to these documents as the *Codicon* and *Game Drive*. I discuss the Rosetta Panel in the *Codicon*.

CHAPTER 1: THE ASTRONOMERS

In this book I discuss four astronomical sites in the order I began to study them - The Snake, The Goose Panel, Hidden Valley, and Hellroaring Canyon. The first three sites contain mostly Basketmaker art and structures. The art in Hellroaring Canyon is from a Desert Archaic Culture, primarily in the Barrier Canyon Style.

The Desert Culture and Basketmaker Culture were prevalent on the Colorado Plateau from roughly 4000 BC to 1000 AD, a span of 5,000 years. Both cultures made art that is notable for the imagination, ingenuity, and artistic license afforded the artists. This demonstrable license suggests that they had approval from their societies to create unique configurations using a menu of symbols their contemporaries could identify and relate to. The frequent placement of Basketmaker art contiguous to Archaic, and the robust ethic of aesthetic creativity in both cultures, suggest a relatively smooth transition, or perhaps a symbiotic cohabitation of the the area, from the Archaic times through the Basketmaker times.

Other astronomical sites in the region were created by the Anasazi culture which showed up in the San Juan Basin of a sudden about 700 AD and lasted until 1300 AD. There are traces of Anasazi art in Moab but it does not prevail. Other rock art styles in the region include Fremont, Navajo, and Ute. None of it, to my knowledge, has confirmed astronomical markers, but some of it may.

Desert Culture

Paleo-Indian is a term describing the first human inhabitants of North America. They arrived from Asia near the end of the last Ice Age. At that time western North America had a number of giant lakes in the Great Basin and these people left a great deal of rock art in the area.⁹ There is, to my knowledge, no definitive Paleo-Indian art on the Colorado Plateau, although there is a case being made for mammoth glyphs along the San Juan River near Bluff, Utah.

The hot, dry period that followed the end of the last glacial era, starting roughly 9,000 BC, is often called the Altithermal. It made human survival problematical in the lower regions of the Colorado Plateau. The people who persisted through this

⁹ I think some basic rock art symbols we see on Basketmaker panels may have originated at this time or even originated somewhere in the Old World and survived the move.

era developed the Desert Culture as the climate became slightly more temperate around 4000 BC¹⁰ They expanded across desert lands using a suite of culturally determinative artifacts. These artifacts, found from the Great Basin to Central America, include manos and metates (stone tools for processing vegetal matter) and spear-throwing devices called atlatls .

The Desert Culture, also called Desert Archaic or Archaic¹¹, sustained itself in large part by efficient processing of plant material. Their manos and metates are often close to water, where people would have lived, and/or near to food sources such as roots, nuts, seeds, cattails, cacti, and so on. When food was ready to harvest, the tools to process it were in place. For thousands of years bands of Indians could move seasonally from one site to another within a finite territory knowing that the arduous and time-consuming effort of making these tools was already done. This aspect of their sustenance culture is known as the 'built landscape'.

Desert Culture art had many variations in location and style over its 3000 - 4000 year existence; for example, the Barrier Canyon Style, Glen Canyon Linear Style, Pecos Polychrome Style, Grand Canyon Esplanade Style, and local variations.¹² Design elements often seen in Archaic art include broad shoulders tapering into limbless bodies, horned headdresses, snakes, birds, cats, cat/human combinations, wide staring eyes, and intricate body-fill made of dots, stripes, wavy lines, and so on. Much Archaic art exists as pictographs, painted rock art. There are also Archaic petroglyph panels that use pecked and etched designs, and panels that use both techniques.

Two big surprises in my research were the discovery of an Archaic Equinox marker on Hidden Valley's *Ray Panel* and a suite of Archaic astronomical markers in Hellroaring Canyon. I don't know of any other Archaic astronomy anywhere but these sightings suggest that it could exist. A careful and comprehensive study of Archaic art would include research into this topic.

¹⁰ Jennings.

¹¹ I use these terms interchangeably.

¹² To my knowledge there is not yet any single work that compiles, defines, and differentiates these, and other Archaic styles, by range, date, similarity, difference, and so on.



Figure 2. Bartlett Wash Panel, 25 miles northwest of Moab. is a late Archaic panel of the Barrier Canyon Style. It includes wide-staring eyes, elaborate body-fill, and armless and legless torsos. (I use this image again in *Chapter 7: Misses and Maybes*, Figure 309.)¹³

¹³ Jose and I call this the ET Panel.



Figure 3. Sego Canyon. The Archaic art at Sego Canyon contains classic Barrier Canyon design elements. These include wide-staring eyes, broad-shouldered bodies without arms or legs, elaborate body-fill, and snake-like designs.



Figure 4. Dark Angel Site, Arches National Park. These anthropomorphs resemble Barrier Canyon Style, Glen Canyon Linear Style, and early Basketmaker art. You decide. Their style is distinctly different from nearby figures at Sego Canyon and Bartlett Wash. They may share design elements with the Glen Canyon figures in the next photo, including narrow bodies and large, simple headdresses.

The creature to the left combines incongruous design elements. It is probably supernatural. I discuss the concept of 'fantamorphs' in the *Codicon*.



Figure 5. Puerco Ruins Site, Petrified Forest National Park, Arizona. Glen Canyon Linear glyphs are flanked with Basketmaker glyphs on the southern rim of the Colorado Plateau. The Glen Canyon glyphs are darker, hence older. They display narrow bodies and large, simple headdresses.

Basketmakers often placed their art next to or on Archaic art. They did it in ways that seem to emulate and embellish the Archaic intent, not disfigure or obscure. The light-colored glyphs on either side of this panel resemble the San Juan Basketmaker style, common over 100 miles from here.

Basketmaker Culture

Basketmaker Culture flourished on the southern and eastern flanks of the Colorado Plateau from roughly 2000 BC to 1000 AD, a span of nearly three thousand years. As mentioned, Basketmakers succeeded or coexisted with the Desert Culture across much of the region. Basketmakers were the first agriculturalists of the Colorado Plateau. While they grew corn and squash, they maintained many hunter-gatherer subsistence practices, some of which they adopted from the Archaics.¹⁴

Basketmaker art was often placed on the same wall as, often abutting, Archaic art, perhaps repeating themes created by the earlier artists. This could suggest a cooperative evolution from Archaic to Basketmaker culture, not a precipitous migratory invasion marked by population and/or cultural conflict and replacement.¹⁵ Whatever the causes and dynamics of the Archaic/Basketmaker transition, the cultural changes are reflected in the artistic changes.

One of these artistic changes was the development of a larger, more formal set of representative icons than that of the more free-wheeling Archaic artists. While Basketmaker artists could use design elements and symbols in highly individualistic ways, often with a great deal of artistic invention, their application seems more predictable and conventional than the way symbols were manipulated in Archaic art. This repertoire of icons made it possible for Basketmaker artists to link totems, fetishes, symbols, and actions into integrated tableaux that any member of society could interpret if possessed of a knowledge of the society's basic symbolic conventions. The Basketmakers' repeated use of this larger number of formalized symbols makes pattern recognition easier, which is beneficial to the work I'm doing.¹⁶

¹⁴ In *Game Drive* I give numerous examples of Basketmaker art on top of Archaic art along the course of a game drive corridor.

¹⁵ Migratory invasion and replacement is common. The rapid change of San Juan Basketmaker culture to Anasazi culture between 700 AD and 800 AD may have been precipitated by an invasion from the south. Behaviors common in central Mexico at the time of Teotihuacan's fall around 700 AD - bean agriculture, advanced pottery, stone architecture, and cannibalism - are signature traits of Anasazi culture, suggesting a Mexican diaspora invading the Basketmaker realm. The Navajo, Apache, Ute, and European cultures entered the Southwest from different directions between 1300 - 1600 AD.

¹⁶ In the *Codicon* I identify and interpret 82 discreet Basketmaker icons.

The Atlatl



The atlatl is a spear-and-throwing-stick device which was commonly used by Archaics and Basketmakers on the Colorado Plateau. It was the primary projectile weapon in each culture. The bow-and-arrow arrived around 300 - 500 AD, near the end of the Basketmaker era and succeeded the atlatl. The profound effect that a change in weapon technology has on a culture, and this fairly certain date for the atlatl/bow transition, are critical issues for anthropological analysis. I discuss these ideas in *Game Drive*.

The rock art symbol for the atlatl is a circle split by a line, probably representing feathers on one end of a spear shaft. All areas of Basketmaker art contain the atlatl symbol, as does Archaic art throughout the West. Atlatl throwers appear on-and-near Basketmaker astronomical panels at Hidden Valley. Basketmaker astronomical panels with atlatls were undoubtedly created before 300 AD.¹⁷ By my count, there are about three times as many atlatl depictions as bow-and-arrows in the Moab area. This correlates to the long dominance of the atlatl in Basketmaker culture.

Figure 6. Man throwing an atlatl, Celebration Point, Melba, Idaho. The atlatl pose is unmistakable. Figures in this throwing posture are seen throughout Basketmaker art. See Figure 189.

¹⁷ The atlatl/bow-and-arrow transition preceded the Anasazi culture by 100 - 400 years, indicating that the deservedly famous Anasazi astronomers of Chaco were a Johnny-Come-Lately crowd as far as other astronomers on the Colorado Plateau were concerned..



Figure 7. Birthing Rock, Moab. The new mother has an umbilical cord still attached, her baby boy is below. Her eyes were likely painted and the teardrops of her labor pecked in stone. An atlatl spear lays across (not through) her belly, possibly as a blessing for her son. See Figure 188.

An abraded figure, left, has a Basketmaker fertility icon between her legs. The icon, an inverted U with two dots at either end, is heavily abraded, indicating that the entire figure was rubbed and painted repeatedly.¹⁸

¹⁸I discuss this fertility symbol in the *Codicon*. I have spent time at the Birthing Rock at Equinoxes and Solstices and have seen nothing yet that, to my eyes, has astronomical significance. For more about the Birthing Rock see my slideshow *Mother Earth: Feminine Symbolism in Moab Basketmaker Rock Art*.

Why?

A single astronomical marker commemorates a single moment - a shaft of light reaching the center of a spiral or a distinctive bit of shadow on a petroglyph's face. My observations in Moab lead me to believe that some artists transcended the limitations of these simple markers. As members of story-telling cultures, these artists searched for and found larger stories to tell. Their cultures possessed astronomical awareness which they incorporated into their stories, along with symbol, structure, light, shadow, topology, and topography, marking not just a moment, but unfolding a narrative as the light traveled across the site. The succession of displays on the Goose Panel, for example, goes on for over two hours.

In itself, a story-teller's urge does not seem sufficient to explain why people marked the Equinoxes and Solstices with commemorative art and structures. The Archaic astronomers and artists who created astronomical art and structures lived in cultures that did not plant crops so an agronomic explanation is moot. If Basketmaker astronomers and artists derived their traditions from the Archaics, it is likely that agricultural motives remained largely irrelevant, even though Basketmakers grew corn.

What else could it be? Why did they do it? Here's how it works for me. As many times as I visit a display I always feel an expectant suspense before it appears. Even with my prior knowledge and experience of what is to come, I have felt that doubt many times. When a display appears I am relieved. I feel reassured. And, whatever my personal circumstances may be, the world is functioning as it should. The celestial order is intact and that is something to be grateful for.

Ancient artists used astronomy to express cosmic moments that, while ephemeral, were bonded to and energized by the eternal; the light moving across its palette at the appropriate season, evokes primal emotions of tension, doubt, and release - in a word, drama. I didn't dream in the beginning that, at the end, the feeling these displays would elicit in me would be gratitude for the life that was, is, will be, and the drama those lives hold. 'Thanks' is what I end up feeling when a display appears on time and in place. And so, as unscientific and inadequate as it may be, Thanks has become my answer to the question Why?

CHAPTER 2: MARKERS AND DISPLAYS

Learning About Ancient Astronomy

My introduction to the Southwest's ancient astronomers began with Anna Sofaer's discovery of the Sun Dagger in Chaco Canyon. It wasn't until I accidentally found astronomical markers at the Snake site that I began looking in earnest. Moab, as it turns out, is a good place to do that.

My friend and colluder, Jose Knighton, ran a bookstore in Moab. Among the things he stocked were the Rock Art Papers from the Museum of Man in San Diego, the annual reports of the Utah Rock Art Research Association (URARA), books and academic periodicals about archeology, and the occasional books about rock art and ancient astronomers. It was the work from the Museum of Man, edited by Ken Hedges, that provided the best tutorials for an aspiring archeoastronomer.¹⁹

From Hedges' work I learned of many different types of astronomical markers; for example the display known as *I See the Light* in which the first light on a panel illuminates a person's or animal's eyes. This knowledge was critical for recognizing important elements in the narrative of the Goose Panel. If I hadn't read the Rock Art Papers I wonder if I would have recognized this marker at that site. There are several examples of *I-See-the-Light* in this book.²⁰

I have noticed a little 'wobble' from year to year in the light and shadow patterns on some panels, most clearly on the Goose Panel. The Goose Panel uses a long, narrow aperture to create the *Silver Egg* display. The length of the aperture means that the light it casts is sensitive to slight changes in the Sun's position from year to year. Understanding the precise nature of this 'wobble' is above my pay grade. What matters to me is that the display exhibits a stable pattern of behavior over a span of years and satisfies my longing to be reassured concerning the continuity of the cosmic order.

A more perplexing complication is known as the 'precession of the ages'. This concerns the celestial mechanics of the Earth's axis and, from our view, the slow movement of the stars around the encompassing confines of the Tropics. Celestial mechanics is not my cup of tea and you can read about precession elsewhere. This cycle takes over 20,000 years so I wonder how much variation that might create in a 2,000 year old marker's accuracy. That these markers still

¹⁹ 'Archeoastronomy' is a clumsy term and somewhat off-putting. That's why I now use the term 'ancient astronomy'.

²⁰ When I began reading Hedges in 1994 I had no idea I would be citing him 25 years later. There were many volumes of the Rock Art Papers and many authors. I have neither a good record of the ones I read nor a memory of what I learned from which issue. For example, while I think I identified the idea of 'transference' on my own, I may have procured the seed of the idea in one of Hedges' *Rock Art Papers*. I'm not sure.

work can be seen clearly on the Snake Panel or the South Katchina. Hopefully somebody at Los Alamos or MIT will read this and do the math.

Definitions

I use several terms repeatedly. Some have well-known definitions and some have definitions I created. I try to use these definitions, standard or novel, to provide continuity and consistency in the document.

Markers and Displays

I define an astronomical *marker* as any topography, construct, artifact, or combination that has an observable relationship to a cosmic body at Equinox or Solstice. I would characterize The Mighty One and the White Temple, for example, as parts of astronomical markers. use the term *display* to identify a particular event. There can be several displays on a single panel. I distinguish displays in the text by using italics; for example, the *I See the Light* display and *Flat Top* display. The italics allow the reader to identify whether I'm writing of a display or the panel itself. There is some overlap in the definitions for *markers* and *displays*. Which term to use can be a subjective choice, but both indicate an astronomical observation.

Solstice and Equinox

Solstice is Latin for 'the Sun stands still'. From season to season the Earth's axis tilts 22 ½ degrees from the Celestial Plane. At the Summer and Winter Solstices the Earth reaches that maximum degree of tilt. When it does, the change of tilt slows to nearly nothing. After the maximum angle is reached the axis begins to tilt the other way, like the wobble of a giant gyroscope. Because of the slow, nearly negligible motion during Solstices, astronomical markers can function for several days on either side of the Summer or Winter Solstice moment.

Equinox is Latin for 'Equal'. At the Spring and Fall Equinox the polar axis is perpendicular to the Celestial Plane. The Earth's axis is tilting rapidly towards the next Solstice and the Sun appears to be moving across the horizon at nearly one degree a day. For this reason, the best Equinox observations have to be made within 12 hours of the Equinox moment. In most cases an Equinox display only appears twice a year, once in the Spring and once in the Fall. Where the Equinox sun falls obliquely onto a panel the observational opportunity may last for several days. More on this later.

Direct and Indirect Markers

Two categories of astronomical markers are *direct* and *indirect*. A *direct marker* has a direct sight-line to a celestial body - sun, moon, or stars - from a specific location. *The Mighty One* and *Kokopelli Rising* are examples of direct markers, one solar and one stellar.

Indirect markers use light patterns cast on a surface. They are more common than direct markers. All displays on petroglyphs are indirect markers. Indirect markers can be simple, like the Snake, or complicated, like the Warrior Panel.

Transference

So far as I know, this is the first interpretation, application, and discussion of *transference*. *Transference* refers to the light that moves across a panel, passing a story line from one glyph to another. This technique was useful for creating a narrative continuum that could engage numerous elements of a rock art panel in a story that took some time to unfold. I deduced the concept of transference at the Goose Panel as the light illuminated a storyline lasting over two hours. I later saw a similar technique used in the Warrior Panel PM display.

Transference may be unique to Moab Basketmaker panels. If there are *transference* displays created by other cultures or other Basketmakers artists, I have not yet heard of them.

Parsimony

"A man hears what he wants to hear and disregards the rest" Paul Simon

Self-delusion awaits seekers in every field. Parsimony holds that the simplest story that uses the most facts is the likely story. That is what I have tried to do here.

Parsimony is a discipline and defense against self-delusion. To achieve a parsimonious hypothesis one must be simultaneously skeptical and believing, literal and imaginative. These states of mind can be hard to reconcile, but it must be tried and, hopefully, a good story told.

CHAPTER 3: THE SNAKE SITE

This chapter discusses six neighboring astronomical sites, some with multiple displays. I call these markers the Mighty One, Warrior Panel, Bean Hole, Stone Box, Kokopelli Rising, and The Snake.



Figure 8. Behind the Rocks Wilderness. Two of the sites in this book are in Behind the Rocks. A developed recreational trail leads to Hidden Valley, upper/left corner. The Snake is somewhere on the right. The top of Behind the Rocks ends in the precipitous cliff of the Moab Rim, which drops a thousand feet into Spanish Valley and Moab. Hidden Valley is less than two miles from downtown Moab as the raven flies. It is a world away.

The Mighty One

My first visit to the Snake site was on March 21, 1994, with Jose and Devin. We did not see anything that seemed astronomical and walked back to town. I returned for an overnight stay a week later on March 27, 1994. On this walk I soloed over the convoluted route that Jose had taken the week before. At one point I became confused but saw a coyote track on a thin skim of fresh snow and followed it back to the route. It was not the last time I would be confused by Behind the Rocks, or the last time I would follow a coyote track to safety.²¹

That evening I watched the sun set from the Upper Ruin. At this time of year the sun is setting on the horizon line nearly a degree to the north every day. From the vantage of the Upper Ruin a large rock tower breaks the horizon line to the west. As I watched, the sun went behind the rock tower and, as it reemerged, set where the north side of the tower intersects the horizon line.

I knew that on the day of the Equinox one week before it had set five or six degrees to the south. I wondered if, from the vantage of the Upper Ruin, the sun would set on the Equinox where the rock tower's south side intersects the horizon. To find out I would have to wait until the Fall Equinox, six months later.

In those days I was living close to the trailhead of the Snake Route and visiting two or three times a month, sometimes more. I formalized and improved the Snake Route so I wouldn't keep getting lost. I found more panels, more structures, more artifacts, more dinosaur tracks, and more ideas about how the ancients conceived of and used this area.

²¹ Today, that faint trace is a well-trodden trail, in large part because of the one hundred plus times between 1994 and 2002 I used it. In the early days I often got confused, lost, and rimmed-out in Behind-the-Rocks. There and elsewhere I have often followed a coyote track to good purpose. Be wary of deer tracks. They're not going anywhere. Be wary of bighorn sheep tracks. You can't go where they go. Be wary of fox tracks. They're really little and you are not. Follow the Coyote, which, by the way, is Jose's *nom de guerre et plume*.



Figure 9. The Snake Route. The route from Spanish Valley to the Snake Site goes down this rock fin, emerging at the deep cleft in the center. It can be scary.

Upon emerging from the canyon, the Snake Panel is around the corner to the left. The Upper Ruin is to the right. The Mighty One is the light-colored formation above the cleft. The most common, and safer, route comes up Pritchett Canyon from Kane Creek, upper/left.



Figure 10. The Snake Site, looking east. The north side of the site is on the left.

● Bottom of Snake Route. ● Structures. ● Petroglyph panels. The brown dots at right mark the area of the Snake.

There are several panels, artifacts, and structural sites nearby that do not appear in the above photo. I count at least 25 different panels, structures, topographic formations, and artifact arrays associated with this site.

During early visits we cleaned the ashes, foil, and cigarette butts of recent campfires out of the Upper Ruin. The campers built their fire from structural elements of the ruin. We also found a number of artifacts, including pottery, manos, and a metate. We hid a number of these items near their original locations, usually by putting them under large stones. In the ensuing years some visitors searched, found, and took them home. Figures 38 and 52.²²

²² When I analyze human behavior as a Darwinista, monkey business is foremost on my mind. A Greedy Monkey Syndrome (my phrase) is thoroughly documented throughout the primate family and is a well-known component of *Homo Sapiens* character.



Figure 11. The north side of the Snake Site. This area is on the left side of the previous photo.

-  petroglyph panels.
-  structures and ruins.
-  dinosaur tracks.

The two green circles touching each other, center/left, mark the location of the Upper Ruin and Stone Box. The Upper Ruin is used in three astronomical displays. It is an Equinox observatory for the *Mighty One* display and, at Winter Solstice, part of the *Stone Box* and *Kokopelli Rising* displays.

This site is based along one of the limestone inclusions I discuss in Figure 77.



Figure 12. The Mighty One. Mark Wilsey and his son, Seth, are two of my collaborators. I named the rock tower behind them The Mighty One. They are standing in the Upper Ruin. Seth is pointing to the Upper Shield petroglyph at the top of a small rock fin above the Upper Ruin. See Figure 50.

Seth and his friend, Ryan Weinpahl, made interesting discoveries at and near the Snake, including stone arrangements on the Cairn Plateau which I discuss at the end of this chapter.

I did not have photographic equipment to adequately document the early years of exploration and observation at the Snake Site. The following images of Equinox sunset, taken from the Upper Ruin, have no observable difference in the Sun's position from when I first observed this display on September 23, 1994.



Figure 13. *The Mighty One* display, 19:12 MDT, September 22, 2014. Fall Equinox sunset as seen from the Upper Ruin. The Spring and Fall Equinox sunsets disappear on the south side of the *Mighty One* where it intersects the horizon. Because the Sun's position at sunset changes nearly a degree every day, this display cannot be seen the day before Equinox or the day after.



Figure 14. Mighty One from the Upper Ruin. 19:20 MDT, March 19, 2008. The sun may set at a slightly different time from one Equinox to another, but the location of the sunset is the same.

Figures 15, 16, and 17 are a time lapse sequence of fifteen seconds on the Spring Equinox, March 19, 2008.



Figure 15. Mighty One from the Upper Ruin. 19:22:38 MDT, March 19, 2008. The sun sets where the rock tower intersects the horizon.



Figure 16. Mighty One from the Upper Ruin. 19:22:46 MDT, March 19, 2008. The last glimmer.



Figure 17. Mighty One from the Upper Ruin. 19:22.54 MDT, March 19, 2008.

It takes three minutes from the time the sun touches the Mighty One with its lower/right edge until the upper/left edge of the solar disc disappears behind the formation. This is a textbook example of a *direct* astronomical marker.



Figure 18. Mighty One from the Upper Ruin, 19:04 MDT, September 22, 2009. In this photo the sun's position is comparable to that seen in Figure 15. This photo was taken a year and a half later, almost twenty minute earlier in the day. Anomalies of this order may be attributed to the 'wobble' I mentioned in the beginning of *Chapter 2*. The discrepancy would be unnoticeable without modern timekeeping.



Figure 19. The Mighty One. I found this chert pebble in circumstances that associate it with the *Mighty One* display. Chert of this type does not occur naturally in the immediate area, so I assume that someone carried it in long ago.

The red inclusion resembles a common Archaic form - a horned anthropomorph without arms or legs. The light on the *Snake* display may create a similar form. I think this stone's finder recognized this common symbolic form in the inclusion and that is why, one way or another, it found its way to the Snake. I call this stone The Mighty One, also, since I suspect it was a fetish integral to the psychology and mythology of this site.



Figure 20. Mill Creek, Waterfall Alcove. These Archaic pictographs have horned headdresses and tapering, limbless bodies that resemble the inclusion in the chert pebble seen in Figure 19. They are in a large habitation site a few miles from the Snake. They are two to three feet tall. There is a lot of art at the Waterfall Alcove and in Mill Creek. Most of it is Basketmaker. I have observed the Waterfall Alcove for Summer Solstice astronomy to no avail.

The Warrior Panel AM

The Warrior Panel is an elaborate panel about fifty feet from the Upper Ruin. I named it the Warrior Panel for the spear-holding figures. Observations indicate that the Warrior Panel is an Equinox panel that functions both in the morning and in the afternoon. This dual-use makes it unique in my experience.



Figure 21. The spears on the Warrior Panel may have other symbolic meanings than aggression. A former friend of mine found this large, white point along the Snake Route. It is an inch and a half wide and three and a half inches long. It may have been a ceremonial item that correlated to the spear points on the Warrior Panel. Despite my protests, she could not refrain from taking it home with her. Greedy monkey. I do not know where it is now.



Figure 22. *Warrior Panel AM*. 11:18 MDT, September 22, 2009. Astronomical displays appear on the facet to the left on Equinox morning and afternoon. The facet to the right has intriguing glyphs but I haven't yet seen any displays there.

Around 11:00 AM on Equinox the first light on the panel comes over the cliff above and hits the panel obliquely. This light forms a large triangle which intersects the outer ring of the concentric circles where it is crossed by a meandering line. The meandering line ends in a dot above a half-moon shape.



Figure 23. *Warrior Panel AM*. 11:22 MDT, September 22, 2009. As the light triangle attains its best definition, its apex intersects the outer ring of the circular glyph where the meandering line crosses it. The morning display on the Warrior Panel is brief and simple. The juxtaposition of the light-triangle and rock art designs seems intentional. Soon after this, the entire panel is lit and the morning display over.

Another display may include a small dot at the end of a meandering line, left, and a dot of light nearly touching it. Maybe it is a marker. Maybe not. I might not suspect this as marker if there weren't other markers on this panel and nearby. This creates a suspicion that less definitive displays might be here, too.

The thirteen small notches at the bottom of the circle may correlate to a lunar time-frame, for example, half of a monthly cycle or an entire lunar year. If there is such a display, I have not discovered how it works.

Figure 24 and 25 no longer included.

Warrior Panel PM

The *Warrior Panel's* PM display is more intricate and long-lasting than the morning display. The afternoon display includes examples of the transference technique. I first observed afternoon astronomical markers on the Warrior Panel on March 20, 2009, fifteen years after I made my first morning observations at the site.



Figure 26. Brenda Brunello, Pounce Panel, Hidden Valley, Moab. Brenda was on a hike to the Snake with Mark Wilsey, Seth Wilsey, and me on March 20, 2009, and abetted the discovery of afternoon Equinox displays on the Warrior Panel. Six months later Seth and I returned to document the panel in the afternoon.



Figure 27. *Warrior Panel PM*, 14:11:31 MDT, September 22, 2009. The rock art faces west. There is a curtain wall to the west of the panel that creates shadows that interact with the art to form astronomical markers. In this image the curtain wall's shadow, left, connects the dot to the edge of the half-moon, creating the first marker.²³

²³ Dividing things in half may be an Equinox motif I call 'split-in-half'. The best example I know is on private property and I can't share it with you.



Figure 28. *Warrior Panel PM*, 14:27:58 MDT, September 22, 2009. In this complicated display the upper part of the shadow conforms perfectly to the arc of the concentric circles. At the same time it splits the middle of the small concentric circles and touches the three apexes of the wavy line, involving three different glyphs in a single astronomical display.



Figure 29. *Warrior Panel PM*, 14:36:23 MDT, September 22, 2009. At the moment the shadow splits the large concentric circle it touches the first Warrior's foot. In itself, the halving of the circular glyph constitutes a simple marker. However, when the Warrior connects, it becomes a complex marker, an example of a transference technique moving the narrative focus from the concentric circles to the first Warrior. Both icons have further roles to play.



Figure 30. *Warrior Panel PM*, 14:44:56 MDT, September 22, 2009. As the shadow occludes the first Warrior it touches the second Warrior's spear point, a likely example of transference.

This act of transference makes me think that the point in Figure 20 may have been ceremonial and used in a dramatic portrayal of this moment of transference, but this is speculation.



Figure 31. *Warrior Panel PM*, 14:47:05 MDT, September 22, 2009. As the shadow occludes the last bit of the concentric circles, it fits perfectly to the body-form of the second Warrior and makes first contact with the last glyph on the facet, the circular glyph, lower right. This may be another example of transference.



Figure 32. *Warrior Panel PM*, 14:48:09 MDT, September 22, 2009. This display connects the concentric circles, the second Warrior, and the last circular glyph. The form and location of all three is precise and intentional, hallmarks of a transference display.

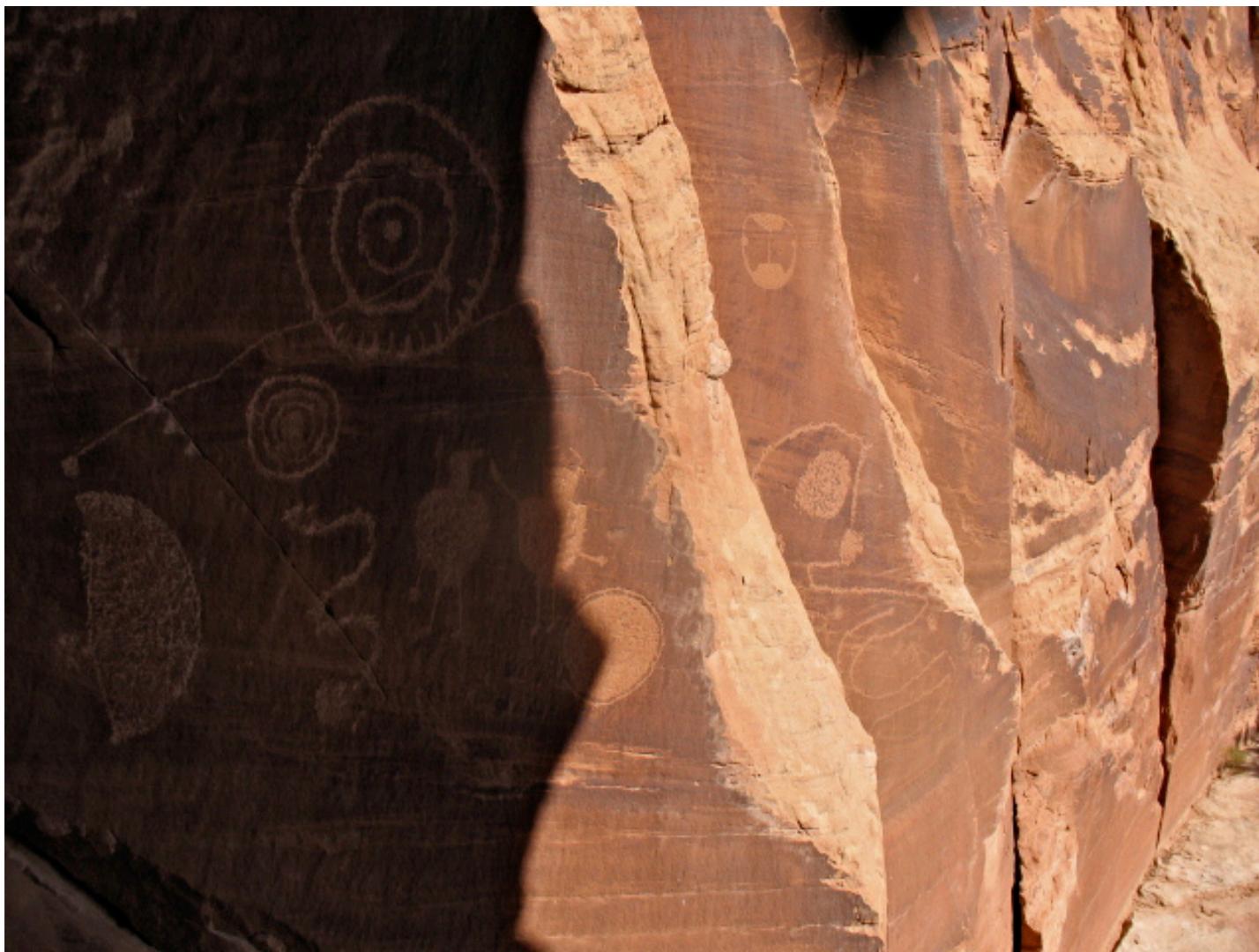


Figure 33. *Warrior Panel PM*, 14:52:25 MDT, September 22, 2009. As the shadow splits the second Warrior in half, it forms a triangle that points to the center of the small circular glyph, two possible examples of a 'split-in-half' motif.



Figure 34. *Warrior Panel PM*, 14:55:41 MDT, September 22, 2009. As the shadow occludes the second Warrior the triangle, which had pierced the center of the small circular glyph, now splits that glyph in half. Perhaps the 'split-in-half' motif is a metaphor for the Equinox when the days and nights are equal in length.

The elapsed time from Figure 28 to Figure 35 is 44 minutes. In that span the shadow makes at least 7 displays with 14 significant connections among the panel's design elements. The elapsed time from the shadow's first contact with the large concentric circle until the smaller circle is split in half, the crux of the display, is 28 minutes and includes at least 12 of the significant connections. Transference plays a major role in the movement of dramatic force from one location to another...whatever narrative the panel may have been illustrating.

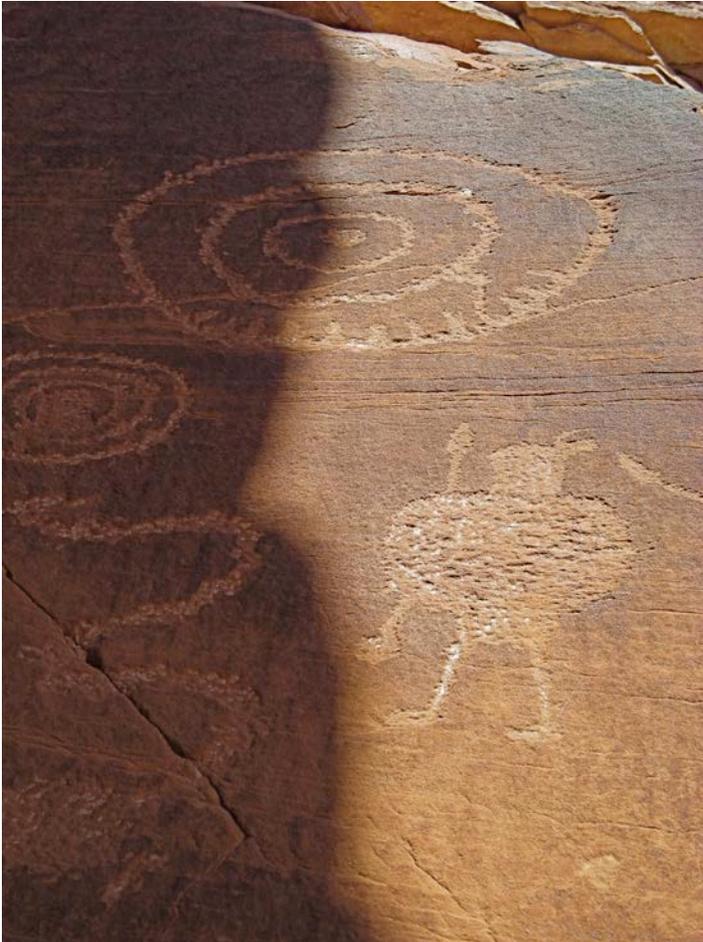


Figure 35. This Warrior is probably wearing the kind of 'Quail Bun' headdress seen in Figures 50, 65, 185, and 188. These are most of Quail Buns I know in the Moab area. I discuss the Quail Bun in the *Codicon*.

The repeated appearance of this design at and near astronomical displays may indicate a relationship associated with this headdress.

The Bean Hole

When Jose Knighton stumbled across the Snake in the mid-1980's he found a can of beans in a small cave; hence, the Bean Hole. This cave goes into the cliff about nine feet, makes a 30 degree turn to the left, then goes another nine feet. A few feet above the Warrior Panel a long, narrow crack penetrates to the back of this cave. Jose noticed structural ruins at the entrance to the Bean Hole. The bottom of the cave is filled with a pack rat midden, which creates a flat floor.

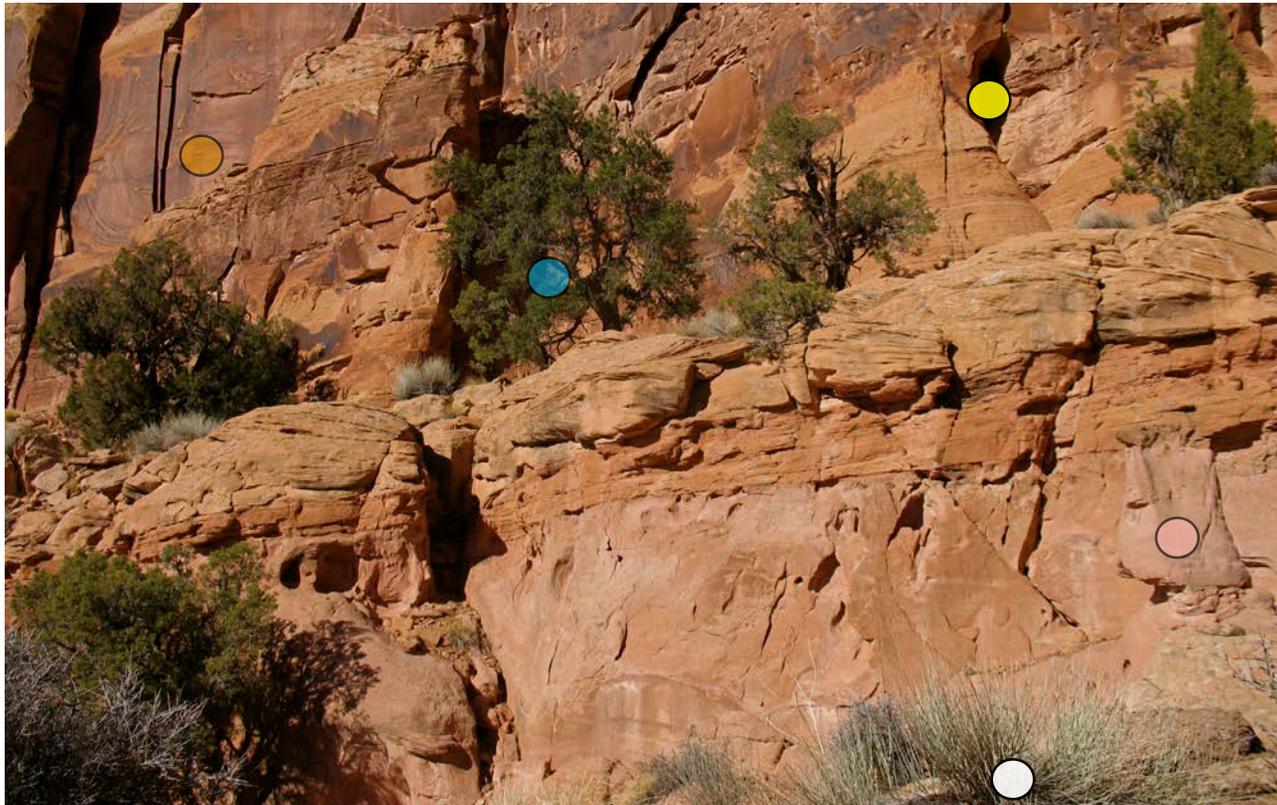


Figure 36. The Bean Hole area. ● High Shield Panel. ● Warrior Panel. ● Bean Hole. ● Pink Pedestal. ○ Lower Ruin.

The Lower Ruin has a thick layer of charcoal. We did not find any fire-cracked rock, suggesting that there were many large fires, but little cooking. We found a mano, metate, pottery sherds, stone flakes, and a hammer stone here.

Between the Bean Hole and the Lower Ruin is a pink-colored pedestal. In my mind's eye, I can see it as a totem in some sort of ritual. It is an easy climb from the Lower Ruin to the Bean Hole. As mentioned, there was a structure at the cave's mouth. Once again, my imagination suggests that this was part of a wall that sealed the cave's mouth, that hot rocks were passed from the Lower Ruin to the cave where they were used as part of a ritual steam and/or smoke bath.



Figure 37. The Lower Ruin. A dark charcoal lens fills the Lower Ruin, center. The pink pedestal, lower/left, stands between the Lower Ruin and Bean Hole. We hid the artifacts we found at this site under large rocks near the the ruin.



Figure 38. We found these artifacts in the Lower Ruin. They include a broken metate and, left to right, a broken mano, a white hammerstone, various stone flakes and pot sherds, and another broken mano. The metate may have been used to grind vegetable matter for a ritual. These artifacts were stolen from the site sometime after March 20, 2009. I reported the theft to the BLM. There is no telling how many artifacts have been taken from this site.

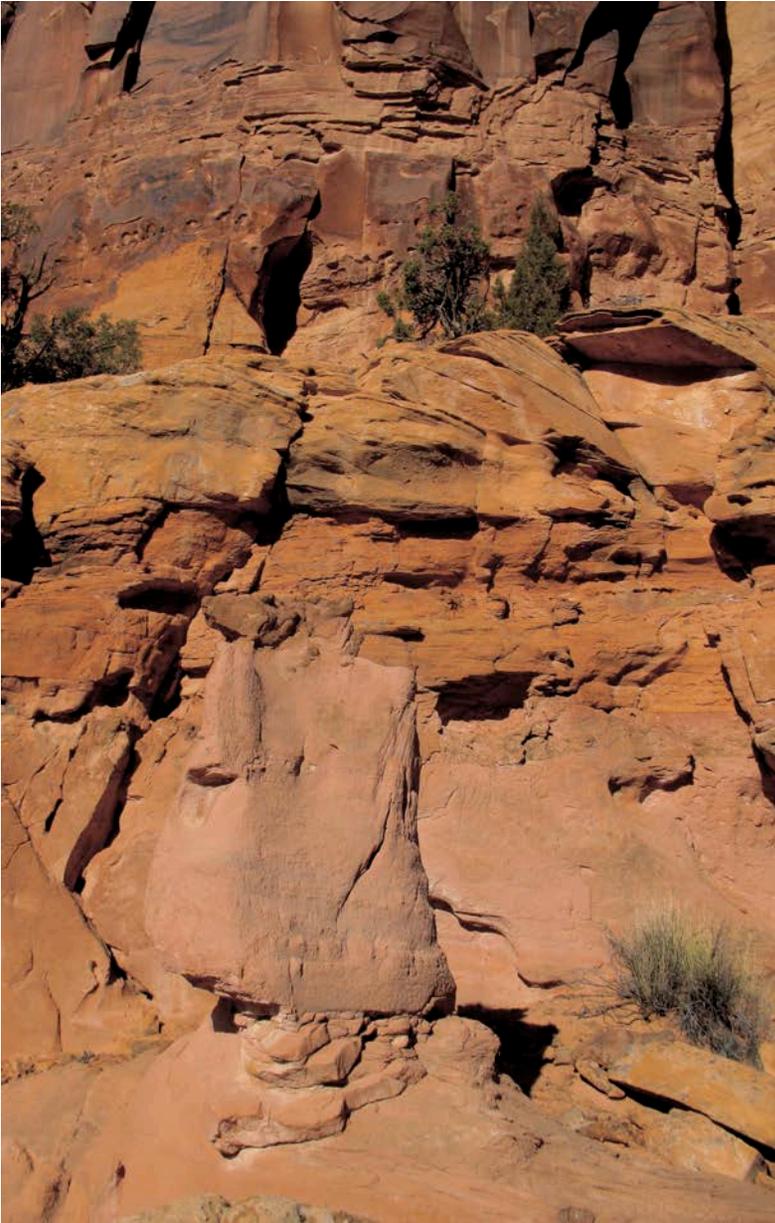


Figure 39, left. This pedestal of pinkish stone is between the Lower Ruin and the Bean Hole, the dark area at upper left. Although it has no apparent astronomical function, it may have been used as a ceremonial totem or fetish.

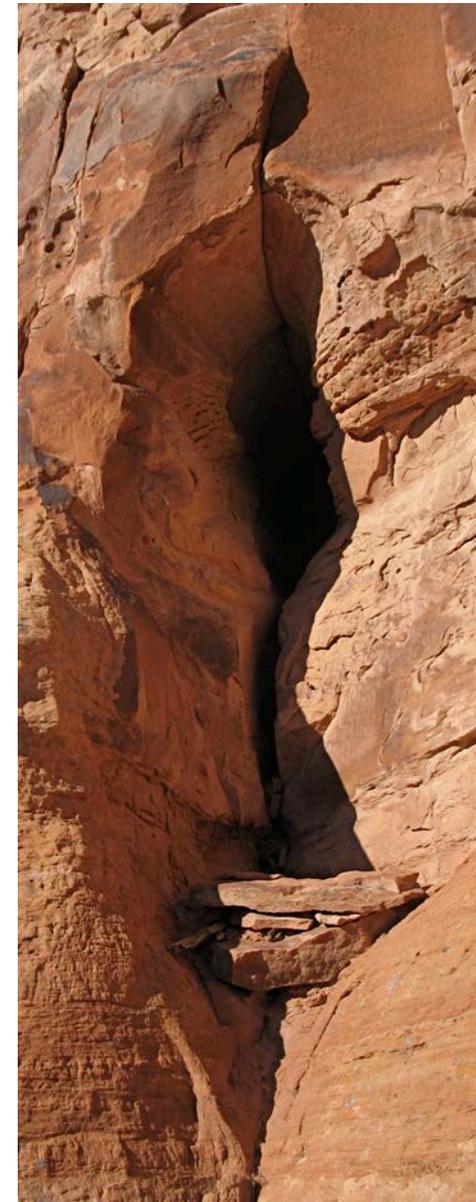


Figure 40, right. The Bean Hole. The stacked rocks at the entrance still hold mortar. There are more tumbled stones below the crack, probably from the structure. The cave is narrow but accessible.



The entrance to the Bean Hole is a vagina shape. If a structure sealed the entrance, if hot rocks were passed up from the Lower Ruin, if the rocks were sprinkled with water and/or a vegetal agent like the native psychedelic datura, then perhaps this cave was the domain of vision-seeking priestesses. While this is wildly speculative, similar activities have been recorded throughout the history of the world.

Exploring the pack rat midden that fills the cave might bolster or destroy some of these ideas. If this is ever done, I hope it is done with the utmost care, leaving any artifacts *in situ* which, scientifically and ethically, is the best choice.²⁴ The crude practices of digging and screening could cause irreparable damage to such a small area and destroy the chance to use advanced archeological techniques today or in the future.

Figure 41. Bean Hole. The crack that opens into the back of the Bean Hole, upper right. There is a small panel with two anthropomorphs, lower left. They may be associated with the Bean Hole, the adjacent Warrior Panel, the direct displays seen from the Upper Ruin, all or none of that.

²⁴ Over the years, the mavens of governmental and academic archeology have demonstrated the primatological underpinnings of their psyches with textbook demonstrations of the Greedy Monkey Syndrome. A 2000 year old pot found in a remote canyon on BLM land, for example, may wind up with a number in box in a museum basement hundreds of miles away from home in order to 'protect' it. Meanwhile, back in the canyon, there is little difference between the archeologist's end result and that of the type of mentioned in Figures 20, 38, and 52.



Figure 42. Bean Hole. These two figures outside the Bean Hole, lower/left in Figure 41, are heading left. The one on the right is carrying a large basket of a well-known Basketmaker design. I propose that the *Kokopelli Rising* display seen from the Upper Ruin may use the triangular form of Taurus to represent a basket on someone's back. If so, then this glyph may be related to that display. The figure on the left has one foot raised and may be playing a flute, perhaps reiterating a theme found on the Raven Eats the Sun Panel, Figure 165.²⁵

²⁵ But I wouldn't bet on it.



Figure 43. *Bean Hole* display, 17:28:11 MST, December 21, 2008. The light entering the Bean Hole through the crack, Figure 41, just before sundown on the Winter Solstice.



Figure 44. *Bean Hole* display, 17:43:11 MST, December 21, 2008. The last light in the Bean Hole . A small person crawled back there and said there may be two man-made dots pecked on either side of the top of the light. If so, that would support the hypothesis that the Bean Hole was used as part of a Winter Solstice observation or ceremony. I don't fit in there, so I haven't seen it myself.

One minute later the light is gone.



Figure 45. The Bean Hole, 17:46:43 MST, December 21, 2008. It took about two minutes to crawl out of the Bean Hole after the last sunbeam disappeared from the back wall. This is a photo of the Winter Solstice sunset from the entrance.

The Bean Hole was clearly important to the users of this site. Why is not exactly clear, but there does seem to be a correlation to the Winter Solstice sunset.

The Stone Table

The Stone Table site is about 30 feet to the right of the Bean Hole. It contains three panels and an unusual artifactual array, the Stone Table. Observations at this site have not discovered any overt astronomical markers. I discuss this site here as an example, in context, of a Miss, a suspicion that did not pan out.



Figure 46. The Stone Table. The Stone Table, bottom/center, is a flat-topped rock about a foot wide and a foot-and-a-half long. There are three stone 'spikes' on top of it, each about nine inches long. When a spike is moved, a lighter-colored rock can be seen where this spike was. This phototropic phenomena suggests that the spikes have been sitting on the table for a long time.



Figure 47. Stone Table. September 22, 2009. Of the three panels at the site, this one seemed the most likely to produce an astronomical display.



Figure 48. Stone Table. While this configuration is evocative of a transference marker or a split-in-half motif, neither is definitive. I count it as a Miss.

Upper Ruin/Stone Box/High Shield

The Upper Ruin plays a part in at least three different astronomical displays, including the *Stone Box*.



Figure 49. Upper Ruin, left, and Stone Box, right. The Upper Ruin is about 15 feet in diameter, a typical size for a Basketmaker pit house. The Stone Box area includes the Stone Box and a small pile of stacked rocks just to the right of the Stone Box, Figure 57. This photo was taken from the High Shield Panel, Figure 36.

The green arrow marks the remains of a stairway leading from the the Upper Ruin towards the Winter Solstice sunset. The structure may have had apertures, alignments, artifacts, and structural features, including this stairway, that served astronomical functions. I call this stairway the Door into Winter. It may be a an astronomical marker, but I do not include it in a count of the site's displays.

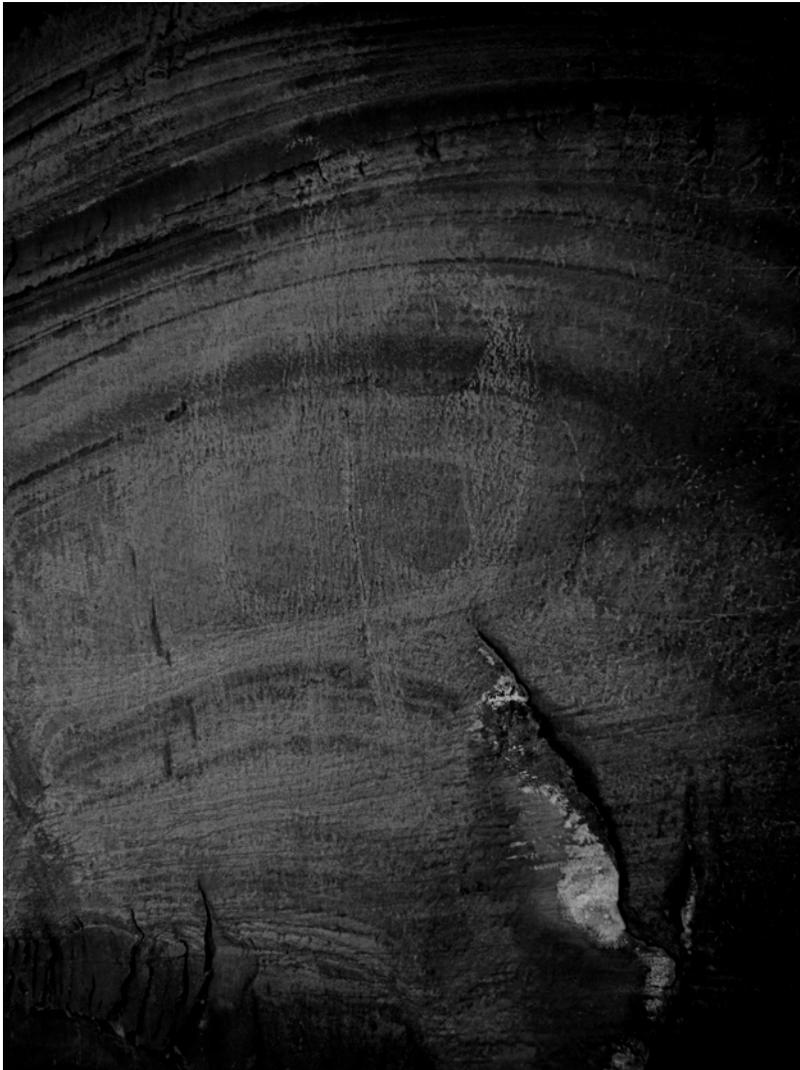


Figure 50. High Shield Panel. The High Shield Panel is about three feet tall. It is at the top of a rock flake thirty feet above the Upper Ruin.

The figure's design elements includes a large circular shield with four circles inside its circumference, and a headdress with a hair bun and a quail-like feather on the one side of the head. These design elements also appear on figures above the Snake. The Quail Bun headdress appears again at two astronomical locations in nearby Hidden Valley. See Figure 35.

The repetition of these design elements near astronomical panels at the Snake and Hidden Valley suggests that the Quail Bun headdress may have been a fetish affiliated with Basketmaker astronomers.

These are the only examples of this headdress I know of in the Moab area. It appears in later Fremont art in Nine Mile Canyon but its role may have changed.²⁶

²⁶ A hundred miles to the north, Fremont glyphs on Warrior Ridge in Nine Mile Canyon sport the Quail Bun headdress but they are carrying bows-and-arrows. In Moab this headdress is near atlatl throwers, as well as astronomy. I suspect that Fremont culture evolved out of the Basketmaker culture. The motif's symbolic role-change from atlatl/astronomer to bow-and-arrow/warrior may be an indicator of the Basketmaker/Fremont evolution. A search for astronomical affiliations with Quail Bun headdresses in Fremont art would be an interesting task.



Figure 51. Upper Ruin. Rory Tyler inside the Upper Ruin where the photos of the *Mighty One* and *Kokopelli Rising* were taken. A wooden structural element can be seen behind me. When I first visited this site I found the remains of similar sticks in a recent campfire inside the ruin. I threw the ashes down the hill to forestall a monkey-see-monkey-do incident. We put surface artifacts from the site under the flat stone, right. They have been stolen. More monkey business.



Figure 52. Upper Ruin. A hammer stone and potsherds found at or near the Upper Ruin. I showed this site to Southwest pottery expert Eric Blinman. He identified these shards as being Anasazi style from between 1000 - 1050 AD. This was the era of the Anasazi culture's brief expansion into the Moab area. They may have used the site for a while and even created some of the art here. This cache was looted sometime after July 9, 2009.



Figure 53. The Stone Box. The Stone Box is a man-made, box-shaped structure about twelve feet from the Upper Run. It is almost two feet square. A few feet further, to the northeast, is a carefully stacked pile of stones.

On Winter Solstice mornings a shadow from across the canyon, formed by the peak of the Snake Fin's terminus, creates a triangular shadow which precisely occludes the Upper Ruin, touching the ruin tangentially on either side. It completely shades the Stone Box, but does not reach the stack of stones beyond. The entire configuration seems intentional.

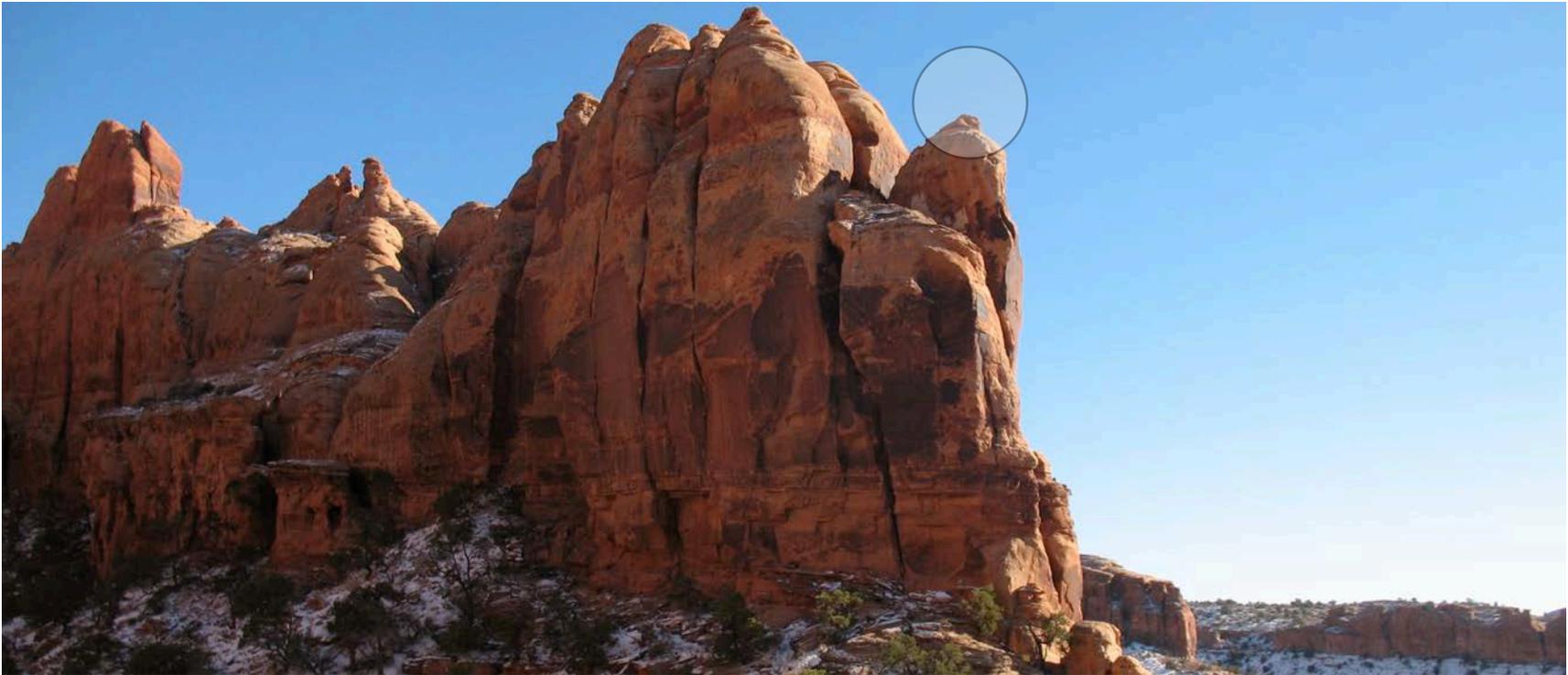


Figure 54. Snake Fin. On Winter Solstice the shadow from the end of the Snake Fin, marked by the circle, perfectly covers the Upper Ruin and the Stone Box, but a stone stack beyond the box remains in light.



Figure 55. Upper Ruin and Stone Box, 9:46:25 MST, December 25, 2010. The gray line traces the shadow from the tip of the Snake Fin. It tangentially touches one side of the Upper Ruin, forms an apex that covers the Stone Box, then returns to the other side and forms another tangential contact with the Upper Ruin. The stone stack beyond the Stone Box remains in light.



Figure 56. Upper Ruin and Stone Box. The same photo as Figure 55. The tangential contact of the shadow with the sides of the ruin is clear.



Figure 57. The Stone Box and the stack of rocks beyond.

Kokopelli Rising

Kokopelli Rising is a direct Winter Solstice display. It is the only astronomical display I have found that uses stars, specifically stars in what we call Orion and Taurus.



Figure 58. Last light at the Snake Route, 18:23 MST, December 19, 2008. Photo taken from Upper Ruin.

The circles show where, from 20:30 MST to 20:32 MST, the three main features of Orion can be seen, separated by the rocks of the canyon.

About 20:25 MST Betelgeuse appear in the bottom of the crevice on the left. At 20:30 the star Rigel clears the the rock tower at the right. At 20:33 Orion's belt comes into view in the notch formed by the main canyon. The three chief elements of the constellation appear simultaneously for two minutes, then Betelgeuse disappears behind the fin.

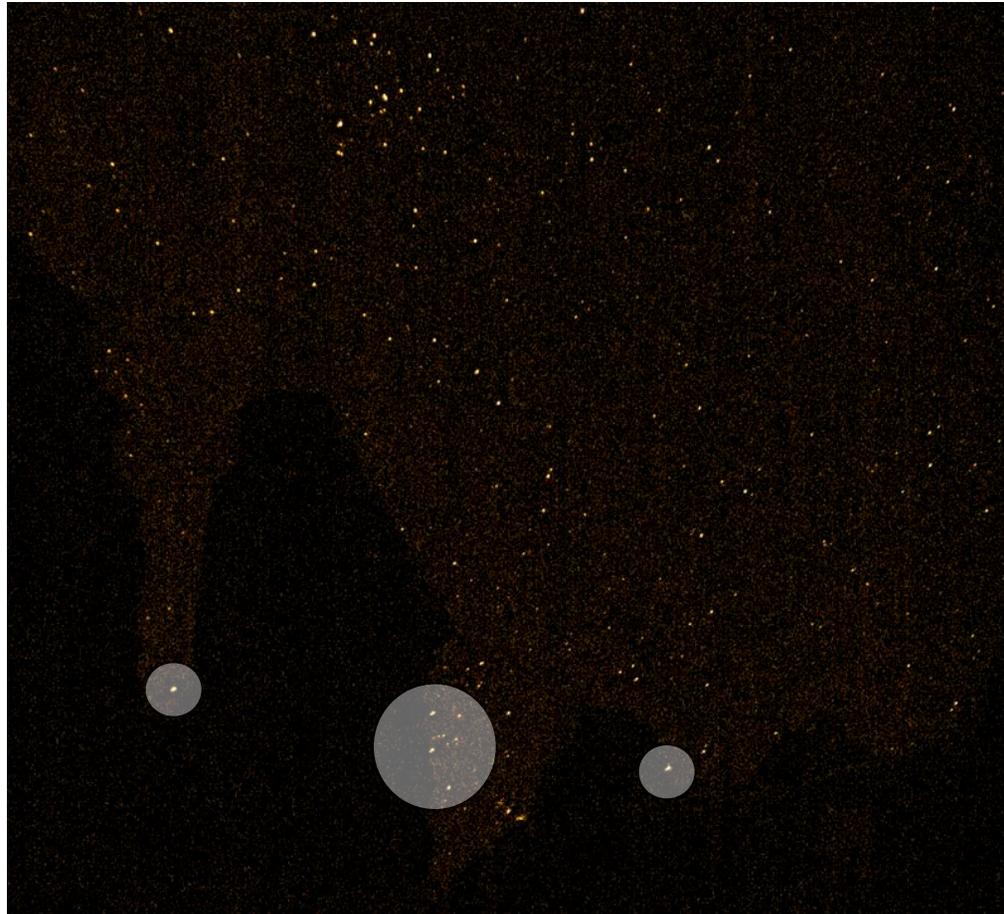


Figure 59. *Kokopelli Rising*, 20:31:11 MST, December 19, 2008. Photo taken from Upper Ruin. The three main feature of Orion, left to right, are Betelgeuse, the Belt, and Rigel. This configuration is visible for two minutes, then Betelgeuse slips behind the rock fin on the left. From this vantage, these features are visually separated by the rocks of the canyon.

As noted in *Chapter 1*, the Basketmaker culture was the first in the region to practice agriculture. Around the world, the themes of death, dismemberment, and resurrection are common metaphors for planting and harvesting in agricultural societies. Could the *Kokopelli Rising* display be a symbolic illustration of dismemberment and interment?



Figure 60. *Kokopelli Rising*. Above the Orion stars there is an arc of stars and then the V-shape of the Taurus constellation. Basketmakers knew nothing about Greek mythology. However, a regular figure in Southwest rock art is a bent-backed flute player, sometimes carrying a basket, commonly known as Kokopelli. Is this him?²⁷

²⁷ I seldom use the term 'Kokopelli' anymore because it has little provenience or history to support it. I named this display before I decided to stop using this term.

I first noticed the *Kokopelli Rising* display during the Winter Solstice, 1997. The idea of Orion and Taurus forming a single image of a burden carrier bending under a load did not occur to me until the Spring Equinox of 1998 when all of these stars are in the southern sky at sunset, perpendicular to the horizon, like a Flute Player standing tall at the start of Spring with a basket of hope and promise on his back.

The Snake

Jose Knighton came across a twenty-foot long petroglyph of a snake during a hike into the Behind the Rocks Wilderness in the mid 1980's. Jose's friend, Devin Vaughn, suggested that it might be an astronomical marker. In March 1994, the three of us went to see if it marked the Equinox. It did not, but as discussed above, I began exploring the site for other markers and finding them.

On June 18, 1997, during the Summer Solstice period, another colluder, Kyle Ross, and I walked to the Snake using the Pritchett Canyon route. We neared the Snake just before 11:00 am. As we got closer to the site I noticed that the sun was still behind the cliff above the petroglyph and had not touched the panel. I reached the Snake in time to see the following image. When Kyle arrived a few minutes later the light had moved and this shape had transformed to something like the image in Figure 62. Kyle expressed skepticism about my claim of what I had just seen.



Figure 61. The Snake. 11:12 MDT, June 24, 2009.

This and the following photo were taken in 2009. The images are identical to the ones I saw in 1997.

This light-form appears for several days before and after the Solstice date because of the slow motion of the sun at this season and the oblique angle of the light as it comes over the cliff.



Figure 62. The Snake, 11:14 am MDT, June 24, 2009. This is what Kyle saw when he arrived about two minutes after I did on June 18, 1997. On June 19, Kyle, Jose, Devin , and I went up to the Snake where the following photo was taken.



Figure 63. Rory Tyler at the Snake, 11:13 am MDT, June 19, 1997. To my knowledge, this is the first photograph of a person with the *Snake* display.

To be clear, neither Jose nor I 'discovered' the Snake petroglyph. What I rediscovered was the Summer Solstice light on the Snake. There is some graffiti on the panel, probably placed there by a cowboy or miner. I have also heard of Snake photos taken in earlier years. To my knowledge, none includes an image of the Summer Solstice display. Nor is there a body of observations from this site anything like that found in this chapter.

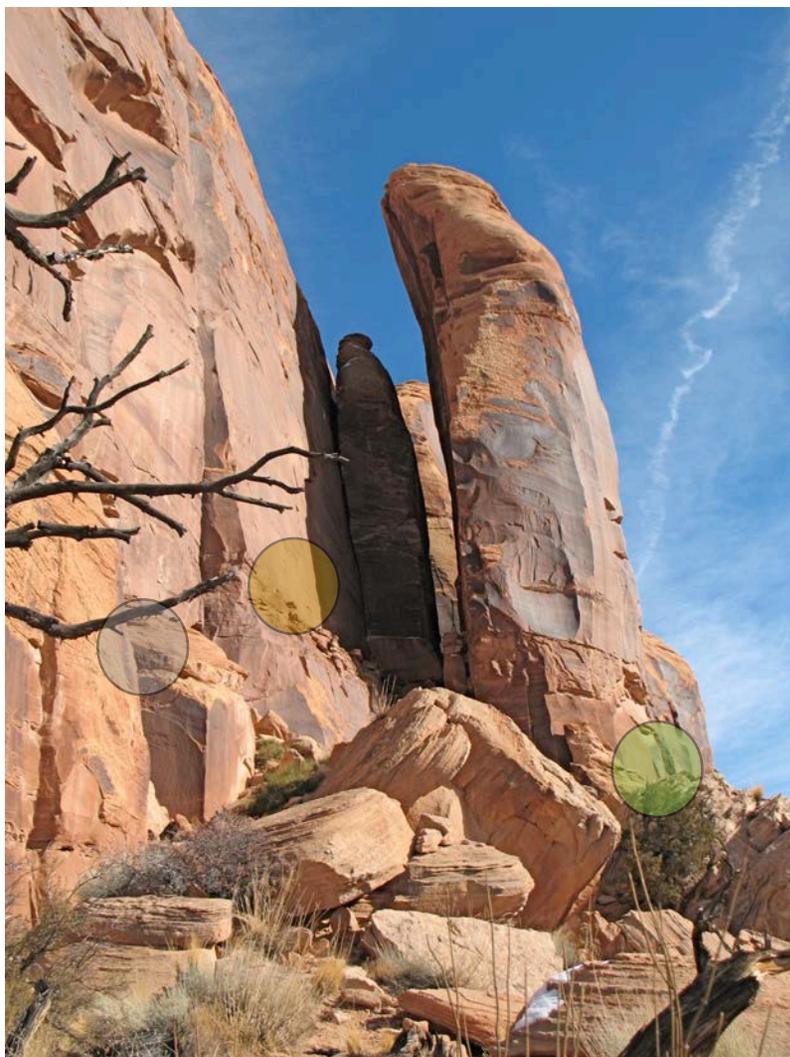


Figure 64. The Snake Site. The Snake glyph is out of sight, behind these  rocks.

There are  shield-like figures on a ledge above the Snake. See Figure 65. It requires some tricky climbing to reach them.

There are  several faint, abraded glyphs and panels at the base of the tower, up the hill from the Snake. See Figures 66 and 67. They are dilapidated and difficult to identify as Archaic, Basketmaker, Fremont, or something else.

The phallic form of the rocks next to the Snake would have been noticed by the ancient users of this site. The vaginal character of the Bean Hole, Figure 40, and the phallic character of these rocks would likely have become part of single story. I leave the rest to your imagination.

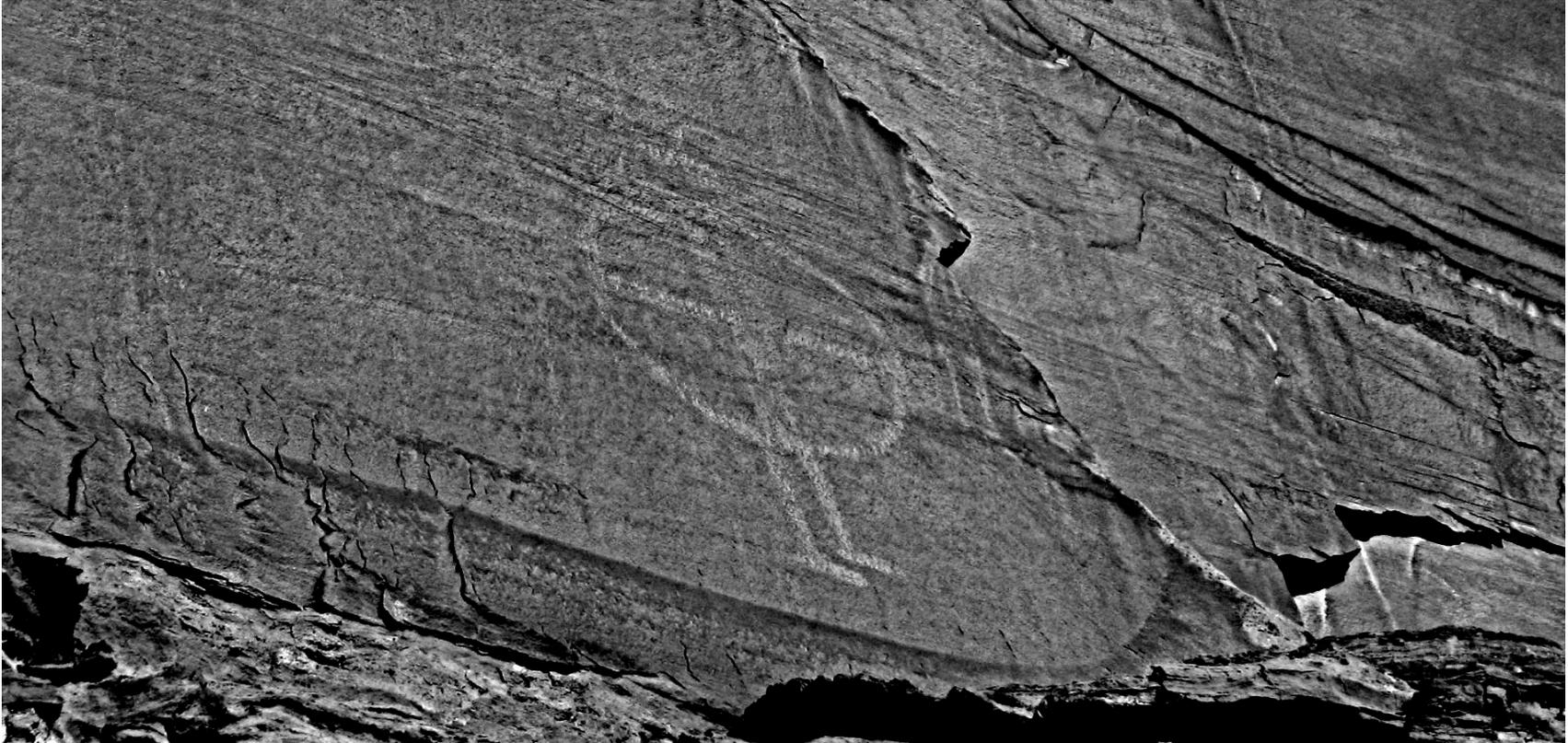


Figure 65. The Snake Site. This round-bodied anthropomorph on a ledge above the Snake resembles the the High Shield Panel, Figure 50. Note the small, feather-like appendage coming from the head.



Figure 66. The Snake Site. These broad-shouldered, narrow-waisted figures are on the base of the phallic tower about thirty feet from the Snake. Their design resembles both Archaic and Fremont figures. I tend toward an Archaic interpretation, but it is not certain. If they are Archaic, it might indicate that this site was used for astronomical observations for a long time.

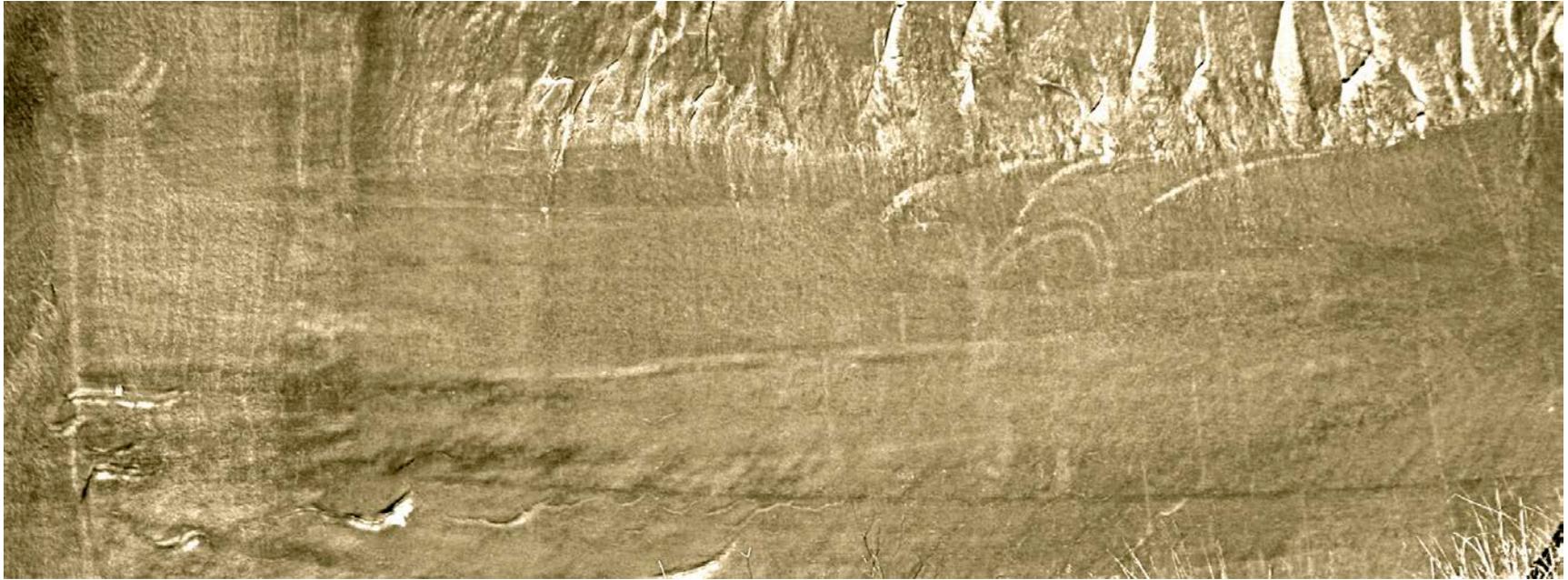


Figure 67. The Snake Site. There are some abraded figures about 100 feet up-canyon from the Snake. They are hard to see. Some of them are quite large. The two zoomorphs in this photo are at least two feet wide. I have not linked them to any astronomical observance. A sophisticated technical effort to record this faint panel might be valuable.

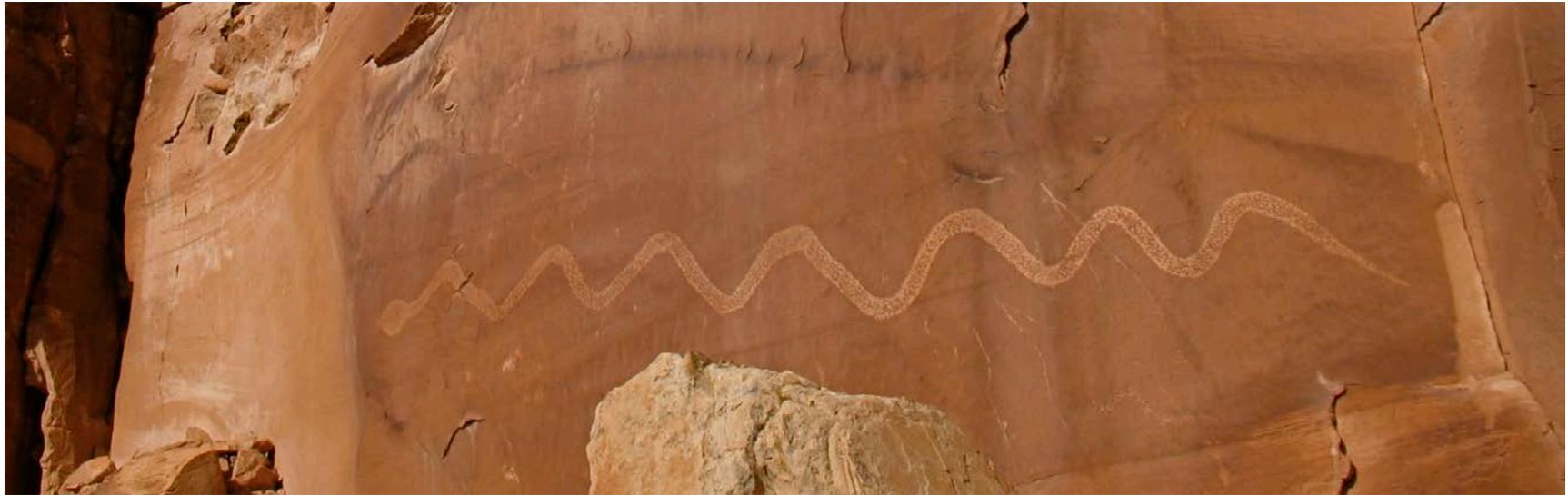


Figure 68. The Snake. The Snake is about seventeen feet long measured in a straight line from nose to tail. It is over twenty feet long measuring along the curves. The Summer Solstice light comes over the cliff above the Snake and catches the raised lip of a small concave depression in the wall, a form known as a conchoidal fracture.²⁸

The following time-lapse shows the first Summer Solstice sunlight on the conchoidal fracture, from the appearance of the first light until light-shape loses its definition. The display takes about two-and-a-half minutes from start to finish.

²⁸ Some people have called this glyph the 'Hyper Viper'. The only vipers in the region are the Faded Midget and Hopi rattlesnakes. There is no rattle on the Snake glyph, hence it cannot represent either of these species. The provenience of the 'Hyper Viper' appellation can be ascribed to the Scooby Doo School of Cute and Brainless Obfuscation, a wellspring of inspiration for many rock art interpreters.



Figure 69. *The Snake* display, 11:10:21 MDT, June 22, 2011. The light appears on the left side of the conchoidal fracture.



Figure 70. *The Snake* display, 11:11:15 MDT. As the light spreads it begins to form a shape.



Figure 71. *The Snake* display, 11:12:39 am. The shape is complete.



Figure 72. *The Snake* display, 11:13:16 MDT. The shape begins to lose its symmetry.



Figure 73. *The Snake* display, 11:11:00 MDT, June 21, 1998. Devin Vaughn invited Craig Childs, a friend and nature writer, to see the display. He wrote about it a few years later in his book *The Soul of Nowhere*. He tried to disguise the site's location, but there were clues in his text which led some European visitors to the location, or so they told me. The biggest sources for spreading the news, however, were me and Jose. I write about this in *The Snake: Revealing the Unknown*.



Figure 74. The Snake, 11:15:12 MDT, June 22, 2013. A friend who spent five days at the Snake in 2012 counted over one hundred visitors during the Solstice period. Some opportunists/entrepreneurs sell the GPS coordinates on line. I have talked to several people on the trail who made it to the site this way. Some of them weren't prepared for a long hike in a steep, rough desert canyon at the peak of Summer.

Over the years I have concluded that the rock artists, like almost all artists, made their art to share. 'Hiding it' in order to protect it, as some advocate today, disrespects the artist's intent. In any case, 'hiding it' is doomed to failure as it runs counter to the human nature to see and tell.²⁹ Some regulation of this site might be helpful, even needful, but that's another topic.

²⁹ I have noticed over the years that many Nature Lovers don't love Human Nature. Their expressed sense of anger and resentment towards other humans is, often as not, a subliminal projection of anger and resentment they harbor in and for themselves, but don't recognize. Their desire to protect the knowledge and location of a site seldom extends to their friends, belying an innately selfish attitude. Silly monkeys.



Figure 75. The Snake, 11:12:26 MDT, June 22, 2013. When I first discovered the Snake marker I described it as an 'arrowhead'. It also resembles a well-known Archaic rock art form, an armless, legless anthropomorph with broad shoulders, like the inclusion in the chert pebble in Figure 19. Given a choice of whether, in the astronomer's mind, this form depicts a stone point or ancient deity, I prefer the latter. Perhaps it is both.



Figure 76. The Snake, 11:18:46 MDT, June 23, 2014. Rory Tyler at the Snake Site. In 2002, after over 200 trips, I lost count of how many times I have been to the Snake. I would not be surprised if I made another fifty visits since then.

The Cairn Field

The Cairn Field is on top of an isolated, limestone playa bed about a mile west of the Snake. It contains some intentionally arranged stones that may mark the Equinox. They were discovered by Seth Wilsey and Ryan Weinpahl in the Spring of 2007. I went with Seth on the Fall Equinox of 2007 to document the site.



Figure 77. The Cairn Field. Figures 9 and 85 show the Cairn Field from other angles. Seth Wilsey is standing behind a cairn of flat limestone rocks, one of several on this formation. A thin rock, far left, was placed vertically on an East/West axis, possibly as part of an Equinox observatory.

○ Snake Site. 180 million years ago the gold-colored Navajo Sandstone that dominates Behind-the-Rocks was the eastern edge of a wind-swept desert. Water flowed into the sand from a nearby mountain range, pooled up, then disappeared into the dunes. These oases were teeming with plant and animal life. The bottoms of these oases formed deposits of hard limestone between sandstone layers. The limestone resisted erosion and formed ledge-like inclusions in the sandstone (Figure 11) and table-topped islands like the Cairn Field. These limestone formations are among the best places around Moab to find dinosaur tracks.



Figure 78. Cairn Field. The thin, vertical rock in Figure 77.



Figure 79. Cairn Field. The vertical rock is set on edge, oriented on an East/West axis. It is closely aligned with the lowest point on the Moab Rim, a box-like notch just to its left. There are several cairns stacked in a roughly linear array across the field to the rock's east.

○ The Snake Site.



Figure 80. Cairn Field. Viewed from the vertical rock.

I am standing in front of a stacked rock cairn. Behind me, Seth standing in front of another.

The vee-shaped notch above Seth can be seen in the previous picture, just to the left of the box-like notch.

○ the Snake Site.



Figure 81. Cairn Field, 8:31:50 MDT, September 23, 2009. The vertical rock is in the lower/left corner of this picture. From this site the Equinox sunrise appears in the lowest part of the rim. The Cairn Plateau alignments could use further study.



Figure 82. Cairn Field. Although it is hard to see, there is a dinosaur track on the light gray rock in the bottom of this photo. This rock, on the eastern edge of the Cairn Field, is aligned with the cairns that Seth and I stand next to in Figure 80.

There are at least four other dinosaur track sites in the vicinity of the Snake. So far as I know, this is the only one that may have an astronomical function. I have often noted dinosaur tracks near sites that the Indians used for art, habitation, and maybe ceremony. This may be coincidental, as the limestone that holds the tracks also creates usable floors. The idea that dinosaur tracks were regarded as fetishes or totems is plausible, too.

○ marks the foot of Snake Valley, the area from which Figure 85 was taken. The notch on the horizon above the circle is the same one the sun rises from in Figure 81.



Figure 83. Cairn Field. Two cairns, bottom, aligned with the vertical rock. They may be astronomical markers.



Figure 84. A dinosaur track from the Moab area, right. The claw-marks are well-defined. One wonders what the Indians thought of a bird that left tracks this size in solid stone. My guess is that they did not want to meet it.



Figure 85. Cairn Plateau.  marks the dinosaur track on the edge of the Cairn Plateau, Figure 82, a precariously spectacular location. The Island-In-the-Sky area in the background is across the Colorado River .

The Posts

Mark Wilsey, Seth Wilsey, and I found nine curiously arranged cedar posts in the valley below the Snake. They do not look like cowboy or miner remnants

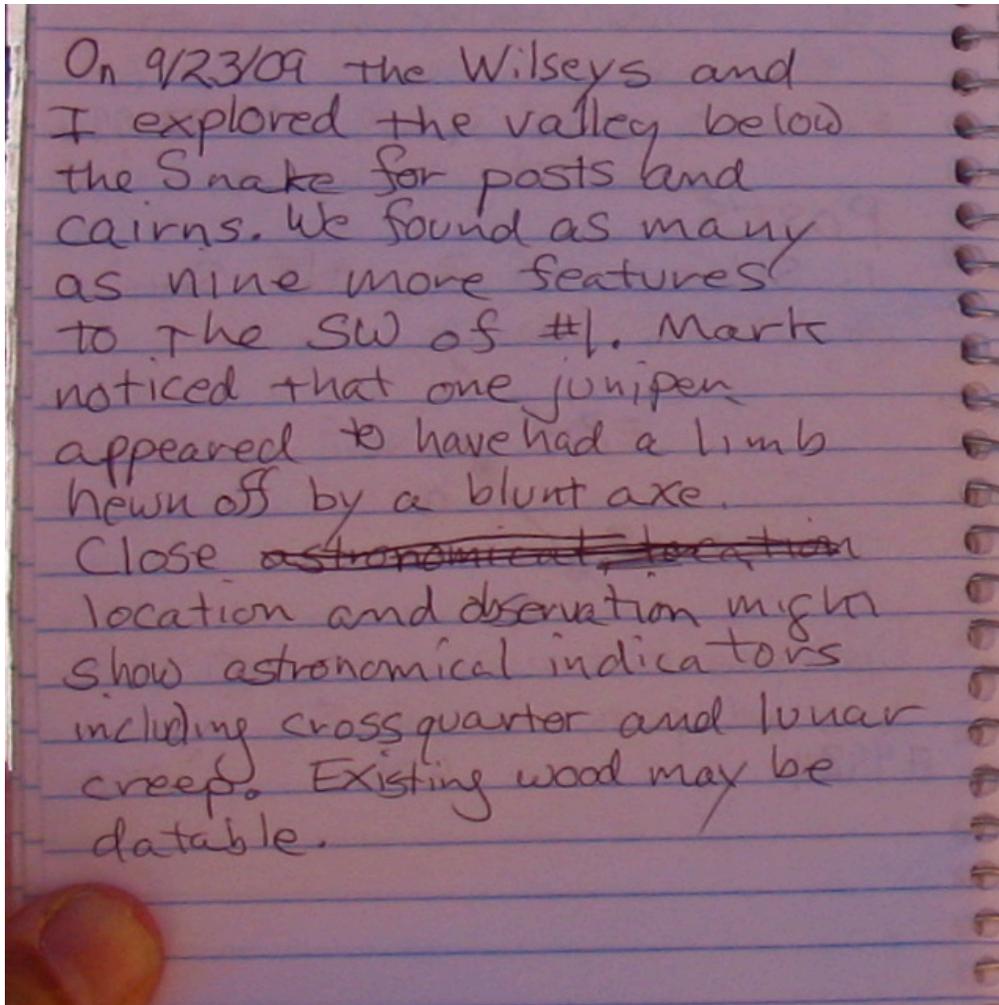


Figure 86. Field notes. I take photos of my field notes on site. It helps when compiling the data.



Figure 87. Snake Valley.  Snake Panel. These three posts, bottom, are typical of the style and placement of nine posts in this area. Some of the wood may be datable.



Figure 88. Mark Wilsey noticed that the posts had not been cut with a metal tool. They were probably cut using a stone tool, suggesting they are old.

I do not have any idea what the number or placement of posts in Snake Valley might indicate.

Thoughts on the Snake

After I developed a suspicion that the Mighty One might be an astronomical marker I waited six months to see if that was true. When it was, I was elated. I stayed that night and saw the *Warrior AM* display in the morning. After that, I wanted to go see the light at every season. I felt like a child being told a story and constantly asking, “And then what happened?” I still feel that way.

Behind the Rocks is steep and rugged. It has little water. It is not a place conducive to the common daily routines of life. It is more suited to adventurers, anchorites, and the like; people who seek wild and solitary experiences. So, how did a place like the Snake site get discovered? I think people were looking for places like this. This presupposes that, thousands of years ago, they knew the Equinox and Solstice days, a remarkable thing in itself. More mind-boggling is that they had their eyes peeled for places suited to the commemoration of this knowledge.

I had the benefit of the rock art to focus my attention on these important places. The original astronomers were looking at unmarked walls in a vast, stony wilderness. What led them to one place rather than another? How many times were their hopes dashed when a prospect turned out to be a bust? The knowledge, imagination, and perseverance of these early astronomers and artists amazes me.

Once an astronomical site was discovered, the question arose of how it would be memorialized and who would do it. Perhaps the astronomer and artist were embodied in an individual, but I suspect it was often a shared effort which was regulated, in some way or another, by their culture. Not everybody got to draw whatever they wanted at any site. How long did they watch, ponder, and plan before they made a mark? A series of displays like the *Warrior PM* panel was not dreamed up in a single season.

The only way I can think to explain the diversity of markers at the Snake is that after the first marker was found, people spent time, effort, and imagination looking for other nearby light displays they could use to memorialize the date. The longer a site was used the more likely that other displays were created using other light-forms. The order of their discovery and sanctification is unknowable and probably irrelevant to us today. What counts now is that there is body of related work here that was created by many people over hundreds of years, perhaps thousands of years. The question is whether or not we can derive anything of value for our own lives with this knowledge.³⁰

³⁰ Duh.

Now, a few thoughts on specific features of the Snake Site starting with the Upper Ruin. The *Mighty One* and *Kokopelli Rising* could have been celebrated at this site long before any structure was built. The Upper Ruin surely memorialized these alignments. Who saw the *Stone Box* display in their mind's eye then created it? The astronomical vision incorporated into the architectural layout of the Upper Ruin is mind boggling. Does the High Shield Panel fit into this story? Were the nearby dinosaur tracks involved in some way?

When something was built it had to have openings oriented to the astronomical displays. The *Door into Winter* may be a remnant of this design convention. Was there only one structure built here or was there a sequence of structures on top of each other? Based on the low density of structural remains, I prefer the former option to the latter. But it is possible that an excavated pit house foundation with a stick-framed superstructure went up first, to be replaced by a more substantial structure with a stacked rock wall along the base and fairly substantial wooden members.³¹

Obviously, not many people could occupy this structure during an astronomical display. This suggests that there was a hierarchy that dispensed divine favors, like a chance to see the *Mighty One* display from inside the structure. This hypothetical priestly clan would surely have controlled access to the Upper Ruin, the Bean Hole, The Snake, and who knows what else? The size and sophistication of the Snake site suggests that it was created by generations of astronomers, priests, and artists. Judging from the quantity of provisions they would need to make and maintain the site, they had a solid base of social support in the hunting, gathering, and agricultural communities of that time and place.

The work of the astronomer and artist must have had transactional value. They provided something of worth that the society valued enough to keep the astronomers fed and in business. Throughout human history the driving force of Faith has inspired people to create religious structures, temples, art, ceremony, and so on. Similar forces may be at play here. In this case, Faith is clothed in the guise of observable and unchanging astronomical observations.³²

If the scenario I sketched-out concerning the Lower Ruin, the Bean Hole, and the potential for trance enhancement and sacred intoxication, is close to actual, the existence of a theocratic hierarchy becomes even more plausible. If the Upper Ruin is small, the Bean Hole is tiny. If the Bean Hole performed a religious function, it was probably administered by a small group of fire tenders, preparers of sacred substances, rite enactors, and a limited number of seers or shamans. The

³¹ Maybe an archeologist could do some digging and figure that out. They're good at digging.

³² An astronomical infrastructure for Faith seems, to me, more practical, accessible, and reliable than admonishments from the Maker of the Universe in the guise of a burning bush, or some other Bronze Age nonsense conjured up by a bunch of squabbling eastern Mediterranean hillbillies.

priestly³³ cabal that managed the Greek Oracle at Delphi bartered prophecies for gifts. Maybe something similar was going on here.

As to the Snake itself, I have several questions. For example, “What culture found the light first?” Figure 66 shows several etched and abraded anthropomorphs that are only a few feet from the Snake. In style, they resemble both Desert Archaic Culture and Fremont Culture, the former being two or three thousand years older than the latter. My heart goes with the Archaic, but my head says I don’t know nuthin’.

If the art is Archaic and does commemorate the *Snake* display, it is likely that people were performing ceremonies here for many Summer Solstices before the Snake petroglyph was made. The light patina on the Snake glyph indicates that it was of later manufacture. If the site had a priestly class of caretakers, when and why did they allow the Snake glyph to be placed there? Unfortunately, the anthropomorphs in Figure 66 are not as definitive as Archaic images at Hidden Valley’s Ray Panel or in Hellroaring Canyon. There is no doubt at those sites that the Archaics had a tradition of sacred astronomy that predated Basketmaker culture. This also draws my opinion towards the notion of an Archaic discovery of the *Snake* display. But nothing is certain.

Whether or not the Snake site was used by the Archaic culture, it was used by the Basketmakers. The style of nearby art conforms with Basketmaker art throughout the region. Based on the artistic inclinations of Basketmaker culture, the Snake petroglyph seems more likely to have been created by Basketmakers than anyone else. However, as noted in Figure 52, shards of Anasazi pottery were found on site, so an Anasazi origin is not entirely out of the question. Other glyphs near the Snake, Figures 65 and 67, swing the needle back towards the Basketmakers.

The anthropomorphism of topography into sexual imagery of-and-between the Bean Hole cave and the Snake’s rock-hard tower seems a plausible topic for discussion. I doubt if I’m the first person to note this, but I may be the first in a thousand years or so.³⁴ This possibility hints at the Snake site as a psychological and symbolic unit, a living landscape of birth, death, and renewal.

³³ Priestessly?

³⁴ If you accuse me of having a dirty mind I won’t deny it. A similar topological relationship may occur at the Birthing Rock. See my slide show, *Mother Earth: Feminine Symbolism in Moab’s Basketmaker Art*.

Lastly, the faded panels up the canyon from the Snake could use some serious study. The execution and style strongly resemble similarly faded panels at the Comet Man site in Hellroaring Canyon.³⁵ Because the panels at both locations are so dilapidated it is difficult to get an adequate photographic record using standard digital cameras. A photographer with the right equipment/software might be able to tease out more complete renditions of these images. If that happens, a comparison of art at the two sites might support, weaken, or negate the hypothesis that the sites are related. If supported, it would bolster the concept that the original celebrants at the Snake site belonged to an Archaic culture.

I have been privileged to rediscover a number of astronomical markers at the Snake site. What a thrill it has been to learn, ponder, and live with this ancient knowledge. Although the site may have been controlled by priests, the knowledge and art probably had a public facet, as it should now if we want to honor the intent, tradition, spirit, and genius of these ancient people. A combination of luck, interest, and perseverance has allowed me to stand where they stood, see what they saw, and share it with you. I think it's what they would want me to do.

³⁵ See my slideshow *Hellroaring Canyon Observations*.

CHAPTER 4: THE GOOSE PANEL

The Goose Panel is on the western edge of Arches National Park. Once again, Jose Knighton was the person who showed it to me. In 1997, Jose's wife, Diane Fouts, who was familiar with my work at the Snake, suggested that, since the Goose Panel faces east, it might be astronomical. I made my first observations on March 20, 1997, when I recognized the *Walking Sheep*, *Silver Egg*, and *Flat Top* displays as astronomical markers. The Goose Panel is where I first recognized the transference technique as a type of motif in astronomical markers.



Figure 89. The Goose Panel, lower left. The large boulders in the foreground create a curtain wall between the panel and the sunrise. The top of this boulder forms the bottom of a Light Box that interacts with the panel during Equinox. The pedestal on the right creates Shadow Mountain, one side of the Light Box.

Observations during the Solstices revealed nothing astronomical.



Figure 90. The Light Box from the Goose Panel. 9:00 MDT, March 20, 2018. These two formations act as the gnomons that form the sides of the Light Box. The one on the right forms Shadow Mountain. Several glyphs 'climb' Shadow Mountain during the Equinox. This picture was taken about the time of the *Big Sheep Climbs* display, Figure 133.

The following photos are of the Light Box as it moves across the panel.



Figure 91. Light Box, Goose Panel, 7:58, MDT, March 20, 2015. Shadow Mountain is the shady area to the left. *I See the Light*, one of the first astronomical displays on the panel, is in the left corner of the Light Box.



Figure 92. Light Box, Goose Panel, 8:24:36 MDT, March 20, 2015. Half an hour later the Light Box has moved down and to the right. The *Silver Egg* display has appeared, right. The 'light dagger' extending from the right corner of the Light Box is about to settle on a circle with a flattened top, creating the *Flat Top* display.



Figure 93. Light Box, Goose Panel, 9:18:07 MDT, March 20, 2015. Fifty minutes later, the *Circular Transfer* display uses the Light Box to move the dramatic energy of the panel from the *Flat Top*, on the left side of the Light Box to the *Lobed Circle* on the right. This is the display around which the concept of *transference* congealed.



Figure 94. The Goose Panel. The Goose Panel is about fifteen feet wide and contains over fifty petroglyphs. I believe it is the work of a single artist.

I made my first astronomical observations at the Goose Panel on March 20, 1997. The *Silver Egg* and *Flat Top* displays convinced me that this is an astronomical site. I returned in September 1997 and many times after. I have identified at least eighteen astronomical displays which I discuss below. There may be several others. I will leave it to future students, possessed of subtler sensitivities than mine, to discern or deny this.

Between March 1997 and March 2018 I made 193 recorded observations of these displays on 17 visits to the site during 10 different Equinox periods. The visits before and after the Equinox provide a way to observe the accuracy of the panel. The ten Equinox visits provide a way to observe variation in the panel's displays from year to year (the wobble). There were also a number of futile visits when clouds obscured the sun, and many recreational visits at different times of the year.³⁶

³⁶ See Table A : Dates and times of observation visits.



Figure 95. Goose Panel, right side. This part of the panel contains a circle of eleven geese, four adults above and seven goslings below them. An eighth zoomorph to the right of the goslings is of indeterminate species. Some of the panel's most dramatic astronomical displays occur on this part of the wall.

1. These sheep, along with others out of sight to the left, have a stance which includes a calm demeanor and a peculiar, up-raised nose, as if they are trying to see something ahead. This is speculation. I have watched all these sheep for astronomical displays to no avail.

2. This icon resembles a bow-and-arrow. If so, it was probably made some time after 300 AD when that weapon was introduced to the region. The bow-and-arrow may be affiliated with the geese because of the feathers used for fletching, but that is speculation.

3. This large circle has a lobe on the the bottom. The Lobed Circle is well-known in San Juan Basketmaker art, but rare in Moab. This one is part of an astronomical display. The appearance of a Lobed Circle suggests that the artist had travelled to the San Juan region or was from the San Juan region. The San Juan Basketmakers were subsumed into an Anasazi culture around 700 AD, suggesting that this glyph was made before that time. If number 2 is a bow-and-arrow, then this panel may have been created between 300 AD and 700 AD.

Displays: The exact moment of the Equinox and Solstice varies from year to year. Because of celestial variations such as this, displays do not always produce their best images every year. However, over the years the parameters and interactions of art and light are consistent and predictable, allowing pattern recognition and hypothesis. Unless otherwise indicated, i will use the most illustrative images in my files for eighteen astronomical displays on the panel.

The attached display times are from September 20, 2015. I include them here to indicate the elapsed time between displays, which is consistent from year to year.

I named these eighteen displays:

| Display | Time (MDT) |
|--|------------|
| 1. <i>Climbing Geese See the Light</i> | 7:53 |
| 2. <i>Climbing Geese</i> | 7:56 |
| 3. <i>I See the Light</i> | 7:59 |
| 4. <i>Kneeling Sheep</i> | 8:02 |
| 5. <i>Walking Sheep - Top</i> | 8:04 |
| 6. <i>Silver Egg</i> | 8:16 |
| 7. <i>Walking Sheep - Bottom</i> | 8:20 |
| 8. <i>Alpha Gosling</i> | 8:27 |
| 9. <i>Flat Top</i> | 8:29 |
| 10. <i>Solar Kid</i> | 8:35 |
| 11. <i>Disappearing Egg</i> | 8:42 |

Seasons of the Sacred Sky

| | |
|-------------------------------|-------|
| 12. <i>Big Sheep Climbs</i> | 8:46 |
| 13. <i>Stand in Corner</i> | 8:52 |
| 14. <i>Flat Top Cornered</i> | 8:59 |
| 15. <i>Circle Transfer</i> | 9:17 |
| 16. <i>Left Corner Climbs</i> | 9:38 |
| 17. <i>On Top</i> | 9:39 |
| 18. <i>Closing Time</i> | 10:25 |

1 Climbing Geese See the Light and 2 Climbing Geese

The Climbing Geese Panel is about thirty feet to the left of the main panel, Figure 94. The Climbing Geese and the left side of Shadow Mountain form the first two astronomical displays; *See the Light* and, four minutes later, the *Climbing Geese*. The “see the light” and “walk on the shadow” motifs occur repeatedly across the entire Goose Panel.



Figure 96. Goose Panel. *Climbing Geese See the Light* display. 7:44:38 MDT, March 21, 2009. Short bills, long necks, and short legs identify these as goose petroglyphs. These glyphs are the firsts at the site to receive the Equinox light.



Figure 97. Goose Panel. *Climbing Geese See the Light*. display 7:46:33 MDT, March 21, 2009. These two geese are the first glyphs on the panel to 'see the light' on the Equinox. Given this fact, and the *Silver Egg* display later on, the symbolic importance on this panel of geese as a spring fertility fetish is undeniable.



Figure 98. Goose Panel. *Climbing Geese* display, 7:50:06 MDT, March 21, 2009. Four minutes later the geese begin 'climbing' the Shadow Mountain gnomon. The 'walking on the shadow' motif occurs at least eight times on this panel. The *Climbing Geese* display occurs just moments before the *I See the Light* display, Figure 102, which eventually reiterates both the 'see the light' motif and the 'walking on shadow' motif.

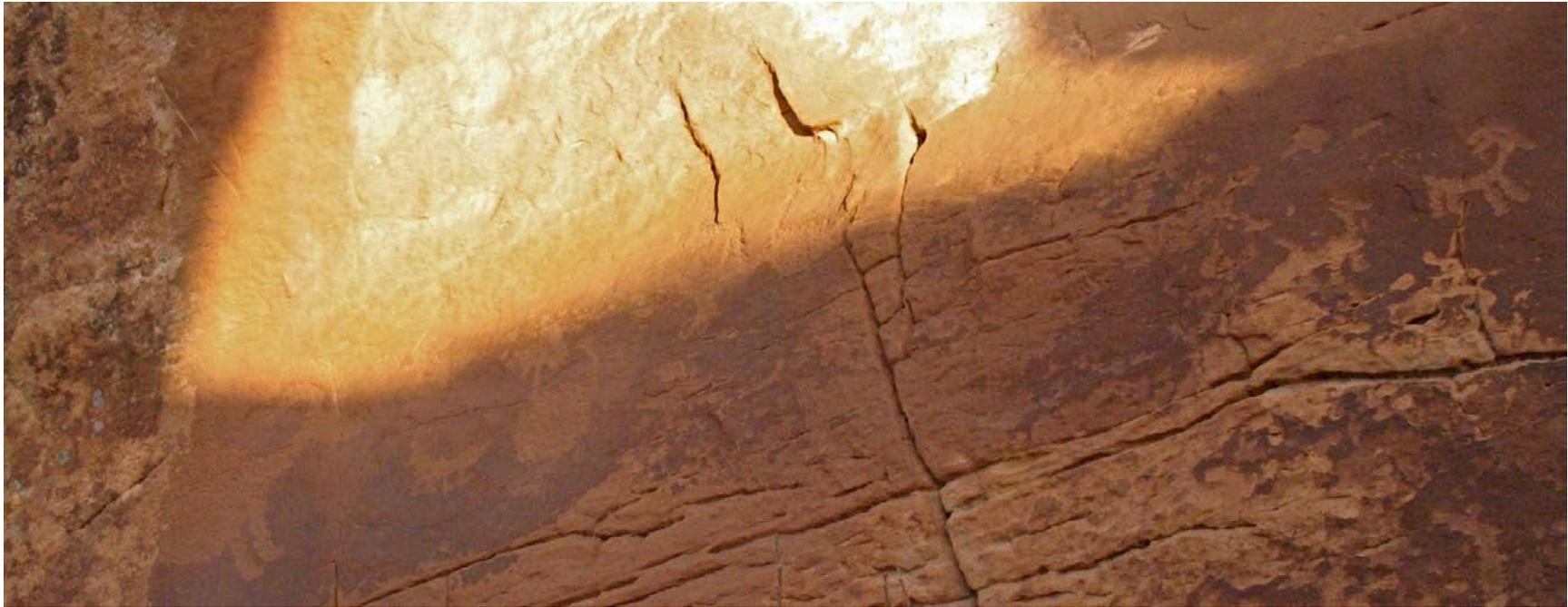


Figure 99. Goose Panel. *I See the Light* display, 7:48:38, March 21, 2009. The *I See the Light* display begins in the left corner of the Light Box almost simultaneously with the *Climbing Geese* display. This close sequencing may indicate a *transference* of the panel's storyline from the *Climbing Geese* display to the *I See the Light* display.

3 I See the Light

I became aware of the 'I See the Light' phenomena through publications of Ken Hedges at the San Diego Museum of Man. As mentioned, Jose Knighton managed a bookstore and this is the kind of the peculiar publication he kept on the shelf. In an 'I See the Light' display the light on a panel touches one of the figures in the face and eyes. That there is a symbolic element is obvious, although what it might have meant to the artist is unknown. Years later in Hidden Valley my knowledge of the "I See the Light" motif allowed me to recognize a similar technique which, in that case, was an "I See the Dark" display, Figure 163.

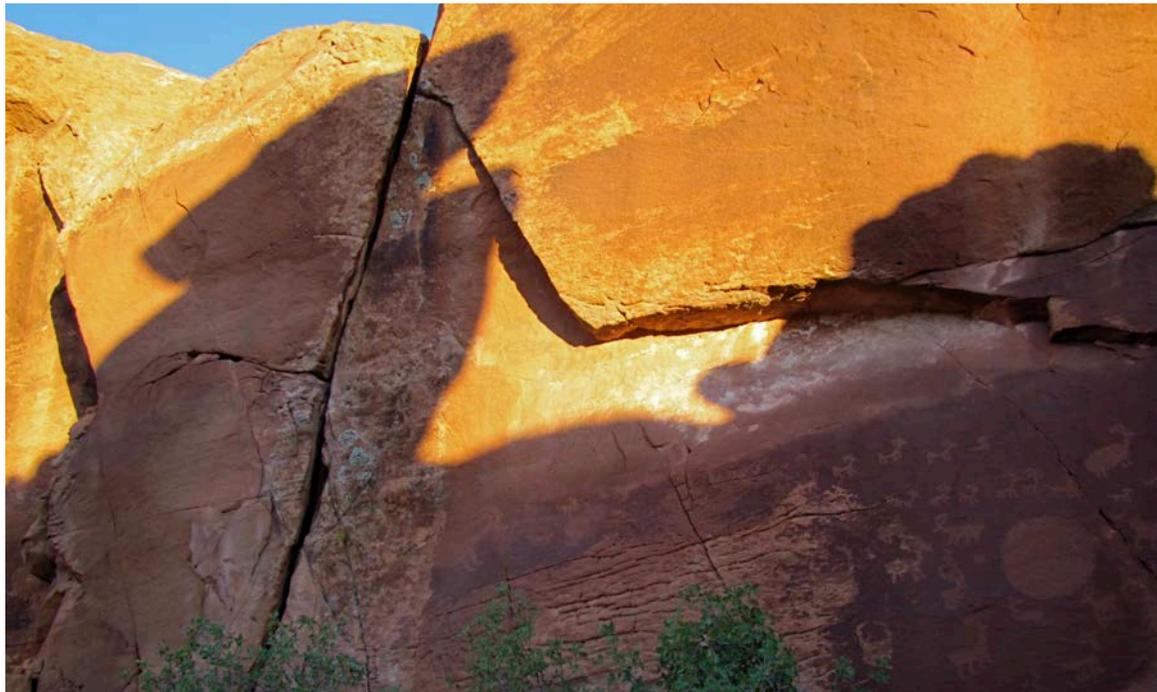


Figure 100. Goose Panel. *I See the Light*, 7:39 MDT, September 23, 2011. The Light Box moves down and right creating many of the astronomical displays at this site. The *I See the Light* display, in the left corner of the Light Box, is thematically related to the *Climbing Geese See the Light* display that appeared fifteen minutes earlier on the other side of the Shadow Mountain gnomon.

The Spring Equinox was at 21:30 MDT, March 19, 2016. The next set of photos were taken about ten hours later.



Figure 101. Goose Panel. *I See the Light*, 7:57 MDT, March 20, 2016. As the Light Box moves down and right, the first petroglyph it approaches is the large sheep.

The large, circular glyph, right, is a Basketmaker necklace with two straps. A human figure was probably painted as part of this icon, but the paint is gone. I have not been able to determine if this necklace icon is associated with an astronomical display. I discuss the Basketmaker necklace/belt icon in the *Codicon*.



Figure 102. Goose Panel. *I See the Light* display, 8:03 MDT, March 20, 2016. The sheep's head is framed by the Light Box as it begins to illuminate the *Kneeling Sheep*. The Light Box moves the energy of the narrative from the *I See the Light* display to the *Kneeling Sheep* display, an example of the transference motif indicating that the panel's story, focus, and power shift from place to place.



Figure 103. Goose Panel. *I See the Light* display, 8:07, March 20 MDT, 2016. The light transfers the storyline from *I See the Light* to the *Kneeling Sheep* display. The *Kneeling Sheep* display is a variation of the 'walking on shadow' motif, which occurs repeatedly on this panel.

4 Kneeling Sheep

The *Kneeling Sheep* kneels on the shadow in a corner of the Light Box. Both a 'walking on shadow' and a 'cornering' motif are on display. The Goose Panel has several other examples of both techniques, demonstrating a use-pattern for these motifs.



Figure 104. Goose Panel. *Kneeling Sheep*. 7:58:53 MDT, September 22, 2012. As *I See the Light* loses light, the *Kneeling Sheep* aligns with the corner of the Light Box.



Figure 105. Goose Panel. *Kneeling Sheep*. 7:59:57 MDT, September 22, 2012. *I See the Light* is shaded as the *Kneeling Sheep* is perfectly aligned to 'walk on shadow'. This marks the moment the story-line transfers from one display to the next.



Figure 106. Goose Panel. *Kneeling Sheep*. 8:01:00 MDT, September 22, 2012. The *Kneeling Sheep* is framed in the corner by the Light Box. Our society assumes that a kneeling posture demonstrates veneration and/or obeisance. This notion, however, is an assumption about the meaning of kneeling.

5 & 7. Walking Sheep - Top and Bottom Rows



Figure 107. *Walking Sheep - Top and Bottom Rows* display, 8:52:30, September 22, 2011. As the Light Box moves down and right some of the small sheep appear to 'walk on shadow'. After the Top row 'walks' the Silver Egg appears. Then the Bottom row 'walks'. Placing the Walking Sheep on each temporal side of the *Silver Egg* display seems intentional and, if I may say, celebratory.

The large sheep, right, is part of the *On Top* display about an hour-and-a-half after this picture was taken. It is the last major display on the Goose Panel. See Figure 140.

5 Walking Sheep - Top



Figure 108. Goose Panel. *Walking Sheep - Top* display, 8:47:43 MDT, September 23, 2011. As the Shadow Mountain gnomon covers the *Kneeling Sheep*, the top row of small sheep repeat the 'walking on shadow' motif, a possible example of transference. The *Bottom* row will soon follow suit. However, temporally sandwiched between these two, the *Silver Egg* display occurs a few feet to the right,.

The Basketmaker necklace, left, may be involved in a cornering display and/or an act of transference with the Walking Sheep. Unfortunately, there is not enough evidence here to warrant any conclusions.



Figure 109. Goose Panel. *Walking Sheep - Top*, 8:48:04 MDT, September 23, 2005. Two sheep repeat the 'walking on shadow' motif from the *Climbing Geese* and *Kneeling Sheep* displays. The one on the right may reiterate a 'cornering' motif.

6 The Silver Egg

A small aperture in the curtain wall allows a single beam of light to strike the panel and form a small dot at the feet of a goose petroglyph, as if the goose were laying a silver egg at dawn on the Equinox. This fertility image is key to understanding the intent of the panel.



Figure 110. Goose Panel. At least eight astronomical displays occur on this part of the panel. Their order and approximate times are: 1 - *Silver Egg* @ 8:16, 2 - *Walking Sheep - Bottom* @ 8:20, 3 - *Alpha Gosling* @ 8:27, 4 - *Flat Top* @ 8:29, (*Flat Top* and *Alpha Gosling* are simultaneous), 5 - *Disappearing Egg* @ 8:42, 6 - *Stand in Corner* @ 8:52, 7 - *Flat Top Cornered* @ 8:59, 8 - *Circle Transfer* @ 9:17, 9 - *On Top* @ 10:25.



Figure 111. Goose Panel, detail. This section provided the name for this panel. It contains a circle of four adult geese with seven goslings below them. The *Silver Egg* typically appears below goose (1) shortly after 8:00. The *Silver Egg* then moves down and right, illuminating (2) one of two pecked dots, (3) a gosling with an exaggerated headdress - the *Alpha Gosling* display, (4) a small sheep - the *Solar Kid* display, (5) then 'disappears' into a small hole at the end of a long crack, the *Disappearing Egg* display, as the aperture the light came through loses its visual angle to the sun.



Figure 112. Goose Panel. 8:18:49 MDT, March 20, 2015. The small aperture, center, creates the *Silver Egg*. This photo was taken five minutes before the light coming through the hole hit the panel.



Figure 113. Goose Panel. *Silver Egg* display, 8:24:09 MDT, March 20, 2015, seven hours and twenty one minutes before the Equinox moment. The first light through the aperture forms a *Silver Egg* at the feet of one of the geese. The exact position of the *Silver Egg* may shift from Equinox to Equinox, but it first appears nearest to this particular goose.

The next four pictures, from March 19 and 21, 2009, demonstrate the precision of this marker relative to the actual moment of the Equinox.



Figure 114. Goose Panel. 8:11:05 MDT, March 19, 2009. This picture was taken 20 hours and 32 minutes before the Equinox moment (16:40, March 20, 2009). The first light through the aperture is high and left of the goose's feet.

Figure 115. Goose Panel. 8:18:21 MDT, March 19, 2009. By the time the light has reached the level of the goose's feet, seven minutes later, it has migrated



past the 'egg laying' position.

Figure 116. Goose Panel. *Silver Egg* display, 8:12:06 MDT, March 21, 2009. This photo was take fifteen hours and twenty nine minutes after the Equinox. First



light from the aperture illuminates the area directly beneath the goose, creating the *Silver Egg* display.



Figure 117. Goose Panel. 8:18 MDT, March 21, 2009. As the *Silver Egg* moves it illuminates one of two spalled spots. I do not know what, if anything, it might mean. The light is moving towards a gosling with an exaggerated headdress. I call it the Alpha Gosling.

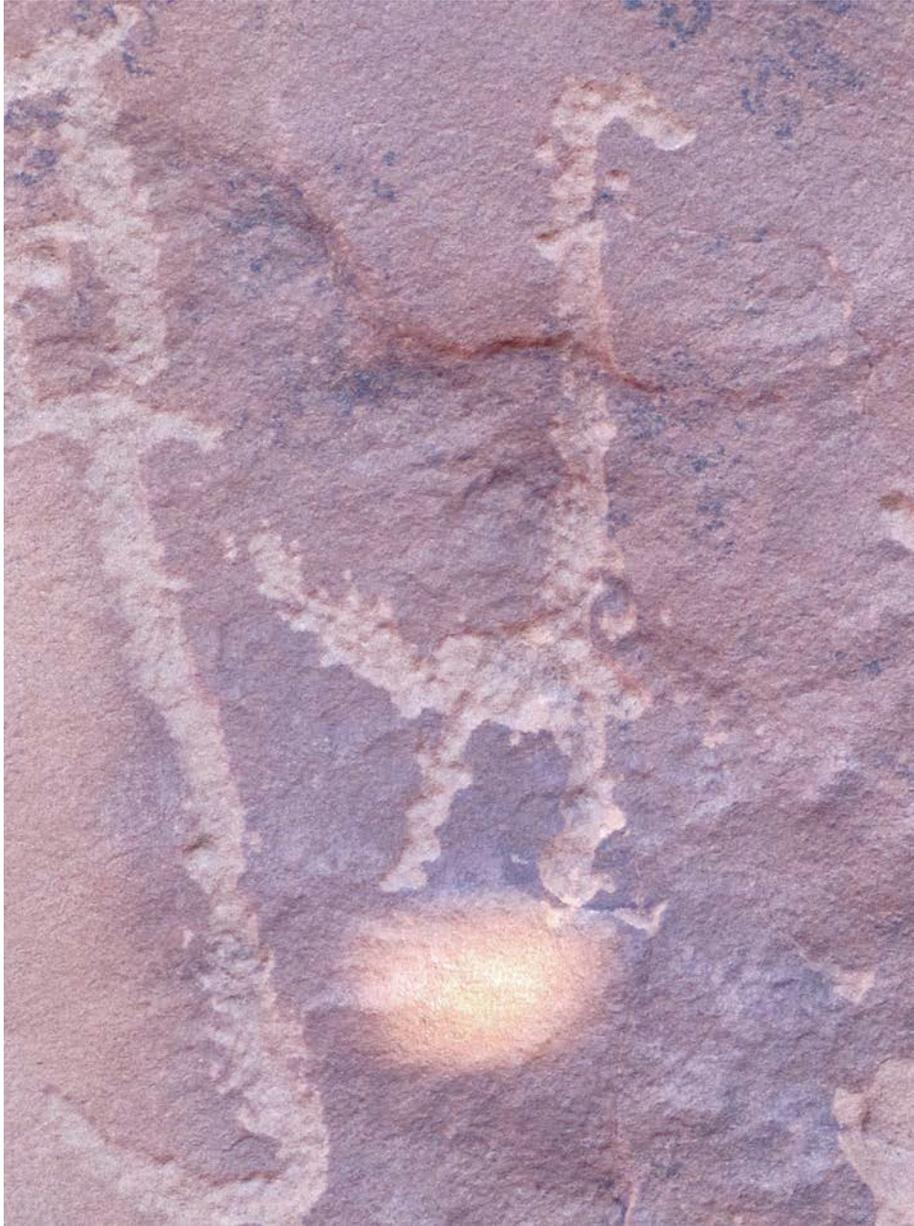


Figure 118. Goose Panel. *Silver Egg* display, 8:09:11 MDT, September 22, 2011, eighteen hours before Equinox moment. A striking image of the Silver Egg.

From here the Silver Egg moves down and right, creating the *Alpha Gosling* and the *Solar Kid* displays before it disappears into the earth. But before that happens, the Walking Sheep motif is repeated.

7 Walking Sheep - Bottom

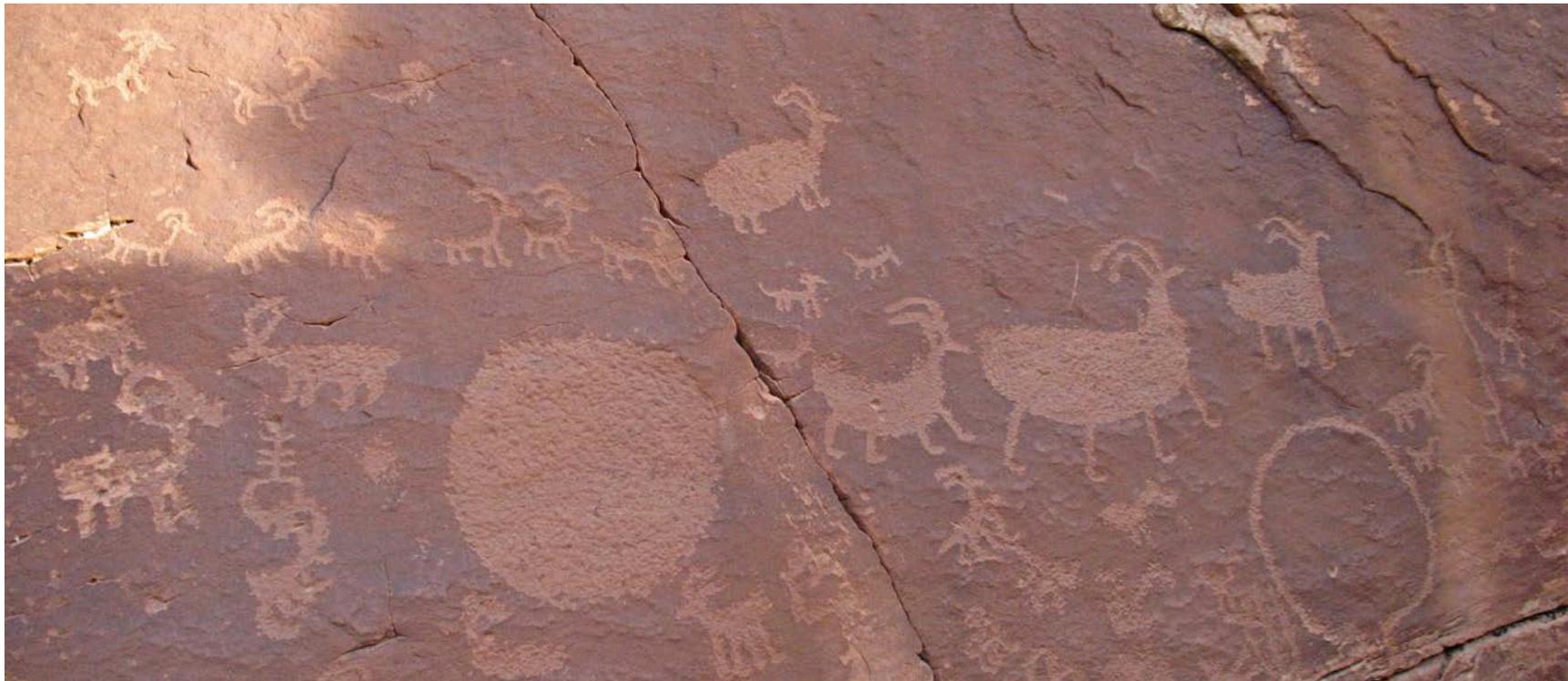


Figure 119. Goose Panel. *Walking Sheep - Bottom* display, 8:12:06 MDT, March 21, 2009. The bottom line of sheep walk along the shadow at the bottom of the Light Box. The lower/right corner of the box continues to extend. At its maximum extent it forms the *Flat Top* display.

At far right, the first light of the *Silver Egg* display appeared one minute earlier. Although they are nearly simultaneous, I think the artist may have knowingly placed the *Walking Sheep - Top* and *Walking Sheep - Bottom* on either temporal side of the *Silver Egg* display, perhaps intending to frame the symbol with the burgeoning promise of young life.



Figure 120. Goose Panel. *Walking Sheep - Bottom*. 8:12:17 MDT, March 21, 2009. The sheep conform to the shadow-line, the 'walking on shadow' motif.

8 Alpha Gosling and 9 Flat Top

The *Alpha Gosling* and *Flat Top* displays occur almost simultaneously. I recognized the *Flat Top* display on my first observation trip on March 20, 1997. It took me several more visits to identify the *Alpha Gosling* as an astronomical marker. It took longer still to recognize the possibility of a temporally significant connection between them. While this connection is hypothetical, it seems strong based on a pattern of near-simultaneous and/or close sequential displays on the panel.



Figure 121. Goose Panel. 8:22 MDT, September 23, 2011. The peak moment of the *Alpha Gosling* display, right, occurs slightly before the peak moment of the *Flat Top* display, left. They are nearly simultaneous.



Figure 122. Goose Panel. *Flat Top* display, September 22, 2011, 8:23:36 MDT, seventeen hours and forty on minutes before the Equinox moment. In this photo the shadow is slightly, but noticeably, to the left of where it will appear the next day when the sun rises slightly further to the south.



Figure 123. Goose Panel. *Flat Top* display, September 23, 2011, 8:22:23 MDT. Six hours and nineteen minutes after the Equinox moment. The right corner of the Light Box creates an extended 'dagger'. The top of the glyph conforms to the arced shape of the light.

When I first saw this glyph the 'flat top' was enigmatic. Why didn't the artist create a perfect circle? When I saw the *Flat Top* display my question was answered.



Figure 124. Goose Panel. *Alpha Gosling* display, March 20, 2015, 8:34:59 MDT. The *Alpha Gosling* is one of a group of seven goslings below the adult geese. Unlike the other goslings the *Alpha Gosling* has a large headdress. The illumination by the *Silver Egg* and the headdress suggest that the *Alpha Gosling* had a special role to play.

The near-simultaneous occurrence of the *Alpha Gosling* and *Flat Top* displays may be a coincidence but is probably intentional. Why the artist connected the *Alpha Gosling* display to the *Flat Top* display through the mechanism of the *Silver Egg* is beyond my ken.

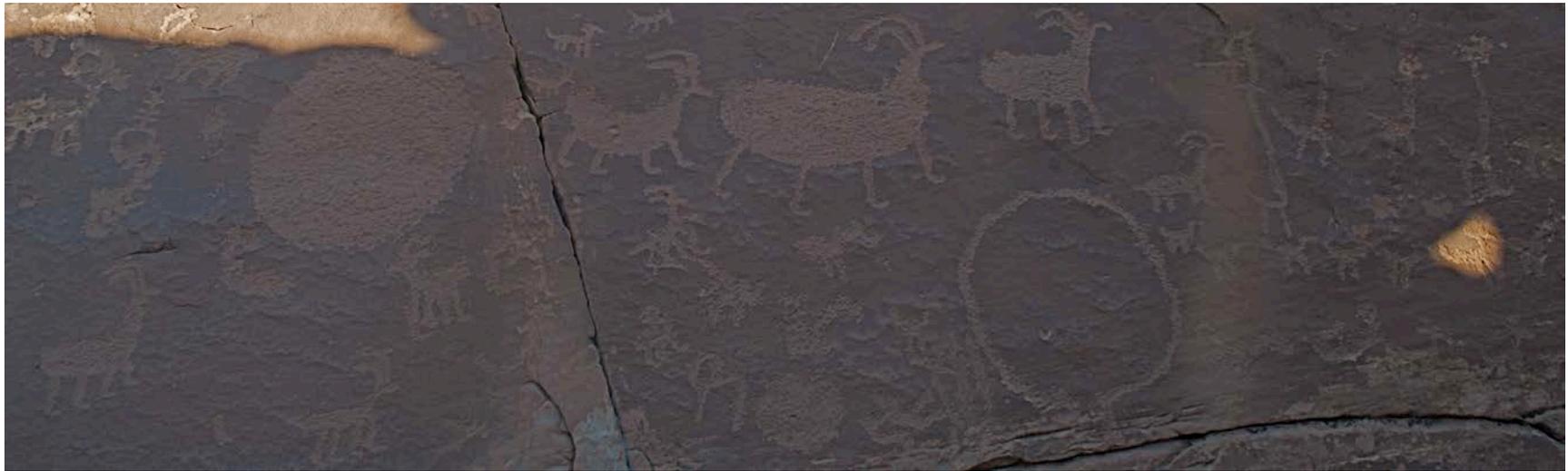


Figure 125. *Flat Top*, left. *Alpha Gosling*, right. 8:20:33 MDT, September 23, 2011. *Alpha Gosling* inside the *Silver Egg*.



Figure 126. *Flat Top*, left. *Alpha Gosling*, right. 8:21:30 MDT, September 23, 2011. As the *Silver Egg* leaves the *Alpha Gosling* the Light Box conforms to the *Flat Top* glyph.



Figure 127. *Flat Top*, left. *Alpha Gosling*, right. 8:22:36 MDT, September 23, 2011. The *Flat Top* display at its most precise alignment. The *Silver Egg* is moving off the *Alpha Gosling*. Figures 125, 126, and 127 were taken within two minutes of each other.

10 *The Solar Kid*

The *Silver Egg* passes from the Alpha Gosling to the Solar Kid before it does the *Disappearing Egg* trick.



Figure 128. Goose Panel. *Solar Kid* display, 9:01 MDT, March 20 2018. The Silver Egg illuminates a small sheep.

A large circle with a lobe, left, resembles a Basketmaker fertility design common in the San Juan River basin. It is the only definitive lobed circle I know in the Moab area. Later, it forms part of a transference display.



Figure 129. Goose Panel. *Solar Kid* display, 8:45 MDT, March 20, 2016. The Silver Egg illuminates a small sheep, a possible counterpart to the Alpha Gosling, then disappears into a fissure in the earth. The situation is ripe for symbolic interpretation but we will never know what the artist was thinking.

11 *Disappearing Egg*

This display involves a topological feature, a small hole in the natural rock surface. The light from the Silver Egg's aperture becomes occluded as it nears this hole and 'disappears' into the Earth. Although this display is not as exact as some others, I think that the artist would have noticed the Silver Egg entering the Mother Earth and included it as a part of the storyline.



Figure 130. Goose Panel. *Disappearing Egg* display. 9:07 MDT, March 20, 2018. The Silver Egg 'disappears' into a small hole, lower right. The *Big Sheep Climbs* display occurs almost immediately after this light disappears.



Figure 131. Goose Panel. *Disappearing Egg* display, 9:07 MDT, March 20, 2018. From the vantage of the *Disappearing Egg* the sun is moving up and to the right. The light is cut off by the wall on the left and the gnomon on the right.

12 Big Sheep Climbs



Figure 132. Goose Panel. *Big Sheep Climbs* display, left, 8:50:16, March 21, 2015. The slanted, off-set feet of the *I See the Light* sheep match the angle of the Shadow Mountain gnomon, repeating a motif seen in the *Climbing Geese* and *Walking Sheep* displays. The *Big Sheep*'s feet match the gnomon within a minute after the Silver Egg's disappearance, far right. It's as if the energies of the *Alpha Gosling* and the Solar Kid were absorbed into the light, buried in the Earth, and reemerged as a robust and impressive adult climbing up a steep mountain.



Figure 133. Goose Panel. *Big Sheep Climbs* display, 8:53 MDT, March 20, 2016. The last bit of the *Disappearing Egg* vanished at 8:52. A minute later, the *I See the Light* sheep takes up its second role and begins 'climbing' Shadow Mountain, much as the Climbing Geese did at the beginning of this tale.

13 Stand In Corner



Figure 134. Goose Panel, *Stand In Corner* display, 9:00 MDT, March 20, 2016. Two unusual 'rearing' sheep are illuminated in the two corners of the Light Box, another example of the 'cornering' motif. Later, the sheep on the left 'climbs' Shadow Mountain in the *Left Corner Climbs* display.

The bottom of Flat Top is in an intriguing position, but nothing can be made of it. It plays a role in two more displays. Maybe its creator couldn't quite figure out how to make it do one more trick.



Figure 135. Goose Panel. *Stand in Corner* display, detail, 8:47 MDT, March 21, 2009. The 'rearing' sheep reiterates the 'cornering' motif.

The small circle with an antenna-like appendage above the *Left Corner Sheep* is similar to design elements seen in the San Juan River basin. It is not common near Moab. This may further suggest that this artist had ties to San Juan Basketmaker communities.

14 Flat Top Cornered



Figure 136. Goose Panel. *Flat Top Cornered* display, 8:47 MDT, September 22, 2010. Flat Top reprises the 'cornering' motif seen in the *Kneeling Sheep* and *Stand in Corner* displays.

If the artist had flattened the bottom of the circle to match the Light Box during the *Stand in Corner* display, the glyph wouldn't have reached the bottom of the Light Box for this display.

15 *Circular Transfer*

I first recognized the *transference* motif as an astronomical marker in this display. I applied this recognition to other displays on this panel including *I See the Light > Kneeling Sheep*, *Alpha Gosling > Flat Top*, and *Disappearing Egg > Big Sheep Climbs*. The transference interpretation seems applicable to some panels elsewhere, the *Warrior Panel PM* at the Snake site, for example.



Figure 137. Goose Panel. *Circular Transfer* display, 9:04 MDT, September 22, 2010. As the Light Box leaves Flat Top, left, it touches the Lobed Circle, right. Identifying a configuration as an example of a transference technique can be subjective. In this case, however, the precision of the display strongly suggests an intentional effort to ‘transfer’ the storyline.

16 Left Corner Climbs



Figure 138. Goose Panel. *Left Corner Climbs* display, 9:21 MDT, September 22, 2010. Although I described this sheep in the *Stand in Corner* display as 'rearing', here it is 'climbing' up Shadow Mountain, repeating a motif used in the *Climbing Geese* and the *Big Sheep Climbs* displays.



Figure 139. Goose Panel. *Left Corner Climbs* display, 9:21 MDT, September 22, 2010. The Left Corner sheep begins 'climbing' the Shadow Mountain gnomon moments before a large sheep arrives *On Top*, another possible example of transference.

17 On Top



Figure 140. Goose Panel. *On Top* display, 9:22:16 MDT, September 22, 2010. As the Shadow Mountain gnomon leaves the Left Corner Sheep behind, a large sheep reaches the summit. The *On Top* display appears to be the last episode in a saga of ascent, challenge, and achievement which began with the *Climbing Geese* display and whose motif the *On Top* display completes.



Figure 141. Goose Panel. *On Top* display, 9:22:57 MDT, September 22, 2010. The large sheep perches on top of the Shadow Mountain gnomon. This is the last major display on the panel. Some minor displays happen over the next hour, but nothing so dramatic as that seen in the first hour and a half.

Note that three small quadrupeds in the shadow below the *On Top* display are not small sheep. They are probably canine or feline, predators in any case. What animal they might represent and what they are doing here is unknowable.

18 Closing Time



Figure 142. Goose Panel. *Closing Time*, 10:10 MDT, September 22, 2010. The Light Box continues to descend and narrow until it becomes a Light Dagger. The dagger gets narrower and shorter and finally disappears. This photo shows the moment the corners of the Light Box meet, nearly an hour after the *On Top* display.

Thoughts on the Goose Panel

People always attach names and stories to notable land forms. This trait can be seen in Arches National Park where anthropomorphic and zoomorphic labels abound; The Three Gossips, Nefertiti, Skull Arch, and the Penguins to name a few. The ancient Indians were probably not exempt from this oh-so-human propensity.



Figure 143. Photo taken from inside the Arches National Park Visitor's Center.

The small canyon, center, leads from the Colorado River wetlands, over the cliff, and down to the Goose Panel, a distance of about two miles. The Park Service calls the rock towers to the right 'The Penguins'. I call them 'The Geese' and will do so from now on.



Figure 144. The Geese, upper right. The trail from Moab Canyon to the Goose Panel is on the other side of the Geese.

Imagination can easily graft the short bill, long necks, and short legs of geese onto these rock towers. The Basketmaker Indians, having no knowledge of penguins would probably not have made the same associations as the contemporary namer.

The Visitors' center, lower/left, is in Moab Canyon. Today the canyon is filled with power lines, a railroad, a uranium tailings pile, and a highway. Two thousand years ago a ceremonial walk from the wetlands, over the cliff, and down to the Goose Panel would have been serene and impressive.



Figure 145. The Geese, right. The trail to the Goose Panel goes over the canyon rim through the shaded passage, center.

Beyond the Geese are the Colorado River wetlands, Spanish Valley, Moab, the Moab Rim, and the La Sal Mountains. The wetlands are part of a migratory flyway as well as home to resident populations of geese, ducks, heron, and other water-loving birds.



Figure 146. The Geese. Looking southeast from the top of the cliff, halfway between the Visitors' Center and the Goose Panel. The Goose Panel is about a mile behind the camera.



Figure 147. Goose Panel Site. The Goose Panel is on the dark-faced formation, lower/center. The boulders that form the Light Box can be clearly seen in front of the patinated wall.

This is the only panel I know with geese on it. Rituals here probably combined the bird life, fertility themes, petroglyphs, light patterns, topography, topology, zoology, art, song, dance, sacrifice, and astronomy into a psychologically unified metaphysical complex.



Figure 148. Goose Panel site. 7:50, March, 20, 2015. Me and my nephew, Zachary.

What?

The discovery of the Silver Egg must have been revelatory. Perhaps the discoverer was also the astronomer and artist, but I prefer to think that they were all different people who joined together to create a temple for their society. Likely, the solar phenomena was discovered, shared, and honored long before the artist conceived, developed, and executed this monumental vision. If the site was used by the community, it probably also required the community's approval before the artist could begin work. This probably meant that the artist was known to his people as a person of talent, intelligence, imagination, spirituality, and technical ability.

The orderly sequence of astronomical displays at the Goose Panel was probably conceived in the imagination of a single person. It is hard to believe that this elaborate pageant might have been produced by a committee. The *Silver Egg* was almost certainly the catalyst, but the artist's vision and ambition went far beyond the memorialization of one event. By incorporating the Light Box and Shadow Mountain into a larger narrative the artist created an epic saga of interconnected symbols and images united by an accurate knowledge of certain astronomical phenomena.

We can see the artist's awareness of this in the insistent repetition of a few identifiable display motifs which form recognizable use-patterns. What these patterns signified to the artist we will never know. Still, recognizing their existence bolsters the idea that this panel is a coherent artistic statement that uses culturally recognized symbols and techniques to relate an overarching allegory.

How?

I have identified four repeating display motifs. They include eight examples of 'walking on shadow', five of 'see the light' (I include the *Silver Egg*, *Alpha Gosling*, and *Solar Kid* in this category), four of the petroglyph fitting the contour of the light (including 'cornering' displays), and five of *transference*; a total of twenty two displays using four repeating motifs on this single panel. How did the artist do this?

My best guess is that, first, the size and trajectory of the *Silver Egg* was somehow 'mapped', perhaps with charcoal or chalk. The shifting location of the Light Box was repeatedly traced as the morning wore on. The artist then imagined a picture story taking place using the edges of these tracings as templates. The story line was propelled back and forth across the panel by the repeated use, simultaneous and/or sequential, of the different motifs. Common artistic tropes from our own time such as perspective, if known, were largely ignored.

It is possible that the artist made only a few figures a year for many years or, conversely, had every glyph placement and light movement memorized before beginning the mural. The consistent execution of the panel argues against the former notion as the years would have been likely to affect the style. The latter option would presume a prodigious feat of vision and memory. I doubt it if happened that way, but I might be wrong. My personal preference is to believe that it was created by a single person in a fairly short time span, say two or three years. The fact is, we know little about how such creations came into being.

One thing that astounds me is how the artist used single icons in several displays. Examples include the Climbing Geese, I See the Light, Flat Top, and the Left Corner Sheep. To have used each once would have been a notable feat, but to use them again speaks to a sense of foresight and structure that is hard to comprehend. For me, the multiple use of a single glyph, and the multiple use of the various motifs, testify to the vision and genius of the artist.

Dramatic Structure

I began collecting data at the Goose Panel in the Spring of 1997. I didn't collate it until I began writing this book in November 2018. Through this process I got a better idea of the number, nature, and sequence of the displays. As my work progressed I was also taken by the propulsive character of these motif changes and reappearances. In my mind, the panel assumed the shape of a single dramatic statement, like a play. I identified three active clusters grouped by the close time-frames of their displays which I call Act 1, Act 2, and Act 3.

Act 1 goes from the *Climbing Geese* to the *Kneeling Sheep*, from 7:53 am to 8:03, a span of ten minutes. In that short time the *Climbing Geese* wake up and 'see the light' then begin their 'climb' up Shadow Mountain, followed by the *I See the Light* display and subsequent transfer of the 'see the light' and 'walk on shadow' motifs to the *Kneeling Sheep*.

Act 2 goes from 8:05 am to 8:46 and includes eight astronomical displays in forty minutes. It begins with the *Walking Sheep - Top* cavorting gaily along the shadow line. A few feet away, in the darkest recesses of the panel, a miracle occurs. A goose lays an egg made of sunlight. Who knows what the artist called it? I call it the *Silver Egg*. The kids in the *Walking Sheep - Bottom* continue cavorting.

The *Silver Egg* moves across the wall and hatches into the *Alpha Gosling* as the Light Box forms a curved 'dagger' which perfectly fits the *Flat Top*, adding further to the sense of intention, connection, and energy of the still-migrating *Silver Egg*. The *Silver Egg* finds the *Solar Kid* then dives into the earth and disappears! An instant later, a full grown and powerful

sheep, perhaps the Solar Kid transformed, emerges on Shadow Mountain and resumes the ascent begun by the *Climbing Geese* in Act 1.

Act 3 begins with *Stand in the Corner* and goes to *On Top*; 8:52 to 9:36. There are five displays in a forty six minute span. The act starts with two sheep of unusual posture framed in the corners of the Light Box. This motif of 'framing' or 'cornering' is repeated several times in Act 3 and with great care, as seen again in the *Flat Top Cornered* display. The intentionality and precision of the latter awoke me to the idea of 'transference' as a definable astronomical marker.

After a pause, the finale arrives. The peculiar posture of the sheep in *Stand in the Corner* makes sense now as one sheep renews the ascent in the *Left Corner Climbs* display. Then, at last and almost simultaneously, a noble-looking sheep stands atop Shadow Mountain, the same mountain the *Climbing Geese* set foot on so long ago. After long effort, many magical moments, much hard work, perseverance, and attention to detail, the goal is finally achieved. A sheep stands *On Top* of Shadow Mountain, perhaps a symbiotic symbol of Geese, Sheep, and Light, an enduring and repeating emblem of Life Renewed, Unified, and Everlasting.³⁷

³⁷ Or something like that...maybe.

GOOSE PANEL: TABLE A: TIMES FOR EIGHTEEN ASTRONOMICAL DISPLAYS

The eighteen displays in order of appearance:

1. *Climbing Geese See the Light*
2. *Climbing Geese*
3. *I See the Light*
4. *Kneeling Sheep*
5. *Walking Sheep - Top*
6. *Silver Egg*
7. *Walking Sheep - Bottom*
8. *Alpha Gosling*
9. *Flat Top*
10. *Solar Kid*
11. *Disappearing Egg*
12. *Big Sheep Climbs*
13. *Stand in Corner*
14. *Flat Top Cornered*
15. *Circle Transfer*
16. *Left Corner Climbs*
17. *On Top*
18. *Closing Time*

Table A shows the dates of each Equinox I made observations on, which displays I recorded, and the time of peak display. All times are Mountain Daylight. On a few observation dates we were still 'officially' on Mountain Standard Time. I transposed those times into Mountain Daylight Time.

Goose Panel: Table A - Times for Eighteen Astronomical Displays (All times Mountain Daylight Time)

| Eq MDT | 3/20/97 7:54 | 9/22/97 17:56 | 9/22/05 4:23 | 3/20/09 5:44 | 3/20/10 11:32 | 9/22/10 21:09 | 9/23/11 3:05 | 9/22/12 8:49 | 9/20/15 16:45 | 3/19/16 22:30 | 3/20/18 10:15 |
|-------------------|-------------------------|--------------------------|-------------------------|-------------------------|--------------------------|--------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
| 1 | XXXX | XXXX | XXXX | 7:47 | XXXX | XXXX | 7:44 | XXXX | 7:53 | 7:57 | XXXX |
| 2 | XXXX | XXXX | XXXX | 7:50 | XXXX | XXXX | 7:48 | XXXX | 7:56 | 8:00 | XXXX |
| 3 | XXXX | 7:43 | 7:42 | 7:53 | XXXX | XXXX | 7:52 | 7:56 | 7:59 | 8:03 | XXXX |
| 4 | XXXX | 7:48 | 7:47 | 7:56 | 8:02 | XXXX | 7:59 | 8:01 | 8:02 | 8:07 | XXXX |
| 5 | XXXX | 7:57 | 7:48 | 7:58 | 8:03 | XXXX | 8:07 | 8:02 | 8:04 | 8:10 | XXXX |
| 6 | 8:19 | 8:02 | 8:03 | 8:13 | 8:13 | XXXX | 8:09 | 8:14 | 8:16 | 8:22 | 8:27 |
| 7 | XXXX | 8:05 | 8:04 | 8:14 | 8:16 | XXXX | 8:13 | 8:18 | 8:20 | 8:23 | 8:30 |
| 8 | 8:27 | 8:14 | 8:10 | 8:20 | 8:28 | 8:15 | 8:20 | 8:25 | 8:27 | 8:35 | 8:39 |
| 9 | 8:28 | 8:14 | 8:11 | 8:23 | 8:30 | 8:17 | 8:22 | 8:27 | 8:30 | 8:36 | 8:41 |
| 10 | XXXX | 8:22 | XXXX | 8:33 | 8:38 | 8:25 | XXXX | 8:35 | 8:35 | 8:44 | 8:49 |
| 11 | 8:43 | 8:31 | XXXX | 8:38 | 8:46 | 8:32 | XXXX | 8:43 | 8:42 | 8:52 | 8:56 |
| 12 | XXXX | 8:32 | XXXX | 8:41 | 8:47 | 8:35 | XXXX | 8:45 | 8:46 | 8:53 | 8:57 |
| 13 | 8:56 | 8:37 | XXXX | 8:49 | 8:52 | 8:40 | 8:43 | 8:50 | 8:52 | 8:59 | 9:05 |
| 14 | 9:01 | 8:46 | XXXX | 8:56 | 8:59 | 8:47 | 8:52 | 8:57 | 8:59 | XXXX | 9:10 |
| 15 | 9:11 | 9:02 | XXXX | 9:14 | 9:17 | 9:04 | 9:08 | 9:14 | 9:17 | XXXX | 9:27 |
| 16 | 9:32 | 9:17 | XXXX | 9:28 | 9:34 | 9:21 | 9:25 | 9:31 | 9:38 | XXXX | 9:46 |

| Eq MDT | 3/20/97 7:54 | 9/22/97 17:56 | 9/22/05 4:23 | 3/20/09 5:44 | 3/20/10 11:32 | 9/22/10 21:09 | 9/23/11 3:05 | 9/22/12 8:49 | 9/20/15 16:45 | 3/19/16 22:30 | 3/20/18 10:15 |
|-------------------|-------------------------|--------------------------|-------------------------|-------------------------|--------------------------|--------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
| 17 | 9:34 | 9:19 | XXXX | 9:28 | 9:35 | 9:23 | 9:27 | 9:32 | 9:39 | XXXX | 9:47 |
| 18 | XXXX | 10:11 | XXXX | XXXX | XXXX | 10:10 | XXXX | XXXX | 10:25 | XXXX | XXXX |
| | note 1 | note 2 | note 3 | XXXX | note 4 | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX |

Note 1: These photos are not digital.

Note 2: These photos are not digital.

Note 3: Photos taken on September 23, 2005. Equinox at 4:23, September 22, 2005.

Note 4. Photos taken on March 19, 2010. Equinox at 11:32, March 20, 2009.

Comments: My photo collection was taken with at least six different cameras. They were not calibrated to the correct time or synchronized with each other. When I began these observations I was not thinking about doing a science project, hence the variations. As my observations demonstrate, a comprehensive, scientific effort can be done. It would bear fruit of better quality than that which I harvested.

When multiple cameras were used on the same day, I chose one camera as a base-line for all time notations and reconciled the other cameras' time signature to the base-line times for that date. The intervals between the displays are consistent for all cameras on all dates.

GOOSE PANEL: APPENDIX A: VARIATIONS IN LIGHT POSITION BEFORE & AFTER SPRING AND FALL EQUINOX

The Earth's axis tilts 22.5 degrees from North to South and back every year. The Equinox moment is when the Earth's axis is perpendicular to the the Sun. If the Sun rises before or after the Equinox moment, it will rise North or South of East, depending on the season.

SPRING: In the Spring the Earth's axis is tilting North nearly a degree a day. A shadow's position at dawn shifts right to left from day to day.

FALL: In the Fall the Earth's axis is tilting South nearly a degree a day. A shadow's position at dawn shifts left to right from day to day.

These motions can be seen on the *Alpha Gosling* because of its concise execution.

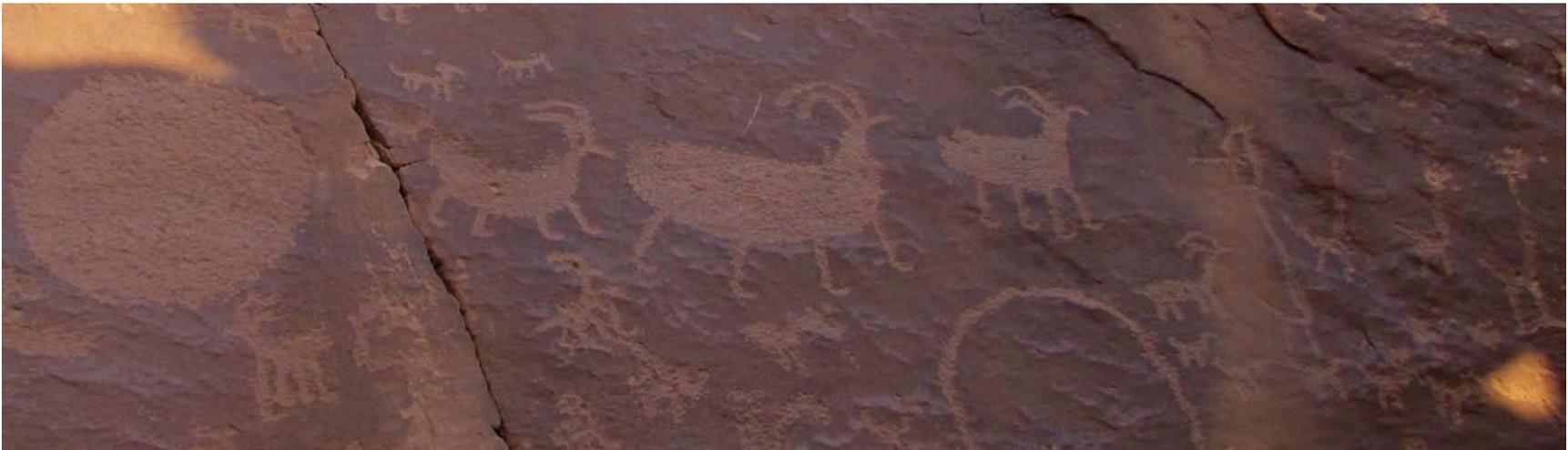


Figure 149. Goose Panel. *Alpha Gosling* display, 8:49 MDT, September 22, 2012. This photo was taken twenty four minutes before the Equinox moment. The precision of the *Alpha Gosling* display, right, and its relation to the *Flat Top* display, left, are clear.

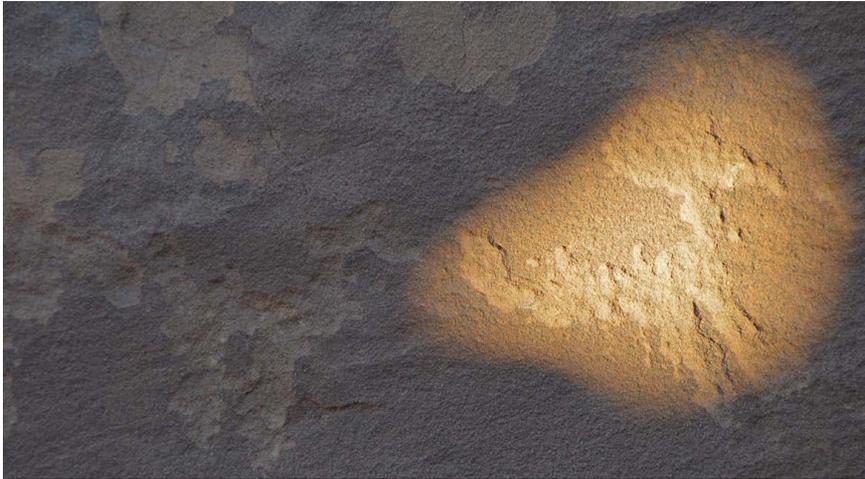


Figure 151. *Alpha Gosling*, 8:28, March 21, 2015



Figure 150. *Alpha Gosling*, 8:28, March 20, 2015.

These two photos demonstrate the light's changing position from day to day during the Spring. They were taken at the same time of day, one day apart. The Spring Equinox moment was on March 20 at 16:45. Figure 150 was taken eight hours and twenty seven minutes before the Equinox. Figure 151 was taken seventeen hours and thirty three minutes after.

Day to day the position of the Silver Egg at dawn shifts from right to left in the Spring, precisely framing the *Alpha Gosling* on March 20 and losing its precision within twenty four hours.



Figure 152. *Alpha Gosling*. 8:20, September 22, 2011

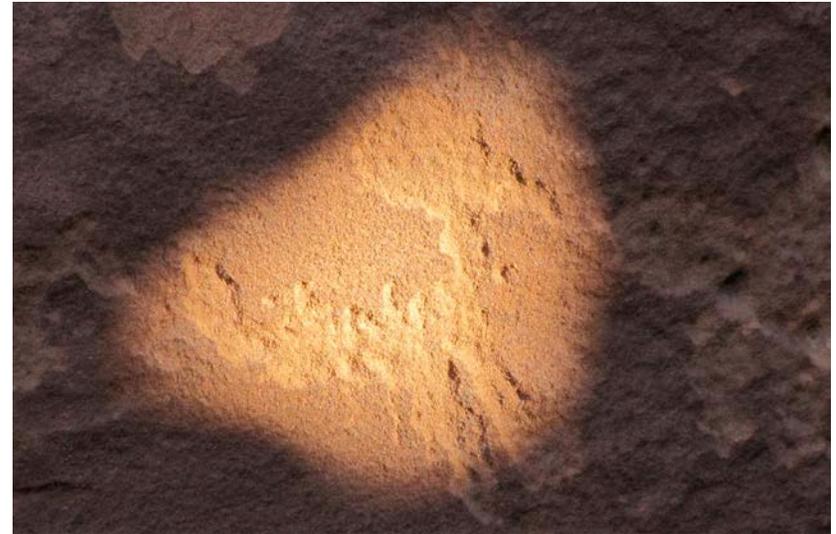


Figure 153. *Alpha Gosling*. 8:20, September 23, 2011

These two photos demonstrate the light's changing position in the Fall. They were taken at the same time of day, one day apart. The Fall Equinox moment was on September 23 at 3:05. Figure 152 was taken eighteen hours and forty five minutes before the Equinox. Figure 153 was taken four hours and fifty five minutes after.

Day to day, the location of the Silver Egg at dawn shifts from left to right in the Fall. In these photos its location before the Equinox is a little left of the Alpha Gosling on September 22. On September 23 the Silver Egg is further to the right, precisely framing the Alpha Gosling.



Figure 154. Goose Panel. *Flat Top* display, 8:22 MDT, September 22, 2011. Eighteen hours and forty eight minutes before the Equinox moment. The *Flat Top* display covers about $\frac{2}{3}$ of the top.



Figure 155. Goose Panel. *Flat Top* display, September 23, 2011, 8:22 MDT. Photo taken one day later, five hours and seventeen minutes after the Equinox. The Light Box, further to the right than it was the day before at this time, covers the *Flat Top*, left. The *Silver Egg* is leaving the *Alpha Gosling*, right.

CHAPTER 5: HIDDEN VALLEY



Figure 156. Hidden Valley. The valleys of Hidden Valley are through the pass, center. The Observatory, left, is roughly horseshoe-shaped with the open end facing the camera. There are petroglyph panels on the south-facing Inner and Outer Walls of the Observatory and several Basketmaker ruins scattered about the site. The ragged Gnomon Ridge, right, creates many of the gnomons that interact with rock art and ruins on the Observatory at astronomically auspicious times and locations.

The Hidden Valley Observatory is one of the largest rock art galleries in the Moab area. It holds about thirty panels and over five hundred petroglyphs. It also hosts at least five stacked-stone Basketmaker structures, a rarity. The site is spectacular and access is easy. There is a trail from Spanish Valley (Moab) to the Colorado River downstream from Moab. It goes through the low point in the center of this picture. This was a commonly used route in ancient times.

By 2007 I had done many observations at the Snake and Goose sites. I had also, over the years, paid many visits to Hidden Valley to look at the rock art panels and enjoy the vistas. In early 2007 it occurred to me that some rock art at Hidden Valley might also have astronomical characteristics. It was made by the same culture, about the same time, and was close to the Snake site so why not?

I took my first observation trip to Hidden Valley in March, 2007 and recorded an impressive panel on the Inner Wall at sunset. It seemed to have astronomical characteristics but I couldn't figure out what was going on. A few days later at work I was showing the pictures at lunch time. Chad Thomas, looking over my shoulder, watched the time lapse and said something like, "That's a raven swallowing the Sun." I immediately saw the sense in Chad's observation and named the display *Raven Eats the Sun*.



Figure 157. Hidden Valley. *Raven Eats the Sun* display, 18:58 MDT, September 23, 2007. This is the image that Chad Thomas recognized as the silhouette of a raven's head. This picture was taken just before sunset. The entire panel is covered in shadow a few minutes later. The *Raven Eats the Sun* panel has the only astronomical displays I have found on the Inner Wall of the Hidden Valley Observatory. I discuss some other possibilities in *Chapter 7: Misses and Maybes*. There are a number of displays on the Outer Wall.



Figure 158. Hidden Valley Observatory. The Hidden Valley Observatory is in the upper left corner of Figure 8.

The Observatory is horseshoe-shaped. The open end is facing the camera. There are dozens of rock art panels and hundreds of petroglyphs on the south/right facing walls on the inside and outside of the horseshoe-shape. There are at least five Basketmaker ruins. Many of the glyphs and ruins play a role in an astronomical display on the Equinox or Winter Solstice. I have not discovered any Summer Solstice displays.



Figure 159. Hidden Valley. 7:44 MST, December 22, 2018. Taken from the top of the pass, Figure 156. The trail to the Hidden Valley Observatory comes through this hanging valley. The La Sal Mountains are covered in low clouds. Hidden Valley is the easiest to reach of the four sites I discuss in this book.

This valley may have been used as an arena where young Basketmaker men could compete and demonstrate their abilities at throwing and dodging atlatl darts. A number of combat-themed petroglyphs on the Observatory suggest that ancient people may have engaged in contests of skill and daring, perhaps ceremonial in nature, likely with regional rivals. See Figure 189.



I See the Dark and Raven Eats the Sun

Figure 160. Hidden Valley. Raven Eats the Sun Panel. This complex panel contains about sixty petroglyphs. These glyphs include combatants, Burden Carriers, Flute Players, and Spirit Sheep. There are only two glyphs used in astronomical displays; the *I See the Dark* display, a counterpart to the ‘see the light’ motif that is so prominent on the Goose Panel, and the *Raven Eats the Sun* display.

There was a chance that coincidence was at play in the *I See the Dark* and *Raven Eats the Sun* displays. As the number of likely and assured markers and displays piled up all over Hidden Valley, the notion an ‘accidental’ display eroded and the likelihood that this panel includes intentionally placed astronomical displays was reinforced.



Figure 161. Hidden Valley. *I See the Dark* display, 19:00 MDT, March 19, 2014. As the gnomon's shadow moves across the rock surface it hits one of the panel's elaborate sheep in the face.

If I hadn't known about the 'I See the Light' motif I may not have recognized the 'I See the Dark' motif.



Figure 162. Hidden Valley. Raven Eats the Sun Panel. The dark triangle, center, is the gnomon that creates the *I See the Dark* and *Raven Eats the Sun* displays. A Flute Player and Burden Carriers, lower right.

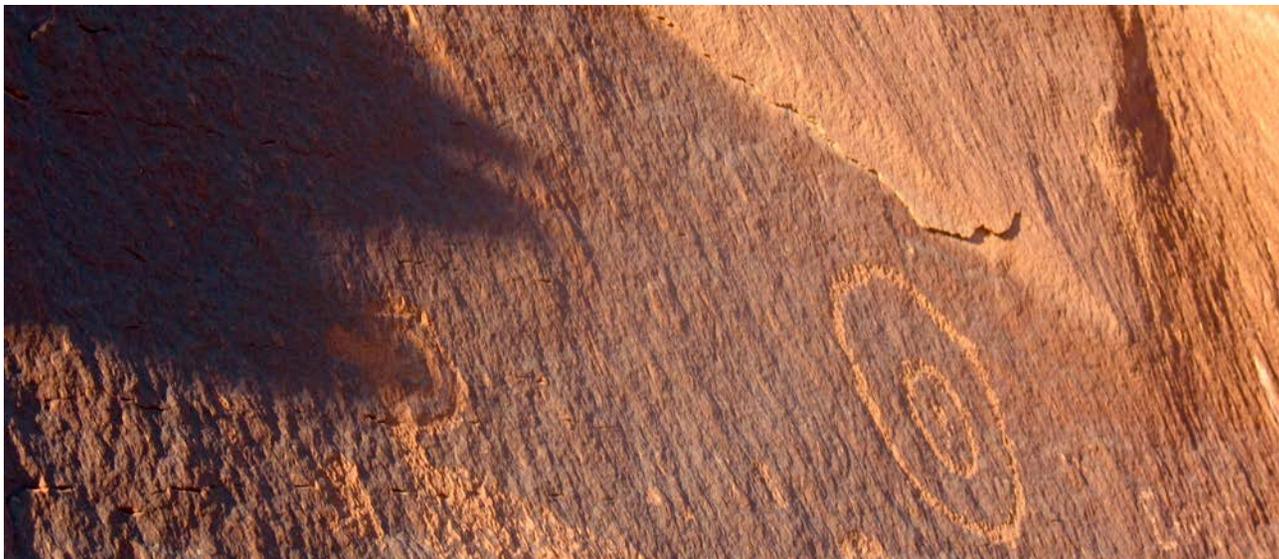


Figure 163. Hidden Valley. *I See the Dark* display, 18:42 MDT, September 23, 2007.

The shadow from the gnomon hits this large sheep in the face, then moves on to create the *Raven Eats the Sun* display.