

Summer Solstice Sunset Marker that also records a Total Solar Eclipse in 1257 CE or 1097 CE

By: Ray Urbaniak

For over 10 years now I have been finding & recording Anasazi Solstice & Equinox markers in SW Utah and the Arizona strip. During this period I have recorded a very large number of markers as well as other beautiful Rock Art. Some of the Rock Art speaks to me, but when it comes to the Solstice & Equinox markers I guess you could say that often I wear the sandals of those who created them.

On February 6, 2012. I was exploring a new area with Tom Rachunas (a hiking friend), when we found a simple but elegant Summer Solstice Sunset marker (I documented the marker on June 20, 2012, the Summer Solstice..see end of article). I immediately recognized it as a Summer Solstice marker, but also realized that something else was going on with the panel. Not until I was ready to go to bed that evening did I realize what the panel was saying. It was also talking about a total Solar Eclipse on or near the Summer Solstice.

The next day I went to a NASA web site to find out when if any total Solar Eclipses were visible in the area in the time frame that this panel was made. I knew by the limited patination of the glyphs that this particular panel had been made pretty close to the time that the Anasazi left this area. Patination could be described as the amount of healing (pattina) of the grooves in the rock that occurs over time. Very old Rock Art can be completely patinated so that the rock art grooves match the surface color of the rock itself. The glyphs on this Rock Art panel was still had quite a bit of contrast (lighter than the rock surface), meaning that it wasn't dating from the basketmaker period(which lasted until about 750 CE) or even the early pueblo-I period(that lasted until about 900 CE).

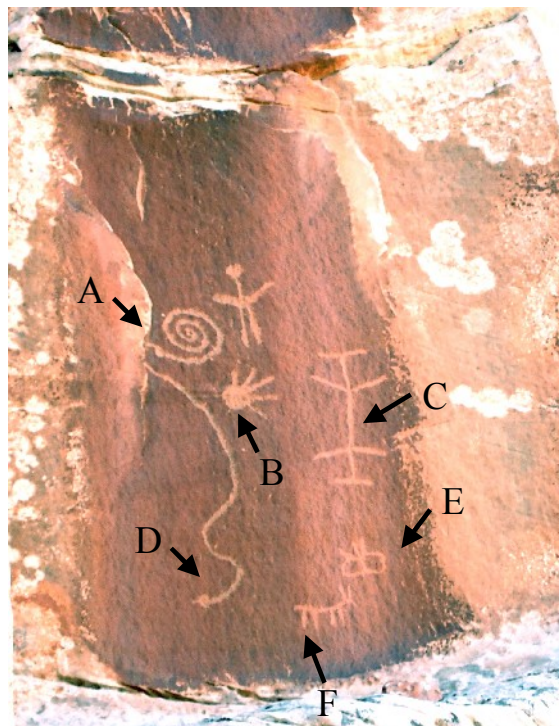
On the NASA Web site, I confirmed that only 2 Total Solar eclipses were visible near the Summer Solstice from this area, that would match the patination. The primary candidate date is June 13, 1257 CE. <http://eclipse.gsfc.nasa.gov/JSEX/JSEX-NA.html>
The only other Total Eclipses that could fit were on May 26, 1397 CE, which was after the Anasazi had left this area(also not close to the Summer Solstice). There was another total eclipse on July 11, 1097 CE during the Pueblo II period. The July 11, 1097 CE event is a possibility since it occurred at 2:28 pm at an Altitude of 61 degrees and an Azimuth of 245 degrees, but again this isn't as close to the Summer Solstice as the 1257 CE eclipse . The best candidate is the 1257 CE eclipse since it is likely they were visiting this Summer Solstice site regularly, in anticipation of the Summer Solstice, when they witnessed the Total Eclipse and added it to the panel. The 1097CE date is still a possibility, but since it occurred almost 3 weeks after the Summer Solstice they would have had to return to the site to record the event verses already hanging out around the area in anticipation of the Summer Solstice.

My deciphering of the glyphs makes total sense to me, but may not make a lot of sense to someone who hasn't spent the years with them that I have.

Total Solar Eclipse
Duration of Totality: 5m09.6s
Magnitude: 1.017

Event	Date	Time (UT)	Alt	Azi
Start of partial eclipse (C1) :	1257/06/13	18:00:34.7	066.4°	118.1°
Start of total eclipse (C2) :	1257/06/13	19:20:32.1	076.4°	169.4°
Maximum eclipse :	1257/06/13	19:23:06.8	076.5°	171.9°
End of total eclipse (C3) :	1257/06/13	19:25:41.7	076.6°	174.4°
End of partial eclipse (C4) :	1257/06/13	20:47:16.7	068.9°	235.9°

I had never even thought about Solar Eclipses and Rock Art because I had never seen anything that suggested that any had been recorded. This panel is obviously different and in my opinion records a Total Eclipse.



A-This is a classic Summer Solstice Spiral with the head of the serpent on the outside of the spiral & with a shaman figure associated with it. It is different however, in that this panel faces North, so it will only be illuminated near Sunset on & around the Summer Solstice.

B-The hand symbol has a round palm, which I have not seen before. I believe this means that a hand is obscuring the sun.

C-The mirroring image to the right would then mean that day becomes night.

A-The serpent is headed to the edge of the rock(to disappear in darkness),

D-Only to re-emerge from the edge into the light.

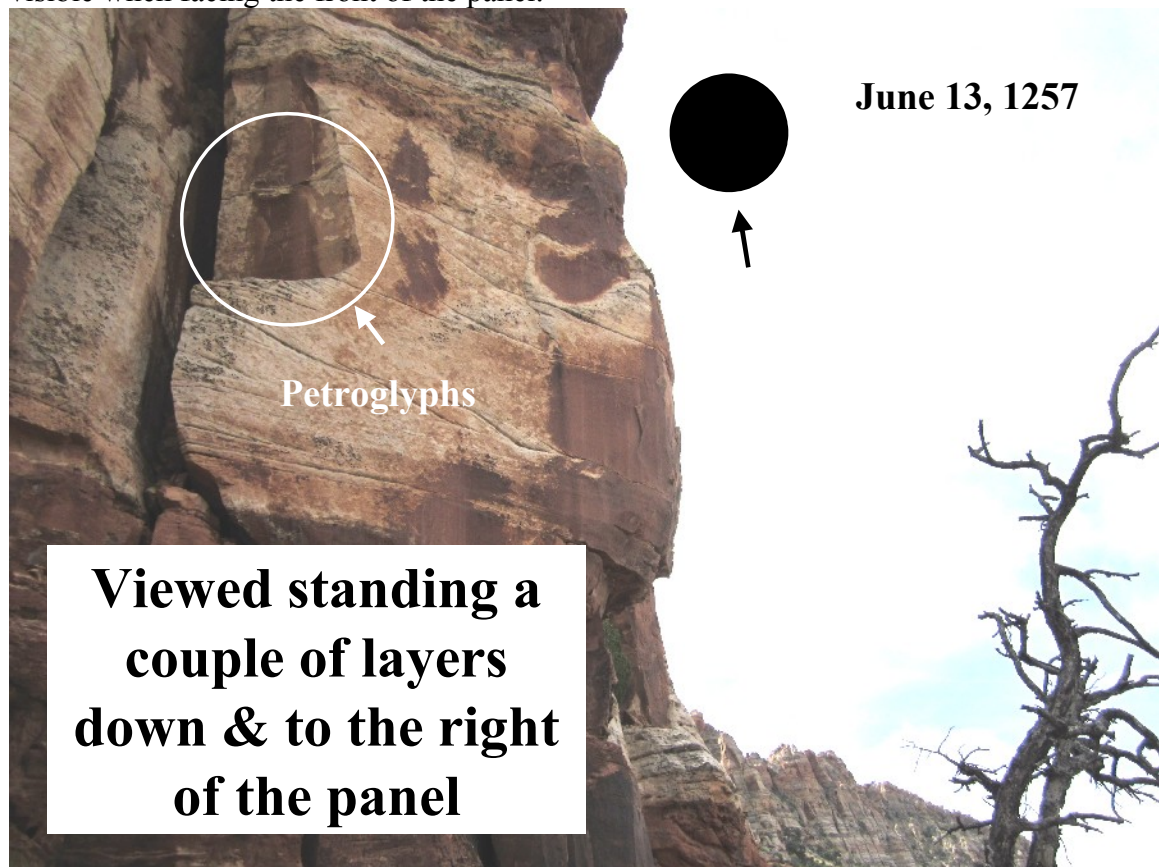
E-Lower on the panel to the right of the second serpent are 2 circles side by side with a few rays coming from them. This may represent the shadow of the Moon as it moved off the face of the Sun.

F-At the bottom of the panel is Coyote(the trickster) who was most likely considered responsible for this event(I've never seen him depicted at a Solstice Site before).

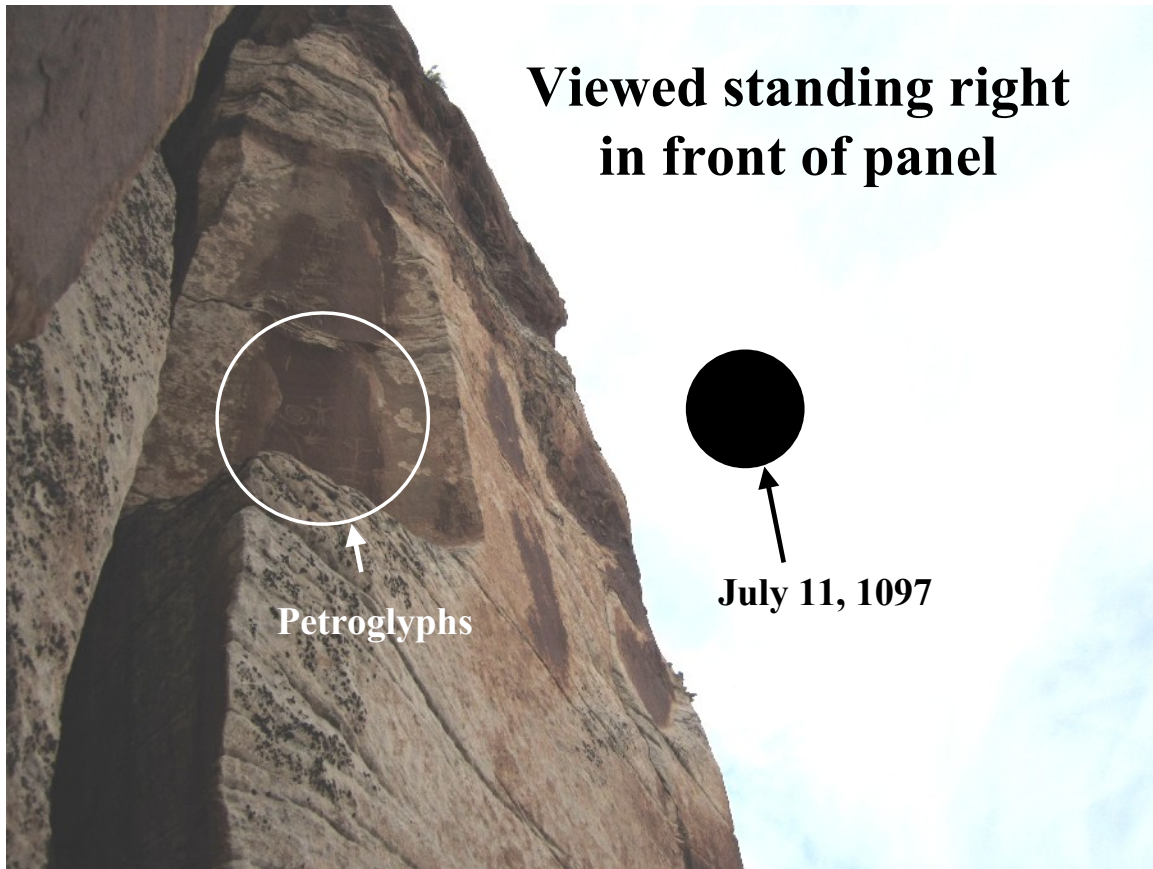
The mirroring symbol in my opinion would mirror what the sky looks like after the Sun has set, but in this case during daylight.

According to the NASA web site, <http://eclipse.gsfc.nasa.gov/SEsearch/SEdata.php?Ecl=12570613>

which was created by a Fred Espenak, (I was assisted by Robert M. Candey at NASA) the Sun would have been at maximum eclipse at approx 12:23 pm at an altitude of 76 degrees and an azimuth of 172 degrees. I have confirmed that the event was actually visible when facing the front of the panel.



The 1097 CE Eclipse would also have been visible from in front of the panel. In fact, it is even better aligned than the 1257 CE eclipse.



The Summer Solstice would have only been 1 week away when the 1257 CE event occurred making this panel the logical place to record it.

The Total Eclipse of 1257 CE would have happened near the time that the Anasazi left this area. In fact, most of the Anasazi had already left this area by this date (Note: 1). However, this area had a permanent source of water and was occupied longer than other areas in the region. It is also possible that this solar eclipse was another sign that convinced the remaining Anasazi to leave.

NOTE: 1) "As elsewhere north of the Colorado River, agricultural adaptations to marginal environments like the Arizona Strip fluoresced briefly and then collapsed, prompting the widespread abandonment of population centers throughout the region by A.D. 1250."

"Remnant populations persisted elsewhere in the region. Excavations west of Kanab Canyon produced radiocarbon dates consistent with continued occupation of these sites into the mid-A.D. 1200s, or about 100 years longer than the terminal date typically ascribed to agricultural occupations in the region."

Per: Jan. 30, 2007, Document prepared by the Colorado Plateau Archaeological Alliance, Ogden, Utah on behalf of the Grand Canyon Trust, Flagstaff, Arizona By Jerry D. Spangler

The presence of "Coyote" on this panel is significant, since in Hopi mythology there is a story of Coyote stealing the Sun. Although that myth is different, Coyote would certainly come to mind if the Sun suddenly was stolen (missing).

In fact, Coyote appears on another panel not too far away which also related a coyote mythology legend.

Coyote(see photo below)

It appears that coyote is receiving energy from the shaman figure & the medicine pouch (through his tail & his nose). And as he looks back over his shoulder the equivalent of a serpents tongue strikes the person dead.

"According to the Navajo, the coyote keeps his life force in the tip of his nose and the tip of his tail. "

Mandan tribe mythology *"To humans, the coyote gave the greatest gift, the ability to think. People prospered, but when the coyote realized there would not be enough food to feed everyone, death was introduced into the world. "*

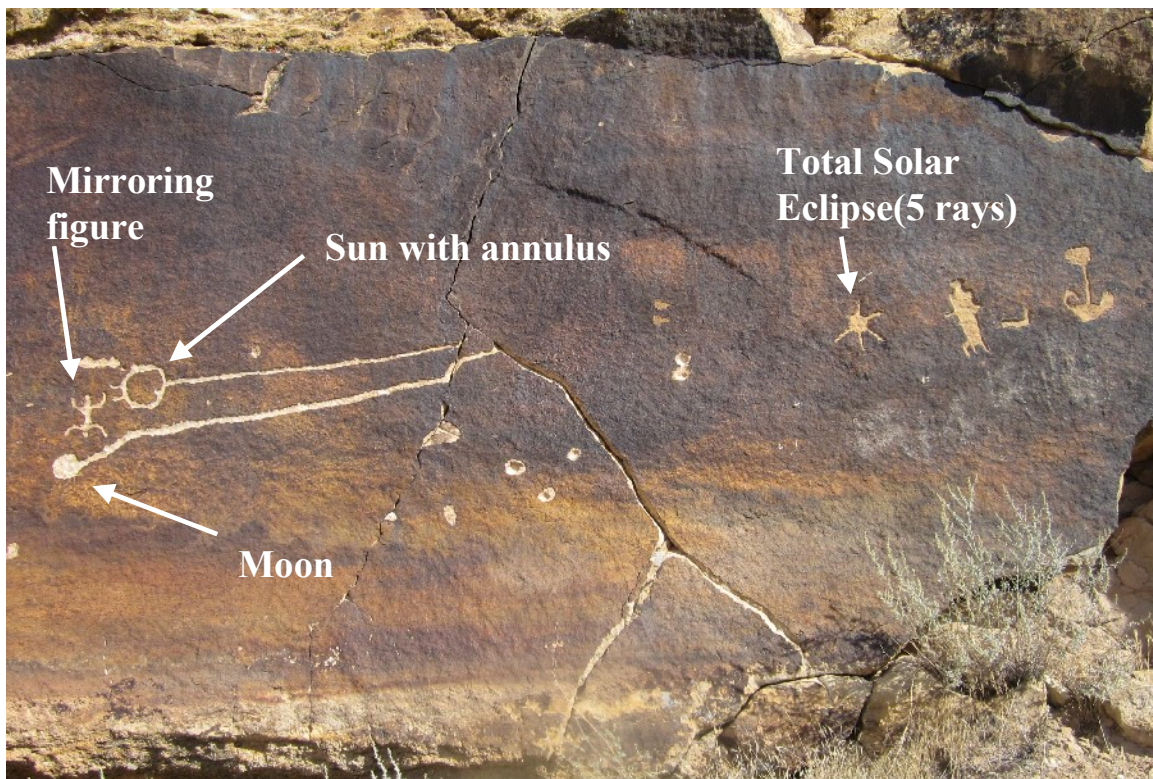
<http://www.theacorn.com/news/2008-01-10/pets/038.html>

Caddo tribe mythology *"Coyote ran away and never came back, for when he saw what he had done, he was afraid. Ever after that, he has run from one place to another, always looking back first over one shoulder and then over the other to see if anyone is pursuing him. And ever since then he has been starving, for no one will give him anything to eat."* <http://www.firstpeople.us/FP-Html-Legends/CoyoteAndTheOriginOfDeath-Caddo.html>



It is hoped that the identification of this Total Solar Eclipse marker may motivate other rock art researchers to check their photos for similarly recorded eclipse events.

In fact, after writing the above about checking photos, I remembered a panel that has always bothered me since it refers to the Sun but didn't appear to be a Solstice or Equinox site. It may record a total solar eclipse as well as an Annular Eclipse.(An **annular eclipse** occurs when the Sun and Moon are exactly in line, but the apparent size of the Moon is smaller than that of the Sun. Hence the Sun appears as a very bright ring, or annulus, surrounding the outline of the Moon.)from Wikipedia.



(Note that the Sun glyph on the right side of the panel has 5 rays, just as with the hand over the Sun. There is also a mirroring image.)

This is an old SW facing panel, but it doesn't follow the rules for patination in all areas of the rock surface. The rock is sandstone but it has an iron based surface and a soft sandy material underneath. Therefore, some areas underneath the pecking erode instead of patinate.

On some adjacent panels the coating is even thicker & the sandstone underneath even softer resulting in a template effect. This site area is locally known as the cookie cutter site for this reason. Extreme example below....



There is almost always a Shaman figure associated with a Solstice or Equinox site. He is the being controlling the event. In this case, although it isn't a Solstice or Equinox site, it does have a Shaman figure associated with it. However, he doesn't appear to be controlling the event. After revisiting the site & closer examination, he appears to have one or more serpents spiraled around him and constricting him. In other words, he has

lost control!



The glyph to the right of him bothered me even more. The only thing it reminded me of was an oil lamp, but the Anasazi never used oil lamps.



When I revisited the site I took additional photos of the adjacent panels. When I returned home I noticed a bird glyph on one of the panels which I had never noticed before.



I then realized that the oil lamp glyph was in fact a sleeping bird. The lollypop looking thing above the bird is most likely the same moon as pictured to the left which obscured the sun



& made it dark.



The bird would have mistaken the eclipse for night time & went to sleep. This moon glyph is used, as atlatl dart glyphs are used,

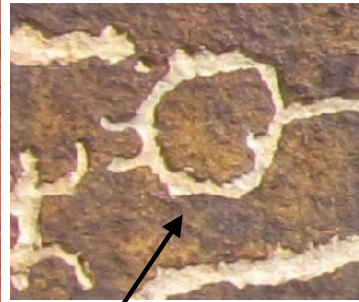
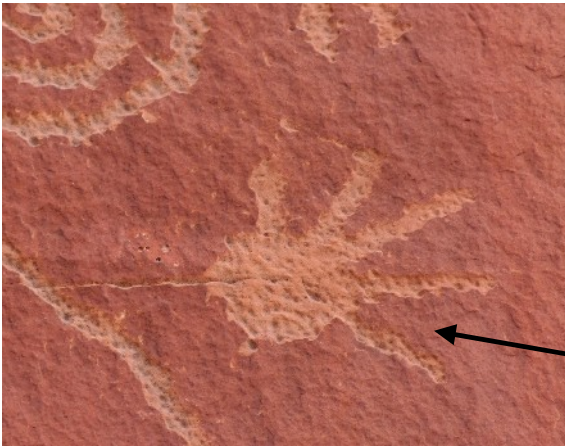


pointing to the animal(Bison photo by Jon Gum).

The most likely dates for an annular eclipse at this site would be on December 3, 1062 CE at 11:30 am, or on January 4, 1117 CE at 12:50 pm.

Photos showing total eclipses as well as petroglyphs of total eclipses & annular eclipse...

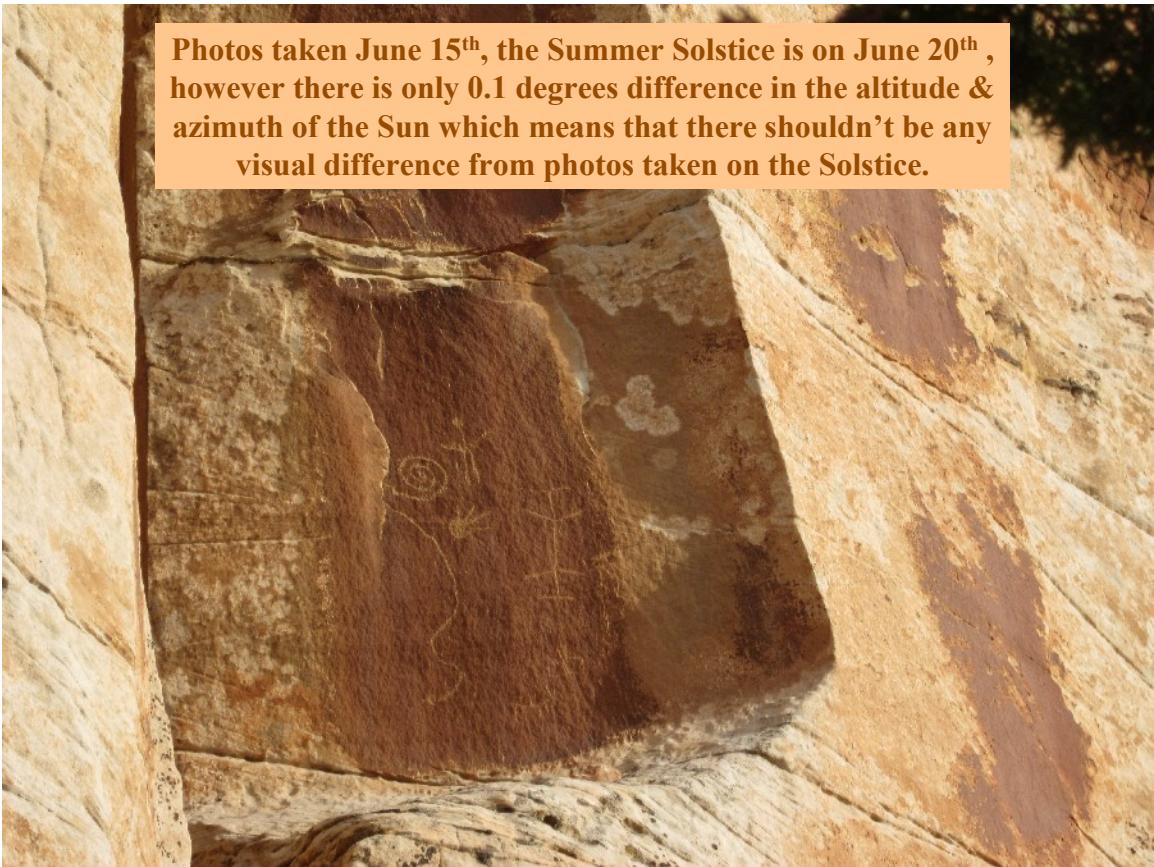
**Solar Eclipse photos
taken from the web**



Petroglyphs

Summer Solstice Marker recorded near
sunset on 6/15/12

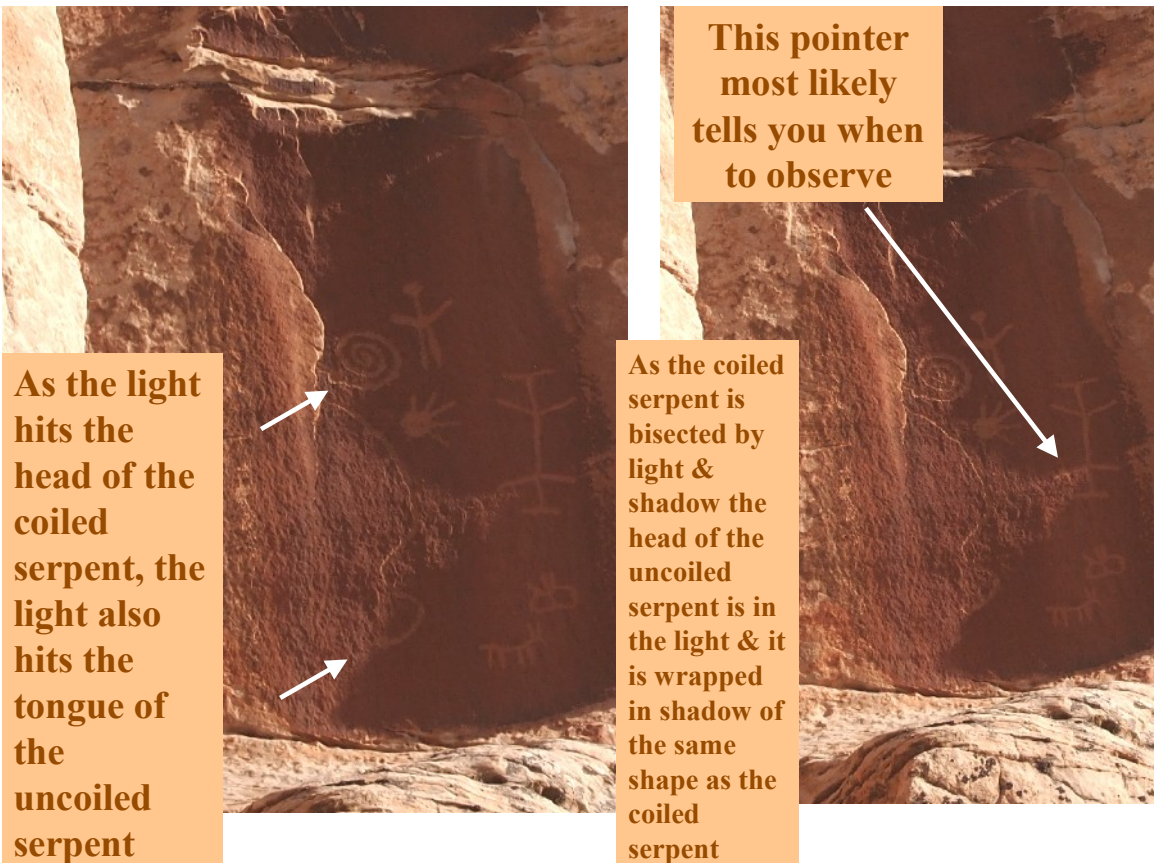
Photos taken June 15th, the Summer Solstice is on June 20th, however there is only 0.1 degrees difference in the altitude & azimuth of the Sun which means that there shouldn't be any visual difference from photos taken on the Solstice.



This pointer
most likely
tells you when
to observe

As the light
hits the
head of the
coiled
serpent, the
light also
hits the
tongue of
the
uncoiled
serpent

As the coiled
serpent is
bisected by
light &
shadow the
head of the
uncoiled
serpent is in
the light & it
is wrapped
in shadow of
the same
shape as the
coiled
serpent



**As both serpents come fully
in the light, the Shaman
figure remains in shadow**



**Finally, as the panel comes fully into the
light(which only happens in the late
evening on & near the Summer Solstice), a
light pointer is formed which points to the
Sun. This is something I don't ever
remember seeing before.**

