



“Standstill” My Beating Heart: A Lunar Love Affair

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This is a significantly upgraded version with evolved prose and more images.
[The original version was published at Space.com.]

Two lovers, a thousand miles apart, perhaps yearning to be back in each other's arms, may find a ray of comfort as they gaze upon the same Moon, knowing that they are bathing together in celestial light from the same source.

Perhaps more likely in the modern world, our lovers will message their terms of endearment while bathing in the light of their computer and cell phone displays, blissfully oblivious to the Moon, or any other celestial presence.

Certainly, I am much involved with the technology of modern communication, and I do appreciate its power to keep me on the pulse of personal and worldly affairs. Yet this past year I opted to spend some substantial time away from the clicks, bleeps, and ring tones that pervade modern living. I traveled out to sea, and to remote, desert locations like Chaco Canyon and Chimney Rock in quest of sky watching adventures.

Cell phones and Internet connections do not work as well in the midst of seas and deserts, but other forms of connection do. I made palpable contact with a time when humans were keen observers of the sky and lived in closer communion with their cosmos.

On one especially memorable night I was astonished to realize that the subtle glow discernible above a Chaco canyon wall was not the ubiquitous light pollution of yonder city, but the Milky Way rising! My ranger friend, perhaps bemused by my “city-girl” fascination before a spectacle that had been part of his everyday experience for more than two decades, responded gently: “Hmmm....perhaps we need to get you out here more often.”

This grand display of a galactic spiral arm was profoundly alluring, and so who could have predicted that my travels would sweep me into a serious, new love affair with our more commonly seen celestial companion – the Moon.

Yes, I confess that I have been communing unabashedly with the “Man-in-the-Moon”—watching him with my naked eyes and sensing the way he draws me closer to the pulse of cosmic affairs. And yes, he does go through phases—a sign of inconstancy for some—but I love the drama of his waxing and waning and monthly meandering through the constellations of the Zodiac. I have also been enjoying immensely that my new “man” is so culturally imbued with vital feminine ways.

My lunar love affair ignited last spring (March 2006) aboard an Italian cruise ship. We sailed to the middle of the Mediterranean where I basked



[Man-in-the-Moon Quilt](#)

for a while in his fleeting shadow. What a potent moment as he blocked the light of the mighty Sun at midday! Earthly reality seemed surreal as I surrendered to the broader cosmic reality of this enchanting encounter.



[Diamond Ring Effect](#)

After the voyage, I learned that I was not alone in my lovely lunacy... One of my colleagues—a writer for Astronomy Magazine—had proposed marriage to his lady during those few minutes of total solar eclipse. Evidently, this literally Sun-crossed couple chose to transcend any pre-modern superstition of foreboding, and to include the joys of traditional sky watching with the happy occasion of their engagement.

A couple of months later, I made a challenging, 4-wheel drive to a remote, high-desert canyon in the American southwest. [Chaco Culture National Historical Park](#) is probably best known for the Sun Dagger ancient observatory atop its most prominent geological feature—[Fajada Butte](#). It is also famous for a ["supernova" pictograph](#), which *may* be a rock art recording of that 1054 AD apparition by a Chacoan observer.

Chaco is a land of extremes--over 100 degrees Fahrenheit in July and below zero in January. So May had seemed best to discover how my role as a regional representative of NASA space science education and public outreach might be of service to the Chaco interpretive staff. I had no prescience that my Man-in-the-Moon would be there to seduce me further.

Shortly after turning onto the long dirt road that leads to the Park, the Moon made his move. I watched him arise from behind a glorious red mound of rock, eventually presenting his splendid fullness soon after sundown.



Full moonrise over sandstone mound near Chaco Canyon in New Mexico. Photo by GB Cornucopia

Now wait a minute! How could a simple event like a full moonrise at sunset hold such sway? In keeping with my professional mission, I diverted my energy to designing how such a moment might be explained efficiently to Park visitors, and to determining which NASA educational materials (perhaps even *Kinesthetic Astronomy*) might be best suited to the occasion.

But the Moon was not done with me.

A man (who would become a beloved friend) with the curiously appropriate name of GB (“gee bee”) Cornucopia, is Chaco’s most revered interpretive ranger. He was leading a “Moonwalk” that same evening, as part of a sunset tour of Pueblo Bonito – the most celebrated example of Chaco’s extraordinary sandstone architecture.



Aerial photo of Pueblo Bonito, Chaco Culture National Historical Park. Photo by Brad Shattuck.

As I followed the tour, I was certainly not expecting GB's astronomical commentary to be any news to me. After all, I had earned a respectable doctoral degree in astrophysics from the University of Colorado and had taught modern astronomy for many years. I was there as NASA representative to serve GB, not the other way around.

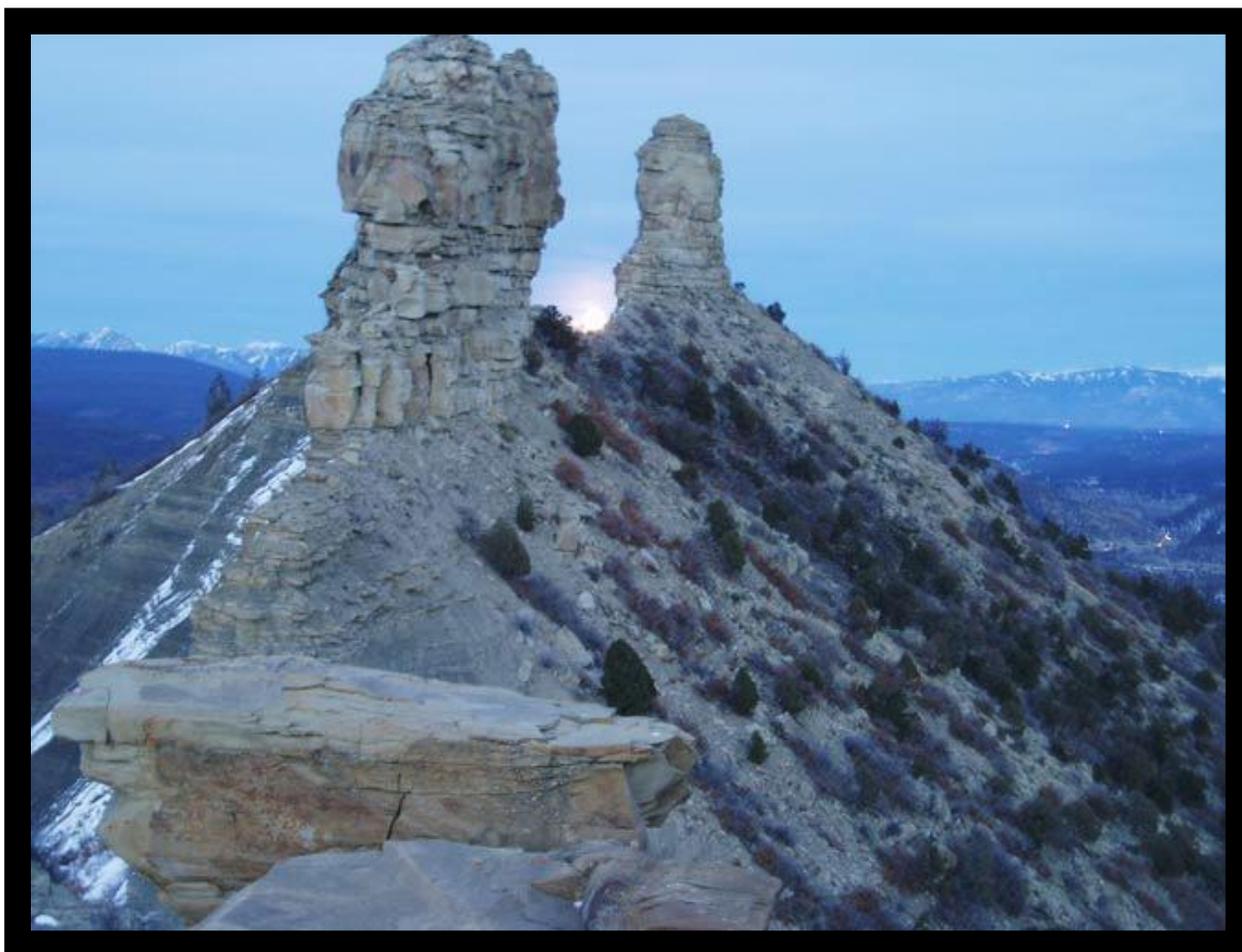
How delightful then, when such hubris was duly humbled with a dose of traditional knowledge that would turn my growing attraction to the Moon into a full-blown, passionate obsession. GB told the assembled visitors how moonrises move north and south on the horizon during a single month, just as the sunrises do over the course of a year. Further inquiry revealed that the north-south extremes of this monthly excursion vary over an 18.6-year "lunar standstill cycle".

Now here is the big news. We are currently in the midst of a "major lunar standstill season" (2004-2007). This presents rare opportunities to experience the most northerly and southerly moonrises in 18.6 years, and thus attune to observations made by the sky watchers of Chaco and many other ancient cultures around the world. Each month during this 3-year "season", the Moon outdoes the mighty Sun (here again) by rising and setting farther north and south than the Sun at its solstice extremes.

Be "standstill" my beating heart! Why hadn't I ever heard about this? I was crazy with curiosity, and there is nothing like a little mystery to enhance romantic interest.

I began to volunteer for those who investigate how to read the messages of astronomical observations and knowledge that were encoded and launched through time in Chacoan architecture and rock art. One of these archaeoastronomers, Ron Sutcliffe, suggested a sacred tryst with the Moon in December at a place 100 miles north of Chaco, called [Chimney Rock](#).

At Chimney Rock, my heart irresistibly opened as the full Moon, in one of his most dramatic northernmost apparitions in 18.6 years, rose in the gap between two magnificent rock pillars. This spectacle, sacred to both ancestral and modern Puebloan people, is possible only during a major lunar standstill season. At other times, the Moon is too far south to be seen in the gap.



Northernmost full moonrise at Chimney Rock, Colorado. Photo by GB Cornucopia.

Ignorance of a lunar standstill cycle is widely shared among modern astronomers, astronomy educators, and lunar explorers. Though they may well be aware of reasons for longer-term lunar cycles (namely the 5.1-degree inclination of the Moon's orbit to the ecliptic, and the slow regression of the lunar nodes), they are generally inattentive to how this affects naked eye observations of the Moon's monthly dance on the horizon. Indeed, most of them are not even aware of the Moon's phase. My evidence? In workshops and presentations during the past nine months, I have asked them.

My polling sample includes a team of scientists associated with the 2008 U.S. mission to the Moon (the Lunar Reconnaissance Orbiter - LRO), and over 100 scientists, engineers, and space lawyers at the recent International Space University (ISU) symposium whose theme was to address the fundamental question confronting modern exploration: "Why the Moon?"



NASA LRO Spacecraft – Artist



Modern ways seem to have eclipsed our traditional awareness of how the Moon behaves in the sky, and I think this is a big loss to our humanity. *Why not enrich ourselves with both modes of exploring?* I found the young explorers at ISU to be especially open to making this connection. They flocked around after my collaborative presentation with the LRO Project Scientist, expressing joy and satisfaction in knowing simple things about the Moon (e.g. lunar phases and eclipses via a kinesthetic demo) that decades of school-based science had somehow *not* managed to convey.

So...they say the proverbial Man-in-the-Moon is a classic example of pareidolia – a psychological phenomenon involving a vague and random stimulus being mistakenly perceived as something recognizable. While I find this highly reminiscent of modern, psychologically challenged relationships, there was something very much more powerful and reverent about the deep feelings stirred in me through my more traditional, naked-eye engagement with the Moon.

My worldview was shifting. Something in my soul was moved to embrace a life-long relationship rooted in ***a new synthesis of traditional and modern inquiry***. In addition to my enlivened passion for the Moon, the intensity of the Moon watching practice was having a powerful influence on my professional perspectives. In particular, I felt a strengthened commitment to support naked-eye observations as a key element of the public outreach programs I was advising and developing in association with NASA space science missions.

Last Saturday (3 March 2007), well after my adventures at sea and in the American southwest, I sat alone on a chilly rock in the foothills just west of Boulder, Colorado...gazing eastward...awaiting my beloved's arrival at sunset. At last he appeared...an ethereal pinkish disc of an eclipsed full Moon emerging in the dusky blue sky near the horizon. I spent a few moments in contemplative communion with his beauty...knowing that I was part of the planet causing the shadow in which he "basked". Then, I took out my cell phone to call my Earthly beloveds, urging them to go outside and watch with me... ##