SPRINGS

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THE PLACE OF THE MOON

Christopher Cokinos

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The same Moon rises everywhere, but, for me, the Moon is part of the US West. It rose over my first house near Logan, Utah; three houses in Tucson, Arizona; a canyon cabin in Utah; a brief home in Salt Lake City, Utah; and now, a retirement house in Logan, a place that, years ago, I thought I'd never leave. Moonlight—and the satellite's wild surface as revealed by my telescope—reshaped my relationships to the Sonoran Desert and to the Wasatch Mountains of northern Utah, to which one science writer compared a lunar crater.

Still from the film *Frau im Mond*, written by Thea von Harbou, directed by Fritz Lang, 1928/29. Photo by Horst von Harbou / Deutsche Kinemathek. Public domain.

In the West, the Moon changed me. It made me a better person. Learning its human and scientific history, spending hours observing through my telescope, and thinking hard about the expectations that we put on places—often unrealistically—reminded me of the need for humility before expanse.

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The author's study with Moon map and telescope in the nineteenth-century adobe house he and his wife restored in Tucson. © William Lesch. All rights reserved.

When I first left Logan more than a decade ago, I wept. I didn't think my wife and I would ever move from the riverside acres we'd lived on for years, home to willows and beavers, dogwood and wintering eagles. But a new job and perhaps more opportunities for me and Kathe awaited in Tucson. I hadn't counted on imposter syndrome, one of several chasms I felt could be filled by adulation, nor could I embrace the pointed heat of the desert. I faltered, stumbling in what Arthur Miller once called "the usual darkness," where my 10-inch-aperture telescope also gathered dust.[1]

Then I saw the Moon anew. For years, I had avoided it because I preferred looking at galaxies and nebulae, "faint fuzzies," as amateur astronomers call them. But in my Tucson backyards, seeking calm from meditation, conversation, and therapy, but also from the sky, I looked at the Moon with a sudden appreciation for its sublime landscapes, its hulking mountain ranges, its terraced craters the size of states, and its valleys gouged out by meteorites. As well, I looked at the Moon from the cabin we got in Logan Canyon in order to escape Tucson's belligerent summers. It peeked above the ridge in early evenings like a trickster with something obvious to tell me.

Rock imagery from Parowan Gap, Utah, depicting what some scholars say are the "three Moons of winter." Native cultures say it depicts a famine story. Both explanations may be correct. © Christopher Cokinos. All rights reserved.

I would go on to learn that in the US West, especially for native cultures, the Moon was, as elsewhere, terribly important. Archaeoastronomy sites, like New Mexico's Chaco Canyon, and Utah's Parowan Gap, demonstrate the sophistication and importance of Indigenous lunar astronomy—such ancient lunar astronomy was some of the first empirical study of the heavens, helping cultures bridge the temporal gap between days and seasons. More recently, places like the Flagstaff area would become "analogs" for lunar terrain; Apollo astronauts and, now, NASA's Artemis explorers put on space suits and work as though they are on the Moon.

In Tucson and Logan Canyon, I learned my way around the Moon, learned its science and folklore, listened to either traffic or hermit thrushes, and, with the help of loved ones and the occasional book of philosophy—I lugged Schopenhauer in backpacks—I cultivated what that thinker calls, in my loose translation, "the will that has calmed itself."[2] It's strange: how the right kinds of connections foster the right kinds of unattachment. Those connections were observational and empirical: I looked at the Moon carefully, gaining knowledge of its topography, and I read about the Moon deeply, gaining an appreciation of its many stories, literal and fanciful. So, the linkages I felt toward the Moon allowed me to loosen unhelpful linkages on the Earth, like those of career pressure or the desire for approval.

In the words of one nineteenth-century selenographer, I "became in thought a lunar being."[3] Who needs ambition when you can fly over the rounded peak of Mons Hadley Delta? Or craving when the terminator—the line dividing light from darkness—falls over the inky ashes of Sinus Aestuum?

Writing about our companion world, which moonwalker James Irwin compared to an Idaho winterscape, became a form of homecoming to the place I loved most—Utah—and a form of reconciliation with a place I'd struggled with—Arizona.[4]

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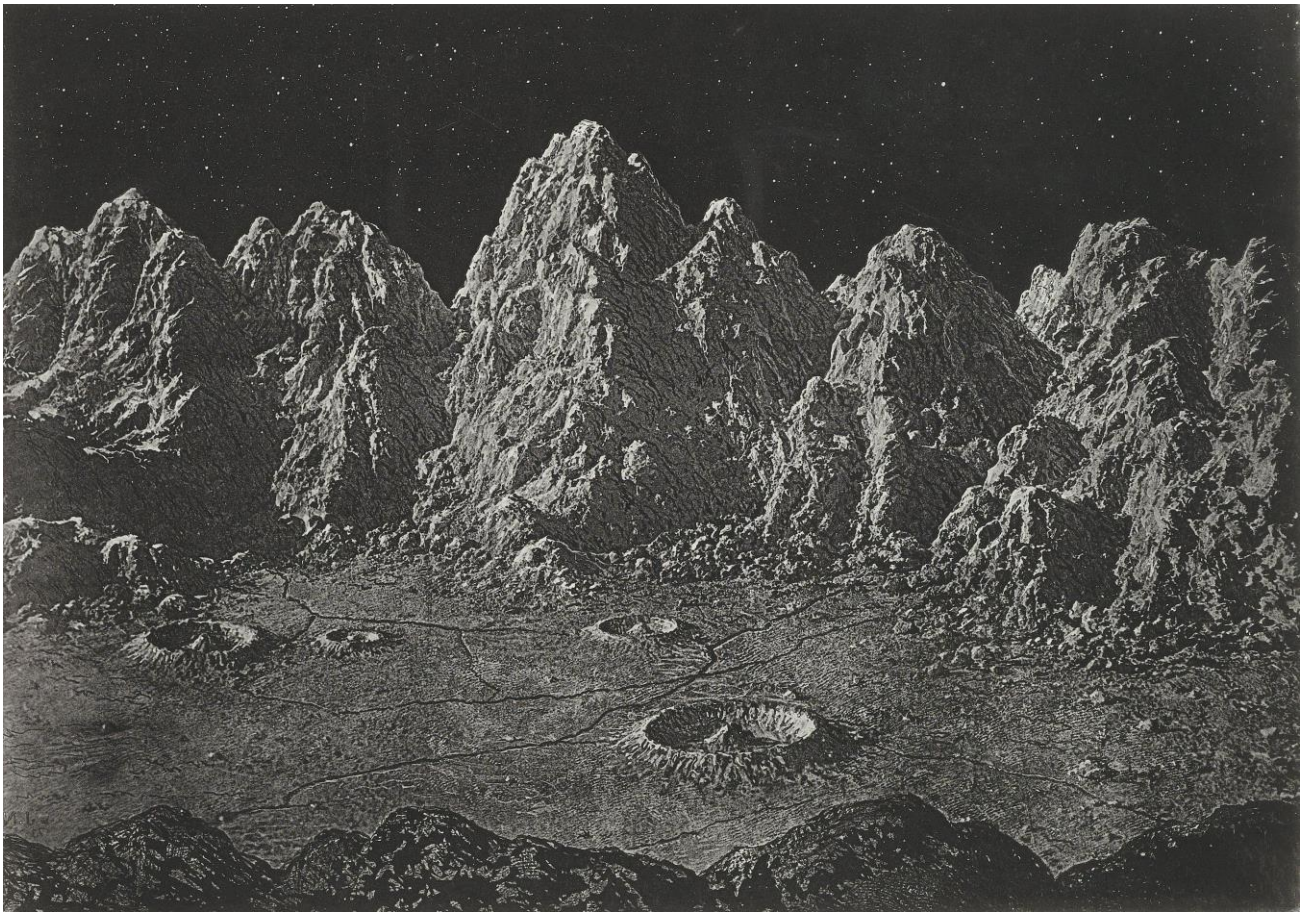
Though he didn't walk on the Moon, another Apollo astronaut, Frank Borman, first described its sight from orbit as "a vast, lonely, forbidding-type existence, or expanse of nothing."[5] Yet the lunar landscape is full of drama and lessons! Borman wasn't ready to take the Moon on its own terms. Ironically, I'd done to Tucson what Borman (a Tucson native) had done to the Moon.

> *The Moon's terrain was visualized as sharp-peaked, creased, almost ridiculous in pointy-mountain splendor.*

Behind Borman's remark is a fascinating off-world environmental history. Though nineteenth-century selenographers were perfectly aware that rounded objects cast sharp shadows and despite the visual evidence of rounded mountains that kept accumulating into the early twentieth century, the Moon's terrain was visualized as sharp-peaked, creased, almost ridiculous in pointy-mountain splendor. By the middle of the twentieth century, astronomers—both professional and amateur—knew, and in the later cases, were drawing, lunar features correctly: Mountains and crater rims of the Moon had been worn down by eons of meteorite strikes, giving the lunar landscape a swelling, muscular grandeur, not the alpine fictions of such artists as Chesley Bonestell. In short, the Moon's hulking peaks were rounded not sharp. This fact deeply annoyed those who had created a Romantically sublime fictional Moon that looked like lunar Alps. For them, a Moon with rounded mountains was boring.



A nineteenth-century depiction of a kind of alpine Moon, a Romantic view that even some astronomers then knew was incorrect. The Moon's mountains are rounded and muscular. The tension between accurate depiction of place and what it "ought" to be has been central to the author's quest for coming to terms with the Moon and locales in the US West. James Nasmyth, *Group of Lunar Mountains. Ideal Lunar Landscape*, c. 1830, collotype, 145 x 207 mm, Rijksmuseum Amsterdam, Plate XXIII. Public domain.

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Bonestell famously illustrated views of our solar system—especially in the 1940s and 1950s—that were accurate within bounds of science. But he knew his paintings of the Moon were not. Like the artists of the US West and the Hudson River School who exaggerated landscape features, Bonestell painted the Moon, as one of his defenders puts it, "as it ought to be."[6] Without such a fictional landscape, they ask, would we have wanted to go there at all?

Such a misunderstanding of the geopolitical context for the lunar Space Race is remarkable. President John F. Kennedy was not looking at Bonestell's popular illustrations in *Life* magazine or the book *Conquest of Space*.[7] Kennedy did not care for space exploration. But he was convinced by arguments that a moonshot would be the best way to beat the Soviets in the eyes of the world.

Apollo was born, and, in 1968, Apollo 8 sent the first humans, including Borman, to another world. Focused mostly on the mission and with very little lunar-science preparation, the crew "othered" the Moon, calling it "dirty beach sand" and saying it "certainly would not appear to be a very inviting place to live or work."[8]

Although the Moon has no Indigenous life, attitudes that we bring to it will help determine our state of mind there. If it's boring, ugly, and dirty, then we bring that negativity with us onto the surface of a world that has been manifestly crucial to our species. Alternatively, really appreciating the lunar surface through the telescope and lunar history through books has given me quite the opposite reaction of the Apollo 8 crew. My time in Tucson, ironically, was a version of what Apollo 8 did to the Moon.

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While I had spent the first years in Tucson trying to learn its natural history—even coediting *The Sonoran Desert: A Literary Field Guide*—I could never overcome my own sense that, strictly for me, it was not "an inviting place to live or work." The heat staggered me. Thorns grew everywhere. I missed northern Utah, where I had experienced what Germans call *Heimat* ("home," with emotional connotations). It was my home ground.

Later Apollo missions, starting with Apollo 15, emphasized science. The Apollo 15 crew in particular grew fond of the Moon and spoke of it in familiar, loving terms. It became a home. They had prepared for a place by learning of it ahead of arrival, working in what philosopher Sandra Shapshay calls "the thick sublime."[9] I had tried, belatedly, to overcome my objections to Tucson's climate and flora, only to find it wouldn't work. Notably, I also became less of an activist there. By being less connected to place, I was less motivated to steward it.

The Moon seen through the author's telescope from his cabin at Logan Canyon, Utah. © Christopher Cokinos. All rights reserved.

As COVID-19 hit and my teaching moved online, and as Kathe and I eyed an early retirement, we moved back to Utah, for a time settling in Salt Lake City. I learned there that our house was close to where Apollo 15 moonwalker James Irwin had lived during his high school years. He and I shared trails in the Wasatch foothills. I loved that coincidence, but it wasn't enough to keep us from returning to Logan, where, apart from Tucson, our closest friends live, where I know best the trails, birds, seasons, and plants.

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One of the first things I did when we bought this bungalow was put up the telescope on a spring evening. We hadn't moved in yet. In fact, the renovation was just underway, but I showed our friends Paul and Phebe the Moon. The sky over this house is capacious.

The Moon's West, however, is not only a personal story. As I worked on my book about the natural and human history of the rocky satellite, I followed in the footsteps of the Apollo astronauts who trained here. The US West has been a kind of lunar proving ground. It still is, for a new generation of explorers under NASA's Artemis program, which will land the first woman and first person of color on the Moon in a couple of years.

Artemis I Rollout (NHQ202211040012). CC BY-NC-ND 2.0. Courtesy of NASA.

At the Rio Grande Gorge outside of Taos, I stood by the cliff's edge where Irwin and fellow Apollo 15 moonwalker Dave Scott practiced their 1971 explorations of the wide and deep Hadley Rille, which once flowed with lunar lava. Near Flagstaff, I drove the same cinder roads that Apollo crews and geologists drove as they simulated excursions in the Lunar Roving Vehicle—the makeshift terrestrial version was built in sheds and garages in Flag and was affectionately called "Grover" (short for "geologic rover").

On my way to use the 60-inch telescope at Mount Wilson, perched between Los Angeles and the Antelope Valley where Neil Armstrong once lived, I stopped along a creek beside a roadcut. It exposed a bright white rock: anorthosite. This light mineral occurs on the Moon too, and astronauts came to this very spot to sample it and recognize its importance. On the primordial Moon, anorthosite floated to the top of a massive ocean of magma. I picked up chunks from beside the pavement, and they glittered in the sun. Finding anorthosite on the Moon helped confirm this magma ocean, an ocean that was the consequence of—and evidence for—the unfathomable chance violence in the form of impacts.

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And it was in Tucson, of all places, at the Lunar and Planetary Laboratory (LPL) in the early 1960s that our modern lunar exploration truly began, with LPL's renowned scientist Gerard Kuiper directing telescopic mapping and the first primitive probes, the Ranger series, which took photos as they neared—then crashed into—the Moon. It was in an LPL Quonset hut that William K. Hartmann, then a grad student, discovered a massive impact feature mostly on the Moon's farside. And it was Hartmann, along with Donald R. Davis, who correctly hypothesized that the Moon was formed when a giant protoplanet slammed into the Earth about four billion years ago.

Backyard of the nineteenth-century adobe house, where the author had put up his telescope. © William Lesch. All rights reserved.

My alienation in the desert altered somewhat during my lunar voyages, for it was in the city I had struggled against that twentieth-century scientific studies of the Moon began in earnest. I have now fonder memories of that place, though I don't regret leaving: Once, after showing the Moon to our friends' young son, I saw his face lit from the eyepiece, palm trees rattled—strange sound!—and I felt my eyes tear up. It was magical.

What do we want from the places where we live? And, if visions are to be believed, places where we'll live next, like on the Moon, where water ice lurks in the shadows of polar craters? By being less connected to a place, we'll be less motivated to steward it. Already, policymakers, astronauts, lawyers, artists, and scientists are urging that our lunar return take into account the place the Moon holds for cultures around the world. That we listen to diverse voices. And that we leave some parts of the Moon free from mining water ice, so that scientific sites, historical sites (like the Apollo landing zones), and vast swathes of lunar wilderness can be free of industrial infrastructure. Groups like For All Moonkind and the Europe-based Moon Village Association are trying to inflect policy in this way.

Part of that effort must be, I think, to really know the Moon's wider cultural, scientific, and artistic history—the very history I encountered in writing *Still as Bright: An Illuminating History of the Moon, from Antiquity to Tomorrow*. Part of that effort also involves *seeing* the Moon—deliberately. Putting eye to eyepiece to get to know the lunar landscape, its features, and its names. I can tell you, honestly, it is a remarkable vision, the magnified Moon in an eyepiece. If we don't, we risk doing to the Moon what Frank Borman did to it. And, in my way, what I did to Tucson.

> *Part of the effort must be to really know the Moon's cultural, scientific, and artistic history. It involves seeing the Moon—deliberately. Putting eye to eyepiece to get to know the lunar landscape.*

Returning to the Moon to stay is full of promise and peril. It could be an opportunity to responsibly settle another world, balancing all kinds of social and scientific considerations. Or it could repeat terrestrial mistakes of unregulated exploitation. What it won't be is a replacement for Earth.

No one can claim legal ownership of the Moon. Yet we all possess it.

"I own [my house]," wrote British novelist Brian Aldiss, "in the way that the Moon and the tree shadows own me: by falling across me and influencing me intensely . . . The intense love one has of one's house is really a love of life itself."[10]

Back home in Logan, I've come full circle, like a Moon in its motions, drawn most to what holds it close.

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It's no small thing to me that the first long look I took at the Moon was from beside mesquites in our gravelly backyard of the Tucson adobe. Kathe was tending a fire and singing. I was shocked by the telescopic sharpness of Copernicus, a crater that looks a bit like a flower, but is a real place. That view reminded me of a childhood smitten with spaceflight and, more importantly, the present in which nothing should be taken for granted: love, luck, homes, the familiar and ever-new, whether it's the wide side of this continent or the person with whom you orbit and to whom you call, "You have to come see this view."

From such intimacies, we can make ourselves better citizens of places.

Notes

[1] Arthur Miller, *The Penguin Arthur Miller: Collected Plays* (Penguin, 2015), 143.

[2] Arthur Schopenhauer, *The World as Will and Representation*, trans. and ed. Judith Norman, Alistair Welchman, and Christopher Janaway (Cambridge University Press, 2010), 439.

[3] James Nasmyth and James Carpenter, *The Moon Considered as a Planet, a World, and a Satellite* (John Murray, 1903), 257.

[4] James Irwin and William A. Emerson, Jr., *To Rule the Night* (Ballentine, 1973), 46.

[5] David Woods and Frank O'Brien, "Apollo 8 Lunar Flight Journal," Apollo Flight Journal, National Aeronautics and Space Administration NASA History Division, 4 May 2024, https://www.nasa.gov/history/afj/ap08fj/index.html.

[6] Ron Miller and Frederick C. Durant III, *The Art of Chesley Bonestell* (Paper Tiger, 2001), 26.

[7] "Solar System: It Is Modeled in Miniature by Saturn, Its Rings and Nine Moons," *Life* magazine, 29 May 1944, 78–80, 83–84, 86; Willy Lee, *The Conquest of Space* (Viking, 1949).

[8] Woods and O'Brien, "Apollo 8 Lunar Flight Journal."

[9] Emily Brady, *The Sublime in Modern Philosophy: Aesthetics, Ethics, and Nature* (Cambridge University Press, 2017), 189.

[10] Brian Aldiss, *The Shape of Further Things: Speculations on Change* (Doubleday, 1971), 1, 84.

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Christopher Cokinos is the author of several books, including his new *Still as Bright: An Illuminating History of the Moon, from Antiquity to Tomorrow* (2024), and, as coeditor with Julie Swarstad Johnson, *Beyond Earth's Edge: The Poetry of Spaceflight* (2020). In March 2024, he led the first all-artist analog lunar surface mission at a facility associated with Biosphere 2. He was a Carson Fellow in 2017. His nonfiction has appeared recently in such venues as *Esquire*, *The Los Angeles Times*, *Astronomy*, and *Orion*. Recently retired, he continues to write in northern Utah.

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