

# THE GREAT OUTDOORS



*Rafting through the steep walls of Horseshoe Bend we glimpse the desert varnish on the rock faces.*

## **Southwest Travelogue**

Our Columnist tours the canyon land of the Southwestern United States.

By J. Morton Galetto

My husband, my niece's family, and I recently returned from a tour of the canyon lands. You could call our experience a geological walk through time. The trip was a whirlwind overview of some of America's finest southwestern parks. Permit me to

share some highlights and to end with some perspective on our place in geological time.

We started our adventure in Scottsdale, Arizona. Since my last visit there ten years ago the enormous growth in housing was striking. We hiked Tom Thumb's Trailhead in the McDowell Sonoran Preserve and Pinnacle Peak Park. The Sonoran desert's saguaro cacti are true show-stealers and deserving of their own article. They are clearly the vegetative icons of Southwestern Arizona.



*The saguaro cactus accents the otherwise predominately low vegetation of the Sonoran Desert landscape in Scottsdale, Arizona. Photo: JMG*

We drove the Red Rock Scenic Byway and stopped briefly to see Bell Rock before eating

in Sedona surrounded by red rocks and tourist shops. I was reminded that what is preserved in America is only that which we make a concerted effort to protect and ultimately to be set aside. Each preserved piece represents a hard-fought push and pull for its future.

Leaving the hubbub, the Kaibab National Forest was a welcome gateway to the Grand Canyon's South Rim. We drove along the famed tracks of the Santa Fe Railway toward the El Tovar Hotel (1905). The railways opened many of the great western national parks to eastern tourists. The Santa Fe Railway had a predilection for naming hotels after Spanish explorers. "El Tovar" was in honor of Don Pedro de Tovar, who visited the Hopi mesas in 1540.

Our lodge, the Kachina (1968), was on the edge of the Canyon wall. It was nestled between the El Tovar Hotel and architect Mary Elizabeth Jane Colter's Hopi House (1905) and Hermits' Rest/Lookout Studio (1914).



*Architect Mary Elizabeth Jane Colter's Lookout Studio (1914) designed this building for Fred Harvey. Colter's pioneering and distinctive style helped to shape the architecture of the Southwest and its national parks. The locally quarried limestone makes it appear like part of the canyon wall. Photo: JMG*

It's impossible to grasp the grandeur of the canyon. Standing on the South Rim you look over the expanse of the canyon to the North Rim. The canyon is a vertical mile deep with the Colorado River continuing to sculpt the rock at its bottom. At the Historic Village the expanse averages 10 miles in width with gaps as wide as 18 miles. No photos can do it justice; it is incomprehensible even standing upon its eroded walls. Even by plane, taking in the entire 277- mile expanse, it appears flattened.

Artists, poets, geologists, and visitors like myself have tried to capture the immense scale and color in words: "Land of the Titans," yawning chasm," "endless," "massive," "profound silence," "painter's palette," "granite pink," and on and on. Only the preeminent landscape painters, whose huge canvases were commissioned by the railroads in the late 1800s to entice people to visit the parks, even come close, most notably Thomas Moran and then later Gunnar Widforss.

Scanning across its expanse you are struck by the massive rock formations of Shiva Temple, Isis Temple, and Cheops Pyramid. Geologist Clarence Dutton named Shiva, and in the late 1800s it was common practice to assign Hindu and Egyptian names to large geological formations in the U.S., in people's

attempts to label these locations and capture their grandeur.



*At one point Shiva Temple was a peninsula jutting out from the North Rim. Thousands of years of erosion made it an island between the South and North Rims. Arrows from left to right Shiva Temple, Isis Temple, and Cheops Pyramid, Grand Canyon looking from South rim to the North Rim. Photo: JMG*

Like all of the canyonlands we saw, it was awe-inspiring and the scale was beyond my grasp.

From the Grand Canyon we journeyed just upstream from Page, Arizona to the banks of Lake Powell, the second-largest man-made reservoir in the United States. Located on the Utah-Arizona border, when full (and it is drastically low at present) it spans 186 miles in length with 2,000 miles of shoreline. After the Glen Canyon Dam was completed in 1963 it took 19 years for the lake to fill. The hydroelectric power created by the dam

when at capacity is 1,320 megawatts. It produces about 5 billion kilowatt-hours of electricity annually: enough to power 350,000 homes. Part of a grid that feeds electricity to 5 million customers, currently demands for water, lack of conservation measures/restrictions, and climate change have placed its ability to create power in serious jeopardy.



*Glen Canyon Dam that forms Lake Powell and provides a massive source of electric. Photo: JMG.*



*Lake Powell with Glen Canyon in the background. The foreground has 120' long house boats that can motor the lake's 186-mile length or explore some 2, 000 miles of coastline. Photo JMG*

I was blown away by the huge houseboat rentals on the shores of Lake Powell. Standard sizes are about 45 to 75 feet, while luxury yachts reach lengths of 120 feet and widths of 24 feet.



*Aerial of Horseshoe Bend on the Colorado, Arizona. Best known for its dramatic 270-degree bend. The river carved into 190-million-year-old Navajo Sandstone. Photo: JMG*

We took a morning flight over the Glen Canyon area to view such sites as Horseshoe Bend, Rainbow Bridge (a 290- foot tall 275 wide natural causeway), and of course the lake and dam. According to folklore, stunt pilots have passed through Rainbow Bridge, although actually even flying low over the arch is strictly prohibited. We passed below the height of Tower Butte which rises 5,000 feet above the canyon floor. Today it is likely best known as a unique way to tie a wedding knot.

In the afternoon sun we hiked Antelope Slot Canyon with a native American mother / son team from Deer Spring Canyon Tours. Its sandstone-stripped walls were formed by flash floods and winds, creating "an other-worldly" appearance. Although our group contained 25 visitors it was quiet because we were awed by its beauty. Halfway through its tight walls our Navajo tour guide, Trey Williams, played his flute, and the selection created a mystical vibe. Within its steep 120' walls I found one of the loveliest experiences of the trip, perhaps in part because one could at last grasp the scale around us.





*Navajo guide Trey Williams plays his recorder in the Antelope Slot Secret Canyon. Photos: JMG.*

The following day, after seeing Horseshoe Bend from the air, we rafted around it on the Colorado. We put in at Lee's Ferry, some 90 river miles from the wide expanses of the Grand Canyon. Our trip was only about four and a half miles out and back, allowing us to round the bend. We disembarked at the far end of our short voyage to look at petroglyphs in the rocks. Navajo sandstone can be aged by "desert varnish," large dark patches on older stone faces that have been exposed to water.





*Petroglyphs on the rock faces of Horseshoe Bend believed to represent big horned sheep. These drawings are thought to be 3,000-6,000 years old.*

The sands contain clay, iron, and manganese oxides when exposed to air and water, while dust and bacteria make a protective coating – a varnish. When the surface is carved away it reveals the redder rock below,

making a pattern of red lines on a maroon/black surface. When a rock face falls, it reveals a red brick color and the process begins again. Interestingly, the average rate of desert varnish formation is 1,000 years' time to create a line the width of a human hair.

After rafting we stopped at the Historic Navajo Bridge to see the California condors as they exited their roosting site – the bridge itself. We counted about a dozen birds.





*Historic Navajo Bridge is the site of a California condor roost. Photos by Heather, Trip Advisor.*

One fellow traveler asked me, “What’s so special about the condors?” Well... after millennia of weathering even Ice Age extinctions, this ancient species was nearly erased by modern man. Decades of human persecution, pesticide exposure, and lead poisoning culminated in a grim milestone: by the 1980s, only 22 individuals remained. In 1987 biologists caught all of the condor and bred the species in captivity. Now chicks are released into the wild, and in 2003 Arizona saw its first wild fledgling in over 100 years. The 2025 Annual Population Status Condor Recovery Program, run by U.S. Fish and Wildlife, reported about 392 condors in the United States. There are 54 captive breeding

pairs. Seeing so many condors was a trip highlight!

Leaving Arizona in our dust we headed for Utah, stopping for lunch in Kanab, where we ate what was most assuredly cowboy grub—in other words western tourist barbeque. It was a well-prepared version of what you might expect. Station 89 has a mini western façade movie set courtyard, and a host of other oddities – stuffed raccoons playing cards, covered wagons, a HUGE chair, and a bean bag toss game for good measure, and naturally a very diverse gift shop.

By evening we reached our target location, Bryce Canyon, for sunset and supper. A massive bowl-shaped canyon there is called the Bryce Amphitheater, and it's best viewed at sunrise and sunset. Our itinerary allowed us to witness both. This geological wonder is 12 miles long, 3 miles wide and 800 feet deep, and is filled with the largest concentration of "hoodoos" on earth: tall, thin spires carved by erosion. A palette of tans, beiges, oranges, pinks, and brown abound.

The April 11 sunrise was complete with snow flurries, and distant clouds were dropping sheets of rain like a gray curtain. The partial cloud cover's movement allowed light to be cast in shafts, like spotlights along the tops

of the hoodoos and canyon floor – nature’s drama.

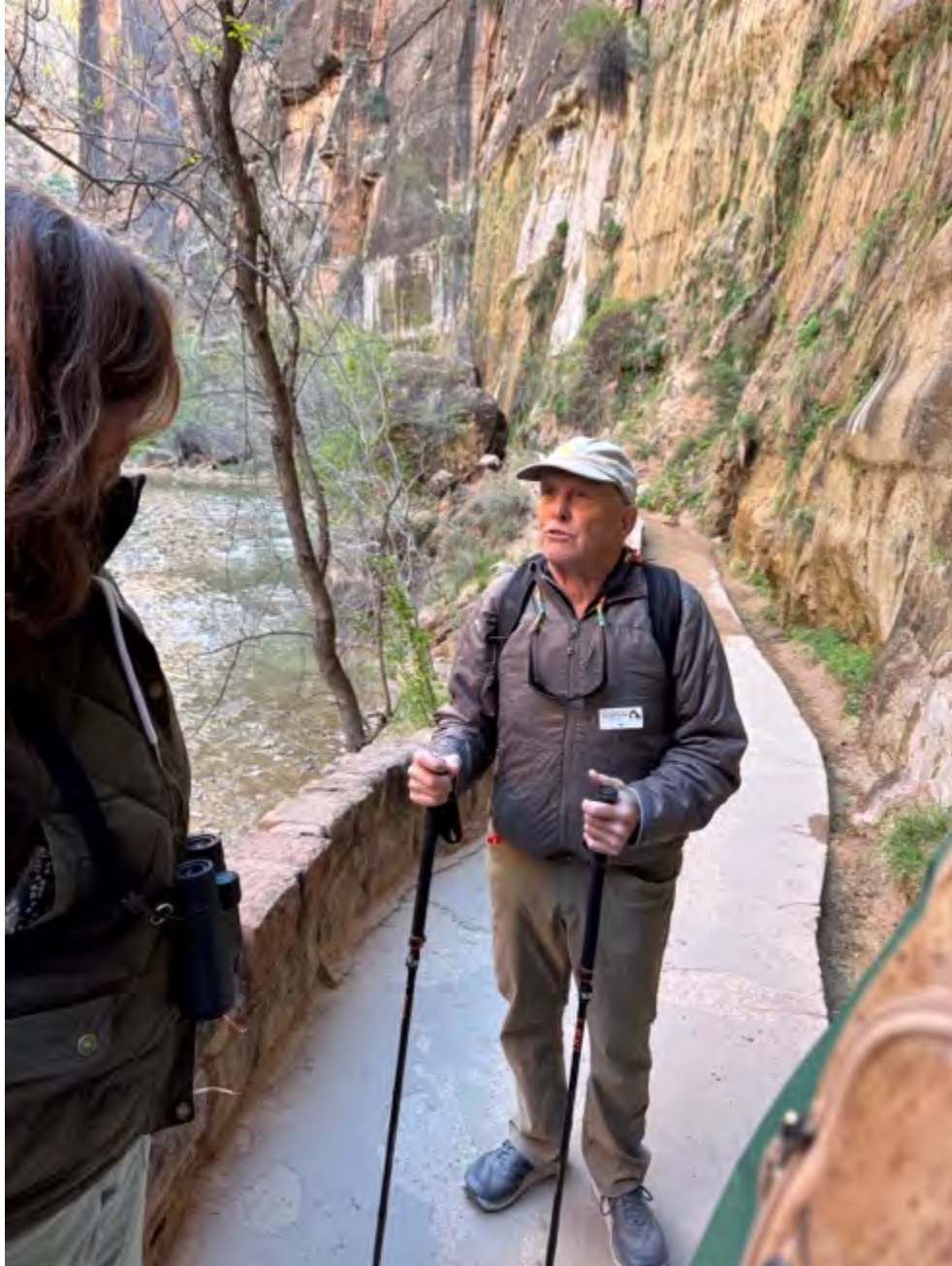




*Bryce Canyon, Utah- Sunrise is captivating on an April morning. Photo: JMG*

The National Park Service informs us that Bryce is not truly a canyon because those are defined and shaped by rivers, whereas the amphitheater's bowl is formed by seasonal rains and melting snow.

Our evening and morning were spent with nature in Zion National Park, Utah, along the Virgin River that is known for its flash floods, about which warning signs abound. As we entered the park, mountain goats were spotted on the mountainsides by fellow travelers. After our late afternoon arrival we were able to stroll along the Virgin River to the Emerald Pools. There we saw mule deer, also out for the beginning of their evening stroll. In the morning we had a walk led by a Bo Beck who had written hiking guides about Utah. Things were winding down and the hike was casual and undemanding.



*Author Bo Beck, a well- known figure in the Zion Community, leads our columnist's family on a trail in Zion National Park along the Virgin River. His books include *Flash Floods & Falls: Deaths and Rescues in Zion National Park* and *Favorite Hikes In and Around Zion National Park*. Photo: JMG*

In all of our locations it was simply a brief introduction to the wonders of the park. The vastness of the canyons surrounds each visitor at a scale that defies description. I remember in Beryl Markam's book "West with the Night" where she described the journey of her dog and horse on the African landscape as "anticlimactic as the spectacle of three mice crossing a stage gigantically set for the performance of a major Wagnerian opera." I felt much, much smaller than that.

I hope you will read the side bar and contemplate the very brief amount of time humans have had on this planet, the impact we have had on the landscape, and what we want to leave for future generations. When I visit preserved lands, I am struck by the way so much of what is not protected is now covered by what we so comfortably call "improvements." And I think no one could improve on the Grand Canyon, but the real question remains, "Will we try?"



The itinerary mapped out.

**Source:**

Harris, Ann G.; Tuttle, Esther; Tuttle, Sherwood D. (1997). *Geology of National Parks* (5th ed.). Iowa: Kendall/Hunt Publishing.

## **Geologic timeline**

For those of us who do not spend our days studying geology or paleontology the passage of geological time can be more than daunting to understand. Our sense of time is formed by watches and annual calendars and not measured in millions or billions of years - the kind of time it took to form the canyons of the great West.

Francis Crick, a Nobel Laureate who is best celebrated for his discovery of DNA, developed an analogy to help lay people understand the history of the earth. First he asked us to imagine a seven-volume set of books containing about 200 pages each. Each book represents 600 million years of geological time.

This is how each volume is portrayed in reference to our columnist's travels.

- Volume I (Start): Earth is formed (approx. 4.54 billion years ago).
- Volume III (Early): First life stirs on the planet (approx. 3.5–3.8 billion years ago).
- Volume V: Formation of the ancient rocks at the bottom of the Grand Canyon (Vishnu Basement Rocks, ~1.8 billion years ago).

- Volume VII (Midway): Formation of the Grand Canyon rim rocks (Kaibab Limestone, ~270 million years ago).
- Volume VII (Page 150): Formation of sandstone strata at Zion National Park (~200 million years ago).
- Volume VII (Page 180): Formation of rocks at Bryce Canyon (~50–60 million years ago).
- Volume VII (Last Page): Appearance of the first ape-like hominids.
- Volume VII (Last Line): Modern man appears, only 100,000 years ago.
- Final Sentence: All of recorded human history fits into the final three characters of the last sentence, emphasizing that all written history is a mere blink in geological time.

This summary appears in the book "Life Itself: Its Origin and Nature" written by Francis Crick and published in 1981.