

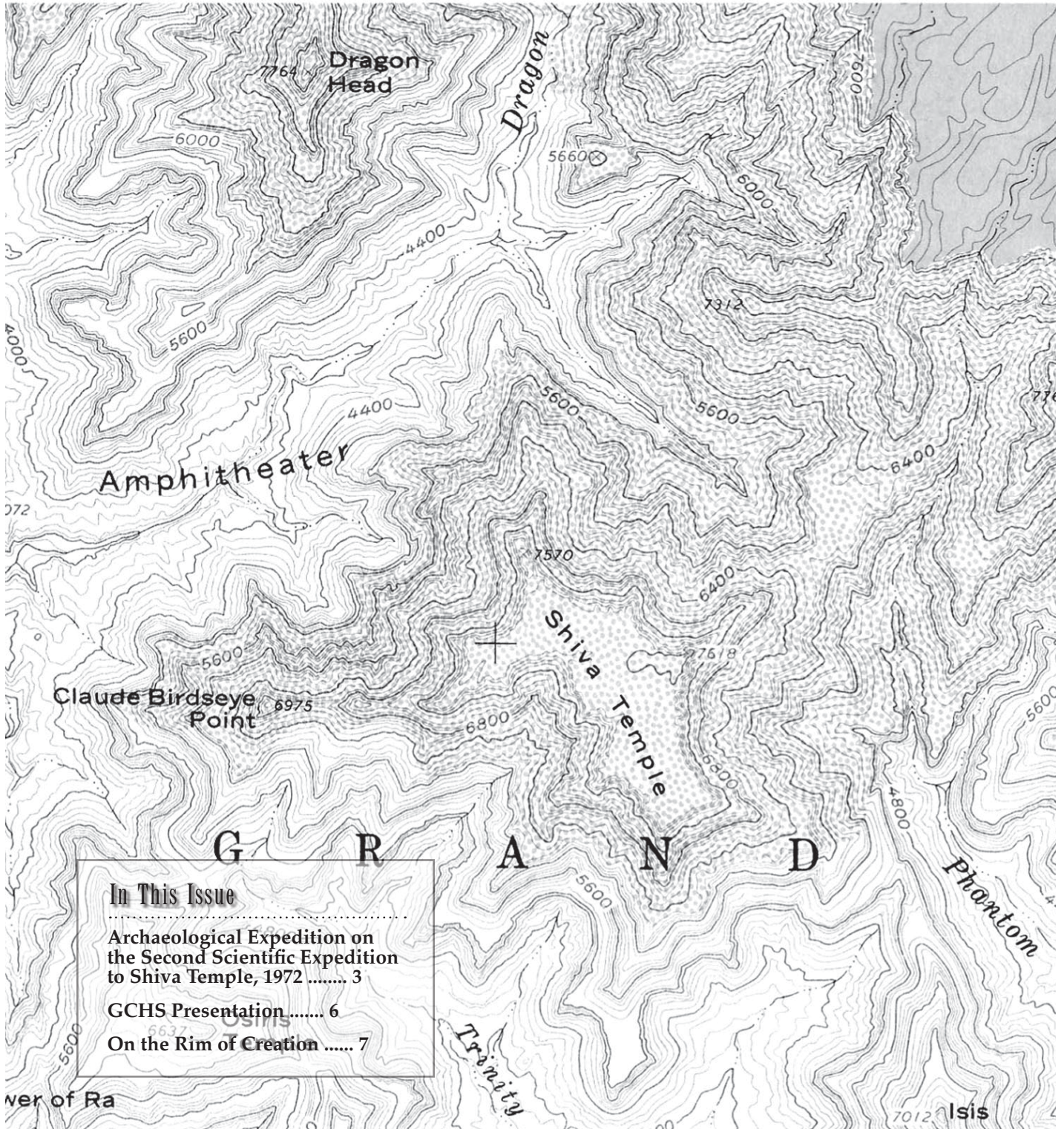
# The Ol' Pioneer

The Triannual Magazine of the Grand Canyon Historical Society

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Fall 2009



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# President's Letter

As I have been involved with the Grand Canyon Historical Society board over the last year and a half, I have been struck by the number and wide range of activities that the organization supports—especially given our relatively small size and all-volunteer nature. The bulletin and the *Ol' Pioneer* Journal have shared important and interesting research on Grand Canyon history topics that can not be found anywhere else and have helped get the word out on canyon events and activities. We have sponsored and coordinated public lectures and presentations around the state to share Grand Canyon history and we have held our annual picnic each year at Shoshone Point to enjoy burgers and vistas while catching up with each other and swapping canyon stories.

But as a board member, I have also been impressed with the other 'behind the scenes' ways in which the GCHS supports canyon history. Last spring, I attended the 50th annual Arizona History Convention in Prescott where one of the sessions was presented by an NAU student whose research was funded by a GCHS scholarship. I have watched the society encourage canyon appreciation by presenting well-deserved awards to those who have played an important role in preserving or promoting the area's history. And I have seen individual GCHS officers and board members volunteer their time on canyon restoration projects, field emails and questions from the public and help direct potential donors of canyon papers and materials to the most appropriate archives or museums.

This is the time of year when we elect our new board members and start to think about what the society will do in the coming year and beyond. In this endeavor, I would like to welcome and encourage the participation of all our members. What aspects of the GCHS are most important to you? What events and activities would you like to see more of? What are your ideas for bringing in new members, reaching a broader range of the public and further supporting our mission to study, preserve and promote the history of the Grand Canyon region? And we are always looking for any members who can help in the organizing, planning and supporting of activities as well. As GCHS president, I encourage any of you to contact me (or any other board member) with your ideas and suggestions. Lastly, for all their time and effort over the past three years, I want to thank and recognize board members Keith Green, Paul Schnur and Henry Karpinski whose terms end this year. Their hard work and dedication have been instrumental in keeping the society running and active in numerous ways both large and small.

Erik Berg, GCHS President

Cover: USGS Bright Angel 15 min. quadrangle showing Shiva Temple.

*The Ol' Pioneer* submission deadlines are February 1, 2010 for Volume 21:1. June 1, 2010 for Volume 21:2 and October 1, 2010 for Volume 21:3, unless we go to four issues a year. Stay tuned.

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Editor: Mary Williams

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Submissions to *The Bulletin* should be sent to Karen Greig, kgreig@yahoo.com

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# Archaeological Exploration on the Second Scientific Expedition to Shiva Temple, 1972

by Andrew L. Christenson

In September 1937 a group of eight people under the leadership of biologist Harold Anthony of the American Museum of Natural



Pre-expedition photo of Wood and Anthony. *New York Times* August 27, 1937.

History scaled Shiva Temple to conduct scientific investigations on the mesa separated from the North Rim by about a mile. The expedition had been preceded by publicity that raised false expectations of biological finds of great importance and followed up by articles that focused more on getting to the destination than on any major finds.

In the summer of 1972, as a summer assistant in anthropology at the Museum of Northern Arizona (MNA), I was asked by Alexander J. Lindsay, Jr. to accompany three biologists to Shiva Temple to record Anthony's camp and do an archaeological survey of the mesa. I had just arrived at the Museum, later than most of the other students who had already been assigned to other activities, and so was fortunate to get chosen for this

unusual project.

Preparation consisted of quickly reading everything I could find on Shiva in the excellent MNA library and borrowing critical equipment such as an extra water bottle.

In charge of the "expedition" was Steven Carothers, the MNA Curator of Zoology. Also along were John Haldeman visiting biologist from Florida State University, Joe Sharber, MNA summer assistant in biology, Mike Theroux, biologist at MNA, Peter Koons, geologist at MNA, and myself. The reason for the biologists' interest in Shiva was to collect small mammals and see if there might be minor differences from populations on the north rim, similar to the interest of Anthony.

Four of us went by vehicle to Tiyo Point on the North Rim where we worked at clearing an area for the helicopter to land. On June 26, we were told by radio that the area was too small for the chopper to land so we moved to Basin Spring, about 6 miles north. Carothers and Haldeman were picked up by the helicopter on the South Rim and dropped off at Shiva.

Sharber and myself were then picked up and taken to Shiva, with Theroux and Koons remaining on Tiyo Point with a radio as our contact to the outside world. The helicopter landed at a clear area on the south end of Shiva that Anthony called "The Shiva Airport," where he had his pilot drop supplies.<sup>1</sup>

We established our camp north of the "airport" in the ponderosa forest. The water cans were left at the airport, so there was a well-worn path from there to the camp. According to a newspaper article published after the expedition was completed, we had 250 pounds of water and 20 pounds of food. Breakfast was Malt-O-Meal and dried apricots. Lunch included things like salami and cheese, I believe, and fortunately dinner was excellent meals cooked by Steve Carothers. Needless to say water was a major issue for us as it was for the preceding modern explorers as well as the prehistoric people who used the mesa. I remember the feeling that I couldn't drink my fill, especially towards the end of our stay. We drank our last water when the helicopter



MNA Shiva Temple Crew – Christenson, Sharber, Haldeman, Carothers.

coming to pick us up was in sight. As far as I know, we packed out everything we took over, so archaeological evidence of our five-day exploration on Shiva is minimal.

The general work routine was to set large traps in the evening with oatmeal as bait and then check the trap line in the morning, remove anything caught, and replace the bait. Most commonly we caught wood rats. The biology crew used nets and a shotgun to collect bats.

Once the trap line was checked I was free to conduct archaeological work. The first order of business was recording the Anthony camp, lo-

with cut limbs, and artifacts such as large milk cans, food cans (ca. 55), and a few other items mostly concentrated in a dump at the edge of the camp.

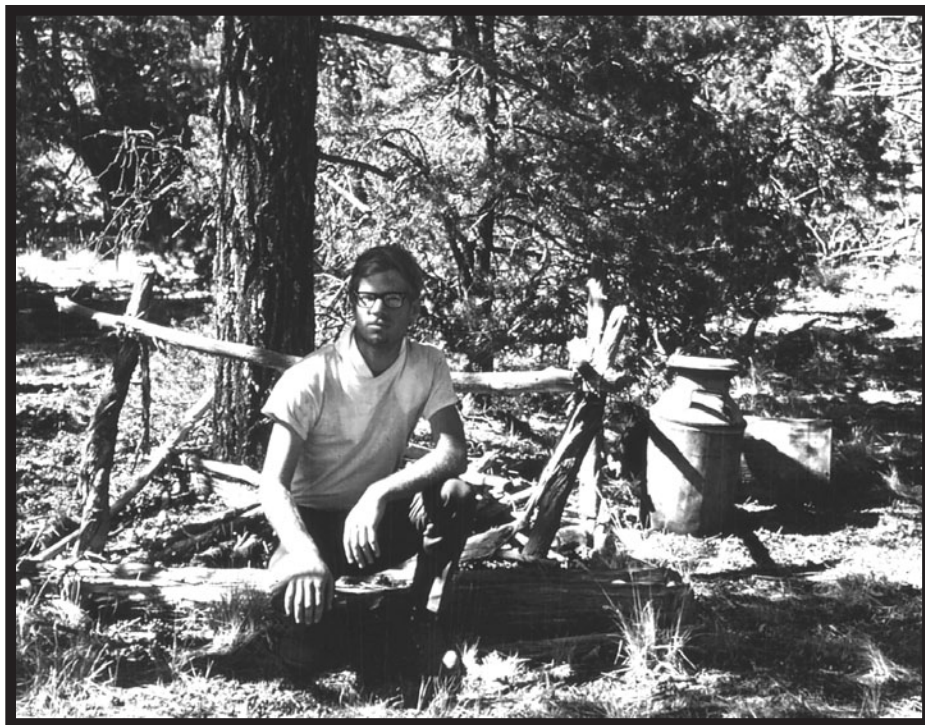
It is interesting that of the three explorers camps recorded archaeologically in the Southwest that I am familiar with, the most substantial remaining feature was a table. Apparently modern explorers need a flat surface to work and eat at! Nordenskiöld's table was fairly substantial with four juniper stumps as legs, poles as stringers, and broadax cut slats as the surface (Scott 1972:136-138). The 1934 Rainbow Bridge-Mounument Valley

as I know there are no contemporary photos of Anthony's camp and, curiously, the major popular article on the expedition claims to include the only three photographs taken on Shiva by the expedition (Franse 1937:4). Apparently the expedition photographer stayed on the North Rim with his movie camera.

The camp was mapped, photographed, and artifacts were inventoried and many of them collected. Present were fruit and vegetable cans (Golden Bantam Corn; Del Monte Brand Pineapple; Pierces Utah Tomatoes), soup cans (Campbell's), meat cans (Datb's Spiced Luncheon Meat, Derby Corned Beef), coffee cans (Hill's Brothers), milk cans, cocoa (?) cans, beer bottles and bottle caps (Budweiser), tobacco? cans (Richardson & Robbins), honey jar (with honey still in it), tin foil, a drinking glass, and a lime water bottle (L. Rose), the latter suggesting that cocktails were being mixed by the Anthony party (no pun intended)! After 35 years, some can label remnants remained.

Two 10 gallon milk cans from the Mission Dairy, Inc. Phoenix Arizona dated 1936 were present in the camp. They had been dropped by parachute, filled with water. In one of these, Joseph Hall found a drowned spotted skunk when he and his brother climbed up to Shiva in 1963 (Hall 1968). Except for the alcohol, this list approximates what is mentioned in articles on the expedition—canned meat, milk, and vegetables, tobacco, fresh eggs (dropped by parachute!), and cheeses. Rolled oats, bacon, peanut butter and raisins were used as bait (Anthony 1937a, b).

As we were not aware of the Kolb or Clubb visits to Shiva, I did not look for evidence of other visitors. At some point after returning home that summer I came across a discussion of the Anthony expedition by Edwin Corle that indicates that he knew a film box was found by the Anthony group and knew who had left it (Corle 1951:214-215). Some of the soup cans found may have been from the Kolb group's visit and the can of tomatoes may have been the



Author at Anthony's Camp. Two milk cans to right were dropped by parachute.

cated just back from the edge where climbing access to the Temple is. The interest in the camp was certainly triggered by the article that had just appeared in *The Kiva*, Journal of the Arizona Archaeological and Historical Society, on Erland Nordenskiöld's camp in Mesa Verde (Scott 1972).

Remains of the camp, recorded as NA 11,425 in the Museum of Northern Arizona system, included a table made of logs, a hearth, a line of limestone blocks between two junipers

Expedition's Camp Anasazee in Tsegi Canyon (NA 21004) still has remains of uprights and fallen cross pieces for tables and benches (Christenson 1993). The Anthony camp table consisted of three upright poles and a pinyon tree serving as the legs, stringers attached with cord, and cross pieces, now fallen, serving as the table surface. A log bench was added on one side. Hall (1968:100) calls this a skinning table, although presumably many other activities occurred there. As far



Ponderosa pine covers much of the mesa.

unopened one that Merrel Clubb and his son found and ate when they visited Anthony's camp in 1941 (Butler and Myers 2007:182, 225).

Of more interest to me were the prehistoric remains present on Shiva. All of the previous visitors had noted pottery and lithics. The Anthony party collected 40 pieces of chipped stone and 24 potsherds, the latter indicating a Pueblo II period date (AD 900-1100) (Anonymous 1937). Now was an opportunity to record more details of what was present.

I formally recorded four prehistoric sites, but chipped stone was abundant and it was not possible to record all of the concentrations. There were at least two sites on the mesa that I did not get to record, one that I found late in the day and never refound and an oven that the biologists saw, but I did not relocate. Without a compass or flagging tape (I used toilet paper) it was difficult for me to keep close track of where I was once inland from the mesa edge.

Site NA 11,424 was a limestone room, 1.5x2 m, with scattered stone suggesting an additional room or two. Quite a few pieces of chipped stone and ceramic sherds were pres-

ent. Most of the sherds were types of the Virgin Series of Tusayan Gray Ware or White Ware. Dating of the types fell fairly tightly into the range of the mid-1000s to mid-1100s (Christenson 1972: Table 2). Chipped stone tools indicate a variety of scraping and cutting activities and uncompleted bifaces indicate that arrow points were being made on the mesa.

Site NA11,426 was an oval cluster of limestone rocks about 2 m in diameter with a few pieces of chipped stone. Anthony called this a "yant oven" (Anthony 1937b:719) - *yaant* is southern Paiute for agave. Finally, two lithic scatters, NA 11,427 and 11,428 were recorded. Collections were made from all of the recorded sites

and some isolated artifacts not part of sites were also collected.

My interpretation of the occupation of the mesa was that the initial visitors would have been hunters after deer who would have probably come over during the winter. Plant resources of interest would have included agave, which would have been roasted in ovens such as the one found, and perhaps pinyon pine. Anthony thought that chert nodules would have attracted visitation but as these are abundant everywhere the Kaibab Limestone occurs, they would not seem to have been the principal focus for coming over to Shiva. NA 11,424 might represent a single family visiting seasonally when water was available. No agricultural features were seen, although such features are common on sites on the North Rim.



Agave was probably an important prehistoric resource on Shiva.

Several small manos were found indicating that some type of grinding, probably of seeds occurred on the mesa.

Upon return to the Museum, I analyzed the artifacts and wrote a brief report on the archaeological findings (Christenson 1972). Although it was listed in Spamer's initial Grand Canyon bibliography, it was removed from the next edition because it wasn't really a publication, but has since reappeared in the on-line version. As far as I know, the biologists did not produce a report although John Haldeman produced a list of plants collected.

Unlike Anthony's American Museum expedition to Shiva, that got publicity both before arriving to Shiva and after returning, ours was covered by only one reasonably accurate article with a large photo in *The Arizona Republic* titled "Shiva Temple found barren of curios" (July 9, 1972, p. B-1, B-11).

The summer speakers program at the Museum that year fortunately included the only two other visitors that we knew of at the time who had been to Shiva. Joseph Hall showed slides of his brief visit. Harvey Butchart talked about a canyon subject that I don't remember, and I was able to talk with him about Shiva. He said that another individual visited Shiva before Anthony and set up cairns in four places on the cliff edge, but didn't mention Kolb by name (Ruth Stephens' account mentions a burlap bag on an agave stalk, Kodak film boxes, and lipstick covered tissues, but no cairns [Leavengood 1999:94-95]). Butchart's diary indicates that he did not see the cairns when he circled the mesa. He also said that he thought that the claimed ascent of Wotan's Throne by members of Anthony's party was a hoax. This issue has been covered in detail in the recent biography of Butchart (Butler and Myers 2007, 226-227).

At the moment, the list of individuals who climbed, or in our case, flew, to Shiva in the modern period up to our visit are as follows:

August 1937 - Emery Kolb and Gordon Berger  
 August 1937 - Emery Kolb, Edith Kolb Lehnert, Ruth Stephens, Ralph White, and Gordon Berger  
 September 1937 - Harold Anthony, Edwin McKee, George Andrews, Elliot Humphrey, M. R. Tillotson, Foresta Wood, and Walter A. Wood, Jr.  
 1941 - Merrel Clubb & Will Clubb  
 date unknown - Merrel Clubb  
 June 1957 - Harvey Butchart & Allyn Cureton  
 August 1963 - Joseph Hall & William Hall  
 June-July, 1972 - Steven Carothers, John Haldeman, Andrew Christenson, and Joseph Sharber

#### Endnotes

1. Little is known about Amy H. Andrews, the Expedition's volunteer pilot except that she had also volunteered for Ansel Hall's Rainbow Bridge-Monument Valley Expedition that summer, flying photography reconnaissance and dropping supplies by parachute. A New York nurse, she received her private pilot's license in 1933. She is in the group photograph of the American Museum's crew published in *Arizona Highways* (Franse 1937:5).
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## GCHS Presentation

JULY 11, 2009 BY JEAN LUTTRELL, ACCOMPANIED BY SONS DAVE & CHUCK, "JOHN H. RIFFEY: THE LAST-OLD TIME RANGER."

by Nancy R. Green

A large crowd enjoyed a good Mexican lunch before heading over to Cline Library for the presentation. The attendance numbered 22 Society members and guests from as far away as Albuquerque and Utah. We were delighted to find the talk had not just one, but 3 excellent presenters, all of whom had the privilege of actually knowing John Riffey. Jean's parents, Al and Mary Craig were ranchers near Mt. Trumbull, raising her on the Arizona Strip. She later moved to Boulder City, Nevada, where she was a third grade teacher for 30 years. Now she is an author.

Jean instructed us on the history of that unique and remote section of land, the Arizona Strip. Short on people and wild in beauty, this 8000 square mile piece of rugged country should sensibly belong to Utah. But map makers who had probably never been there resolutely drew the line at the 37th parallel, leaving this part of Arizona cut off from the rest of the state by the Grand Canyon, thereby aligning its few residents more with Utah.

One of its most scenic spots is not easy to see. Tuweep/Toroweap is down at the end of one of the worst 65 miles of dirt road in either state. The road probably hasn't changed much since Riffey arrived there to report for duty in 1942. The earliest inhabitants had been the Anasazi/Hisatsinom whose ruins there date back to 600-1100 AD. Toroweap was the Native American name for the area, and the incoming cowboys, ranchers and lumbermen on Mt. Trumbull pronounced it Tuweep. The first post office was established as Tuweep at a desk in

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# On the Rim of Creation

by Don Lago

People come to the Grand Canyon not just to see a visual spectacle, but with a sense that here they are seeing the forces of creation. They are looking billions of years into time, time made manifest in rock. They are seeing the power of the earth to create a mile of rock and then to carve and carry that rock away. They are seeing a record of life's evolution. British author J. B. Priestly called the canyon, "Our nearest approach to fourth-dimensional scenery...you feel that some elements of Time have been conjured into the immensities of Space."

This canyon encounter with the forces of creation seems to have inspired the idea that the Grand Canyon was the best place for an even greater encounter with time and space and creation. In the 1920s the world's foremost designer of telescopes, George Ritchey, decided that the world's greatest astronomical observatory should be built on the rim of the Grand Canyon. At sunset astronomers could gaze into the depths of Earth, then walk into the observatory and gaze into the even greater depths of the sky: strata of light, fossil stars, rivers of galaxies. Ritchey took a photograph of the canyon from Desert View and imposed onto the rim a drawing of his planned observatory, about 250 feet tall. In 1928 Edwin Hubble, already the world's most famous astronomer, drove from Pasadena to the Grand Canyon to test out the viewing conditions from the canyon rim.

The Grand Canyon observatory was never built. Indeed, it was a downright crazy idea. There was no scientific advantage to building an observatory right on the rim of the canyon, and there was a compelling reason not to build it there. George Ritchey should have known this. Ritchey's persistence in dreaming of a canyon observatory can only be

called an obsession. Ritchey seems to have fallen under the spell of the Grand Canyon, and not the spell that lures geologists there, but the spell that made Romantic poets and artists see the Sublime in Alpine depths.

George Ritchey was the answer to an era that actually required a few obsessive astronomers. Not just eccentric, absent-minded professors like Einstein, but men with a dose of the Hollywood-style, wild-eyed scientists who harnessed lightning to energize the time machines or Franksteins they'd invented in the basement. It was an era—the late 1800s and early 1900s—when technology was rushing ahead much faster than scientific institutions. The era of the gentleman naturalist was giving way to the era of Big Science, meaning big institutions, big technology, and very big money. In astronomy, new technologies were opening up powerful new possibilities for probing the universe. The glass-lens refracting telescopes astronomers had used since Galileo had evolved as far as possible, and now astronomy needed to develop large mirror-based reflecting telescopes. New instruments like the spectrograph meant that astronomers could read all sorts of new information in starlight. Photography meant that astronomers could record details far beyond the capabilities of the human eye.

Yet there were enormous obstacles. Many astronomers failed to see the new possibilities, and even among the most visionary, no one really knew how to build large reflecting telescopes, and no one had the money to do so. Into this impasse strode two men, George Hale and George Ritchey, who often had little besides obsession to sustain them. George Hale's obsession resulted in his building, over four decades, three cutting-edge observatories, Yerkes, Mt. Wilson, and Palomar, the leaders of astronomy for nearly a century. George Ritchey was Hale's master

optician and telescope designer, the man who figured out how to build great reflecting telescopes. Yet when two obsessive, neurotic men work together in high-pressure circumstances, there's bound to be trouble.

Hale and Ritchey met in Chicago in 1890, when both were in their twenties and aiming for careers in astronomy. Hale had the advantage of a wealthy father, which allowed Hale to build a private observatory. Ritchey had inherited only his father's mechanical aptitude, and soon Ritchey was machining lenses and instruments for Hale's observatory.

Soon after Hale and Ritchey began their partnership, Hale got the notion that the best place for astronomy, or at least one aspect of it, was the Grand Canyon. Hale was mainly interested in the sun, including the solar corona. To observe the corona astronomers had to wait for an eclipse to cover the sun and allow the corona to emerge from the sun's glare. Astronomers had tried a few ideas for viewing the corona in the daylight, including climbing mountains where, they supposed, the thinner air would hold less glare. All these ideas failed. Hale realized that with the spectroheliograph he had invented for studying the sun he could try a new idea for viewing the corona in daylight. Hale tried this method in Chicago, but the glare was still too great. Somehow Hale got the idea that at the bottom of the Grand Canyon so much sunlight was blocked by the cliffs that the sky was "nearly black."<sup>1</sup> Perhaps Hale had seen F.W. von Egloffstein's highly exaggerated illustrations of the Grand Canyon, with their overly-gloomy depths. Hale was ready to travel to the Grand Canyon and to engage John Hance to guide him to the bottom, with a burro carrying his spectroheliograph. On Feb. 16, 1893 Hale wrote letters to John Wesley Powell and to John Hance, inquiring about the "nearly black" canyon depths. It appears that, for once, John Hance re-

frained from encouraging a tall tale. At least, Hale soon headed for Pike's Peak instead.

Hale's observatory was absorbed by the young and very ambitious University of Chicago. Hale started dreaming big, dreaming of building the world's largest telescope. Though Hale and Ritchey knew that the future of astronomy belonged to reflectors, they also knew that the technology wasn't ready yet, so Hale settled for a refractor with a 40-inch lens, a 4-inch advancement over Lick Observatory's 36-inch. Hale and Ritchey also knew that Lick's location, atop a California mountain, was also the future of astronomy, but Hale had to settle for Lake Geneva, Wisconsin, the playground of the Chicago rich; Hale had to satisfy the vanity of Chicago Gilded Age robber baron Charles Yerkes, who was paying for the telescope strictly as a monument to himself. At least Hale persuaded Yerkes not to build Yerkes Observatory in downtown Chicago, where the observing conditions would have been miserable. Hale was a frail, sickly, high-strung man, and dealing with people like Yerkes along with all the technical uncertainties and setbacks of building observatories would frustrate Hale into repeated nervous breakdowns.

As feared, Lake Geneva proved to be too cloudy and muggy for the best astronomy. This was also the era when astronomers were realizing the advantages of locating observatories at high altitudes and in dry climates. Most observatories had been built on college campuses, inside cities, often near sea level, or in the muggy Midwest, leaving star images blurred by a thick, wet blanket of air. Higher and drier locations made star images much sharper and steadier. When Lick Observatory was built on a 4,200-foot mountain in the 1880s, this was a radical idea, but it still stopped well short of the possibilities. Lick was only twenty-five miles from the southern tip of San Francisco Bay. George Hale recognized that southern California was much drier, and he picked out a 5,900-foot peak, Mt. Wilson, for his

next world's-best observatory. Yet Hale may have wondered if Percival Lowell, who a decade previously had built his Lowell Observatory at over 7,000 feet in Arizona, both higher and drier than Mt. Wilson, might just know something he didn't.

It was in the building of Mt. Wilson Observatory that George Ritchey's genius came forth. Ritchey built a 60-inch telescope, then the mirror for a 100-inch telescope, overcoming numerous, major technical challenges. In only twenty years these telescopes transformed the universe, revealing it to be much vaster, much more complex and dynamic, than humans had ever imagined, an expanding universe of billions of galaxies.

Yet Ritchey's obsession for building telescopes soon began to alienate George Hale. In May of 1906, during a pause in the building of the 60-inch telescope, Ritchey went to Flagstaff, Arizona, to consult with Percival Lowell, who wanted to outdo George Hale and build an 84-inch telescope. Ritchey decided that Lowell's telescope design was fatally ambitious, and nothing came of it. Soon Ritchey conceived of a new, more elaborate design for reflecting telescopes, the Ritchey-Chrétien system. Ritchey insisted that the 100-inch telescope had to be a Ritchey-Chrétien design, but Hale refused to take a chance on an untried, very tricky design. The Ritchey-Chrétien design was indeed the future of astronomy, the design used in most of the great telescopes of the later half of the 20th century, including the Hubble Space Telescope. Ritchey went to the financial patron of the 100-inch, John Hooker, and tried to persuade him, telling him that Hale's plans were foolish. Hale was enraged by such disloyalties, and he had been tired of Ritchey's big ego for a long time. As soon as the 100-inch telescope was finished in 1919, Hale fired Ritchey, and used his salary to hire a young man named Edwin Hubble. Ritchey retired to his lemon ranch and fantasized about building telescopes bigger and better than the 200-inch George Hale was planning next. In 1924 Ritchey was hired by

the Paris Observatory, and he began drawing up plans for the world's greatest observatory, to be placed on the rim of the Grand Canyon.

It's not clear when Ritchey became obsessed with the Grand Canyon. It could have started on his 1906 visit to northern Arizona to visit Percival Lowell. Lowell had always insisted that his observatory had better viewing conditions than any other observatory. Ritchey surely looked through the Lowell 24-inch telescope, and he may have been quietly shocked to see that Mt. Wilson didn't have the best viewing conditions after all. Ritchey surely noticed how easy it was to drive right up to Lowell Observatory. At Mt. Wilson, construction supplies had to be carried on the backs of mules up a long, torturous trail; Ritchey had been in charge of improving this trail into a road, which was still tortuous. But much of northern Arizona consisted of a flat plateau, higher than Mt. Wilson, a plateau that reached right to the rim of the Grand Canyon.

The following summer, immediately after completing the 60-inch mirror, Ritchey made his first visit to the Grand Canyon. Ritchey wrote to the manager of the Grandview Hotel, saying he was planning a "stay of 10 days, or more probably 2 weeks."<sup>2</sup> It's interesting that Ritchey chose the Grandview Hotel, since this was two years after El Tovar Hotel opened with great fanfare, and now the Grandview Hotel was antiquated and quiet. Perhaps Ritchey was more interested in grand views for his camera—and a telescope.

Ritchey was quite serious about photography, and he did pioneering astrophotography through the 60-inch telescope. According to Donald Osterbrock's biography of George Ritchey, at the Grand Canyon "he had taken numerous black-and-white photographs, and he hoped to return in the coming summer and try the color plates as well."<sup>3</sup> With his connections Ritchey had obtained some of the first plates for color photography. If Ritchey did return to the canyon the next summer, he might have





become the first person to take color photographs of the canyon; historians of Grand Canyon photography don't know of anyone else who had done so by 1908. In 1908 Ritchey gave John Hooker an elegant mahogany display case showing off his astronomical and Grand Canyon photos. Nearly twenty years later in Paris, at a gala event at the St. Gobrain glassworks, which had made the glass blanks that Ritchey had cut and polished into the Mt. Wilson mirrors, Ritchey displayed about fifty of his astronomical photos, plus some of the Grand Canyon. It's likely that the Desert View photo onto which Ritchey imposed a drawing of his Grand Canyon observatory was also his own photo.

In June of 1928, in Paris, Ritchey announced his plans for the Grand Canyon Observatory. It involved a set of movable, adjustable mirrors, as large or larger than Hale's planned 200-inch. The approximately 25-story-tall dome had the columns and statues of a Greek or Roman temple. In the French magazine *L'Astronomie*, Ritchey published his illustration of the observatory, perched on the South Rim overlooking the Tanner Rapid s-

curve of the Colorado River.

To locate the exact site of this photo-illustration, I consulted with Mike Quinn, longtime archivist for Grand Canyon National Park, who often has to identify the locations in old Grand Canyon photos. Mike compared Ritchey's photo with photos taken from Desert View Point, and he concluded that Ritchey's photo was taken from a bit east of there. Mike observed that in Ritchey's photo the Colorado River was just barely showing between the cliffs and shorelines of the s-curve above Tanner Rapid, while in Desert View Point photos the river was just pinched off from visibility. I visited Desert View and found that, sure enough, Ritchey's photo appeared to have been taken from a promontory about a quarter mile east of Desert View. When you go any further east, this promontory blocks any further view of the Tanner Rapid zone. The surprise was that the cliff face on which Ritchey pictured his observatory doesn't exist. The actual spot is just thin air, inside Tanner Canyon.

This raises the question of exactly where Ritchey intended to build his

observatory. I corresponded with Ritchey biographer Donald Osterbrock shortly before his death, but it seemed that Osterbrock was not sufficiently familiar with the Grand Canyon to make sense of Ritchey's intentions. It also appears that Ritchey himself had not made up his mind between Desert View Point and Comanche Point. Ritchey appears to have used both names at different times. Ritchey mentioned an altitude of 7,500 feet: Desert View is 7,438 feet, Comanche Point 7,073 feet. In Ritchey's illustration, the observatory is still pretty close to Desert View, but about three miles from Comanche Point. The cliff face in the illustration has some of the upsweep of Comanche Point, but otherwise is a stair-step cliff full of pine trees, quite unlike Comanche Point's steep, naked rock. It's likely that this illustration was done by the architect—apparently French—who designed the observatory building, and who was unfamiliar with the real canyon. From a practical viewpoint, Desert View offers a generous flat platform on which to build a complex of buildings, while Comanche Point is a narrow, sharp point that falls off

steeply on its back side. On the other hand, when Ritchey wrote to the National Park Service on July 5, 1928, requesting use of the site, he named Comanche Point. Ritchey's proposal, now in the National Archives, also names Comanche Point and an elevation of 7,100 feet. Ritchey's proposal proclaims: "The view from this point is one of the most sublime to be found on Earth. This observatory would be a noble monument, a majestic cathedral, to Science, to Education, to international peace and good-will."<sup>4</sup> Ritchey needed to include "international peace and good-will" because he was hoping the Paris Observatory would sponsor the canyon observatory.

The proposal's rationale for a Grand Canyon location concluded: "Its extraordinary transparency, required for the most exacting and accurate astronomical photography, have [sic] been demonstrated by many years' tests by Professor Ritchey."<sup>5</sup> I suspect it would have been more accurate to say: tests over many years of vacations.

"Transparency" is one measure of astronomical viewing conditions. Good astronomical viewing is determined by a number of factors, especially altitude, dryness, absence of clouds, remoteness from city lights, and the "seeing"—the calmness or turbulence of the air. On the first four points the Grand Canyon is excellent. But it's the final point that turns Ritchey's noble vision into a crackpot scheme. Even the casual tourist soon notices that on the rim of the canyon the air is not calm. It can be quite turbulent. The bottom of the canyon is usually at least 20 degrees Fahrenheit hotter than the rim. The canyon bottom can be over 100 degrees as early as April, as late as October, and much hotter in between. The hot air rises, confined by the canyon cliffs, and as soon as it hits the rim it rushes outward, mixing energetically with the cooler air on the rim. This turbulence also stirs up lots of dust. This turbulence is visible in many ways: in all the lost hats just below the rim; in aircraft pilots struggling for control and

sometimes crashing; in ravens and condors coasting for hours on warm updrafts; in clerks constantly dusting gift-shop shelves; and in ponderosa trees that refuse to grow close to the rim because the hot wind dries them out too much.

The Desert View area is especially bad for hot updrafts, turbulence, and dust. Hot air rises not only out of the canyon, but out of the Painted Desert just to the east. Desert View gets hit by the prevailing up-canyon winds that have had a long west-east racetrack but now run into cliffs as the canyon bends north. The canyon bottom is more wide-open below Desert View than anywhere else in the canyon's first half, leaving little shade, prompting river runners to call it "Furnace Flats" and to dread camping there. Geologically the canyon bottom here consists of the Supergroup, meaning lots of sandstone, meaning lots of sand, meaning sandstorms. The conditions on the Desert View rim can best be measured by the absence of ponderosas. Grandview Point, at 7,400 feet, is one of the few places on the South Rim that is high enough for ponderosas to grow right along the rim. Desert View is 38 feet higher than Grand View, yet the ponderosas stay far away.

For astronomy, turbulent air means blurry images. This turbulence can lessen at night, but in Grand Canyon summers there are heat waves climbing the canyon walls all night. While today there are lots of observatories atop desert mountains, the heat rising around them is diffused, not aimed straight at one abrupt rim intersection between heat and coolness. Dust isn't helpful either.

Ritchey would have done much better to locate his observatory a few miles behind the rim, even one mile. There was no scientific benefit to being right on the rim. Desert View was an especially poor choice, Comanche Point even worse. Was Ritchey oblivious to the drawbacks? Did he happen to visit Desert View on an unusually calm day? Or perhaps he was looking not at the sky but downward, hypnotized by the Sublime, the gran-

deur which at Desert View is especially grand. Or perhaps Ritchey had learned from George Hale that if you wanted to find funding, an observatory needed to inspire awe. Even the French loved the Grand Canyon.

The Grand Canyon observatory did inspire *The New York Times* to cover it in three articles over the next weeks. On June 17, 1928, on the top center of the front page of its Sunday editorial section, the *Times* announced: "Secrets of Planet Mars to Be Revealed By a Huge Telescope At Grand Canyon":

PARIS, June 14—The world will know within eight years whether or not there are cities on the planet Mars if the plans of Professor N. W. Ritchey, American astronomer, who superintended the construction of Mount Wilson Observatory, materialize.

During an exhibition of glass transparencies as applied to astronomical photography, which he gave in Paris today, Professor Ritchey disclosed that efforts are being made in the United States, France and England for the construction of a huge new observatory, one unit of which will be situated beside the Grand Canyon of Arizona.

With the aid of the giant telescope which it is planned to erect there, Professor Ritchey says that if there are any densely populated sections on Mars they will be readily discernible.

The telescope itself is entirely different from anything designed heretofore and is said to be ten times more powerful than any now being used.

The rest of the article gave technical details.

On July 23, as preface to reprinting a famous 1835 hoax article about the moon being inhabited, the *Times* reported:

Professor Ritchey's latest reflector is expected to give ten times the optical power of the most

successful modern telescope. He expects to set it up somewhere in the Arizona desert on the edge of the Grand Canyon. Will the scientists, trekking to their desert watchtower seven years hence, appreciate the significance of the anniversary? If not, the newspapers may remind them, for Aug. 21, 1835, was a date famous in local journalistic history...

Notice the *Times'* name for a majestic tower at Desert View: the "desert watchtower."

On September 30 the New York Times published a nearly full-page article discussing the genius and technical details of Ritchey's telescope: "A Super Telescope To Peer Into The Cosmos". This article included three illustrations, including a drawing of the observatory, though with no canyon behind it.

In the same weeks that Ritchey's telescope was making headlines, George Hale was almost ready to announce his plans for his new observatory and its 200-inch telescope. The technology and funding were ready, and all that was lacking was a site. By some accounts, Hale had decided early on that the best site was Mt. Palomar, north of San Diego. Some historians have suggested that Hale's site selection process was all for show, to impress his fellow astronomers with how careful he was. Yet Hale had genuine reasons to feel insecure about selecting a site. Hale had devoted two decades, millions of dollars, and his sanity to building Mt. Wilson Observatory, yet even as Mt. Wilson was becoming world famous, it was being rendered obsolete by light pollution from booming Los Angeles. When Hale first arrived in Los Angeles it had a population of only 100,000. Boosters were promising that Los Angeles would soon be a city of millions, but Hale had his head in the clouds, or maybe in the lack of clouds above Mt. Wilson. Now Hale had to admit that he had made a disastrous mistake. Maybe Percival Lowell had been right all along about Arizona being a smarter choice. Now

*The New York Times* was trumpeting George Ritchey's claim that the world's best site for an observatory was the Grand Canyon. Hale had already been disconcerted when tests atop Mt. Palomar suggested that its seeing wasn't as good as Mt. Wilson's. The hyper-insecure Hale must have been unnerved by the possibility that his rival Ritchey might be right about the Grand Canyon. Hale had been ridiculously wrong about the Grand Canyon a third of a century before. The last straw was probably the *New York Times* article of September 30, hailing Ritchey's genius for a telescope that was much more ambitious than Hale's 200-inch.

A few days later George Hale ordered Edwin Hubble to drop everything and rush to the Grand Canyon. Since Hubble was already the world's most famous astronomer, and since Hubble was right in the middle of one of the most important projects in the history of astronomy, only weeks away from proving that the universe was expanding, the fact that Hale would send Hubble himself was a measure of how seriously Hale took the Grand Canyon.

Edwin Hubble had become the world's most famous astronomer three years before, for proving that there were many other galaxies outside our Milky Way galaxy. Astronomers had long debated the nature of nebulae, little smudges of light, often spiral shaped. In the 1920s most astronomers believed that nebulae were merely clouds of gas inside our Milky Way. A few daring astronomers suggested that nebulae were other galaxies, entire systems of stars, but this remained an outrageous idea, requiring a universe unbelievably large. Edwin Hubble took a new method for measuring the distances to stars and applied it to the nebulae and found that the nebulae were indeed far distant galaxies.

In the summer of 1928 Hubble began intense research into the motions of galaxies. In 1914 V. M. Slipher of Lowell Observatory had announced his spectrographic discovery that the nebulae were moving through space,

moving very fast, mostly redshifted—moving away from us. Hubble took Slipher's measurements of galactic motions and tried to correlate them with his own measurements of galactic distances. Hubble soon found a very strong pattern: the farther away a galaxy was, the faster it was moving. The galaxies were flying outward from some common beginning; the universe was expanding. On January 17, 1929, Hubble submitted his findings to the Proceedings of the National Academy of Sciences. Three months previously, when Hubble rushed off to the Grand Canyon, he surely already knew that he was transforming the universe.

This circumstance makes it remarkable that when, on October 5, 1928, Hubble wrote to V. M. Slipher at Lowell Observatory to plan his Arizona trip, Hubble made no mention at all that he was right in the middle of using Slipher's data to transform the universe. Nor, it seems, did Hubble mention it when he saw Slipher in Flagstaff. In the weeks after Hubble's visit Slipher wrote two letters detailing Hubble's activities, including one letter to Lowell Observatory trustee Roger Lowell Putnam, with whom Slipher was always ready to share good news about Lowell achievements, but Slipher gave no hint that Hubble was making the most important discovery ever connected with Lowell Observatory.

Hubble's letter was also secretive about the purpose of his visit:

Dear Mr. Slipher,

Mr. Hale and Mr. Adams have requested me to make a preliminary investigation of conditions in Arizona in connection with a proposed plan for another observing station in the Southwest. The subject is in a rather confidential stage at present so I will explain more fully when I see you.

Mr. Anderson has devised a simple scheme for rating seeing numerically with a small telescope and I propose to take the instrument with me. We all agreed that the first step was to run over

to Flagstaff for a talk with you and while there, to request permission to calibrate the small telescope to your scale of seeing. Among other things I would like to go to El Tovar and interest one of the Park Service men in watching the seeing with their exhibition telescope while I go back 1, 3, and 10 miles or 1, 5, and 20, for comparison. The direction of further investigations would depend largely on a conference with you. Arizona is a large field but I suppose that certain areas can be eliminated at once on ground of accessibility, water, vegetation and altitude.

If the scheme meets with your approval, I would probably drive over, reaching Flagstaff sometime next Friday afternoon, October 12th, and planning to stop a couple of days before going to the Canyon. Then we can discuss the further possibilities and I will have a chance to see what you all are doing.

Mr. Hale is rather anxious for me to start as soon as possible—I am writing within a few hours of his communication—so I shall take the liberty of asking you to wire me as to whether the visit will be convenient and agreeable to you.

Sincerely, Edwin Hubble<sup>6</sup>

In a hand-written postscript Hubble said he was bringing his wife and “a neighbor couple who have so much leisure and other things that I am quietly trying to interest them in astronomy,” making it sound like a jolly vacation.

Edwin Hubble’s activities at the Grand Canyon have to be surmised from this and three other letters in the Lowell Observatory archives. The Mt. Wilson Observatory archives contain no obvious documentation about Hubble’s trip to Arizona; since Hale and Hubble had offices in the same building, they were probably communicating verbally and not in letters. Hubble’s trip has been unnoticed by historians, except for a few sentences

in Donald Osterbrock’s Ritchey biography, an account derived entirely from these four Lowell Observatory archives letters.

After Hubble got home he wrote to Slipher:

Dear Mr. Slipher,

My trip came to an unexpected end in Southern Arizona and I had to get home as soon as possible. The best results are the series of observations to be expected from the Grand Canyon and from Cameron which can be compared with your seeing at Flagstaff. I will send copies of the results as they come in if Tillotson and Hollis do not send copies direct to you. Douglass had a great deal to say about the effects of local conditions, which will be of value when the general location is decided...

You doubtless saw the announcement of the proposition last Monday. The confidential stage is past now and a 200-inch for the California Institute of Technology is definitely assured...

I am sorry to have missed the stop-over at Flagstaff on my return but we had to drive direct from Tucson, two days to Pasadena.

Sincerely, Edwin Hubble<sup>7</sup>

“Tillotson” was Miner Tillotson, the superintendent of Grand Canyon National Park, which indicates that Hubble did receive the highest cooperation from the National Park Service. “Douglass” was Andrew Douglass, who thirty-four years before had searched Arizona for the best site to establish Lowell Observatory; Hubble traveled to the University of Arizona just to meet with Douglass.

The strangest news in this letter is that Hubble conducted seeing tests at Cameron, an even more implausible observatory site than Desert View. Cameron is located at 4,200 feet, and on the edge of a large zone of hot, Painted Desert badlands that are prone to dust storms. But this does indicate that Hubble came out the east

end of the park, where he may have taken a look at Desert View and Comanche Point. In Cameron perhaps Hubble and his wife and friends were enjoying an expenses-paid vacation in Navajoland, where the Hubble name was famous, not for astronomy, but for the Hubbell Trading Post, run by Edwin’s distant relatives.

In December V. M. Slipher wrote to W. A. Cogshall, a former Lowell Observatory astronomer now at Indiana University:

...Hubble was over here in October for a day or two and then went over to the Canyon to make some seeing tests. He returned by way of Cameron and stopped there for a couple of nights and then was here again for one evening. From here he went to Tucson to see Douglass and talk seeing conditions etc. This was just before the publication of the announcement of the 200” reflector. He was making tests with a 2-inch telescope!! It was quite apparent that the new big Bertha had already been located definitely at no very great distance from Mt. Wilson...Hale is the man behind the undertaking and it is sure to [be] placed within sight of Mt. Wilson...<sup>8</sup>

Slipher was underestimating Hubble’s 2-inch telescope. George Hale had taken pains to devise a reliable test telescope and a test comparison system. The test telescopes were designed by Russell Porter, a now-legendary telescope designer, and had several unusual features. Most of the test telescopes were 4-inch, but in the hands of a skilled observer, a 2-inch would suffice. We can suspect that Slipher also discounted Hubble’s efforts because Slipher knew how implausible the Grand Canyon rim was for an observatory.

In January Slipher wrote to Roger Lowell Putnam:

...Dr. Hubble was over this fall making some tests evidently for publicity material. He had only

a two inch aperture telescope for the work! And he thought he was getting worth while tests...<sup>9</sup>

Slipher was no doubt correct that Hale preferred staying close to Mt. Wilson with its other, still-valuable facilities; Palomar, a two-hour drive from Mt. Wilson, was still much closer than Arizona. Yet Slipher didn't know that his own universe-changing redshift data was laying abandoned on Edwin Hubble's desk for the sake of the Grand Canyon, and Slipher underestimated Hale's neurotic insecurity, which nearly two years later prompted Hale to order Hubble's assistant, Milton Humason, to make another trip to the Grand Canyon to make further tests, to make sure George Ritchey was wrong.

An aside: both of Slipher's letters include a premonition of another great astronomical discovery. To Cogshall, Slipher wrote:

A young man has been writing us from west Kansas about employment in the Observatory. He is a farmer boy, with high school training, good health, much interested in astronomy, planetary work particularly...He sent us some drawings of Jupiter that look fairly good for such a chap working all alone...We have not as yet given him any particular encouragement, but his last letter makes us think he might make a good assistant in spite of his deficient training.<sup>10</sup>

To Putnam, a month later, Slipher wrote:

The young man from Kansas is expected to come on next week. I hope he proves to be good help around the Observatory and that after a time he will be able to make exposures with the 13-inch photographic.<sup>11</sup>

The young farmer boy was Clyde Tombaugh, who within barely a year used the 13-inch photographic telescope to discover Pluto.

George Ritchey hoped to get the Carnegie Institute to fund his Grand Canyon observatory, but the Carnegie Institute was already George Hale's patron and didn't want to get embroiled in the Hale-Ritchey feud, especially when Hale was assuring them that Ritchey was a scoundrel and a lunatic. Ritchey's plan did stir up some enthusiasm within Grand Canyon National Park, but not at the national level of the National Park Service. The National Park Service was still a fairly new agency, struggling to establish its authority, embroiled in numerous conflicts with private land holders inside park boundaries—and one of the worst battlegrounds was the Grand Canyon. NPS Assistant Director Horace Albright so loathed Ralph Cameron for blocking the creation and consolidation of Grand Canyon National Park that Albright was ready to resign and move to Arizona just to campaign to oust Cameron from the U. S. senate. Albright wouldn't think of turning over part of the Grand Canyon to any private interest.

George Ritchey eventually got to build a Ritchey-Chrétien telescope, a 40-inch, at his last job at the U. S. Naval Observatory. When other astronomers got a look at the telescope, it changed astronomy. When light pollution in Washington D. C. got bad, the U. S. Naval Observatory moved the telescope to its new site in Flagstaff, Arizona, not far from—but not too close to—the Grand Canyon. This was in 1955, ten years after Ritchey's death. In his retirement Ritchey began writing a book (never published) called "Our Kindly Mother Earth, with a supplementary volume The Grand Canyon and The Great American Plateau."

Though neither Ritchey nor Hale built a "desert watchtower" on the rim of the Grand Canyon, someone else did. Soon after Edwin Hubble's visit to the canyon, Mary Colter began designing the 70-foot-tall Desert View Watchtower. Colter thought of it as a Native American astronomical observatory.

We know quite a bit about Mary

Colter's thinking about the Watchtower, for she wrote a 100-page book detailing its archaeological inspirations, architectural features, and mythological motifs. In the first chapter Colter discusses the Ancestral Puebloan towers of the Four Corners region, which had not yet been thoroughly studied by archaeologists. Colter spent over six months studying the towers, even chartering a small plane to locate towers, then driving to them to photograph and sketch them.

Colter discusses the purpose of the towers, a subject still being debated today. She dismisses the idea that they were built as granaries or habitations. She admits that many towers, given their strategic locations, were built for defensive purposes: "However, this does not account for all towers. Some are so located in the bottom of canyons that they evidently were not intended for observation or defense."<sup>12</sup> Colter is drawn to the idea that the towers had astronomical and ceremonial purposes:

Another very interesting theory of the function of the towers is that they were designed for ASTRONOMICAL OBSERVATIONS, as were the towers of the Aztecs, Mayas and Toltecs in Mexico, Yucatan and Peru. In support of this theory, J. Walter Fewkes, one of the few archaeologists who writes upon the Towers of the Southwest, says:... "There are indications that they (towers) were built by an agricultural people, one of the prime necessities of whom is to determine the time for planting. This can be obtained by observations of the sun's rising and setting, and a tower affords the elevation necessary for that purpose, hence the theory that southwestern towers were in part used for SUN HOUSES or OBSERVATORIES. A building from which the aboriginal priests determined calendric events by solar observations very naturally became a room for Sun Worship or for the worship of the Power of the Sky. The presence of circular subterranean rooms, or kivas, which almost always occur with towers, also indicate religious rites."<sup>13</sup>

By now Colter had now done a more thorough survey of the towers than Fewkes did, and she corrects him:

While towers frequently stood alone and less frequently were a part of communal villages, there are a number of instances where towers, otherwise isolated, were built in conjunction with kivas. These have been referred to by Dr. Fewkes in reference to the purpose of towers. In these instances there is a PASSAGEWAY—sometimes a tunnel of considerable length—constructed from the subterranean kiva to a flight of STONE STAIRS leading to the first floor of the tower. The best known examples of this construction are at Mesa Verde where several have been excavated.<sup>14</sup>

Today at Mesa Verde, NPS interpretation suggests that a combined tower-tunnel-kiva allowed a priest or kachina to emerge dramatically into a kiva ceremony, emerge from a conduit to the sky.

Mary Colter designed her Watchtower as a connected tower and kiva, though the kiva has lost its dignity by being turned into a gift shop. Colter also intended the top floor to include telescopes, just like her Lookout Studio.

While the Desert View Watchtower offers a good view of the canyon, its larger purpose is to serve as a shrine to Native American culture, especially the Hopis, whose ancestors lived inside the canyon, and for whom the canyon remains their sacred place of emergence. To create the murals on the first floor of the watchtower, Colter hired Hopi artist Fred Kabotie. The murals depict the Hopi cosmos, and are rich in astronomical themes, especially on the ceiling. Colter's book includes fifteen entries devoted to these astronomical motifs, including:

THE STARS: In the sky realm above, the Hopi have names for the prominent STARS. Each star, or group of stars, means something. The stories of the stars as depicted on the ceiling panels...were taught to Kabotie by his grandmother when he was a very little boy sleeping on the housetop

where the bright desert stars were always reminders of the old stories.

MILKY WAY: To the right of the Morning Star comes the MILKY WAY, the PATHS OF GOOD and BAD PEOPLE. The long and continuous line is the path of the good; its branch, which is short, is the path of the evil.

SHOOTING STARS: When a shooting star is seen, it is taken for granted that the star is off to officiate at a wedding, spilling some of its sacred cornmeal from its brilliant tail over the bride. Shooting stars are lucky—a sign of plenty and prosperity.

THE PLEIADES: Kabotie writes: "There is a group of stars that always cling together like mud and they are called by that name—"CHCOHOOKAM". (We call them the Pleiades.)<sup>15</sup>

Was Mary Colter's Desert View Watchtower inspired, at least in part, by George Ritchey's "desert watchtower"? For several reasons, it seems a safe bet that Colter was aware of Ritchey's plans.

First, in 1916 Mary Colter bought a house in Altadena, California, the town directly below Mt. Wilson Observatory. Next-door Pasadena, which held the observatory's headquarters and laboratories, was a national center of Art and Crafts architecture and design, and it's likely that Colter was drawn to the Pasadena arts and social scene, where she would have been mingling with Mt. Wilson astronomers and their wives. Colter's Altadena house was a home-away-from-home, primarily occupied by Mary's sister Harriet, but according to Colter biographer Virginia L. Grattan: "Although Mary maintained an apartment in Kansas City, she traveled a great deal up and down the Santa Fe line working on new building projects. She was frequently in California to buy furnishings for hotels she was decorating and to spend time with Harriet."<sup>16</sup>

Second, Colter was close friends with Grand Canyon National Park superintendent Miner Tillotson, with whom she worked on some of her Grand Canyon projects. After her

retirement Colter bought a Santa Fe house next door to the Tillotsons. Miner Tillotson assisted Edwin Hubble at the canyon, and surely already knew about the observatory idea from Ritchey's inquiries and publicity. The prospect of a major building on the canyon rim would have been major news for Colter.

Last, since New York was the center of the architectural and design world, it's likely that Colter read *The New York Times* or had plenty of friends who did.

All we know for sure is that Mary Colter appreciated astronomy and built her tower nearly on the site George Ritchey had planned for his tower. Her architectural drawings or her watchtower are dated June 16, 1931, less than three years after Edwin Hubble had probably stood at Desert View, on the rim of creation.

#### Endnotes

- 1, 2 Ritchey to H. H. Smith, July 31, 1907. Study Collection, Grand Canyon National Park.
- 3 Ibid, p 96.
- 4 National Archives and Records Administration, Pacific Region. Record Group 79, NPS. Folder Title: D6215, Museum and exhibit activities planning and preparation, maintenance, and preservation, 1924-1929. Box 101.
- 5 Ibid.
- 6 Edwin Hubble to V. M. Slipher, October 5, 1928, V. M. Slipher papers, Lowell Observatory archives.
- 7 Hubble to V. M. Slipher, November 2, 1928, V. M. Slipher papers, Lowell Observatory archives.
- 8 V. M. Slipher to W. A. Cogshall, December 11, 1928, V. M. Slipher papers, Lowell Observatory archives.
- 9 V. M. Slipher to Roger Lowell Putnam, January 12, 1929, V. M. Slipher papers, Lowell Observatory archives.
- 10 V. M. Slipher to W. A. Cogshall, op cit.
- 11 V. M. Slipher to Roger Lowell Putnam, op cit.
- 12 Mary Colter, *Manual for Drivers and Guides Descriptive of the Indian Watch Tower at Desert View and its Relation, Architecturally, to the Prehistoric Ruins of the Southwest* (Grand Canyon: Fred Harvey Co, 1933) p 5.
- 13 Ibid, p 5-6.
- 14 Ibid, p 7.
- 15 Ibid, p 35-36.
- 16 Virginia L. Grattan, *Mary Colter: Builder Upon the Red Earth* (Grand Canyon: Grand Canyon Natural History Association, 1992) p. 25.

the Kent Homestead on June 9, 1929. On December 22, 1932, Grand Canyon National Monument was formed to include this spot in the 427 square miles adjacent to Grand Canyon National Park. A ranger station and residence was built, to include a water catchment system with low lying roofs and piping which drained into a cistern. This area was then designated as part of the national park in 1975.

John Hauert Riffey was born in 1911 to John Wesley Riffey and Elizabeth (Hauert) Riffey in Colorado with the family moving to Mancos shortly after his birth. John was called Hauert by the family to distinguish him from his father John. John was a respected carpenter in the area. He built his family a neat, 2 story home which still stands today. Mancos itself hasn't seen tremendous change since Riffey was a boy there. His timing of graduating from high school in 1930 made for dismal job prospects. He attended Fort Lewis College in the fall but showed lackluster ambition as a student. After a series of temporary and seasonal jobs, he enrolled as a student in Long Beach Business College, staying with a family friend and studying bookkeeping and typing. This experience, at least, showed him what he did NOT want to do with his life. Returning to Colorado in 1932, fate intervened by awarding him a position with the Civilian Conservation Corps at Mesa Verde National Park. He worked on tourist recreation construction, trail building and met and talked with the visitors. He had the opportunity to rub elbows with true old time rangers who did it all. There were no specialists back then, every ranger in these remote parks had to be a generalist. At last he had found a passion in life, and set his sights on being a forest or park ranger. First item on the list was a college degree in forestry. He re-enrolled at Fort Lewis College in the fall of 1933, transferring to Colorado State University in Fort Collins in 1935. Although taking his future very seriously, he must have taken some time out for fun. At

a dance he met Laura Smith, also a college student. Graduating in January of 1937, he and Laura married that summer. As any current park service employee can relate, he continuously sent out application after application to work as a ranger. In the meantime, he worked for Montgomery Ward, and went back to college to obtain certification to be a teacher of vocational agriculture. Laura was a teacher in home economics. They both were teachers at Gilcrest High School when Riffey received the offer from the National Park Service to be a ranger at Tuweep station for a whopping \$1860 per year. Riffey undoubtedly hesitated, as he and Laura were making at least twice that and living in much more civilized surroundings. But Laura, as good wives always do, insisted that he take this chance to live his dream. Teaching could be the fallback if this didn't work out.

Bill and Gertrude Bowen were the resident couple at Tuweep from 1940 until the Riffeys arrived. They stayed just long enough to show them the ropes, and then took off, leaving the Riffeys at the end of their 65 mile dirt "driveway." There were 19 visitors during their first year there. John was in charge of the grazing permits for the surrounding ranchers. But having been a rural boy himself, he realized immediately that by helping with the cattle drives, freeing recalcitrant cows from cattle guards, and being a friend to the local ranchers instead of a bureaucrat was the way toward long-standing respect in this remote country. During his time there, the grazing land improved and the poaching decreased.

John couldn't escape the horrors of World War II, and was drafted to serve on a medical transport ship. Fortunately he was able to return to his beloved Tuweep after the war ended.

With the burgeoning middle class arising at the end of World War II, tourism expanded exponentially. With this increase, the Park Service reacted to the new-found traveling public by increasing staff and departmentalizing the various ranger jobs formerly handled by generalists. These chang-

es affected the service nationwide except for John Riffey. He gently resisted any of these changes because they just weren't applicable to his unique and remote situation. He didn't wear a uniform or carry a gun. He continued to greet all visitors with kindness, helpfulness and a passel of tall tales. He bought his own equipment as needed, even going so far as to buy his own airplane for aerial surveys for fires after thunderstorms. He would take off in "Pogo" (all of his machines and vehicles had a name) and would fly around the area looking for smoke. This beat the heck out of the Park Service recommendation, which had been to climb a tree (in short supply in Toroweap Valley). Riffey kept cans in the plane, and would jot a note about the fire's location, fly to the Craig's ranch (his closest neighbor) and drop the can and Al Craig would drive over to put the fire out. Riffey would land Pogo (named for its many short hops) and go help Al put out the fire. The Park Service eventually, in its infinite wisdom, finally decided to pay to put a radio in the airplane and at the Craig's ranch to make the fire fighting efforts a tad more efficient. Riffey established the Tuweep International Airport on Kent Ranch land. There was even a sign pointing to the South Concourse, Gate 2. He was able to call it an "international" airport because of the many river runners from other countries who were helicoptered out of the canyon after Lava Falls, brought to Tuweep, and then continued on to their other locations.

In the 1950's, Riffey was feeling the pressure from the Park Service for the new philosophy that rangers should move around from park to park. But John had found his nirvana and refused to accept any transfers. Fearing the worst, Laura took a job teaching in Fredonia and they bought property there in case they were forced to leave. But he was able to ride out this tide and found himself receiving a Superior Performance Award in 1965 (in uniform!), followed by the Meritorious Service Honor Award in 1970. The Park Service finally realized what a treasure they had in John Riffey.

# Grand Canyon Historical Society

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Sadly, Laura Riffey died in 1962 of cancer. John was understandably devastated, but he did have his Toroweap Valley and the job he loved so well. He met Dr. Meribeth Mitchell, professor of ornithology at Western Washington University. They were married in August of 1965, with Meribeth teaching for half a year, and returning to Tuweep to be with John for the remainder of the year. John loved having people visit and the residence was always full of people and good times. John was well-read, with subscriptions to magazines and books keeping him able to expound on any and all topics. He continued to live life on his own terms, as he had done when he first accepted the job there. He called himself "unchurched", but had obviously found the place of his soul.

John must have known that his health was not good, as he experienced heart problems and dizzy spells, but didn't share this with anyone. He died, at Toroweap on July 9, 1980. In an in-

credible act of honor, the Park Service defied all of its own rules, and allowed John to be buried there overlooking Toroweap Valley. His burial, even in this remote, hard to get to location, was attended by people who exemplified his life – river runners, hikers, bureaucrats, homesteaders, tourists from all over, and professors. The airplane carrying his casket made an unauthorized arc over the canyon and Lava Falls before landing near John's final resting place. On his simple headstone is the following inscription:

A Man Who Could Spend a  
Lifetime on the Rim and Never  
Waste a Minute.

Tuweep Ranger from 1942–1980

Good Samaritan, Gentle Friend,  
Teller of Tall Tales

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