

The following paper was presented at an annual Arizona Historical Convention in Nogales, Arizona by the author,
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WHERE WAS NEW YEAR'S SPRING?

A Research Note

ON THE FIRST day of the year 1854 the reconnoitering party of Lt. Amiel Weeks Whipple came to a shallow pool of water, perhaps twelve feet in diameter, that had served their mule herd the night before. It was "about a mile west" of their bivouac, which in turn was southwest of Sitgreaves Mountain in north-central Arizona. It had three inches of ice on top but the "amount of water was not perceptibly diminished by what the mules had drunk" and, "It therefore appeared to be a permanent spring." Whipple named it "New Year's Spring." He soon started southwest toward Bill Williams Mountain but the previous evening he had sent a soldier of the escort with two Hispano muleteers back to Leroux Spring at the foot of San Francisco Mountain with orders for Lt. Joseph C. Ives to bring up the whole caravan of the expedition.¹

Next day a train of fifteen wagons and two ungainly carretas, accompanied by nearly eighty men, wheeled into a prairie near Mount Sitgreaves. They had come 235 miles across the high desert of what was then western New Mexico Territory from the Indian Pueblo of Zuni. This was their ninety-fourth camp since leaving Fort Smith, Arkansas, on July 15, 1853. As white, vee-shaped tents went up on the soggy ground, camp tenders went to the conical hole in the prairie to draw water for the men before some 135 mules and other livestock were allowed to drink. Snow lingered in tree shade, and as the "spring" dwindled the explorers melted snow for camp water. Men, beasts, and wagons would remain here for a week while their commander explored over a hundred miles of the surrounding country, trying to find a practical way for a railroad down the western slope of the Colorado Plateau. It was their longest stay in any camp between Zuni and California. Whipple, meanwhile, had already scouted many miles southwest.²

The U.S. Congress had sent this expedition to find a rail route along the Thirty-fifth Parallel and it soon would authorize Edward F. Beale to lay out a federal wagon road through the same corridor. Lt. Whipple, an army topographical engineer, had with him as guide the old Taos mountain man, Antoine Leroux, and a party of civilian scientists, soldiers, and muleteers, perhaps forty in all. They would return to New Years Spring on January 6 and the reunited party would depart this camp on the 8th.³

Although the weather at Camp 94 was milder than at Leroux Spring, snow-squalls and frigid wind – and boredom -- made everyone miserable. Some were sick with a mild form of typhoid. Farriers were kept busy repairing wagons and shoeing mules, their hooves chewed up by volcanic scoria. A flock of sheep and beef cattle had

to be constantly guarded against Indians. More intrepid men, including the expedition artist, Balduin Mollhausen, hunted for grizzly bears. But they were all glad to leave and no one else is known to have used this water til the advent of stock-raisers in the 1880s.⁴

New Years Spring is a memorable place in the history of exploration on the Thirty-fifth Parallel. That Whipple's expedition stopped here a week, and that this was the beginning of the Santa Fe Railway and of highway Route 66, both of which pass nearby, is common knowledge. Why has no one proposed to erect a marker on a nearby highway?⁵ Because, 'til now, no one knew for certain where it was.

* * *

IN JUNE OF 1986 I drove out to the El Paso Gas pumping station northeast of Williams, Arizona, to find Whipple's Camp 94, which I assumed was at the head of Pitman Valley not far from the natural gas pipeline. I had studied exploration of the Colorado Plateau for several years and had looked up a few railroad survey sites. Because this was one of the most significant of all the unlocated campsites, I expected to wind up my field work in a few hours of a pleasant spring day and the write something new about Whipple. I had in hand Will C. Barnes' Arizona Place Names that said the

The only map which shows this spring under the name New Years is Smith, 1879. This locates it 18 miles southwest of Leroux spring. Shows it as due south of Sitgreaves Mountain at Pitman's Ranch. Doubtless this is Pitman valley of today. There is an unnamed spring in sec. 17, T.22N, R.4E on Flagstaff quad, 1912, that fits it nicely.⁶

That spring in Section 17 is today called "NE Spring" and is too far east to qualify but I liked the location of Pitman Valley. It seemed to fit the description of Lt. David S. Stanley, Whipple's quartermaster, who wrote in his diary on Jan.2, 1854, "March nine miles to-day [total 24 from Leroux Springs] through a pine wood and encamped upon a spring in a beautiful little valley, north of Williams Mountain."⁷

I also had Whipple's account with me, an extract from his diary in the Oklahoma Historical Society. He wrote on the last day of 1853,

*At 9:45 AM we continued our march. [Because of snow} our mules... made little progress... Snow becoming less deep & soft we progressed more rapidly and at 2 ½ PM bivouaced upon a hill side where abundance of green grass and cedar fuel invited us to remain for the night. Ascending the hill our course from Leroux Spring appeared to be due west and the distance travelled is estimated at 20 miles... Looking west we were greeted with the view of an open valley apparently the course of a stream limited only by the blue mountain range far distant. Sending a man to explore he soon returned with the acceptable report of the existence of water in the valley half a mile below.*⁸

Next day he visited the waterhole in the valley and named it. At the time I paid no attention to Whipple's mention of "an open valley apparently the course of a stream" to the west of his hilltop observation post.

That June afternoon I did find a promising natural waterhole in a shallow, rocky ravine just south of the gas pipeline and at the head of Pitman Valley. It is called descriptively Tanque Piedra. I could imagine Whipple's caravan camped out on the prairie just to the east and Lt. Stanley gazing southward out on Pitman Valley. At home, however, I realized that Tanque Piedra would not answer as a spring (and it was obviously only a catch basin) just a mile west of some hill used by Whipple for an OP. Before I could identify New Years Spring I would have to find that hill, and to reconcile it with Whipple's valley view. At first I was concerned to find a relatively small hill, for in another part of his railroad report he had described it as only "about 200 feet" above New Years Spring.⁹

Over the next five years my quest engrossed many hours of outdoor exercise at intervals between more important research and teaching. I even took a summer school class out to look for the hill and waterhole. I thought I had found them in 1987. A stock pond called Moss Tank is just south of Tanque Piedra, below a hill that met every detail of Whipple's description. The only trouble with this hill, elevation 7,216 feet, was the view to the west: one cannot see an "open valley apparently the course of a stream limited only by the blue mountain range far distant"—Bill Williams Mountain was barely visible. Nor did Moss Tank agree with the description of Balduin Mollhausen that I had lately dug up: "Not far from the foot of Mount Sitgreaves we found the water...which consisted of a sort of pond or lake" that verged on a "wide expanse of plain" due west.¹⁰

I redrew a part of Whipple's map superimposed on present landmarks, including his geographic positions of camps from the Little Colorado River to Aztec Pass. I carefully measured distances between each site, most of which he had fixed by astronomical observations. Plots of known locations suggested Whipple had consistently measured latitudes close to true, but most were somewhat south. All his longitudes were too far east. Three facts became apparent: First, where we can compare known campsites, his errors in longitude are nearly uniform; on average, they are slightly less than four minutes short. Thus four known sites are on his map about 3 2/3 miles east of their actual positions. Second, with the exceptions of Camp 99 (Picacho) and Camp 87 (Leupp), the estimates of latitude are within one minute of true. Third, if one were to overlay Whipple's map on a modern map of exactly the same scale and then shift his locations of Camps 89 through 96 about 3 2/3 miles west and slightly north, Whipple's locations would fall very close to all known locations, viz. Turkey Tanks, Leroux Spring, a camp on Government Prairie, and the camp in Martin Dam Draw.¹¹

Another thing about distances: There are two tables of distances with the reports on the Thirty-fifth Parallel Survey: Table B in the preliminary 1854 report and

Table D in the final 1856 report. In addition, Whipple frequently mentions distances in his narrative. These three sources seldom agree.¹² But I knew that a wagon in Whipple's caravan was equipped with a "viameter," a primitive odometer that counted the revolutions of a wagon wheel. Why weren't the tables, presumably based on the viameter, the same? And occasional wide variances with the narrative were puzzling.

Studying new military maps of the Williams area in 1988, I saw that the hill by Moss Tank was nearly the same height as one behind the El Paso pumping station called Radio Hill, 7,265 feet. Joining the Williams sheet to the San Francisco Mountain sheet, I saw there was a clear line of sight between Radio Hill and Fort Valley near Leroux Spring. Heretofore I had assumed that Sitgreaves Mountain would mask a due east view from a point so far north.¹³ I now saw that Radio Hill could be Whipple's OP. On a snowy day in January, 1988—not unlike the weather of January, 1854—I climbed the hill. I was amazed to find the summit sparsely wooded with a few big trees and a clear view in all directions. I could see the valley of Leroux Spring; Wing Mountain, which Whipple and Leroux had climbed; Bill Williams Mountain; and, westward, I had the view described in Whipple's journal. On the south side, was a gentle, open, grassy slope for a bivouac. So Radio Hill was Whipple's observation post. New Years Spring was somewhere west of its summit.

Later in 1988 Mary Gordon published the diary of John P. Sherburne, Whipple's brother-in-law whom he hired as a meteorological observer and assistant surveyor. This new account gave more details about the camp at New Years spring. Sherburne noted, "AS far as the eye can reach is a beautiful valley, without snow." I finally realized that valley must be the stream Whipple drew on his map as "Park Creek" northwest from Camp 94, and a comparison with modern maps left an inescapable conclusion: Park Creek is Red Lake Valley. Whipple could not see its lower end (even from his OP above New Years Spring) and he thought it joined another stream he called Lava Creek about ten miles northwest from Camp 94. Sherburne also revealed that he was responsible for the viameter. He recorded in his diary distances traveled and they were the basis for Whipple's preliminary Table B. In a few places where the expedition track can be measured, Sherburne's figures are in error, but why Whipple altered nearly all the viameter measurements for Table B is still puzzling.¹⁴

As I reviewed the information about New Years Spring, I noted many striking descriptions of the next campsite to the west—Camp 95 at a "large pool of water undoubtedly a permanent spring which we called 'Santo Domingo.'" This is the water Whipple calls "Lava spring" in his published report. He says in his diary, "It is at the head of canyon about 30 feet in diameter of unknown depth." On his map he shows it as a tributary to a stream called Lava Creek, which he shows flowing into Park Creek. By now I could guess that not only was Park Creek really Red Lake Valley, but also that Lava Creek was Cataract Creek, the head of which Whipple thought began nearly nine miles northwest of New Years Spring. I decided it might be easier to find Camp 95, then backtrack to Camp 94.¹⁵ I surveyed on foot each southward arm of Cataract

Canyon that Whipple might have taken for the head of the stream, but I could find no such break in the volcanic caprock as every diarist had described. I gave it up for over a year.

In 1989 David Miller of Cameron University allowed me to see his translation of *Reisen in die Felsengebirge* by Balduin Mollhausen. This work has never been available in English. It recounts the author's experience as Lt. J.C. Ives' artist on the 1857-1858 expedition up the Colorado River and across northern Arizona. Ives, after completing his duties with Whipple, had been given the job of mapping the Rio Colorado. In the spring of 1858, after ascending the river, Ives sent his steamboat back to Fort Yuma and with a small party passed northeast to the Grand Canyon and then southeast toward Bill Williams Mountain. From there Ives would go east to Fort Defiance. On April 25, 1858, Mollhausen wrote that they "passed by [Whipple's road] just north of the Lava springs, and within an hour were far to the south of them on the edge of a prairie, from which the Bill Williams Mountains rose up two miles to the south."¹⁶ He thus had passed between Cataract Canyon and Lava Spring. Miller and I subsequently fixed exactly Ives' camp near the present town of Williams. Mollhausen had made evident the probable vicinity of Lava Spring.

In October, 1991, I found a water hole that was a likely candidate. It lies at the foot of an earthen dam at the neck of a crack in the fifty-foot thick lava sheet northwest of Williams. From the ground only a half-mile north it is hidden by the elevated roadbed of the Santa Fe railroad. On the Kaibab National Forest map, the pond behind the dam is called Canyon Tank. The open ground suitable for a large camp of wagons below Canyon Tank should be about 365 feet lower than the site of Whipple's bivouac on New Year's Eve, 1853.¹⁷ The drainage running north from Canyon Tank should be Lava Creek, and the main channel of Cataract Creek is 2.75 miles downstream.

Whipple's geographic positions for Camps 94 and 95 are 8.75 miles apart and Table D gives 8.7. On the USGS fifteen minute Williams quad I drew an arc nine miles east from Canyon Tank. Then I drew an arc of one-mile radius west from the summit of Radio Hill. The intersecting arcs should contain Camp 94. The only water found in that area is Hitson Tank in Section 4, Township 22N, Range 3E. This is approximately 112° 4' 40 ½ " west longitude, 35° 19' 8" north latitude.

In January, 1992, I enlisted a colleague with an airplane, Prof. Harvey Becher of NAU. We flew his Grumman Tiger over the scene of so much hope and concern. There below was a perfectly round hole in the prairie, brimming with melted snow. It isn't your ordinary cattle tank. Its capacity has been increased by bulldozing a berm around it, but it's not a pond created by a dam. There is no visible stream entering or leaving. When I visited the place early in March, I found a wooded gully a mile north west of Hitson Tank. This proved to be a break in the lava that has been dammed to form a stock pond similar to Canyon Tank. This could be the place where Whipple's geologist, Jules Marcou, collected a sample of "carboniferous limestone."¹⁸

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MY BELIEF THAT modern Hitson Tank is coincident with Whipple's "New Year's spring" is supported by five pieces of evidence.

First, the geographic position of Hitson Tank is consistent with Whipple's observations. His latitude of 35° 17' 28" is about a minute and a half south of Hitson. Although nearly two miles, Whipple's figure is not further off than most of his others along the Thirty-fifth Parallel and, like most, is too far south. Correcting his longitude of 112° 1' 0" by adding four minutes west puts it within twenty seconds of Hitson's position—less than a mile.

Second, the most likely site of Whipple's bivouac of New Year's Eve, 1853, on Radio Hill, "a hill side where abundance of green grass and cedar fuel invited us to remain," is only 1,200 yards from Hitson Tank on a magnetic azimuth of 293°. ¹⁹ This is consistent with Whipple's statement that the spring lay "about a mile west" of his bivouac. The summit of Radio Hill is .875 miles east-southeast of Hitson.

Third, Hitson Tank is 20.125 miles airline from Leroux Spring, just about Whipple's placement on his map. The longer distances recorded by Sherburne and others are, of course, indirect ground tracks.

Fourth, Hitson Tank is 8.85 miles airline from the camp at Lava Spring. The distance Sherburne recorded traveling from Camp 94 to 95 was 9.77 miles, which was in a slight, southward curve according to Whipple's map.

Fifth, all descriptions of New Years Spring reflect the vicinity of Hitson Tank. The modern stock pond appears to be an improvement of a natural hole in the prairie, perhaps a seep. Radio Hill meets most requirements for Whipple's OP. The rocky ravine to the north west would suggest to Whipple the beginning of a major drainage, "Park Creek." The adjacent cinder cones fit the representations of hills on his map. And the gentle ridge dividing Pitman Valley from the drainage of Red Lake Valley matches Whipple's description of the 'wide gap' in the range of hills stretching from San Francisco Mountain to Bill Williams Mountain: he says the ridge flattens near New Years Spring, becoming "almost inappreciable." ²⁰

More research should be done before confirming this historic site. Who was Hitson? Did the original water hole have another name? Is it a seep or spring? Is there Kaibab limestone in the "rocky ravine"? Could wagons travel in a southward curve to Canyon Tank? But for now we have a good candidate for the elusive "New Year's spring."

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NOTES

¹ A. W. Whipple, "Itinerary," p. 84, in Report of Explorations for a Railway Route, Near the Thirty-fifth Parallel of North Latitude,... , Vol. 3 of Pacific Survey Reports, 33 Cong., 2 Sess., Sen. Ex. Doc. 78 (SED 78); Mary McD. Gordon (ed.) Through Indian Country to California: John P. Sherburne's Diary of the Whipple Expedition, (Stanford, Cal., 1988), 157.

² The expedition's exact size is uncertain but it was the largest Pacific Railway party sent out in 1853. Whipple's "Itinerary" (edited and annotated by Grant Foreman) mentions sixteen wagons, all of which Foreman assumes were large government wagons drawn by six- or eight-mule teams. From Whipple's *ms.* diaries (which came to light after Foreman published the "Itinerary") and the diary of Sherburne, we learn that Whipple purchased two Mexican carts at Fort Smith, Ark., to carry his personal baggage and the scientific instruments. There was at least one more vehicle, a two-mule light wagon purchased at Scullyville in the Indian Territory. My guess is that there were 14 army wagons, the light wagon, and two carretas. They were the first wheeled vehicles to cross northern Arizona. Foreman says there were 114 persons in the whole party but that apparently does not include servants and herders casually mentioned in the accounts. Everyone else rode mules, including the 55-man soldier-escort, and there was a 50-mule packtrain. As late as Dec. 20, 1853, Whipple noted he had "above 200 mules." Grant Foreman (ed.), *A Pathfinder in the Southwest: The Itinerary of Lieutenant A.W. Whipple...* (Norman, Okla., 1941, 9-10, 19, 28, 37, 118n, 125n, 155, 161n, 172. Gordon Through Indian Country, 36, 122, and biographical appendix, 247-66.

³ Whipple, "Itinerary," 87-88; Gordon, Through Indian Country, 154

⁴ Whipple describes the spring in his diary as a "conical hole." He also says his pack mules "watered from another pool said to be larger than [New Year's Spring] S.W. half a mile from our last night's bivouac," which suggests only part of the reconnoitering party's herd used New Years and he therefore did not anticipate how quickly the main caravan with more animals would drain it. That these holes in the prairie are common about Williams made the search for New Years Spring more difficult. A.W. Whipple, *Diary of Pacific Railway Survey* (Oklahoma City, Oklahoma Historical Society), entry for Sunday, Jan. 1, 1854.

⁵ On U.S. Highway 89 at Hell Canyon rest area, 11 miles south of Ash Fork, is a marker erected by the Daughters of the American Revolution to commemorate the "Historic 35th Parallel" as a "route traveled by Indians, missionaries, trappers," the Santa Fe R.R., and three government expeditions: Sitgreaves (1851), Whipple, and Beale (1857-59). Except that it is very near 35° north latitude, this place seems odd for such a handsome monument.

⁶ Will C. Barnes, *Arizona Place Names*, Gen. Bull. No. 2, University of Arizona (Tucson, 1935), 300

⁷ *Diary of David Sloane Stanley, U.S. 2d Dragoons, of a march from Fort Smith, Ark., to San Diego, 1853-54*; transcribed from the original by his grandson, Joseph W. Rumbough, copy in author's possession. Similar typescripts are in the Bancroft Library, Library of Congress, and elsewhere.

⁸ Whipple, *Diary*, entry for Saturday, Dec. 31, 1853. Cf. Whipple, "Itinerary," 84, which expands the latter part of the diary to add, "North and northwest were black volcanic hills" and, "Below the hill where we stood was a ravine, in which were indications of water."

⁹ A.W. Whipple, "Report of Topographical Features," pp.32-33, in Vol.3, SED 78

¹⁰ H.B. Möllhausen, *Diary of a Journey from the Mississippi to the Coasts of the Pacific, with a United States Government Expedition*, Vol. 2 (London, 1858), 164.

¹¹ Computation of Longitude Correction:

CAMPSITE	WHIPPLE'S ORIGINAL LONGITUDE	ACTUAL LONGITUDE	DEVIATION
Turkey Tanks (Camp 89)	111° 20' 47"	111° 24' 3"	3' 16"
Leroux Springs (Camp 91)	111° 37' 0"	111° 43' 30"	6' 30"
Camp on Govt. Prairie (Camp 93)	111° 53' 0"	111° 56' 30"	3' 30"
Camp on Martin Draw (Camp 96)	111° 19' 34"	111° 44' 0"	2' 11"
Average deviation: 3' 51.75"			

One minute of longitude on 35th Parallel equals approximately 4,991.8 feet. 3' 51.75" = 19,280.8 ft. = 3.6517 mi. Whipple's average latitude deviation for these four sites is only -14 ½" or about .278 miles too far south. Camp 93 was very close to BM 7166, S.E. corner of Sec. 11, T22N., R4E. Martin Dam Draw is apparently Whipple's "Cedar Creek" and Camp 96 was near the mouth of KY Canyon and Polson Dam in Sec. 26, T23N., R1W. Map: U.S.D.A., Forest Service, Kaibab National Forest, Arizona (1:126,720), 1982.

¹² E.g. from Leroux Spring to New Years Spring, Whipple says in his narrative that the distance cannot be more than 20 miles. His map plots from Camps 91 to 92 and 93-94 total 20.125 miles. Table B yields a total of 22.94 and Table D gives exactly 23.

¹³ Until 1988 only the old 15-minute (1:62,500) USGS quadrangle was available for the Williams area. This was difficult to use with the three 7½ -minute quads to the east. Now only two Department of Defense sheets (1:50:000) are needed to visualize in detail all the country from Fort Valley to Sitgreaves Mountain. The National Forest maps were useful but they show only spot elevations – no contours. In 1989 the USGS issued provisional editions of 7½ -minute Williams and Sitgreaves Mtn. maps.

¹⁴ Gordon, *Through Indian Country*, 159. Besides his map, Whipple wrote: "New Year's spring, at Camp 94, is at the head of one of the branches of Park Valley." Whipple, "Report of Topographical Features," 33.

¹⁵ Whipple, *Diary*, entry for Sunday, Jan. 8, 1854. He says in the "Itinerary" the water is "at the head of a cañon formed by the breaking up of a bed of lava" and "a pole eight feet long [was] inserted to measure the depth, but the bottom was not reached." Whipple, "Itinerary," 88. Möllhausen says the flowing water "had worn a deep hollow in the ground, and...formed a funnel which at our arrival was full of water and covered with ice...The precipitous walls consisted almost entirely of black lava, and blocks of it lay scattered along the bottom." Möllhausen, *Diary of a Journey*, Vol. 2, p. 171. Stanley notes, "Encamped ... at the head of a deep and rugged cañon, where water is abundant, but hard to approach." Stanley, *Diary of a March*, Jan. 8, 1854.

¹⁶ H.B. Möllhausen, *Reisen in die Felsenbirge Nord-Amerikas bis zum Hoch-Plateau von Neu-Mexico*, Vol. 2 (Leipzig, 1860), Chapter 26.

¹⁷ Whipple's aneroid barometer showed "a descent from New Years springs [sic] of about 280 feet," but he took the previous reading at his bivouac of New Year's Eve, not at the spring. The final 1856 report indicates a difference of 421 feet. Similarly he recorded a barometric reading at his bivouac on New Year's Eve that indicated a drop of "about 400 feet" from Leroux Spring, but Table D shows 639.7 feet. These pairs of figures (280:400,) are both close to a ratio of 68:100. If the bivouac was on the side of Radio Hill, about 540 feet below the camp at Leroux Spring, then the camp below Canyon Tank should be about 365 feet lower still. In fact, the ground suitable for a camp below Canyon Tank is 6,580 feet in elevation; add 365 to reach the southwest side of Radio Hill at 6,945,, just 535 feet below Leroux Spring.

¹⁸ William P. Blake, "Report on the Geology of the Route," p. 45, in Vol. 3, SED 78.

¹⁹ I selected this site by calculating the proportional drops in elevation from Leroux Spring to the bivouac to Lava Spring; see n. 17 above. This entails an error of only 16% in Whipple's estimates of altitude taken with the aneroid barometer, a wholly credible assumption. The bivouac would theoretically have been at 6,945 feet, perhaps in a sheltered fold of ground southwest of Radio Hill's summit, or maybe at 7,020 feet a full mile S.E. of Hitson.

²⁰ Whipple, "Report of Topographical Features," p.33.