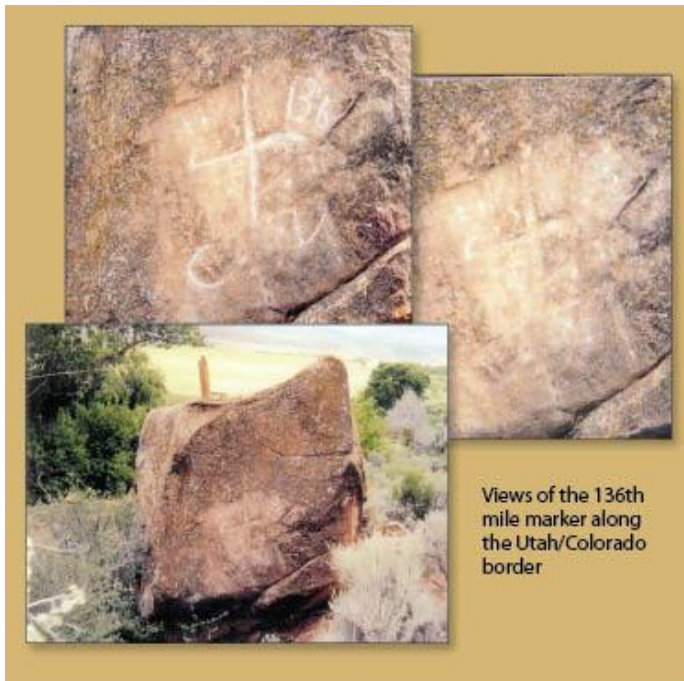


History Corner: Another Kink in Colorado

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As I mentioned in my July 2010 article, “Retracing Colorado’s South Line,” Chandler Robbins was responsible for establishing the monument in 1875 that was later known as the Four Corners monument. He then surveyed south along the west line of New Mexico. In 1878, Rollin Reeves, who was contracted to survey the boundary line between the Utah territory and the state of Colorado, started his survey at Robbins’ monument and proceeded north along the 32° of west longitude from the then-prime meridian of the United States (not the 109° of west longitude from Greenwich—see the July article on why). Reeves’ survey party was escorted by D and K Companies of the Ninth Cavalry.

Reeves’ Survey



The group arrived at the north bank of the San Juan River in the vicinity of the Robbins monument on September 4, 1878 only to find that the river was so high and the current so strong that they could not cross it. Reeves records that on September 5, “a rude raft was constructed ... and Msrs. Sturgus, Shannon, Kelly and myself tried to cross the river by getting on the raft and poling and paddling it across the river; but the current was too strong [estimated at seven miles an hour] and we were carried about two miles below our starting point, and landed on the same [north] side of the river.”

J.T. Toof, who was accompanying the survey party, wrote an article for The Colorado Independent published on October 29, 1878 that describes their attempt at crossing. “We arrived ... only to find the stream on a rampage, booming high, as the effect of recent very heavy and almost daily rains.... I will say

here that some of the thunder storms, which we encountered ... were positively terrific.... The men made an effort to cross the San Juan ... by means of a well constructed raft of logs ... but instead of gliding gaily ‘across the briny main’ the San Juan took the helm into her own hands and landed the men, after a really dangerous voyage—one they did not buy tickets for by any means—from three to four miles below and fortunately on our side of the river.”

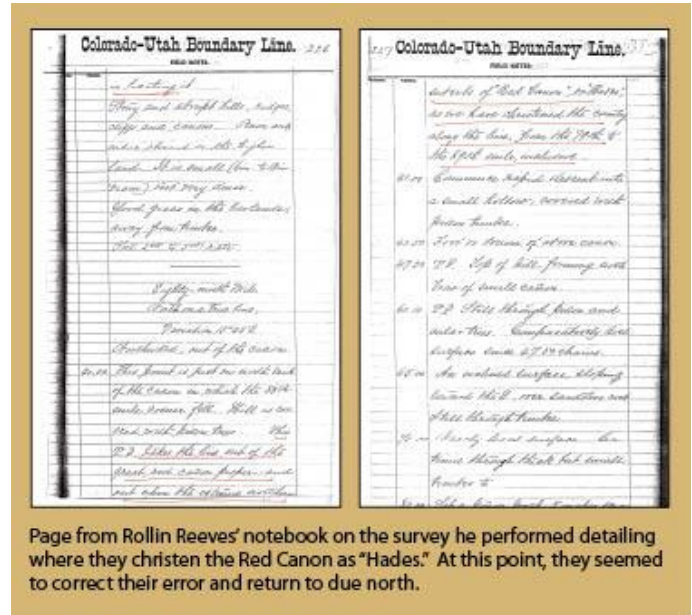
Reeves then tried to either rent or purchase a small boat from a frontiersman several days’ journey away, but the boat’s owner would not part with it. Finally, the river level fell enough that they were able to cross with

their equipment, but not without tremendous effort, using a raft for their equipment, supplies, and provisions while wading in water up to seven feet deep in the middle.

Following the crossing they proceeded to search for Robbins' monument and were unsuccessful. Luckily, several Navajo happened by, having crossed the same river by fording on their horses only two miles upstream from Reeves' raft crossing. On September 11, 1878, Reeves records, one of the Navajo "proposed to show us the corner, for a consideration. A bargain was made. He took us directly to the true corner...." He also writes that, "The monument was in a fair state of preservation, and was clearly identified by description furnished us by the General Land Office."

Reeves' party then proceeded by first making astronomical observations to determine true north and started chaining the line. At only 34.54chs they had to triangulate over the Navajo Creek, and at 1M 1.66chs they set a point on the south bank of the aforementioned San Juan River and again triangulated a point to the north. This time, however, they required only half a day to cross the river.

For the next 130 miles they chained most of the way, having to triangulate only occasionally and setting monuments at each mile usually marked "On the east side 'Col', on west side 'UT', on north side '1878'. 32°WL', and on south side 47M." They passed through what is now Hovenweep National Monument noting the many ancient native buildings in ruin. They made copious notes about the terrain, vegetation, and especially water sources throughout the entire surveyed line.

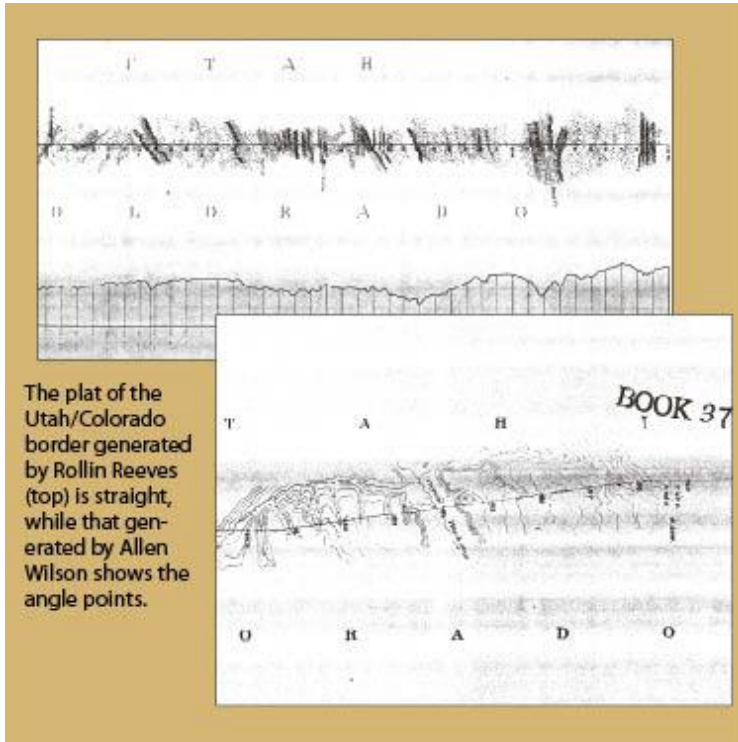


Page from Rollin Reeves' notebook on the survey he performed detailing where they christen the Red Canon as "Hades." At this point, they seemed to correct their error and return to due north.

Their northerly path ran across the many ridges, waterways, and canyons in this part of the country that generally run northwest to southeast, or nearly perpendicular to their line. Still, they were able to chain many miles without triangulating. Having been given an idea of Reeves' descriptive viewpoint as compared to Toof's, we can interpolate a more appreciative understanding when, at 73M 19.50chs, Reeves notes, "From this point the view is very comprehensive and noteworthy... Line thence proceeds over a very rough surface, ascending ridge after ridge, until it cuts what appears to be a high point—almost the very highest anywhere, on the N. boundary of this cañon... It is one long range of cañon after cañon, and as generally rough and wild a view as we have seen since we left the San Juan River... the prospect for 'smooth sailing' on the survey, at least, for days to come, is very gloomy." And at the end of the 73rd mile, "A wretched surface to chain accurately."

At 77M 37.00chs, where they pass by a small grass valley to their west, Reeves laments, "It has proven much the worst part of the boundary to locate, up to this distance on the line... This prairie looks bright in the midst of so much roughness, but the line misses it entirely."

At 80M 49.50chs he writes, "The S edge of an immense cañon; being the deepest, broadest and roughest we have yet intersected on the boundary line. The view is grand but discouraging... The first two chains from this T.P., at 49.50 chs. on line, carry us down about 50 feet" (this shows the precipitousness of descent from the transit into the cañon). And at the 84th mile marker, "Chaining was irksome in the extreme."



During the 88th mile Reeves writes, “From this point on line, it being impossible to transport supplies with Jacks or mules, a detour of over 40 miles was made to reach this point from the north, when only the men could get to it, while the animals were left from 7 to 10 miles N.W. of this point. Quit work here at 87 miles + 51.50 chains, on Monday, 3 P.M., October 14, 1878. Resumed work here, Thursday, 4 P.M., October 17th, 1878... This has been a tedious mile, since we have been almost five days in locating it.”

On the 89th mile his notes contain this: “This T.P. takes the line out of the great, red cañon proper, and out upon the extreme northern suburbs of ‘Red Cañon’, or ‘Hades’, as we have christened the country along the line, from the 79th to the 89th mile, inclusive.”

They encountered a couple of other locations following their leaving “Hades,” which caused some difficulty. Once they had to triangulate a distance of 2.5 miles because of a canyon with shear walls of 500’ to 1000’ tall. A flagman and an axeman were sent ahead to establish line on the north side of the canyon and were obliged to spend the night without food or blankets rather than travel back to camp. Another time they triangulated a distance of four miles 2.60chs. But the worst country was from 119 miles to 130 miles plus 29.26chs. At the south end of this area Reeves would “cause to be established a prominent and durable monument... Therefore, selecting a white cliff of rocks, very clearly and prominently defined, several miles N. on line, and calling the attention of five members of the party to it (who examined it from the transit with great care)... to reach it they traveled three (3) days and estimate the distance from 25 to 35 miles... This was the worst trail I ever tried to travel.” Upon making the trek they set up their astronomical equipment and made new observations to obtain a latitude and compute the distance from astronomical observations rather than triangulation, establishing their point on line at 130 miles + 29.26chs.

Reeves’ survey party continued until the 150-mile marker, just north of the Colorado River, then called the Grand River, where they quit for the winter season on Nov 10, 1878. In his General Description notes of that portion of the survey he writes, “From about the 50th to 90th mile, inclusive, the topography is represented on Dr. Hayden’s maps as being a broad sage-plain, free from timber, with rolling surface, and generally, a fair country over which to prolong the line. We found it to be an almost impassable region, cut up by box cañons, having perpendicular, sandstone walls, and one of the



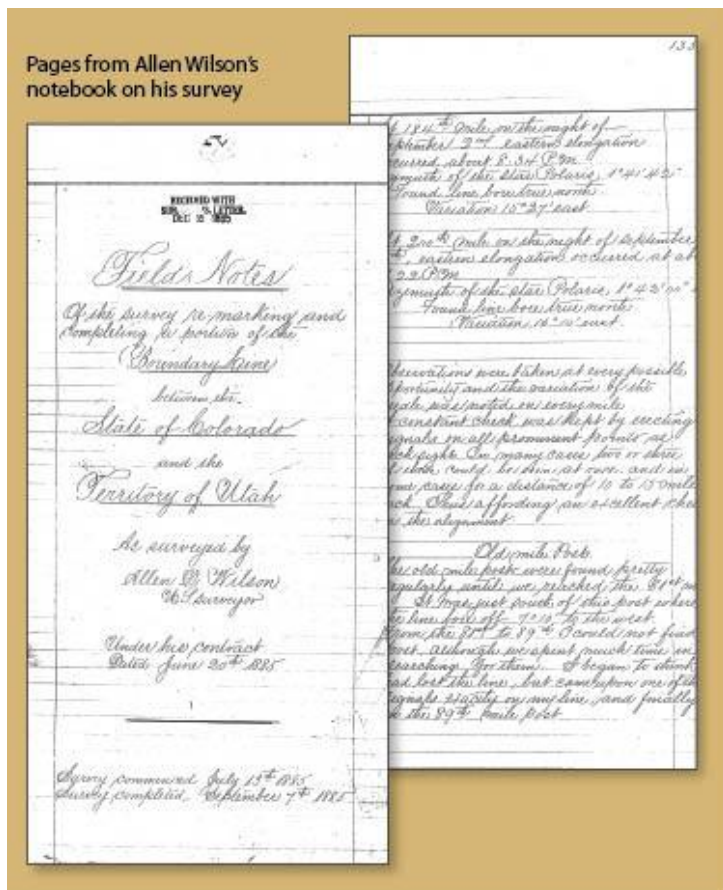
most difficult section to chain or travel over that I have ever seen... From the 119th to the 131st mile, the surface, on the line, was simply impassable.”

They returned on June 2, 1879, to continue their survey north to the northwest corner of Colorado. They established a monument at 276 miles + 60.64chs, being about 28.58chs west of the 262nd mile marker of the previously surveyed Wyoming/Colorado line.

Wilson’s Re-survey

I have included these many references to the difficulties encountered by Reeves and his party not only to emphasize what a difficult task their survey was to perform and to show how their difficulties increased as they approached and passed north of “Hades” but also because this story has only been half told.

Allen Wilson had spent several years working with Clarence King on his 40th Parallel Survey. When reading about that work I was struck by a seemingly inconsequential remark about how Wilson, upon completing King’s survey, was contracted to complete a re-survey of the west line of Colorado in 1885. This was only six years after the original survey. It seemed odd that a re-survey would be performed so soon after the original. That prompted my investigation, recalled herein.



Wilson’s survey was performed from July 13 to September 7, 1885 and covered only the south 210 miles of the line to the White River. He also commenced his survey at Robbins’ monument, which he found “in an excellent state of preservation. Marked as follows: On the N.E. ‘Col 37° N.L., On the S.E. ‘N Mex 32° WL’, On the S.W. ‘Arizona’, On the N.W. ‘Utah 1875.’” As noted above, Reeves had also found the monument marked as expected, although he didn’t identify the markings, so presumably these are the markings as made by Robbins in 1875. I am not aware of when the term “The Four Corners Monument” came into use, but it seems that Robbins set it knowing it would become just such a corner.

Wilson found most of Reeves’ original monuments on line, though starting in the third mile his distances for Reeves’ monuments are from 50chs to 70chs for those monuments rather than the anticipated distance of 80chs. Consequently, Wilson established a second set of monuments at his mile locations.

However, at the 81st mile Wilson notes that “Line bears 4’30” west of north to 43 chains, thence 7°10’ west of north.” Then again at the 89th mile his notes read, “Line bears 7°10’ west of north to 20 chains, then swings 7°10’ eastward.” In his General Observations at the end of his official notes he writes, under the header of Old Mile Posts, “The old mile posts were found pretty regularly until we reached the 81st mile. It was just south of

this post where the line bore off 7°10' to the west. From the 81st to 89th I could not find a post, although we spent much time in searching for them. I began to think I had lost the line, but came upon of the old signals exactly on my line, and finally on the 89th mile post. It was just south of this that the line resumed its true north course."

Copies of both Reeves' and Wilson's plats are shown here. Where Reeves shows a straight line Wilson shows the angle points. This angle in the Utah/Colorado line is the official line because it was the originally surveyed line, as it should be. But the error by Reeves has resulted in a strip of land, from the 89th mile to the 262nd mile, of about a full mile in width that was originally intended to be part of the Utah territory but is now in Colorado.

Let's not forget that the area of this error is in the exact area that Reeves and his party christened "Hades." It may be possible that upon returning to Washington, D.C. and receiving Reeves' official notes, the GLO determined that an error had been made because Reeves did not intersect the Wyoming/Colorado line where expected. Therefore, they may have dispatched Wilson to determine if and where an error had been made and rightly so. Reeves' survey, being the original, was the official line, so the GLO needed to know exactly where it was. Once having discovered the error, Wilson may have continued to a point where he felt sufficient to verify that there had not been an additional error or possible correction by Reeves.

From Reeves' point of view, after just having completed his survey through hell and then discovering his error, he would have been obligated to return some unknown distance south to re-survey until that error was discovered and then continue on the correct line. All that work probably would have come at his own expense because surveyors generally were paid by the mile in those days. The terrain, as witnessed by all the references to Reeves' notes, had become increasingly difficult up to and through "Hades," so this prospect would be not only extremely daunting but also personally costly, to say the least. At that point he probably didn't know just how far south of his location the error had commenced and how much of the line required re-survey, so it may be possible he made the controversial decision to correct back to true north and continue from where he was, just outside of Hell.

The Colorado/Utah line is where it has been since Reeves' survey of 1878 and properly so, as his was the original survey.

About the Author



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