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# THE APERTURE

## The Pacific Railroad-Part 2

This is Part 2 of a two part essay on the building of the Pacific Railroad (Transcontinental Railway) from 1864 to 1869. For a PDF version of Part 1 please [click here](#).

In Part 1 of the Pacific Railroad story I covered the vision and planning of the men who lobbied for a transcontinental railway. I also covered the involvement the federal government had in passing the Railroad Acts of 1862 and 1864 along with the methods on construction used to cross the prairies Nebraska and Wyoming and the difficulties encountered in by the Central Pacific in crossing the Sierra Nevada Mountains.

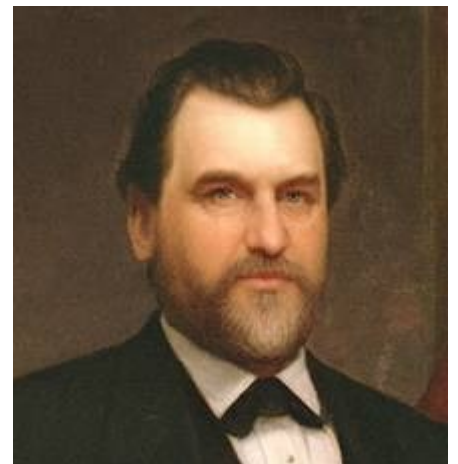
In this installment I will cover the last days of construction, driving the Golden Spike, the scandals involved surrounding our first transcontinental railroad along with some final thoughts on what the railroad meant to the United States and our lives today.

### Climbing the Promontory

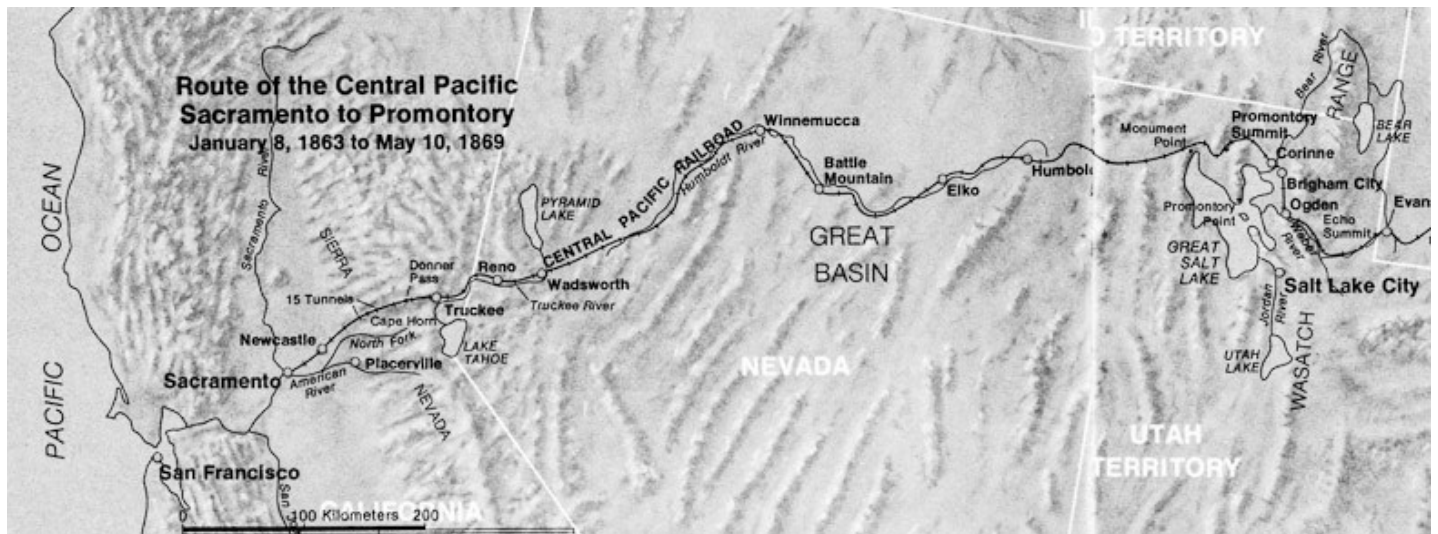
To Leland Stanford, in Salt Lake City, it became more and more apparent as 1868 drew to a close that the Union Pacific would reach Ogden first. At this time the Big Four still hoped that Huntington's maneuvers in Washington would checkmate their opponents. But Secretary Browning's vacillation, culminating in the appointment of the Warren Commission in January 1869, made this hope increasingly bleak. "I tell you Hopkins the thought makes me feel like a dog", wrote Stanford, looking at the darkening picture. "I have no pleasure in the thought of railroad. It is mortification."

Stanford had already turned his attention to the country west of Ogden, rather than the Wasatch Mountains, as the area where the contest would be decided. By occupying and defending the line from Monument Point to Ogden, the Central Pacific might yet gain enough bargaining strength to get into Ogden too, or at least to block the Union Pacific from moving west of Ogden.

*Left: Leland Stanford*



The first 48 miles west of Ogden offered no construction problems. The line crossed a level sagebrush plain skirting mudflats north of Bear River Bay. But between Blue Creek and Monument Point stood the Promontory Mountains, a rugged landmass extending 35 miles south into the Great Salt Lake and ending at Promontory Point. A practicable pass separated the Promontory Mountains from the North Promontory Mountains. The summit of this pass lay in a circular basin at 4,900 feet elevation, about 700 feet above the level of the lake. On the west the ascent could be made in 16 relatively easy miles; but on the east, where the slope was more abrupt, the ascent required, for an airline distance of 5 miles from Blue Creek to the summit, 10 tortuous miles of grade with a climb of 80 feet to the mile (1.5%). Between Monument Point and Blue Creek the Central Pacific and Union Pacific attacked the last stretch of difficult country. Here sheer momentum and public encouragement carried them to the finish line of the great railroad race, even though it had been called off, a draw, in Washington a month earlier.



*The route of the Central Pacific from Sacramento to Promontory Summit.*

Stanford had turned his attention to the Promontory on November 9, 1868. He had a long talk with Brigham Young, who at length agreed to furnish Mormon labor for grading the Central Pacific line from Monument Point to Ogden, and promised, in allocating forces, to give preference to neither the U.P. nor the C.P. With Young's backing, Stanford had no difficulty contracting for this work with the firm of Benson, Farr and West, which was headed by Mormon bishops. The contract called for Mormon gangs to prepare the line for track under the supervision of C.P. engineers.

The Union Pacific was calling in its crews from Humboldt Wells, Nevada, in order to work west of Ogden. Stanford promptly sent a gang of graders to the Promontory to take possession of strategic points. Then, in mid-November, he went there himself. With Lewis M. Clement, whom Montague had put in charge at the Promontory, and Consulting Engineer George Gray, Stanford carefully inspected the preliminary line run by Butler Ives in 1867. This line, he found, required an 800-foot tunnel through solid limestone. It would cost \$75,000 to blast and, moreover, delay track laying at a critical time. Stanford ordered his surveyors to stake out a new line at the expense of alignment in order to avoid tunneling. Even so, a fill of 10,000 yards of earth (later famous as the "Big Fill") would be necessary, and rock cuts would consume 1,500 kegs of black powder.

By the end of the year the Central Pacific was well in control of the line from Monument Point to Ogden. It had men on the entire line. About two-thirds of the grade in each consecutive 20 miles had been finished. Blasting and filling at the Promontory, however, moved slowly. The contractors gave many excuses, but Stanford "started Brigham after them," and they began to work faster. Nevertheless, Stanford believed that Strobridge and the Chinese would have to put the finishing touches on the grade.

As late as mid-January the Union Pacific still had no graders west of Ogden, although its surveyors were running lines parallel to the Central Pacific grade. Stanford lamented on January 15 that:

*"From Ogden to Bear River the lines are generally 500 feet to a quarter of a mile apart. At one point they are probably within two hundred feet. From Bear River to the Promontory the U.P. are close to us and cross us twice, on the Promontory itself they will be very close to us, but they have so many lines, some crossing us and some running within a few feet of us and no work on any, that I cannot tell you exactly how the two lines will be. They are still surveying there for a location."*

In February the Union Pacific finally put crews west of Ogden. By early March its grade was nearly completed to the eastern base of the Promontory. In mid-March the Mormon company of Sharp and Young, under contract to the Union Pacific, began blasting at the Promontory. Stanford complained on March 14 that, "The U.P. have changed their line so as to cross us five times with unequal grades between Bear River and the Promontory. They have done this purposely as there was no necessity for so doing." But, he said, "we shall serve notice for them not to interfere with our line and rest there for the present."

During March 1869 both companies went to work on the Promontory with a vengeance. A letter to a Salt Lake newspaper recalls the scene vividly:

*"Five miles west of Brigham City on this side of Bear River, is situated the new town of Corinne, built of canvas and board shanties. Work is being vigorously prosecuted both lines running near each other and occasionally crossing. Both companies have their pile driver at work where the lines cross the river. From Corinne west thirty miles, the grading camps present the appearance of a mighty army. As far as the eye can reach are to be seen almost a continuous line of tents, wagons and men.*

*Junction City, twenty-one miles west of Corinne, is the largest and most lively of any of the new towns in this vicinity.*



*The Central Pacific's Route through the Promontory Mountains.*



*The final graded section of the Central Pacific about two miles west of Promontory Summit. The tracks were removed in 1942 to provide steel for the war effort. The grade stands as it was in May, 1869*



*Built in the valley near where the lines commence the ascent of the Promontory, it is nearly surrounded by grading camps, Benson, Farr and West's headquarters a mile or two south west. The heaviest work on the Promontory is within a few miles of headquarters. Sharp and Young's [Union Pacific] blasters are jarring the earth every few minutes with their glycerin and powder, lifting whole ledges of limestone rock from their long resting places, hurling them hundreds of feet in the air and scattering them around for a half mile in every direction. At Carlisle's [Carmichael's] works a few days ago four men were preparing a blast by filling a large crevice in a ledge with powder. After pouring in the powder they undertook to work it down with iron bars, the bars striking the rocks caused an explosion; one of the men was blown two or three hundred feet in the air, breaking every bone in his body, the other three men were terribly burnt and wounded with flying stones.*

*There is considerable opposition between the two railroad companies, both lines run near each other, so near that in one place the U.P. are taking a four feet cut out of the C.P. fill to finish their grade, leaving the C.P. to fill the cut thus made.*

*The two companies' blasters work very near each other, and when Sharp & Young's men first began work the C.P. would give them no warning when they fired their fuse. Jim Livingston, Sharp's able foreman, said nothing but went to work and loaded a point of rock with nitroglycerine, and without saying anything to the C.P. "let her rip." The explosion was terrific and the foreman of the C.P. came down to confer with Mr. Livingston about the necessity of each party notifying the other when ready for a blast. The matter was speedily arranged to the satisfaction of both parties.*

*The C.P. have about two-thirds of their heavy work done at this place, while the U.P. have just got under good headway. In other places the grade of the U.P is finished and the C.P. just beginning, so taking it "all in all" it is hard to say which company is ahead with the work."*

The companies encountered the heaviest work on the east slope of the Promontory. Grades of each company, ascending the slope side by side, went down within a stone's throw of each other. They snaked up the face of the mountain, blasting through projecting abutments of limestone, and crossing deep ravines on earth fills and trestles. At the crest they broke through a final ledge of rock to enter the basin of Promontory Summit. The last mile, across the level floor of the basin, required little more than scraping.

Of unfailing interest to observers were the Central Pacific's "Big Fill" and the Union Pacific's "Big Trestle," which crossed a deep gorge about halfway up the east slope. Central Pacific began work on the Big Fill, which Stanford had predicted would require 10,000 yards of dirt, early in February 1869 and was almost finished when a reporter visited the scene in mid-April:

*"A marked feature of this work is the fill on Messrs. Farr and West's contract. Within its light-colored sand face of 170 feet depth, eastern slope, by some 500 feet length of grade, reposes the labor of 250 teams and 500 men for nearly the past two months. On this work are a great many of the sturdy [Mormon] yeomanry of Cache County. Messrs. William Fisher and William C. Lewis, of Richmond, are the present supervisors. Our esteemed friend, Bishop Merrill, preceded them. On either side of this immense fill the blasters are at work in the hardest of black lime-rock, opening cuts from 20 to 30 feet in depth.*

*The proximity of the earth-work and blasting to each other, at these and other points along the Promontory line, requires the utmost care and vigilance on the part of all concerned, else serious if not fatal, consequences would be of frequent occurrence. Three mules were recently killed by a single blast.*

*The "Big Trestle" was of even greater interest than the Big Fill. The Union Pacific lacked the time to fill in the deep gorge as the Central Pacific had done. Union Pacific therefore decided to bridge the defile with a temporary trestle, which could later, after the roads had joined, be replaced with an earth fill. On March 28, with the Big Fill still under construction, they ordered work begun on the Big Trestle. Situated about 150 yards east of and parallel to the Big Fill, it also required deep cuts at each end.*

Finally completed on May 5, the Big Trestle was about 400 feet long and 85 feet high. To one reporter, nothing he could write "would convey an idea of the flimsy character of that structure. The cross pieces are jointed in the most clumsy manner. It looks rather like the 'false work' which has to be put up during the construction of such works. The Central Pacific has a fine, solid embankment alongside it, which ought to be used as the track." Another correspondent predicted that it "will shake the nerves of the stoutest hearts of railroad travelers when they see what a few feet of round timbers and seven-inch spikes are expected to uphold a train in motion."

Meanwhile, the rails came forward steadily and rapidly. The Union Pacific entered Ogden on March 8, 1869. By March 15 it was at Hot Springs; by March 23 at Willard City. On April 7 the first train steamed across the newly completed Bear River Bridge and entered Corinne. At the same time the Central Pacific was still about 15 miles west of Monument Point. Two days later, on April 9, Dodge and Huntington worked out their compromise in Washington. The U.P. grading crews received orders on April 11 to stop all work west of Promontory Summit. Three days later Stanford ordered all work on the C.P. halted east of Blue Creek, on the eastern base of the Promontory. The agreement removed all cause for continued competition in grading and tracking. But competition had become a habit, and each company strained to reach Promontory Summit, the agreed meeting place, before the other. The Union Pacific had won the race to Ogden, but the heavy work on the east slope of the Promontory prevented its winning the race to the Summit. And now, ironically, the U.P. was, in effect, a contractor for the C.P. Its gangs worked with the knowledge that the line from Ogden to Promontory Summit would, according to the Dodge-Huntington agreement, be turned over to the Central Pacific.



*One of the cuts blasted through solid rock on the Union Pacific grade in May, 1869. You can see the marks left by the blaster's drills and chisels in the limestone rock. The width of the grade here is about 15 feet, just a bit larger than a standard lane on the Interstate.*





*The Union Pacific's "Big Trestle" with Engine 119 pushing men and supplies towards Promontory Summit. The trestle was completed in 36 days and was completed on May 5, 1869, just 5 days before the scheduled join of the two lines. Note the light gray area in the upper left defining the shoreline of the Great Salt Lake. Compare that with the photo shown below of all that remains of the Big Trestle taken in June 14, 2012.*





## The Last Month

As the two railheads drew closer to each other, an air of excitement pervaded the construction camps north of Great Salt Lake, as well as the rest of the country, which followed the daily progress of the track laying in the newspapers. The Central Pacific dismissed its contractors during the first week of April and pushed its Chinese crews forward to finish the grades on the Promontory. The Union Pacific rushed Irishmen to the front to help the Mormon contractors finish the heavy work on the east slope. By April 16 the U.P. and the C.P. tracks were only 50 miles apart. The Union Pacific, moving west across the sagebrush plain from Corinne, slowed for want of ties. The Central Pacific had reached Monument Point and, one quarter of a mile from the lakeshore, established a sprawling grading camp. Housing the Chinese workers, it consisted of three separate canvas cities totaling 275 tents.

There were constant reminders of the approaching revolution in transcontinental travel. Trains of Russell, Majors, and Waddell freight wagons periodically passed the construction crews. Wells Fargo stage coaches, which had once spanned the continent, now provided service between the railheads. The run of the coaches daily grew shorter as the rails moved forward 3 to 4 miles a day. For the Army, changes of station between East and West had once meant exhausting marches of several months duration across the western territories. In April 1869 the 12th Infantry, destined for the Presidio of San Francisco, detrained at Corinne and in 2 days marched to the Central Pacific railhead, where the soldiers boarded the train for the coast.

As April drew to a close, officials of the two companies fixed Saturday, May 8, as the date for the ceremony uniting the rails. By the 27th the Union Pacific railhead approached Blue Creek, 10 miles east of the Summit. But rock cuts and three trestles .required another 12 to 15 days of labor, even though Reed, in order to break through by May 8, worked his Mormons and Irishmen night and day. While blasters tore at Carmichael's Cut, 1¾ miles above the unfinished Big Trestle, workmen built another trestle at the cut's west entrance. A third trestle spanned Blue Creek. Stanford went to the Union Pacific railhead and offered to let the U.P. run its track across the C.P.'s Big Fill, but found no one with authority to change the line.

Earlier, the Union Pacific had laid 8 miles of track in 1 day—a feat, they boasted, that the Central Pacific had not accomplished. Crocker vowed to top this record, but he cannily waited until the distance between railheads was so short that the U.P. could not retaliate. On April 27, with the Central Pacific 16 miles from the Summit and the Union Pacific, 9, Crocker set out to lay 10 miles of rail in 1 day. But a work train jumped the track after 2 miles had been completed, and he decided to wait until the next day.



*Remnants of a stone wall built for the waterway under the "Big Trestle"*



*The Chinese Arch, a natural formation that has become a memorial to the thousands of Chinese labors who helped build the Pacific Railroad.*

At 7: 15 a.m., on April 28, with men and supplies carefully massed for the attempt, and with Casement, Reed, and other U.P. officials as witnesses, Crocker gave the signal to start. At once, eight Irish track layers supported by an army of Chinese coolies set to work to top the Union Pacific record. Wesly Griswold the correspondent of the San Francisco Evening Bulletin vividly described the activity:

*"At seven o 'clock, the Central Pacific's well-drilled construction forces began their greatest day's march. At this moment, the first of five supply trains was already panting at the railhead. When the whistle of its locomotive screamed for the contest to begin; a swarm of Chinese leaped onto the cars and began hurling down kegs of bolts and spikes, bundles of fish plates, and iron rails. 'In eight minutes, the six teen cars were cleared, with a noise like the bombardment of an army;' wrote the San Francisco Bulletin's correspondent.*

*The train was then pulled back to a siding to make way for the next. As it chugged away, six-man gangs lifted small openwork flatcars onto the track and began loading each of them with sixteen rails plus kegs of the necessary hardware to bolt the rails together and fasten them to the ties. These little flatcars, called 'iron cars,' had rows of rollers along their outer edges, to make it easier to slide the rails forward and off when they were needed. Two horses, in single file, with riders on their backs, were then hitched to each car by a long rope.*

*While this was being done, three men with shovels, who formed the army's advance guard and were called pioneers, moved out along the grade, aligning the ties. They did this by butting them to a rope stretched out parallel to a row of stakes that the railroad's surveyors had driven to mark the center line of the track.*

*At rails end stood eight burly Irishmen, armed with heavy track tongs. Their names were Michael Shay, Patrick Joyce, Michael Kennedy, Thomas Dailey, George Elliott, Michael Sullivan, Edward Killeen, and Fred McNamara. They waited now beside a portable track gauge, a wooden framed measuring device for making sure that the rails they laid were always 4 feet, 8-1/2 inches apart. Two additional men handled the gauge, moving it just ahead of the tracklayers all day long.*

*As soon as the first iron car had been hauled forward, with a Chinese gang aboard, its horses were released and led aside. The Chinese quickly stripped the car of its kegs of spikes, bolts and fish plates, and broke them open. They poured the spikes over the stack of rails, so that they would dribble onto the ground as the rails were removed. The bolts and fish plates were loaded into hand buckets to be carried where they were needed.*

*The Irish track laying team split in half, two men taking up positions at each end of the rail car on both sides. As each forward pair grabbed one end of a rail and quickstepped ahead of it, the rear pair guided the other end along the car's rollers and eased it to the ground with their tongs. Each rail, 30 feet long and weighing an average of 560 pounds, was in place within 30 seconds.*

*Behind the rail handlers followed a gang that started the spikes - eight to a rail and attached fish plates to the rail joints by thrusting bolts through them. After them, came a crew that finished the spiking and tightened the bolts. In their rear moved the track levelers, who hoisted tie ends and shoveled dirt under them in order to keep the rails on an even level.*



*They were guided by the gestures of a surveyor 'reverend looking old gentleman,' noted the Bulletin's reporter who kept sighting along the finished track. At the back of the line tramped the biggest contingent of all - 400 tampers, with shovels and tamping bars to give the track a firm seating.*

*As each iron car was unloaded, it was lifted and turned around. The horses were rehitched to it and hauled it back to the supply dump at a run. It was lifted off the track whenever it got in the way of a full car headed for the front, and in time to prevent the latter from having to slow down.*

*When the whistle blew for the midday meal, Crocker's 'pets,' as the Chinese were often called, and their Irish advance guard had built six miles of railroad. Strobridge insisted on fresh horses for the iron cars every 2-1/2 miles. He also had a second team of track-layers in reserve, but the proud gang that had laid six miles of rails before lunch insisted on keeping at it throughout the rest of the day.*

*"The better part of an hour was lost after lunch at the tedious job of bending rails, for the remainder of the 10-mile stretch was a steady climb and full of curves. This was done in a crude way; by placing each rail between blocks and hammering a bend into it.*

*"When the curved rails were ready, the construction army resumed its march. By seven o'clock in the evening, the Central Pacific Railroad was 10 miles and 56 feet longer than it had been 12 hours earlier.*

*"Each man in Strobridge's (Central Pacific Construction Superintendent) astonishing team of tracklayers had lifted 125 tons of iron in the course of the day. The consumption of materials was even more impressive: 25,800 ties, 3,250 rails, 28,160 spikes, and 14,080 bolts.*

*As soon as the epic day's work was done, Jim Campbell, who later became a division superintendent for the Central Pacific, ran a locomotive over the new track at 40 m.p.h., to prove that the record breaking feat was a sound job as well. Then the last emptied supply train, pushed by two engines, was backed briskly down the long grade to the construction camp beside the lake, with 1,200 men riding on its flatcars."*

By 1: 30 p.m. the track had advanced 6 miles in 6 hours and 15 minutes. The remaining 4 miles could easily be laid. The C.P. crews knew that victory had been won, and Crocker stopped the work for lunch. The site, named Camp Victory, later became the station of Rozel. After an hour of rest the workers returned to the task. By 7 p.m. they had completed more than 10 miles of track, thus topping the U.P., and a locomotive ran the entire distance in 40 minutes to prove to U.P. observers that the work was well done.

April 28 carried the Central Pacific railhead to within 4 miles of the Summit.



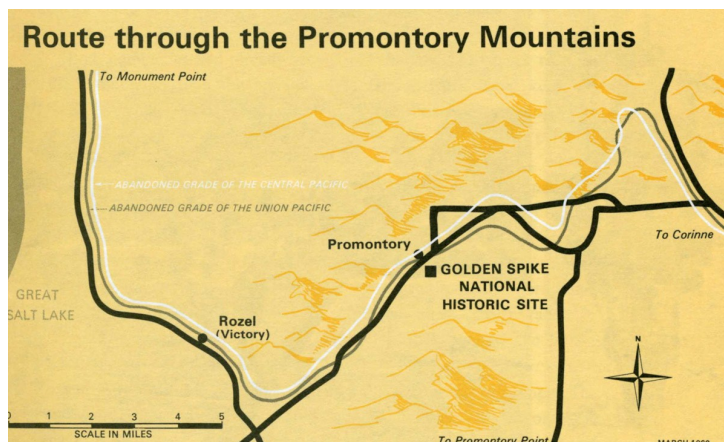
*Sign denoting the ten miles of track laid in one day by the Central Pacific crews just as of Promontory Summit. This feat has never been equaled.*

With the Union Pacific still at Blue Creek, Eicholtz ordered iron and ties hauled to the Summit. On May 1st U.P. crews began putting in a sidetrack at the Summit, where tents already announced the birth of the town of Promontory. This same day the C.P. brought its rails to the Summit, 690 miles from Sacramento, the end of the line.

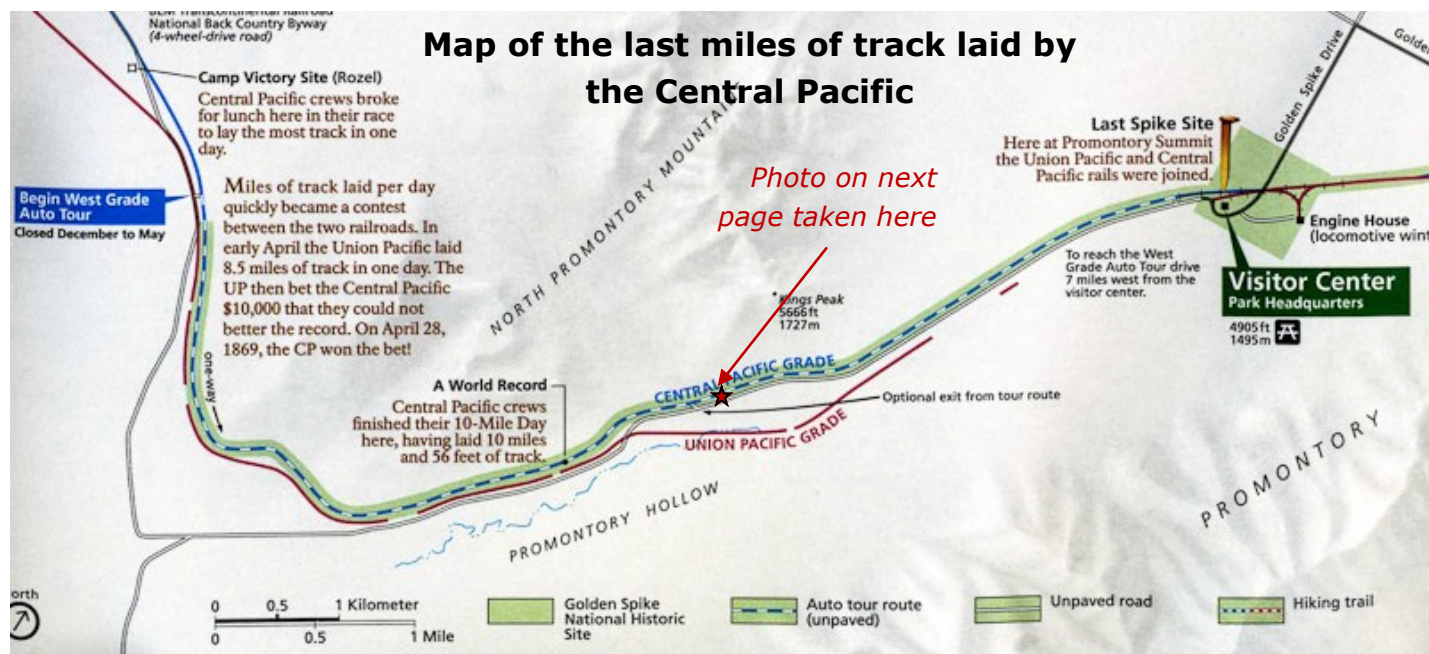
During the first few days of May the population at the Promontory reached its maximum. C.P. camps stretched all the way from Promontory to Monument Point, while U.P. camps dotted the valley of the Summit and cluttered the plain at the foot of the east slope. They bore such names as Deadfall, Murder Gulch, Last Chance, and Painted Post. Jack Casement's headquarters train stood on a siding one-half mile east of Blue Creek Bridge. A 68,000-gallon tank, fed by pipes leading to a spring in the hills, had been built at this siding to furnish the camps with water.

The Union Pacific camps here rocked with the riotous living that had characterized their predecessors all the way from Omaha. Noted a reporter from San Francisco:

*"The loose population that has followed up the track-layers of the Union Pacific is turbulent and rascally. Several shooting scrapes have occurred among them lately. Last night [April 27] a whiskey-seller and a gambler had a fracas, in which the "sport" shot the whiskey dealer, and the friends of the latter shot the gambler. Nobody knows what will become of these riff-raff when the tracks meet, but they are lively enough now and carry off their share of the plunder from the working men."*



*On April 27, with the Central Pacific 16 miles from the Summit and the Union Pacific, 9, Crocker set out to lay 10 miles of rail in 1 day. Rozel, UT is the site of Camp Victory approximately 7 miles west of Promontory Summit.*







*Looking northeast east along the original grade of the Central Pacific railroad at a point 3 miles southwest of Promontory Summit. The rails were removed in 1942 to support the war effort*

Nor was all peace and quiet in the Central Pacific camps, although the California papers delighted in emphasizing the low moral tone of the Union Pacific. At Camp Victory on May 6, the Chinese clans of See Yup and Yung Wo, whose rivalry stemmed from political differences in the old country, got into an altercation over \$15 due one group from the other. The dispute grew heated and soon involved several hundred laborers. "At a given signal," reported a correspondent, "both parties sailed in, armed with every conceivable weapon.

Spades were handled, and crowbars, spikes, picks, and infernal machines were hurled between the ranks of the contestants." When shooting broke out, Strobridge and his foreman intervened to halt the fracas. The score, aside from a multiplicity of cuts, bruises, and sore heads, totaled one Yung Wo combatant mortally wounded.

Irish graders of the Union Pacific, on the other side of the Promontory, heard about the battle between the Chinese clans. They decided to have some fun themselves. Next day a gang of them showed up at Promontory, where a Chinese camp had been laid out, and announced their intention "to clean out the Chinese." Fortunately, the inhabitants of this camp were absent on a gravel train, and the Irishmen left without accomplishing their purpose.

Both companies had already recognized that they had more men on the Promontory than the amount of remaining work could keep occupied. Beginning on May 3, therefore, they began discharging large numbers of men and sending others to the rear to work on parts of track that had been hastily laid. "The two opposing armies are melting away," reported the Alta California, "and the white camps which dotted every brown hillside and every shady glen are being broken up and abandoned." Riding out from Salt Lake City, photographer Charles R. Savage saw this breakup in progress and wrote in his diary:

*"At Blue River [Creek] the returning 'democrats' so-called were being piled upon the cars in every stage of drunkenness. Every ranch or tent has whiskey for sale. Verily, men earn their money like horses and spend it like asses."*

On May 5 the Union Pacific finally achieved the breakthrough. The last spike went into the Big Trestle and the rails moved out onto the frightening span. A train loaded with iron steamed across it. That evening the final blast exploded in Carmichael's Cut.

## The Aperture Newsletter—The Pacific Railroad, Part 2

On May 6 the trestle between Carmichael's Cut and Clark's Cut was finished. The graders went through both cuts, made a swing around the head of a ravine, and passed through a final cut to link up the grade already laid in the basin of the Summit. Here rails and ties had been arranged for rapid track laying and, at the Summit itself, a 2,500-foot sidetrack installed

*Tools used by the Central Pacific and Union Pacific crews to build the Pacific Railroad.*



*Horse-drawn drag pan used by the graders*



*Roughhewn ties, fishplates, rails and spikes used to build the railroad. Rail were 30 feet long and weighed 560 pounds*



*Surveyor's Transit with level bubble. Bearings were taken the compass on the transit plate.*



*7" iron spikes, blasting powder, and 8 lb. spike hammer. The track layers used three blows per spike to set the rail in place.*





*The last few miles of the Union Pacific Railroad as it approaches Promontory Summit. Note the controversial parallel grades. The U.P. did not take advantage of the Central Pacific's "Big Fill", but built a trestle instead.*



*The last cut made by the Union Pacific on May 6, 1889. You can still see the marks made by the blaster's drills as they drilled the hole to place the black powder for blasting out the rock. This view is to the southeast and the Great Salt Lake Basin. The grade is approximately 15 feet wide through this curved cut.*



*Looking along the original 1869 grade as the U.P. locomotive 119 approaches Promontory Summit. The tracks are new, but the grade is the same as on May 10, 1869. This section is the last 2,500 feet of the Union Pacific Railroad before connecting with the Central Pacific at Promontory Summit on May 10, 1869. The view is towards the east.*

The Central Pacific waited patiently-May 8 was still the date for joining the rails-as the Union Pacific tracklayers followed closely on the heels of the graders. Late in the afternoon of May 7 the track layers came within 2,500 feet of the C.P.'s end-of-track at the Summit. Here they connected, by a switch, with the sidetrack built earlier. Using this sidetrack, the Union Pacific's No. 60, with Casement aboard, came to a halt opposite the Central Pacific railhead, about 100 feet to the southeast of it, and let off steam. The Central's "Whirlwind" rested on its own track. The engineer greeted the Union's locomotive with a sharp whistle. "The first meeting of locomotives from Atlantic and Pacific took place.

Only 2,500 feet remained. The next day, May 8, the final drama was supposed to be enacted, but the Union Pacific could not meet the schedule. The last spike was not driven until May 10th.

### **Driving the Last Spike**

At Promontory the afternoon of May 7 was sultry and the sky heavy with rain clouds, which annoyed the photographers trying to capture the climactic scenes of construction. The Stanford Special arrived with an array of dignitaries from California and Nevada headed by Leland Stanford.

Also aboard were the ceremonial trappings to be used in uniting the rails. There was a golden spike presented by David Hewes, San Francisco construction magnate. Intrinsically worth \$350, it was engraved with the names of the C.P. Directors, sentiments appropriate to the occasion, and, on the head, the notation "The Last Spike." There was another gold spike, presented by the San Francisco News Letter; a silver spike brought by U.S. Commissioner J. W. Haines as Nevada's contribution; and a spike of iron, silver, and gold brought by Gov. A. P. K. Safford to represent Arizona. (Arizonians knew nothing of it. Safford had not yet taken office and had never been in Arizona.) Finally, there was a silver-plated sledge presented by the Pacific Union Express Company, and a polished laurel tie presented by West Evans, the Central Pacific's tie contractor .

The festive mood of the Stanford Special noticeably dampened when Jack Casement broke the news that the Union Pacific could not hold the ceremony on May 8, as planned, and would not be ready until May 10. The Stanford party faced the prospect of spending the weekend on the bleak Promontory. To make matters worse, rain began falling. It continued for 2 days, turning Promontory Summit into a sea of mud. Stanford wired the unwelcome news to San Francisco, but too late. The citizens there had already started celebrating. Undismayed, they celebrated for 3 days.

Casement's explanation for the delay was that the trains bringing the dignitaries from the East had been held up in Weber Canyon. Heavy rains had made the roadbed soft and had washed out a trestle. But there was another reason, too. The special train carrying Vice President Durant, Sidney Dillon, and other U.P. officials had reached Piedmont, Wyoming, on May 6th. A gang of 500 workers surrounded Durant's private car shouting demands for back wages. When the conductor tried to move the train out of the station, the men uncoupled Durant's car, shunted it onto a siding, and chained the wheels to the rails. Here he would stay, they said, until their pay was forthcoming. To make sure, they also took possession of the telegraph office.



Durant submitted, wired Oliver Ames in Boston for the money, and paid off the strikers. He was released and managed to be at Promontory on May 10th, although the severe headache he suffered that day may well have owed its origin to the experience at Piedmont.

Left in the role of host at Promontory, Casement made up an excursion train, stocked with "a bountiful collation and oceans of champagne," to take the Stanford party sightseeing. The train left Promontory Saturday morning. At Taylor's Mill the Union Pacific staged a "splendid luncheon" on the banks of the Weber River. "The most cordial harmony and good feeling marked their entertainment and all the toasts were drank with loud applause," reported a correspondent. From here the party went to Ogden, rode a short distance up Weber Canyon, and spent the night in Ogden. Next day, Sunday, they returned to Promontory, boarded the Stanford Special, and pulled back to Monument Point to enjoy a feast of [plover](#).

This same day, May 9, Casement's workers at Promontory kept busy. As the rain continued, they laid the final 2,500 feet of track, leaving a length of one rail separating their track from that of the Central Pacific. They also installed a "Y" for the locomotives to use in turning around.

The rain ended during the night and May 10 dawned bright, clear, and a bit chilly. During the morning two trains from the East and two from the West arrived at Promontory bearing railroad officials, guests, and spectators. With the construction workers and assorted denizens of Promontory, the crowd totaled, according to the best estimates, 500 to 600 people—far short of the 30,000 that had been predicted.

Among those representing the Central Pacific were Stanford, Strobridge, Montague, and Gray; for the Union Pacific, Durant, Dillon, Duff, Dodge, Reed, and the Casement brothers. Important guests had come from Nevada, California, Utah and Wyoming. Huntington, Hopkins, and Crocker, of the C.P. did not attend; nor did the U.P.'s Oakes and Oliver Ames. Brigham Young sent Bishop John Sharp to represent the Mormon Church. About 15 reporters covered the proceedings. A battalion of the 21st Infantry under Maj. Milton Cogswell, enroute to the Presidio of San Francisco, was opportunely on hand to lend a military air. The military band from Fort Douglas and the 10th Ward Band from Salt Lake City supplied the music.

Officials of both railroads had been unable to agree on details of the program. Stanford had come equipped with spikes and other ceremonial trappings, but Dodge wanted the Union Pacific to stage its own last spike ceremony. Only two preparations had been made in advance. The speeches had been written and handed to newsmen in Ogden on Sunday, and the telegraphers had devised an apparatus for transmitting the blows on the last spike by telegraph to the waiting Nation.



John "Jack" Casement: In 1866, Thomas Clark Durant appointed Major General Grenville M. Dodge as the chief engineer for the Union Pacific Railroad during the construction of the Transcontinental Railroad. Dodge hired Casement and his brother Daniel to direct the construction crews. Daniel Casement was responsible for financing the operations, while John directed the construction crews who took to calling their boss "General Jack."

An ordinary sledge (not the silver-plated one) had been connected by wire to the Union Pacific telegraph line, and an ordinary spike had been similarly connected to the Central Pacific wire. Five minutes before noon, when the proceedings were to begin, Stanford and Durant agreed on a joint program.



*The Meeting at Promontory Summit, May 10, 1869. Only two preparations had been made in advance. The speeches had been written and handed to newsmen in Ogden on Sunday, and the telegraphers had devised an apparatus for transmitting the blows on the last spike by telegraph to the waiting Nation.*

The crowd had grown loud and unmanageable, which interfered with the ceremony and made it impossible for most people to see what was happening. One reporter wrote that "it is to be regretted that no arrangements were made for surrounding the work with a line of some sort, in which case all might have witnessed the work without difficulty.

As it was, the crowd pushed upon the workmen so closely that less than twenty persons saw the affair entirely, while none of the reporters were able to hear all that was said." This explains the confusion that has surrounded the history of the event.

At noon the infantrymen lined up on the west side of the tracks, and Casement tried, with little success, to get the crowd to move back so that everyone could see. The [Union Pacific's No. 119](#), with Engineer Sam Bradford, and the Central Pacific's "Jupiter," with Engineer George Booth, steamed up and stopped, facing each other across the gap in the rails. Spectators swarmed over both locomotives trying to obtain a better view. At 12:20 p.m. Strobridge and Reed carried the polished laurel tie and placed it in position. Auger holes had been carefully bored in the proper places for seating the ceremonial spikes. Officials and prominent guests formed a semicircle on the east side of the tracks.



Edgar Mills, a Sacramento businessman, served as master of ceremonies and introduced the Rev. Dr. John Todd of Pittsfield, Mass., correspondent for the Boston Congregationalist and the New York Evangelist. Dr. Todd opened the ceremony with a 2-minute prayer, while telegraph operators from Atlantic to Pacific cleared the wires for the momentous clicks from Promontory. At 12:40 p.m., W. N. Shilling, a telegraph key on a small table in front of him, tapped out: "We have got done praying. The spike is about to be presented."

Next, Dr. W. H. Harkness of Sacramento presented to Durant, with appropriate remarks, the two gold spikes. Durant slid them into the holes in the laurel tie, and Dodge made the response. U.S. Commissioner F. A. Tritle and Governor Safford presented the Nevada and Arizona spikes, and these Stanford slid into the holes prepared. L. W. Coe, President of Pacific Union Express Company, presented Stanford with the silver sledge, which was then used symbolically to "drive" the precious spikes, although the blows, if indeed any were given, were not sharp enough to leave marks on the spikes.

Finally came the actual driving of the last spike—an ordinary iron spike driven with an ordinary sledge into an ordinary tie. Using the wired sledge, Stanford and Durant both swung at the wired spike. Both missed, to the delight of the crowd. Shilling, however, clicked three dots over the wires at exactly 12:47 p.m., triggering celebrations at every major city in the country. With an unwired sledge, Strobridge and Reed divided the task of actually driving the last spike in the Pacific Railroad.

Amid cheers, the two engineers advanced the pilots of their locomotives over the junction. Men on the pilots joined hands, and a bottle of champagne was broken over the laurel tie as christening. The chief engineers of the railroad shook hands as the photographers exposed wet plates. The military officers and their wives gave the precious spikes ceremonial taps with the tangs of their sword hilts. The Central Pacific's "[Jupiter](#)" backed up and the Union Pacific's No. 119 crossed the junction. Then No. 119 backed up and let "Jupiter" cross the junction, thus symbolizing the inauguration of transcontinental rail travel.

Shilling sent off two telegrams: *"General U. S. Grant, President of the U.S., Washington, D.C. Sir: We have the honor to report the last rail laid and the last spike driven. The Pacific Railroad is finished."* *"To the Associated Press: The last rail is laid, the last spike driven, the Pacific railroad is completed. Point of Junction, ten hundred eighty-six miles west of the Missouri river and six hundred ninety miles east of Sacramento-Leland Stanford, Thomas C. Durant."*

The ceremony over, the precious spikes and tie were removed. Even so, souvenir hunters made necessary numerous replacements of the "last spike" and the "last tie." Central Pacific's "Jupiter" soon left for Sacramento, but Union Pacific's No. 119 remained until evening, presenting, as one reporter observed, "a scene of merriment in which Officers, Directors, Track Superintendents and Editors joined with the utmost enthusiasm." It was late when the celebration ended.

### **Promontory After May 10, 1869**

Promontory had enjoyed its hour of glory, but the town did not immediately die. The two companies did not agree on a price for the Promontory-Ogden section until November 1869.

For nearly a year Promontory served as the terminus, where passengers transferred from one railroad to the other. Union Pacific trains turned around on the "Y" that had been installed on May 9th, while Central Pacific trains used a turntable built shortly before the rails were joined on May 10th.



*UP locomotive 119 belching smoke from its wood fueled boilers while CP Jupiter looks on In the same positions as on May 10, 1869.*



*The actual join of the Union Pacific and Central Pacific lines on May 10, 1869 where the golden spike was driven. Latitude: [41° 37'5" Longitude: N 112°33'6" W](#)*

During the months that it served as the terminus, Promontory resembled the other boomtowns that had followed the Union Pacific across the country. A string of boxcars on a siding provided offices and living quarters for railroad employees. A row of tents, many with false board fronts, faced the railroad across a single dirt street. They housed hotels, lunch counters, saloons, gambling dens, a few stores and shops, and the nests of the "soiled doves." Signs advertised such alcoholic potations as "Red Cloud," "Red Jacket," and "Blue Run." Liquor sales boomed. Water was scarce. The nearest source was 6 miles away, and the railroads were forced to haul long strings of tank cars full of water to Promontory from springs 30 to 50 miles distant.

A large number of "hard cases" descended on Promontory, including, reported the correspondent of the Sacramento Bee, "Behind-the-Rock Johnny, hero of at least five murders and unnumbered robberies." Three-card monte, ten-die, strap game, chuck-a-luck, faro, and keno flourished in the gambling tents. A gang of cutthroat gamblers and confidence men called the "Promontory Boys" set up headquarters and were "thicker than hypocrites at a camp meeting of frogs after a shower." Their modus operandi was to put "cappers" aboard the trains at Kelton or Corinne to gain the confidence of passengers.



*A replica of the "Golden Spike" driven to join the Union Pacific and Central Pacific railroads on May 10, 1869. This is a gold plated spike. The original, made of solid gold resides in a museum at Stanford University.*



At Promontory the cappers led their victims to one of the gambling tents and into the clutches of the Promontory Boys.

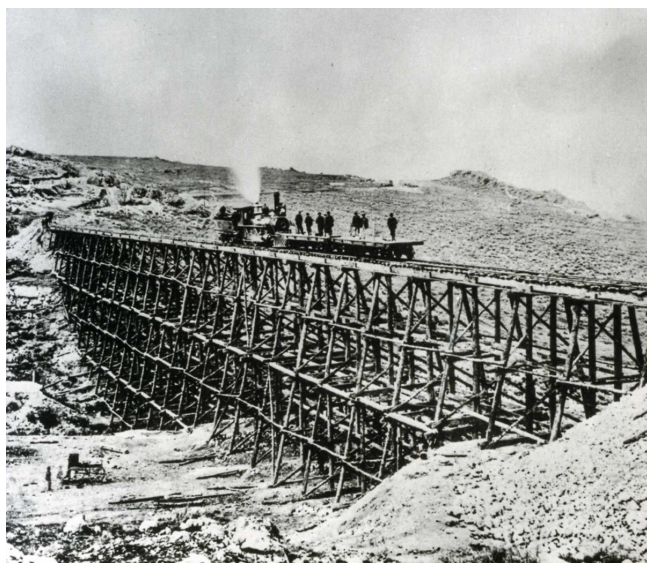
Promontory's life as a "hell on wheels" boomtown was a short but lively one. J. H. Beadle, editor of the Utah Daily Reporter, summed up its character when he wrote: "4,900 feet above sea level, though theologically speaking, if we interpret scripture literally, it ought to have been 49,000 feet below that level; for it certainly was, for its size, morally nearest to the infernal regions of any town on the road."

The trestles on the Union Pacific line ascending the east slope of the Promontory continued to be a source of concern. A Government inspector, Isaac N. Morris, in May 1869 reported to President Grant on this part of the line, grudgingly approving all except the trestles.

*"For a mile and a half [going east from Promontory] the ties are virtually laid on the ground, but the road then passes through several sand-banks, some comparatively small and some of formidable proportions, with intervening spaces of nearly level surface; thence it passes through rock excavations, one being some forty feet deep and a quarter of a mile long through the heaviest body of the mountain, overlooking Salt Lake; thence it sweeps around the mountain's side to its base, describing in its course a succession of short curves, so sharp indeed that an ascending and descending train would collide before either would be aware of the proximity of the other. I measured the width of the cuts, and found them so nearly in compliance with the standard of construction that they may be so regarded. Before reaching the descending curve running on the side of the mountain, two dells or ravines are crossed on trestle-work, one as nearly as I could judge about two hundred and fifty feet long and thirty feet deep. These trestle-structures, unknown to the law, but familiar to the line of the road, and one over Blue Creek, not far distant, are very frail and dangerous. It is the purpose of the company, I was told, to fill up these ravines so as to have a solid road bed over them. The sooner this is done the better for the safety of lives and property."*

After the Central Pacific took over the line from Promontory to the terminus near Ogden, it eliminated the two trestles on the slope. The company did this apparently sometime during 1870 by laying track on its own grade, installed during the great railroad race. Thus the new line followed the C.P. grade from somewhere near the eastern base of the Promontory, across the Big Fill parallel to the Big Trestle, across another fill parallel to the trestle connecting Carmichael's and Clark's Cuts, and thence in a sweep to the north across the valley to the Summit.

With transfer of the terminus to Ogden in early 1870, the lusty days of Promontory came to an end. The Central Pacific, however, built a station, water tank, and roundhouse at Promontory.



*The Union Pacific "Big Trestle" built in 36 days. [Latitude.:41°37'38" N Longitude.: 112°29'52" W](#)*

With transfer of the terminus to Ogden in early 1870, the lusty days of Promontory came to an end. The Central Pacific, however, built a station, water tank, and roundhouse at Promontory. Locomotives pulling heavy trains required additional power to climb the east slope, and the company kept helper-engines at the summit for this purpose. The town also became headquarters of a railroad cattle enterprise, and the company built the "Crocker Mansion" about 1 mile to the northwest. With eight bedrooms and as many bathrooms, it was a showplace of northern Utah. It later deteriorated and was moved to the nearby community of Howell.

In 1902 the Southern Pacific Railroad, which had absorbed the Central Pacific, decided to shorten the line by building a trestle across Great Salt Lake. When finished in 1904, the Lucin Cutoff replaced the original line running north of the lake, although the Promontory line continued to be used occasionally when bad weather threatened the cutoff. Finally, in 1942, the company tore up the rails between Lucin and Corinne and contributed the scrap iron to the war effort. Amid ceremonies with two engines facing each other, workmen began the task by pulling up the 'last spike' at Promontory.

### **Significance of the Pacific Railroad**

With one exception the Pacific Railroad confirmed the expectations of its advocates and justified the participation of the U.S. Government. Politically, the Railroad Act of 1862 strengthened the loyal element in California, and undoubtedly insured (if insurance were needed) the continued allegiance of the Pacific Coast to the United States during the Civil War. Militarily, the railroad (more accurately, the railroad network that developed between 1869 and 1884) provided the key to conquering the Indians, and the means of considerably improving coastal defenses on the Pacific coast. It also furnished quicker and cheaper transportation for Government supplies and the mail. Commercially, it permitted a vast and profitable trade to develop between East and West. Only in the confident assurance of a huge trade with Asia—the principal motive—were the promoters of the Pacific Railroad disappointed. In November 1869, six months after the Golden Spike ceremony, the first ship steamed through the newly completed [Suez Canal](#) and destroyed this hope.

Aside from this contemporary significance, there was a larger and more profound significance which the projectors of the Pacific Railroad only dimly perceived. The Union Pacific and Central Pacific hastened the end of the continental frontier. They did not, as writers occasionally generalize, destroy the frontier. "From a narrow strip across the plains," said historian Frederick L. Paxson, "Indians had been pushed to one side and another and a single track had crossed the mountains, but north and south great areas remained untouched, for the demolition of the frontier had only just begun." Nevertheless, "In the history of the frontier the Union Pacific Railway marks the beginning of the end." The end did not come until after completion, in 1882-84, of the other transcontinental railroads, and then as a result of the collective influence of all. But the Central Pacific and Union Pacific established the process by which the end was attained.

This process had two stages. First, the railroad pierced the Indian barrier and gradually ate into it on either side of the right-of-way.



Next it brought in its wake immigration, settlement, and development of industry and agriculture. The frontier inevitably disappeared. Settlement of the plains and mountains had been entirely unforeseen by the builders of the first Pacific Railroad, who wished only to bridge the "Great American Desert" and tap the commerce of Asia. But business from along the line came to furnish the bulk of traffic on the transcontinental railroads and tempered the disappointment over failure to capture the Asiatic trade.

Frederick Jackson Turner's famous frontier thesis, advanced in 1893, noted an essential difference between the Midwestern and Far Western frontiers of the United States and the determining role in this difference played by the railroad: "the frontier reached by the Pacific Railroad, surveyed into rectangles, guarded by the United States Army, and recruited by the daily immigrant ship, moved forward at a swifter pace and in a different way than the frontier reached by the birch canoe or the pack horse." Paxson, Turner's leading disciple, carried this thinking a step further : "The effort that finally destroyed the continental frontier differed from all earlier movements in the same direction in that it was self-conscious, deliberate, and national." After 40 years of controversy the principle of Federal aid to internal improvements at last gained general acceptance with passage of the Railroad Act of 1862. With this measure and later amendatory legislation, Congress struck the first really effective blow at the frontier. And while the first transcontinental railroad was under construction, Congress insured the complete collapse of the frontier by legislating aid to the Northern Pacific, Atlantic and Pacific, Texas and Pacific, and Southern Pacific railroads.



*1869 Poster touting the Central and Union Pacific Railroads gateway to Asia*

(The Southern Pacific Railroad Company was incorporated on Dec. 2, 1865 to build a rail line between San Francisco and San Diego, then east but was purchased by the Central Pacific prior to any construction. In 1870 the "Big Four" reorganized the Southern Pacific and used its name unofficially until 1884)

Thus the paramount historical significance of the first transcontinental railroad lies in its effect upon the Far Western frontier. It made the first serious and permanent breach in the frontier, and it established the process by which the entire frontier was to be demolished.

123 years after the joining of the rails at Promontory Summit, America's transcontinental railroads continue to foster the economic and political unity of the Nation. Sleek diesel liners hasten freight and passengers from Atlantic to Pacific in half the time of their wood-burning ancestors. Speeding across prairie and desert, or threading the passes of the Rockies and Sierra, these symbolize a dream come true beyond the most fanciful imaginings of the promoters and builders of the Pacific Railroad.

The abandoned grade, approximately 90 miles long, represents America's longest continuous segment of the first transcontinental railroad still surrounded by a relatively remote and unspoiled environment. This comparative isolation has contributed to the longevity and preservation of the railroad grade. But with the growth of public interest in America's cultural heritage, this valuable resource will receive greater exposure and attention, as well as increased susceptibility to damage by vandals, looters, and casual artifact collectors (collecting is illegal on public lands).



*Looking northwesterly along the current day tracks of the Union Pacific Railroad. The routes virtually follows the same as it did in 1868. The Railroad is paralleled by the adjacent [Lincoln Highway](#) (US Route 30) near Silver Creek, Nebraska.*



*The Union Pacific Railway paralleling the Lincoln Highway near [North Platte, Nebraska](#). It has been following this route since 1868 serving the towns and farms of the nation's heartland and adding value to the land and the economy.*

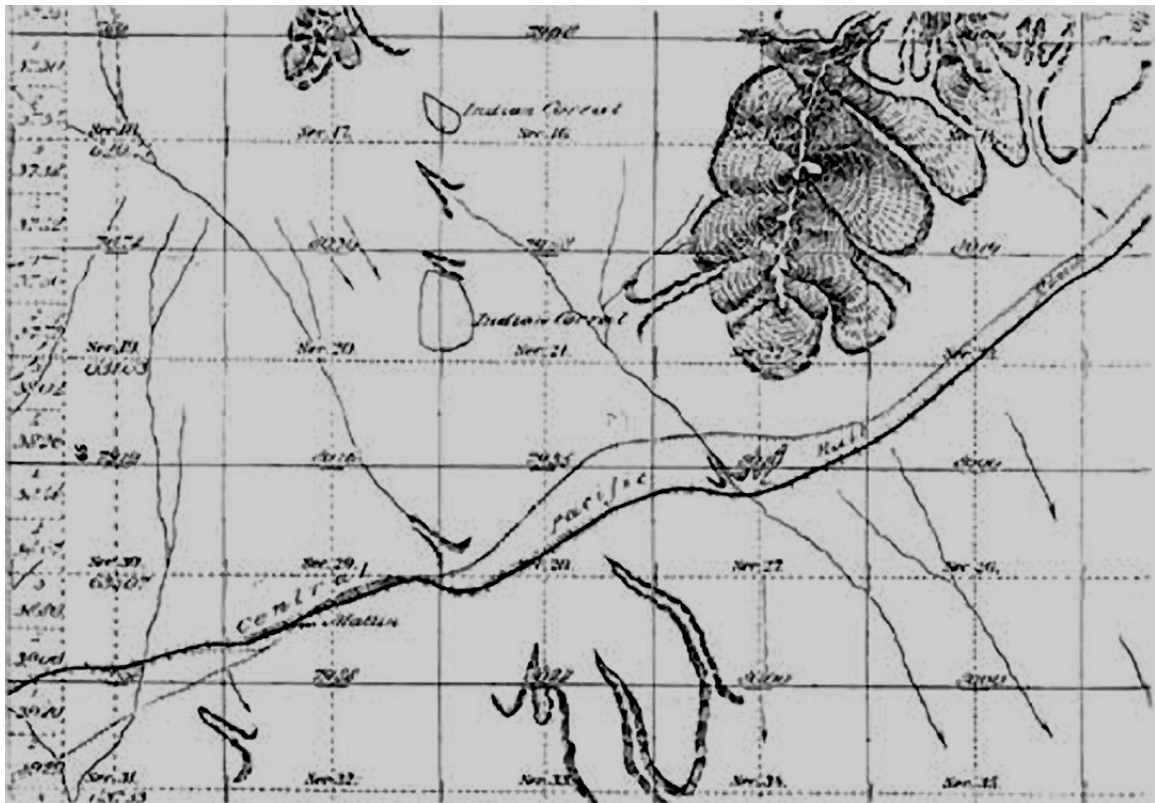
One more point I want to cover is the matter of defining the railroad right of way. As a professional surveyor for 55 years and working numerous times with plats and deeds created by railroad surveyors I know that somewhere along the timeline this task had to be done, probably after the track was in place.

By 1864 most of the states through which the Pacific Railroad passed had been surveyed by the contracted surveyors of the General Land Office. These GLO surveyors were responsible for marking the land into the [United States Rectangular System](#) of ranges, townships, and sections. They marked the sections and quarter sections on the ground, drew plats and made topographic notes of the ground they passed over. By 1848, when California entered the Union, a comprehensive [Manual of Instructions](#) had been issued to all contractors detailing how they were to conduct these public land surveys.

The railroad surveyors tasked with this work would probably have been different from the engineering oriented surveyors working miles ahead of the graders. These surveyors would have to have been versed in the current manual of instructions, the public land system, and cadastral plating. They no doubt would have followed laid trackage, as this would have been the most permanent alignment.



They would need to tie the trackage into each section line as he passed over it and would have used a transit with a Burt Solar Attachment so they hold a true astronomic bearing, not a variable compass heading. Such a legal description, usually written in the field by the surveyor might have read something like this: Beginning at the Northeast corner of Section 28 of Township 10 North, Range 13 West of the Salt Lake Meridian. Thence; south along the said east line of section 28 XX feet to the true point of beginning. Thence; South 75 degrees, 15 minutes West 250 chains, 37 links. Thence; (following the courses of the trackage) to the West line of said Section 28 at a point XX chains, XX links north of the Southwest corner of said section. This simplified example would have been repeated thousands of times as the surveyors followed the trackage. Then the documents would have been filed with the offices of the railroad and gaured with the same security as Fort Knox.



*GLO Township Plat for T 10 N, R 13 W, SLM*

Next to winning the Civil War and abolishing slavery, building the first transcontinental railroad, from Omaha, Nebraska, to Sacramento, California, was the greatest achievement of the American people in the nineteenth century. Not until the completion of the Panama Canal in the early twentieth century was it rivaled as an engineering feat.

The railroad took brains, muscle, and sweat in quantities and scope never before put into a single project. It could not have been done without a representative, democratic political system; without skilled and ambitious engineers, most of whom had learned their craft in American colleges and honed it in the war; without bosses and foremen who had learned how to organize and lead men as officers in the Civil War; without free labor; without hardworking laborers who had learned how to take orders in the war; without those who came over to America in the thousands from China, seeking a fortune;

without laborers speaking many languages and coming to America from every inhabited continent; without the trees and iron available in America; without capitalists willing to take high risks for great profit; without men willing to challenge all, at every level, in order to win all. Most of all, it could not have been done without teamwork.

The United States was less than one hundred years old when the Civil War was won, slavery abolished, and the first transcontinental railroad built. Not until nearly twenty years later did the Canadian Pacific span the Dominion, and that was after using countless American engineers and laborers. It was a quarter of a century after the completion of the American railroad that the Russians got started on the [Trans-Siberian Railway](#), and the Russians used more than two hundred thousand Chinese to do it, as compared with the American employment of ten thousand or so Chinese. In addition, the Russians had hundreds of thousands of convicts working on the line as slave laborers. Even at that it was not until thirty, two years after the American achievement that the Russians finished, and they did it as a government enterprise at a much higher cost with a road that was in nearly every way inferior. Still, the Trans-Siberian, at 5,338 miles, was the longest continuous railway on earth, and the [Canadian Pacific](#), at 2,097 miles, was a bit longer than the Union Pacific and Central Pacific combined.

But the Americans did it first. And they did it even though the United States was the youngest of countries. It had proclaimed its independence in 1776, won it in 1783, bought the Louisiana Purchase (through which much of the Union Pacific ran) in 1803, added California and Nevada and Utah (through which the Central Pacific ran) to the Union in 1848, and completed the linking of the continent in 1869, thus ensuring an empire of liberty running from sea to shining sea.

The Congress felt it had the right, the responsibility, and the power to go after the U.P. and the C.P., because the companies would not exist had the Congress not loaned them government bonds and given them land grants. These two matters have caused enormous controversy ever since. Both companies have been accused of stretching out the lines in order to get more land grants, a notion that is completely wrong. Despite 130 years of working to reduce the length of the lines, only a few miles have been shaved off, and that mainly caused by the fall of the level of the Great Salt Lake, which allowed the railroad to make a shortcut below Promontory Summit by erecting a causeway through the water. You can still follow much of the original alignment as you drive across Nebraska on the Historic Lincoln Highway (U.S. 30) and the Sierra Nevada Mountains as you follow [Interstate 80 over Donner Pass](#).

The land grants are much misunderstood, especially by professors teaching the American history. They are denounced, lambasted, and derided. In one of the most influential textbooks ever published, *"Growth of the American Republic"* by Samuel Eliot Morison and Henry Steele Commager, the authors, who were the most distinguished historians of their day, if not for the whole of the twentieth century, wrote: *"The lands granted to both the Union Pacific and the Central Pacific yielded enough to have covered all legitimate costs of building these roads."* A colleague of theirs, also distinguished, Fred Shannon, wrote, *"The half billion dollars in land alone to the land grant railroads was worth more than the railroads were when they were built."*

Other historians—for example, Robert Henry — have been more tolerant.



Henry writes that the land grants did "what had never been done before—provided transportation ahead of settlement." True enough, but it is also true that what the Ames brothers, the Big Four, and others thought should have been regarded as a splendid achievement was widely viewed as full of serious abuse. For example, the corruption that was rife in the building of the railroads was widespread. Further, the railroads enjoyed a monopoly that allowed them to charge what most users came to regard as inflated rates for freight and passenger traffic. There was a great deal of shoddy construction that had to be replaced. Collis Huntington had lied and probably used bribes and certainly had drawn a fictitious map to get revisions highly favorable to the C.P. in the Pacific Railroad Act. He and his partners and their opposite numbers at the U.P. also lied to the various government commissions set up to examine the track. In these and other matters, they justified the concern and attention of the investigative reporters and the politicians. That was, after all, the people's money they had stolen.

It was the land grants and the bonds the government passed out that caused the greatest outrage, at the time and later. Still, although many of the owners of the railroads' stocks and bonds were guilty of most of the charges made against them, there is another side.

The land grants never brought in enough money to pay the bills of building either railroad, or even to come close. In California from Sacramento to the Sierra Nevada, and in Nebraska, the railroads were able to sell the alternate strips of land at a good price, \$2.50 per acre or more. But in most of Wyoming, Utah, and Nevada, the companies never could sell the land. Unless it had minerals or oil on it, it was virtually worthless, even to cattlemen, who needed far more acres for a workable ranch. So too the vast amount of Public Domain Land the government still owns in the West.

The total value of the lands distributed to the railroads was estimated by the Interior Department's auditor as of November 1, 1880, at \$391,804,610. The total investment in railroads in the United States in that year was \$4,653,609,000. In addition, the government got to sell the alternate sections it had held on to in California and Nebraska for large sums. Those lands would have been worth nearly nothing or in many cases absolutely nothing, if not for the building of the railroads.

With regard to the government bonds, generations of American students have been offered a black and white view. The bonds went not only to the C.P. and the U.P. but to six companies chartered to build the second, third, and so on Pacific railroads. In the textbooks, as in the lectures, the government was handing out a gift. Now, for those of us who were in college in the 1950s, the classes were taught by professors who had taken their own graduate training in the 1930s and had thus been brought up to blame big business for everything that went wrong, especially the Great Depression. Those professors who were not New Deal Democrats were, as they still are today, socialists. They all knew that it helps the anti-big business case if you can call those bonds a gift.

But they were not a gift. They were loans, to be paid back in thirty years or less. The requirement was met. In the final settlement with the railroads, in 1898 and 1899, the government collected \$63,023,512 of principal plus \$104,722,978 in interest, making a total repayment of \$167,746,490 on an initial loan of \$64,623,512.

Professor Hugo Meyer of Harvard looked at those figures and quite rightly said, "For the government the whole outcome has been financially not less than brilliant." This is far cry from today's government investments in "green energy" and the bailouts of the financial and auto industry.

An automatic reaction that big business is always on the wrong side, corrupt and untrustworthy, is too easy, and the error is compounded if we fail to distinguish between incentives, for example, and fraud.

The men who built the C.P. were mainly Chinese. For the most part, as individuals, they are lost to history. Many of them stayed with railroad work and performed handsomely on the Northern Pacific, the Great Northern, the Oregon Short Line, and others. Dodge hired them when, ever he could, saying, "The Irish labor with its strikes, its dead fall whiskey shops, and reckless disregard of all our interests, must be gotten out of the way." In nearly every Western railroad town, there used to be a Chinatown. Mostly they are gone now, victims of discrimination and modern times.

The Irishmen working for the U.P. also found jobs on other railroads, or they got work at the various mines in the West. They too were discriminated against — "no dogs or Irishmen allowed"-but not so thoroughly as the Chinamen. They and their sons and daughters and their grandchildren, and great grandchildren went on to participate fully and actively and with success in American life even to the extent of achieving the Presidency.

Firemen, brakemen, engineers, conductors, mechanics, welders, carpenters, repair-shop men, surveyors, civil and construction engineers, the clerical force (male and female), the foremen, directors, supervisors, and everyone else who worked for either the U.P. or the C.P. stayed with railroads. For their careers, and their children, followed by the third generation and beyond these are the people who make up the force that made the modern railroad. They repair it, improve it, take care of it, and make sure the damn things run. More than in almost all other professions, railroading is something a family is proud of and wants to remain a part of.

Railroad people are special. Like all the rest, they lose jobs, have to move, are underpaid, and otherwise have a lot to bitch about. But on the job, they love being next to and able to run and being responsible for all that fabulous machinery. They love being around trains. More than the rest of us, they hold the locomotive in awe.

The dreamers, led by Judah; the politicians, led by Lincoln; the financiers, led by the congressmen and the Ames brothers, Durant, and Huntington; the surveyors, led by Dodge and Dey, and Judah; the generals, led by Grant and Sherman; the engineers, led by Clement, Montague, Reed, and others; the construction bosses, led by Strobridge and the Casement brothers; the railroad men; the foremen; the Chinese, the Irish, and all the others who picked up a shovel or a sledgehammer or a rail; and the American people who insisted that it had to be done and who paid for it, built the transcontinental railroad.

One last item I wanted to clear up for the writing of this essay on the Pacific Railroad was the authority Congress had to grant land and interest bearing government bonds to the Union Pacific and Central Pacific Railroads under the Railroad Acts of 1862 and 1864.



None of the research material I used delved into the Constitutional authority to provide monies to private companies to do something.

Article I, Section 8 of the Constitution gives certain enumerated powers to the federal government. Two of those Powers are:

*I, 8.3: To regulate commerce with foreign nations, and among the several states, and with the Indian tribes;*

*I, 8.7: To establish post offices and post roads;*

Following the adoption of the Constitution, the Act of September 22, 1789, established (at first temporarily) a post office and created the Office of the Postmaster General. By that time, seventy-five post offices and over 2000 miles of post roads already existed. What was originally thought to be a rather simple and benign power soon turned controversial; legislatures disagreed over whether this power merely enabled Congress to direct where post offices should be located and on what roads mail should be carried, or whether it authorized Congress to construct and maintain roads and post offices within the states. Thomas Jefferson and James Monroe doubted whether the clause granted Congress the power to construct roads, whereas many in Congress asserted that it did have such power. In fact, most congressional enactments merely designated post roads, but in 1833, Justice Joseph Story declared in his Commentaries on the Constitution of the United States that the words "*to establish*" encompass a power to create roads as well as to designate them. Story maintained, however, that once built, a post road is subject to the laws of the state. In 1845, in the case of [\*Searight v. Stokes\*](#), Chief Justice Roger B. Taney held that mail carriages are immune to state road taxes on the Cumberland Road, but, over the dissent of Justice Peter V. Daniel, he specifically avoided the question of the power of Congress to construct post roads.

A broad interpretation of this enumerator power could defend the passage of the [\*Federal-Aid Highway Act of 1956\*](#), but it's a stretch to use it for the construction of a transcontinental railroad, is certainly did not qualify as a post road that would be given to the states after completion. In fact it would not be given to anyone and would remain the private property of the railroads.

However the pesky Commerce Clause is quite another matter. One of the arguments made against the original Articles of Confederation by James Madison was that the Articles did not allow for the free-flow of commerce between the States, especially when it came to navigation on the waterways and use of harbors. The Commerce Clause was given a rank of 3 in the enumerated powers for a reason, it just did not happen that way.

The Commerce among the States Clause operates both as a power delegated to Congress and as a constraint upon state legislation. No clause in the 1787 Constitution has been more disputed, and it has generated more cases than any other.

To this day, the debate over the extent of the commerce power centers on the definitions of "to regulate," "Commerce," and "among the several States."

The narrowest definition of "to regulate" is to "make regular," that is, to facilitate the free flow of goods, but not, except in cases of danger, to prohibit the flow of any goods.

The Supreme Court has never accepted this narrow definition. From the beginning, Chief Justice John Marshall in [\*Gibbons v. Ogden\*](#) (1824) saw the power to regulate as coextensive with the other delegated powers of Congress. He declared: *"This power, like all others vested in Congress, is complete in itself, may be exercised to its utmost extent, and acknowledges no limitations, other than are prescribed in the constitution."* The manner in which Congress decides to regulate commerce, Marshall said, is completely at the discretion of Congress, subject only to the political check of the voters. This power, as it later turned out, includes the power to prohibit the transportation of articles, as well as to control their exchange and transportation. [\*Champion v. Ames\*](#) (1903).

You can read more about federal railroad right of ways from the [2006 Congressional Research Service report for Congress](#).

For twenty years Congress debated the value of its support of the Pacific Railroad, however it seems the support took the form of "should" rather than "could." No doubt Congress and Lincoln believed the financial support of the Pacific Railroad was necessary, but for different reasons. Congress took the road of adding to the value of interstate commerce while President Lincoln saw it, as President Eisenhower did in 1956, as needed for our national defense. Whatever the reasoning the fact is that the Acts of 1862 and 1864 passed Congress, with the full support of the Northern States, and were signed into law by President Lincoln. Today this is mute-point for all but the Hardened Libertarians and Socialist. The Libertarians would argue that the railroad should have been totally financed by private investors and the land purchased from the government while the Socialists would argue that the government should have built the whole damn thing — a total disaster. This not what happened and we have to accept the benefits while learning from the mistakes and scandals.

None of this might have happened if different choices had been made, by anyone of the foregoing groups and individuals. But a choice made is made, it cannot be changed. Things happened as they happened. It is possible to imagine all kinds of different routes across the continent, or a better way for the government to help private industry, or maybe to have the government build and own it. But those things didn't happen, and what did take place is grand. So we admire those who did it—even if they were far from perfect—for what they were and what they accomplished and how much each of us owes them.

For further reading on the building of the Pacific Railway I strongly suggest Stephen E. Ambrose's book "[\*Nothing Like It In The World\*](#)." It's a good read chock full of stories about the men who envisioned , planned, financed, and built America's first transcontinental railroad. It also delves into the political and financial scandals associated with the project and the numerous benefits derived from the building of the Pacific Railroad. To watch a video of Stephen Ambrose discuss his book please [click here](#).

I hope you enjoyed reading the story of the building of our transcontinental railroad as much as I did researching, writing, photographing, and traveling some of its original grade. The Golden Spike National Historic Site, in Utah, is a fine place to learn more about the Pacific Railroad. While not as popular or scenic as Yellowstone, Yosemite or Glacier National Parks it every bit as historic in nature as our Civil War Battle sites.



It is a monument to the men who risked fortune and fame to plan, finance, and build the railroad and to the thousands of men who worked tirelessly to construct the railroad in record time.

The Union Pacific and Central Pacific (now BNSF) serve us every day hauling goods from the west and east coast throughout the nation. The next time you visit your local Wal-Mart, Costco or Target Store think on the men who connected this nation with ribbons of steel so you could buy your TV set or other products imported from Asia or Europe at low costs. Also when you go to the supermarket give some thought to how that corn and beef wound up on the shelves.

As Stephen Ambrose so aptly put it; *There is "Nothing Like It In The World."*

To view a complete gallery of all the photos we took while exploring the Golden Spike National Historic Site [click here](#). For a representative map with descriptive tags [click here](#).



You can access an archive of all past editions of the Aperture by [clicking here](#).

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