Over the Range

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Chapter 3

THE BATTLE OF THE MAPS  
(1868)

On New Year’s Day of 1868, Central Pacific’s Collis Huntington did what he always did on holidays—obsess about business matters. At that time, business and railroad were synonymous to Huntington. Concerned about the slow progress the Central Pacific Railroad was making, Huntington wrote to “Friend Crocker” outlining the turf battle that had been brewing in northwestern Utah, and was about to reach the boiling point. Of the “UNION PACIFIC,” as he wrote the name of his nemesis in capital letters for emphasis, Huntington noted that the “one thing that they do understand is the importance of meeting us west of Salt Lake . . . .” That scenario would give Union Pacific the prosperous Wasatch Front with its large population centers and rich farmland. Holiday or not, Huntington was in no mood to allow this to happen. In his characteristically abrasive style, Huntington then chided Crocker, observing that “sometimes I think you do not know the importance of extending the Central Pacific east of the lake to the Wasach [sic] Mountains . . . .” Crocker, of course, certainly understood this, but the ever-impatient Huntington knew that speed was of the essence. Huntington candidly added, “It would be better to have it understood that we were working quietly and building a good road, but I would build the cheapest road that I could and have it accepted by the Commissioners, so [that] it moves on fast . . . .” Later that month, Huntington clarified this in another letter to Crocker: “I would build the road in the cheapest possible manner and then go back and improve it at once, because the Union [Pacific] Company has built the cheapest kind of road.”

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Huntington had good reason to be concerned, for the route of the Pacific Railroad through northern Utah had now been selected from at least four distinct possibilities—one through Salt Lake City, one running directly west from Weber Canyon and straight across the lake on a trestle, another running northwest out of Weber Canyon and hugging the north shore of the Great Salt Lake, and one running over the Promontory Mountains. The Central Pacific soon learned that its idea of running across the lake would be prohibitive because the lake was found to be deeper than originally thought. The three remaining alternatives appeared, in one form or another, on maps of the period.

With Grenville Dodge in command of its route selection, Union Pacific took a decidedly militaristic approach toward mapping. Dodge wanted the most accurate maps and preferred as much detail as possible. An anecdote about mapping reveals just how serious Dodge was about it. On January 16, 1868, J. E. House wrote to Dodge, apologizing about his sloppy cartography which, of course, Dodge readily spotted. “I am sorry . . .” House began, “that the land map meets your disapproval.” After apologizing, House quickly confessed, rationalizing that “I did not give it as much attention as I ought to have done, owing to the fact that Mr. Davis was looking after the details . . . .” Besides, he rather brazenly added to Dodge, “Your letters hurrying the matter up, did not give us much time.” Another statement by Dodge reveals his near obsession with the geography along the route, and how insistent he was that his surveyors fully understand the country they were traversing. On May 11, 1868, the lack of knowledge about the countryside surrounding the Great Salt Lake became intolerable to Dodge, who wrote to an engineer lamenting: “We have not got much knowledge of that country.” Dodge insisted that the party surveying there had “to feel the country.” Only after receiving that type of knowledge, Dodge stated, could he confidently “pour the Location Parties on to that 200 miles and have it ready for work in sixty days after parties commence.”

For his part, Huntington and his Central Pacific had a different, and more expedient, approach to mapping. Based partly on geographic knowledge and partly on bluster, the approach it would serve the Central Pacific well as it pushed eastward toward the Union Pacific. Huntington emerges as a shrewd visionary who believed that maps served one major purpose—to help him meet his political objectives. To Huntington, this meant barely satisfying the requirements and doing so ahead of the Union Pacific. By providing less detail, for example, of the topography and exact location of line than Dodge customarily provided, Huntington believed he met the letter, if not the spirit, of the legislation. It also saved him time. To Huntington, then, geography was something to be
overcome, while to Dodge it would dictate the character—and ultimate success or failure—of his railroad. As early as 1865, Dodge had speculated about routes that could be traversed by the Pacific Railroad in this area of Utah. One revealing Union Pacific map from 1866 shows the Humboldt Valley of Nevada in considerable detail and projects the line of the “Union Pacific Division” at a scale of 2,000 feet to the inch. This map provides additional evidence that Union Pacific planned to build far into the Intermountain West. In fact, the Union Pacific had surveyed, if hastily, well into Nevada’s Humboldt River Valley as early as 1864–65. Thus, while most observers and taxpayers assumed that both railroads would simply survey the route proposed in the Pacific Railroad surveys to a point where they would finally meet, the railroads had other, more ambitious and less disciplined, plans.

The events taking place in eastern Nevada suggested that a more complex scenario was occurring. From the Humboldt River eastward, the route, or rather routes, became more problematic, and that requires a look at maps of the proposed routes in more detail. One route projected to go around the southern edge of Great Salt Lake would directly serve Salt Lake City, and then presumably run northward to Weber Canyon. The second route would take the line around the north side of the Great Salt Lake, and then over the summit or saddle of the Promontory Range. The more mountainous route that bypassed Salt Lake City had won out.

As historian Wallace D. Farnham observed, albeit from a viewpoint sympathetic to the Union Pacific, Central Pacific’s Huntington mounted a campaign to hamstring the Union Pacific’s survey and construction activities. In Farnham’s words, the ferocious competition between the railroads “began with the battle of the maps.” Both the Central Pacific and the Union Pacific had prepared maps showing routes through what had now become, in the eyes of journalists and hence the public, the most contested part of the entire transcontinental railroad—its route through northern Utah. The Central Pacific provided a map to Secretary of the Interior Orville Browning that showed that line’s route from Nevada’s Humboldt Wells (today’s Wells) as far east as Monument Point, though Huntington had far more lucrative sites in mind—the Salt Lake Valley, the Wasatch Front, and well into Weber Canyon. His maps soon showed these prizes, if rather vaguely.

According to Farnham, Central Pacific’s maps were surprisingly easy to prepare because they were so unclear in places. Nevertheless, they served the purpose of positioning the Central Pacific well into northern Utah. Politically, the Central Pacific appeared to have the edge. It appeared that government officials had rubber-stamped their survey
work while frequent inspections burdened the Union Pacific. This caused much consternation at Union Pacific as it suggested favoritism. Relentlessly, Central Pacific cranked out map after map, one of which Farnham considers “one of the curiosities of the campaign” as it contains “simply a jagged line on a vast sheet of paper.” Oddly, this Central Pacific map shows none of the topography or hydrology along the proposed route—not even the region’s most prominent feature, the Great Salt Lake! In fairness to Central Pacific, it should be stated that this map could have overlaid a more detailed map, saving time by not depicting any specific geographical features. Regardless, it was in stark contrast to Union Pacific’s more detailed/accurate maps. For its part, the Union Pacific was perplexed when Huntington’s schemes were approved *pro forma*, while it seemingly had to battle federal bureaucrats at every turn.

Meanwhile, although the beleaguered Union Pacific was preparing rather accurate maps, confidently grading line, and laying track along the route east of Utah, sections of the Central Pacific’s route were legally approved and moving ahead at a much faster clip. To make matters worse for the Union Pacific, Huntington and Crocker finally signed a contract with the Mormons, lured the railroad’s workers away, and continued to thwart Union Pacific at every turn. By a congressional decree, the railroads could only survey their routes an additional three hundred miles beyond their completed construction work, and so any obstacle posing a problem for one railroad—for example, Union Pacific’s trouble-plagued tunnel construction in Weber Canyon—was greeted with joy by the opposing railroad.

By early summer of 1868, the Union Pacific had decided to run its line nearer the Promontory Mountains and thus found itself in a quandary with Brigham Young. The zealous sermons that Young gave at this time still strongly favored the line running directly west from Salt Lake City, which is to say south of the Great Salt Lake. That route would mean constructing the railroad across miles of salt flats, roughly following the old Hastings trail, at least in part. It also meant ignoring the basic geographic fact that the entire Pacific railway would have to swing about thirty miles out of its way to reach Salt Lake City and go south of the lake—adding at least fifty extra miles. Yet no one, not even the Central Pacific, could deny that Salt Lake City was a lucrative and tempting prize in that it would generate considerable traffic for the railroad. To the dismay of Collis Huntington, the Union Pacific had cultivated the Latter-day Saints very carefully and effectively. Central Pacific correspondence at this time reflects Huntington’s paranoia about the Union Pacific’s confidence in serving Salt Lake City, for he, too, realized that relying
on Mormon support and labor was necessary to bring his project to completion. With the volatile “Mormon Question” still simmering, and considerable anti-Mormon sentiment palpable, going out of the way to serve the Saints was not politically expedient nationally. Yet, that is just what was required locally.

The Union Pacific evidently took two approaches to the more northerly route that would miss Salt Lake City and bring its line closer to the Promontory Mountains, and it is here that the name “Promontory Point” again enters the picture. Railroad historians have long lamented the fact that people often use the wrong placename for the location where the rails finally met on May 10, 1869. Stressing that it is not Promontory Point—it is, of course, properly called Promontory Summit—they bemoan the fact that the public persists in using the name Promontory Point. However, given the reporting at the time and the confusion of routes, the public’s misnaming is perfectly understandable. Even Congress itself used the term Promontory Point for the meeting point of the railroads in its resolution. Promontory Point itself—that location where the southern tip of the Promontory Mountain Range juts out into the Great Salt Lake—was considered by some to be a viable location for a railroad line around the northern edge of the lake. With this in mind, as noted earlier, Union Pacific explored the possibility of building its line around the north edge of the lake, rather than going over the Promontory Mountains. Union Pacific’s reasoning seemed logical enough, as a water-level route would conform to their much-publicized mantra of “no grade over 90 feet” (per mile). There were, however, several problems: the line around the northern shore of the lake would be longer as it was quite sinuous. Moreover, the level of the Great Salt Lake was rising at this time, and the lakeshore itself was notoriously marshy in many places. Surveys also identified many areas of quicksand. Nevertheless, Union Pacific surveyors appear to have made a noble effort to skirt the lake’s northern edge and leave the summit to the hawks—and the Central Pacific. After all, if Union Pacific could pull it off, considerable cutting and filling, not to mention steep mountain grades in the Promontory Mountains, could be avoided. Union Pacific dispatches during the summer of 1868, however, reveal that nature had other plans. In telegram after telegram, the difficulty of running the line around Promontory Point became painfully clear.

Three Union Pacific maps reveal much about the railroad’s knowledge of western Utah and eastern Nevada during the fall of 1868. All were prepared under the direction of Chief Engineer Dodge, though they naturally involved input from many others. The first, a Map of Location 11th Hundred Miles U.P.R.R., is drawn at a scale of 1 mile to 1
inch, and is dated November, 1868. This map shows the Union Pacific’s projected route from the 1000-mile location in Weber Canyon, down into the Wasatch Front at Taylor Mill, through Ogden (a name only) to the northeast edge of the Great Salt Lake (Hot Spring), to the Bear River at Corinne, nearly straight westward to the base of the Little Mountains (near Salt Springs and Mud Beds) to Blue Creek Station [sic], then curving upgrade to Promontory Summit to “End of U.P.R.R.” at “1085.88 miles,” then down along the Union Pacific survey curving northwest to U.P.R.R. 1100 miles, near Station 4099.09. A wonderful vignette shows two surveyors lounging under the pennant/flag. This last page of the folio-style map also contains an inset of alignment of temporary track on the eastern slope of Promontory. Clearly, Union Pacific was on its way over the range.

This map got around, so to speak. In addition to the bound original copy of it at the Union Pacific archives in Council Bluffs, another very similar copy made at the same time, resides in the National Archives. This is a reminder that railroads often produced many copies of the same map. The map reveals those surveyors resting at the end of their labors. Although unnamed, they clearly played a major role in locating the Union Pacific. That pennant suggests victory. It flies above, proudly marking “U.P.R.R. 1100 miles Sta 3968.155 Location Aug. 2nd 1868.” The location, about ten miles west of Promontory Summit at the north end of Spring Bay, was significant. Crowned by the pennant, it suggested that Union Pacific was in control here. To get to this point, the Union Pacific was surveying along the edge of the lake plain, passing the “Mud Beds” and “Salt Springs” at the base of the rugged Little Mountains. At this time, Corinne is shown as a blank area, the only information appearing in red as the surveyed railroad route crosses the blue lines of the Bear River. Of Ogden, the surveyors have drawn a series of squares or blocks astride the “Ogden Riv[er],” the railroad route passing at the west side of the fledgling town.7

The second map in the series, titled the Map of Location 12th Hundred Miles U.P.R.R., dated December 1868, with a scale 5280:1/12 (fig. 3–1), shows Union Pacific’s ambitions far to the west beyond Promontory. The line from about the Nevada-Utah state/territorial line runs arrow-straight eastward for several miles [to north of the present-day Grouse Creek area], curves southeast, then northeast [around the base of the Grouse Creek Mountains?] then south of “Raft River Mountains” [likely today’s Muddy Range near Immigrant Pass] to Terrace Pass, then passes just south of “Sink of Duff Creek” [likely today’s “Sinks of Dove Creek”], which was possibly named after Union Pacific Railroad official John Duff. If so, this placename, though modified into “Dove,” may be the
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only lasting tribute to the Union Pacific west of Promontory. At any rate, from the sinks of Duff Creek, the line then runs along the southeast edge of the Baker Hills [unnamed] through Red Dome Summit just south of Red Dome Mountain, curving east to Monument Point [just north of North Cape of the Great Salt Lake] to 11th Hundred miles [north edge of the Great Salt Lake].

For our purposes, the section of the area of Promontory (fig. 3–2) is particularly interesting. Reorienting our view from east to west, it shows the Union Pacific Railroad line reaching Blue Creek, then curving westward to assault the mountain range. From this point, the line gains elevation. There is a reason why the line here looks like a worm trying to avoid being put onto a fishhook. In a series of sinuous twists, the proposed

Fig. 3–1
Cartouche of Union Pacific Map of Location for the 12th hundred miles of line surveyed in 1868 was positioned below the section showing that railroad running over Red Dome Summit west of Promontory.
railroad line works it way up the eastern slopes of the Promontory Range. An inset on the map gets the railroad over Promontory Summit at an 80–foot grade (fig. 3–3). Here, unbeknownst to the Union Pacific, history would be made the following year. Once at Promontory, the railroad followed the east-west trend of the swale.

The last document, a Map of Location 59.4 Miles of the 13th Hundred Miles U.P.R.R., is dated December 1868 and shows the line from the terminus of location of U.P.R.R. along the Humboldt River several miles west of Humboldt Wells (Nevada)—today simply called Wells—eastward through Cedar Pass, Pequop Pass, and Ives Pass [possibly near present-day Valley Pass Siding] to near present-day Tecoma, which is very close to today’s Utah-Nevada state line. Like Dodge’s earlier 1866 map, the
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1868 map reveals Union Pacific’s seriousness about running a Pacific Railroad line at least as far west as east-central Nevada. A copy of a similar Union Pacific map, an original on muslin, is also located in the National Archives. One wonders if maps of this type found their way into the hands of the competing railroad, and if so, how that happened. As in all types of high stakes endeavors, espionage is an ever-present possibility and threat. Yet, because copies were sent to the Department of Interior and Congress, secrets were virtually impossible to keep. The two railroad companies were private entities, but by conducting business with the federal government, they were subject to considerable public scrutiny. One can only imagine the intrigue such maps generated in Washington, D.C.

Meanwhile, back in Utah, the cash-strapped Mormons continued to provide surveying and grading expertise and labor to the Union Pacific. Grading could be easy or tough, depending on the topography. The goal
was to prepare as level and smooth a roadbed as possible. The typical Mormon grading team included dozens, sometimes hundreds, of men working with picks and shovels. Usually, horse-drawn carts and wagons helped workers move earth or rock out of the way, typically spreading it as fill in the low spots. Information and photographs from this time reveal the difficulty of the work: the Fresno scrapers we normally associate with railroad grading were not widely used until about the 1870s and 1880s. Nevertheless, workers sometimes used horses and mules to pull boards or other objects along to help flatten out the soil. In the very rugged and rocky areas, blasting with explosive dynamite made the work go more rapidly. The Mormons helped the Union Pacific grade extensively in Utah, but these grading contractors still had a great deal of trouble getting paid for their efforts. For their part, the Union Pacific was perennially short of funds and paid the Mormons in promises. This included much of their line in Utah, especially the portion that reached west of the Wasatch and then toward and beyond Promontory. Although the Mormons felt that the Union Pacific was “their” road in that it seemed to be tailored to serve their needs, the relationship was often strained.

Central Pacific kept an eye on its competitor’s progress in grading roadbed, impressed by the work the Mormons accomplished. Not surprisingly, Central Pacific approached Mormon leaders about doing similar work. It was not easy at first because Young associated Central Pacific with the northern route. As Governor Stanford wrote Mark Hopkins on June 9, 1868, Brigham Young seemed difficult to convince, but there was hope as Young’s son (presumably, Joseph A. Young) was easier to convince. At first, Brigham Young was “cold and close” because “[h]e and everybody here was dead set for the Southern rout [sic].” Nevertheless, Stanford’s correspondence reveals that “I am inclined to make an arrangement by which Brighams [sic] son shall undertake to furnish the men and to help push the works as we want it and receive so much, conditioned upon the grading being accomplished as we want it.” Both railroads no doubt appreciated the sobriety and discipline of the Mormon track graders. As the church-owned Deseret Evening News bragged, “As a whole, the conduct of our ‘Mormon Boys’ is worthy of high commendation, no swearing, no drinking, no quarreling.” The paper added that the Union Pacific officials seemed to think well of the Mormons.

Various individuals influential in Mormon congregations, or wards, hired the Mormon roadbed graders under broader contracts. For example, English immigrant Thomas A. Davis recalled that one team grading the Union Pacific consisted of twenty-one workers, many of whom were from Wales. The team, it turned out, was directed by “Some Spanish
Fork people who had taken a large contract and needed some good men.” This occurred in Weber Canyon. While there briefly, Thomas noted that his brother John was working for Sharpe & Young, and John invited him to join the Welsh team. Living conditions were rough in these construction camps. Thomas noted that they had to build “a shanty to sleep in,” but that one man became sick and had to leave. With the work in Weber Canyon nearly completed, Thomas and his brother left. After working their way down to the Wasatch Front, Thomas rested a day in Willard, then “went to work grading the line at the Hot Springs for Thomas E. Jeremy [?] and his son John.” This was tougher work than Thomas expected. As he put it, “[t]he nature of this job was wheelbarrow work, and it was heavy being in heavy alkaline clay and water.” Nevertheless, the workers did what was necessary to grade the line here at the northeastern edge of the Great Salt Lake. Thomas noted that “[w]e finished that job before the arrival of the tracklaying force.” Upon completing work here, Thomas headed to Promontory.10 According to Moroni Stone, workers grading the right of way of the Union Pacific’s line, including the Big Fill in the vicinity of Promontory, received five dollars per day per man and team, and ten dollars for Sunday work. “These wages,” the Ogden newspaper reported fifty years later, “seemed enormous to the frugal pioneers.”11

The willingness of the church to provide grading crews to the Union Pacific built the Saints’ credibility in the eyes of that railroad. That may help explain how one of the Mormon “topographers,” James H. Martineau, got the break that enabled him to become one of the West’s more important railroad survey engineers. Martineau first mentions the Pacific Railroad in his July 7, 1868, entry titled, “Start on the Union Pacific Survey.” In it, Martineau notes that he “received a telegram from Mr. S. B. Reed,” superintendent of construction of the Union Pacific Railroad “giving me an offer of employment as an engineer of that road.” His first assignment would have involved surveying the railroad’s route along the Weber River. However, because Martineau arrived several days late, he received “bad news for me.” The Union Pacific had given that job to another engineer, so he hoped he could “get a place as a common hand, if they had any vacancies” farther up river.12 By July 9, he worked his way from camp to camp along the Union Pacific where he “was instructed in reading the leveling rod and in keeping the level book.” Aware of the anti-Mormon attitudes expressed by others around him, Martineau added, “[I]f it were not for the chance to be proficient as an Engineer I would not wish to stay an hour longer.”

But things were about to change for Martineau, who would soon find himself surveying for the Union Pacific Railroad in the Great Basin. On
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August 7, Martineau reported, “I am appointed Topographer of our party[,] the former incumbent being assigned to duty in S. L. City.” Martineau’s salary now rose from $45 to $75 per month, even though, in his words, he had “not much to do on the line, only to take a topographical sketch of the line and country as we progress.” However, he quickly added, “I have also to make maps, profiles, plans & c. of the line.” Of this work, Martineau concluded: “It just suits me.” He threw himself into the work with near abandon. Martineau was not only a natural at surveying and mapping, he was also a budding songwriter and poet. Of his work surveying the railroad, Martineau wrote the “Engineer’s Song,” which could be sung to the tune of “Red, White, & Blue.” One stanza of this song cleverly links the surveying of the railroad with the labor that will follow:

    On the side of a precipice, craggy and steep
    The transit directs where the Chinamen shall creep
    And clinging like bats to the steep mountain side,
    They calmly look down on the fierce surging tide.

This suggests that even at this early date, the work of Chinese graders and track layers had entered the folklore. Martineau’s song continues, “We run to the westward, beating our line, Till the Central Pacific we finally join.” “Finally” is the operative word here, for agreeing where to meet was still in the future. Reminiscences of surveyors like Martineau can help us determine the route surveyed. His song continues, noting the landscape that the surveyors crossed: “The lone desert, so dreary and still/Spreads out from the Lake to the far distant hill;/Its vast bosom glitters with salt, like the snow, But ‘onwards’ our motto, and onward we go.”

By August 15, 1868, a Union Pacific survey crew drove a survey stake into the loamy soil at Promontory Summit. That act started additional surveys and grading. Although Union Pacific had now completed its survey across Promontory Summit, it did so using, in part, the stakes that Central Pacific’s Ives had driven there. The Union Pacific surveyors even honored Ives by crediting him with originally locating the pass. To this day, Promontory Summit is unofficially called “Ives’s Pass,” though the true Ives Pass is located about a hundred miles farther west in Nevada. The Union Pacific survey was under the direction of Frederick Hodge, whose field notes reveal that the crew was outfitted in Salt Lake City.

On August 27, 1868, Grenville Dodge wrote to Thomas C. Durant from Red Dome Pass, which is about thirty-five miles west of Promontory Summit. Here Dodge noted that:
A careful approximate estimate of the six miles of 90 ft. Grade Promontory Point which includes the Heavy work before spoken of gives the following quantities:

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<tr>
<td>Rock Excavation</td>
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<td>Earth</td>
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The Rock & Earth Excavation nearly all go into Bank as there are deep fills at each cut.

As Dodge concluded, “[t]he grading of the six miles will cost at a Liberal estimate about Seventy Thousand dollars per mile.” Dodge then added that he “had some dozen lines run over the Point and three fully Located.” For their part, “[t]he C.P.R.R. Co have run as many more and they told me tonight that they should adopt virtually my line.” There was, however, one bright spot in assaulting the Promontory Range. “The western slope,” as Dodge called it, “is twelve miles of very light work and fifty foot grades.” That meant “[t]he entire eighteen miles crossing the Range which includes the heavy work on eastern slope and light work on the western slope will cost [an average of] about 30 000 dollars per mile.”

Martineau was part of the feverish Union Pacific surveying of Promontory and vicinity at this time. By August 28, Martineau reported in his diary that “we crossed the Promontory range to day, obtaining a magnificent view of Spring and Bear River Bays, and the islands in the Lake.” Cognizant of the competition, Martineau writes, “we passed Stephenson’s C.P. Camp and led Hudnuts U.P. Camp. Traveled about 17 miles.” The next day, Martineau reported that the survey team “went 27 miles to day to Locomotive Springs, which, like all the springs, almost, of this part of the country, are salty.” Here, he observed, “was a camp of C.P. engineers; also Hodges and Maxwell’s U.P. parties making in all five engineer camps, making quite a city of tents.” Here Martineau wrote a poem, “The Muster Role” about his survey team, or “Engineer party,” as he called it. In the poem, he praises Mr. Morris, “a shrewd Engineer,” and “transitman Coons, with an eye quick and clear.” He also praises “Bob Fulton, our leveler,” who “will see his way through.” Being sure to mention all members of the survey party, Martineau then noted, “There’s Crebus [?]), or [our?] Rodman, and Wykoff, Black Flag, And Scurry [?] and Brown with the chain never lag.” Martineau adds his own name as the person “who all our topography do.”

On Monday, August 31, Martineau noted that “We started today for Red Dome Pass, where our labors are to begin again.” This was
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among the most barren country that Martineau surveyed. At this location just beyond the northwestern margin of the Great Salt Lake, he noted, “There is no road, at all, and our teams travel slowly.” In the broad, sweeping plains beyond Promontory, the landscape of the western Curlew Valley was notoriously barren. Toward the lake, the valley was covered with a whitish powder-like dust consisting of alkali (potassium and/or sodium carbonate) and halite (sodium chloride, or common table salt). In addition to penetrating nostrils and stinging eyes, the salts’ high reflectivity further contributed to eyestrain. Describing the conditions west of the Promontory Mountains, Martineau recalled that his party “suffered much from thirst, and from inflammation of the eyes and partial blindness, caused by the intense glare of the sun upon the salt-incrusted plains.” He added, “the only remedy to hand was to wear a handkerchief over the face all day.”

Water was a problem here too. As Martineau’s survey team traveled west, they began to run out of water but found a small stream about “4 miles off” where they obtained water. Martineau also describes setting up camp on Duff Creek on September 1, where the water, “though clear, is horrible, having an indescribable flavor.” As if this were not descriptive enough, Martineau concluded that the odor of this water “almost made me think of carrion.” By September 4, he moved the camp back nine miles, where the elements soon threw even more challenges at the survey team as “a fearful tempest of wind, rain, thunder and lightning began.” The wind was so strong that it “blew down some of our tents, in spite of us.” On September 7, because Coons the transitman was sick, Martineau ran the line that day, making a connection eastward with Maxwell and moving back to Red Dome Pass at Duff Creek, where he “found Mr. Blickensderfer, with orders to hurry up as fast as possible.” As if to confirm the urgency, Martineau then noted he “found a company of C. P. engineers, camped there, who are locating their line on the same ground.” Although both railroad lines had long been in a desperate race to outdo each other, things were coming to a head near Promontory.

The reason for Martineau’s haste is found in letters written by Grenville Dodge. On September 2, 1868, Dodge wrote to Thomas C. Durant with the news that “Central Pacific Rail Road have abandoned all surveys east of Monument Point . . . [and] have put all their force locating the one hundred miles west of Monument.” As if this were not disconcerting enough, Dodge added that the Central Pacific had “contracted to Bishop West & Benson,” who planned to “open work on it next week.” Nevertheless, Dodge believed that Monument Point, which “is equidistant from two ends of track & is point to which the filed
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located maps last spring” would be the point at which Central Pacific intended to meet the Union Pacific. In believing the Central Pacific would “evidently give up everything east of that point,” Dodge was sorely mistaken.21

Two days later, on September 5, Dodge reported to S. B. Reed that “you are no doubt aware of the Contracting of 100 miles west of Promontory Point by the C.P.R.R. C[o]” to, as he called them, “three Mormon bishops.” Dodge regretted the fact that the Central Pacific had “let the work before they had a mile located, while our Location was or nearly all done” before the Union Pacific railroad contracted for grading. Dodge now felt that the railroads might meet either at Toano “or even at Monument Point, if they show energy.”22 This, too, was a miscalculation on Dodge’s part.

Realizing that so much was at stake for the Union Pacific galvanized Martineau to survey westward. On September 8, he “climbed a mountain and triangulated all the peaks around.” Gazing off to the distant peaks, Martineau got a “grand view” of the countryside. There, he “prayed, when alone, and dedicated all to the Lord.”23 As he reconnoitered the area, Martineau saw many remarkable sights, including mountain sheep. The air must have been clear on that day because he could see distant Pilot Peak in incredible detail. He noted, “Desert Mountain, rising from a salt plain fully 25 miles away to the south, seems to be only a mile or two.” After working all night to finish the maps, he sent them via the mail line.

Meanwhile, Huntington seemed to relish the intrigue surrounding the race west of Promontory. Learning from his “usual source” that Dodge now knew that the Central Pacific “had let 100 miles of the grading near [the Great] Salt Lake and who we let it to”—that is, the Mormons—Huntington knew that Thomas Durant, head of the Union Pacific, would say he would head there immediately but wouldn’t actually do it. Or would he? Huntington was concerned that Durant, whom he called “a great blower, but still a man of great energy and somewhat reckless . . .” might actually go to Utah. Huntington, therefore, urged Governor Stanford to personally go to Utah because “[s]ome one must be there until the roads meet . . ..” Leaving no doubt about who should go to Utah, Huntington added that “[s]ome one of us must be there soon after the first of October to take possession of the line when the location is approved . . .”24

On the sixteenth of September, Martineau traveled twenty-five miles and camped with Mr. Bates’s Central Pacific party, which he noted was “going to the Red Dome Pass to locate their line there.” Of this encounter, Martineau noted that the Central Pacific survey team was
so confident that, as he put it, “they are willing to bet [that] their line will reach Ogden before ours.” At Surprise or Grouse Creek on September 17, Martineau found Central Pacific Engineer Ives’s survey party “camped in a large meadow of several thousand acres of grass, with good water.” Here Martineau also “found a split stake holding a letter from Genl Dodge to Morris.” Fifteen miles west of that location, on September 18, Martineau reached Tuarno [sic] Pass and, “for the first time since we left Weber, had some good, cold, clear water.” Martineau was now in Nevada, hoping that the Union Pacific could grade and lay track fast enough to claim the area as a prize.

The next day, Martineau was “camped at Peuquop [sic] Pass, from the Summit of which I could see the Snowy range of Humbolt [sic] Mountains.” At Pequop Pass, he found Dodge’s party, including Van Troben, General Dodge’s topographer, “and was glad to see him.” Although it was mid-September, Martineau noted that the weather was cold and threatened to snow. The next morning, they awoke to find “ice 1/3 of an inch thick” in their tin cups. On September 21, Martineau began running the Union Pacific line east from the Summit of Pequop Pass. The next day, he made a map of Hudnutt’s line by request of General Dodge, and on September 24, Dodge requested another map “of some 16 miles of Hudnutt’s survey, to be sent to Mr. Reed.” Martineau notes that Dodge was satisfied with the results, which were completed the next day. On September 30, Martineau “began to alter the line from Grouse Creek east,” taking “observations with the sextant, for variation of needle, taking observations on Jupiter and Polaris.” By October 5, he “found some U.P. graders at work” on the railroad’s grade near the north end of the Ambe mountains, with “the CP lying close by and crossing ours.” With supplies running very low, Martineau tried, but failed, to hunt some game. On October 9, he came upon some graders working on the Central Pacific, and also Colonel William Hyde and Arthur Stagner, whom he was happy to see. Here Martineau also “got a quarter of beef, and during the evening ate most of it up, being very hungry.” By nightfall, Martineau and the survey team had reached their camp at Terrace Point. They were now within sight of the brooding Promontory Range.

Martineau’s recollections confirm that birds and mammals were widely scattered, if not downright scarce at times, in the area west of Promontory. This scarcity made things tough for the advance-guard surveyors. In describing the desert country that he encountered in “locating the line of the railroad about two hundred miles west of Ogden,” Martineau noted that “we got out of provisions—had nothing left but a little corn meal and some vinegar—not a morsel besides.” As “the boys”
in the survey team desperately put it, they were “out of grub,” and so “every man except one or two, went out to kill a few rabbits or birds.” By day’s end, despite the fact that they were armed with pistols, “not a man had seen a rabbit or bird, but each fondly hoped the others had.” When Martineau finally returned to camp, the men hoped he had managed to shoot a rabbit or bird, but he, too, came up empty handed. That night, all fifteen men in the survey party were about to mutiny. Luckily, however, Martineau calmed them down and supplies arrived the next day.27

Clearly, the two hundred miles centering on the Promontory Range was gaining fame for two seemingly perverse reasons: it was among the most impoverished as well as the most contested on the entire transcontinental railroad. As a surveyor in the employ of the Union Pacific, Martineau was well aware of both factors, not to mention the railroad’s (that is, Dodge’s) high standards for surveying and mapping.

From his comfortable office that same day, Huntington fired off another letter to Stanford. Now aware that Durant’s Union Pacific had been surveying as far west as Nevada, Huntington informed Stanford that “I am not much surprised that Durant should set men at work at Humboldt Wells, as he is a bold, reckless, and, in some things, a foolish man . . . .” However, Huntington left no doubt as to how Stanford should personally confront Durant. As Huntington put it, “you want to look him square in the eye and hold your own and not give him back in the least.” Huntington was sure this confrontational approach would intimidate Durant, concluding: “That is the way to deal with him; he is then not dangerous.”28

For his part, Durant now tried to contract his Mormon workers to grade to far western Utah and eastern Nevada. According to Central Pacific sources, Durant had “doubts at his ability to do the work within the time they [Union Pacific] desire & he dislikes it is said doing work along side of the Benson Farr and West contract.”29 The Central Pacific viewed Durant as irrational, and their correspondence reveals they knew that “Col. Seymour & Gen. Dodge have been laboring with Durant for three days to induce him to come to reason about grading along side of our present work.” Central Pacific’s George Gray wrote Stanford that, “I told Durant & Genl Dodge that if they offered to withdraw their contractors west of Monument Point I thought there would be more chance for a compromise but as it is I did not see any hope.” With the compromise off the table, Gray decided to play even rougher. “Our only hope . . . ,” as he put it, “is now to push on the Iron rapidly and occupy any road bed we find east of Humboldt Wells whether graded by Central Pacific or any other party.”30 It was war, and despite even the railroads’ concerns about “avoiding double expenses” in constructing the transcontinental
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railroad, the Union Pacific and Central Pacific would stay locked in battle until Congress threatened to intervene.

On October 10, Martineau’s survey team went to Duff (i.e., Dove) Creek, where they “found many camps of men from Cache County at work for the C.P.R.R.” and where he saw Bishops Hughes, Littlewood, and Maugham. Martineau here confirms that his fellow Mormons from Cache County worked for the Central Pacific west of Promontory. Four days later, on October 14, his survey party reached Locomotive Springs, where they “were serenaded by the Ogden Brass Band, who are grading here.” The next day (October 15), after picking up supplies consisting of “sugar, canned fruit, raisins, bottled pickles, dried fruit, fresh peaches, flour, bacon, mackerel, and other things” Martineau’s survey team was explicitly ordered to locate a “new line over the Promontory, when we get there.” Thus, by fall of 1868, both the Union Pacific and Central Pacific were resolved to go over Promontory Summit side by side, or head to head, if necessary.

In fact, the Union Pacific was pondering yet another survey over Promontory—one that would produce the best rail route for them—as Hudnutt’s early survey seemed less than adequate. With the Mormon contractors grading rapidly, however, Central Pacific got the upper hand on Union Pacific west of Promontory. As a letter from Central Pacific’s M. A. Carter to George Gray put it on October 12, 1868, “[t]he work from ‘Monument Point’ to the west end of the line of the one hundred miles let to Benson Farr and West is progressing rapidly . . . [h]aving completed their contracts within the short period of a few weeks to their surprise and that of their principals.”31 From Martineau’s diary, it is evident that the Mormon work teams were often identified by the last names of the bishops in charge. From Martineau’s diary, it is also clear that Mormons played a major role in getting the railroads over the range. As surveyors and roadbed graders, their performance met or exceeded expectations. Meanwhile, Central Pacific’s workforce of Chinese and European Americans worked just as tirelessly.

By November, Central Pacific’s Leland Stanford could report to Hopkins that “[t]o day I had a talk with Brigham Young . . . [who] will do our grading west from Ogden to the Promontory and will not make our work secondary to the Union Pacific.” Young had both railroads pretty much at his mercy, and promised “[t]hat he will put plenty of men on both lines”—to which Stanford added, “I am satisfied he can do it.” By using Young’s workers, as the Union Pacific had done, Central Pacific concluded that “[w]e cant [sic] stop the U[nion] Pacific from grading their line, but we can through Young have our own graded and have it to ourselves to lay track on when we can reach it . . . .”32 As the
railroad’s correspondence and Martineau’s diary entries confirm, the Mormons sometimes worked for the opposing railroads. The fact that they were now essential players in the affairs of both railroads underscores Young’s entrepreneurial—and political—talents.

As if Martineau’s whirlwind surveying was not frantic enough, the next day (October 16) he learned that “Genl. Dodge had sent orders for me to join Hudnutt’s party, and help run a line from Locomotive Springs to Portland, Oregon!” The exclamation point in his sentence underscores the boldness of Union Pacific’s vision. Martineau’s entry squares with other correspondence revealing that the Union Pacific railroad desired to begin a line to the Pacific Northwest even before the golden spike was driven. This opportunity gave Martineau much to ponder. Ever in need of hard cash, he agreed that he would do this for two months at $100 per month. In turn, his boss, Morris, agreed, but more than money concerned Martineau. When the time-conscious Martineau also learned that he would have to stay on until the line to the Pacific Northwest was actually completed, the homesick Mormon patriarch noted with certainty, “This I would not do.” Martineau missed his family as much as he needed the money.

With that issue resolved, Martineau set out to survey Promontory Summit itself more carefully than his predecessor Hudnutt had done. On October 30, he reported, “we have been running several lines over the Promontory, seeking a better one than Hudnutt’s if possible.” Needless to say, Martineau was understating the situation when he noted that he had “been very busy at my business.” By November 7, he noted that he had “spent the week in taking cross section notes of Hudnutt’s two lines, one of 80 feet grade per mile, the other 90 feet.” The next day (November 9), Martineau noted that he “went on the line, and made estimates of the culverts and masonry required, on both lines.” Martineau here confirms that Union Pacific had surveyed two separate routes over Promontory Summit. Later that evening, he reported that he “spent most of the night helping Morris make his estimates of cost of [the] two lines,” determining “that the 80 foot grade line would cost $596,000.00 [and] the 90 foot line $549,000.00.” With typical thoroughness, Martineau shows how he arrived at these figures using standardized calculations: “The equation used on the U.P. is $50.00 for each degree of (central angle) curvature; $15.00 per foot for length of line; 20 feet rise = 1 mile level road; $75.00 per lineal foot of each culvert from 6 to 12 feet span, 4.50 per lineal foot of box culverts of 2 to 4 feet span.” Using these figures, Martineau noted that the “actual cost of road bed for the 80-foot grade is 47,000 less than the 90 foot line, but the equation for length throws the balance the other way.”
Clearly more confident, Martineau was interested in earning as much money as he could on his own terms. Therefore, it is not surprising that after spending a couple of weeks with his family in Logan, Martineau was back looking for railroad work—this time with the Central Pacific! On November 19, he went to “see Mr. Benson about getting a contract at grading on the C.P.RR.” Unable to meet with Benson for several days, Martineau arrived back in camp on November 27, where he personally “talked with Gov. L. Stanford, Prest of C.P.RR. company, who wishes me to help them engineer” their line. It appears that the Central Pacific’s hasty surveying had also left some questions unanswered, and Martineau was the man who could set things straight.

To begin this work accurately, Martineau and his team identified and climbed some mountains in early December in order to triangulate for days at a time. “We do this,” he wrote, “to connect the triangulations from the west, with that from the east, at Ogden, for the Smithsonian Institution.” To triangulate in the mountains at this time of year was risky for several reasons. Bitterly cold winds plagued Martineau, as did fickle weather conditions that piled clouds against the peaks, making it impossible to triangulate. On December 6, the weather cleared, allowing Martineau to continue his work, and to pen one of the most inspirational topographic descriptions ever written in the nineteenth century West. “At length the clouds settled below me,” Martineau begins, “leaving me in bright sunshine with the clouds below me like a vast illimitable ocean; the mountain peaks rising through them resembled Islands.” This was cheering enough, but “at length a hole appeared in the cloud below through which I could see the earth.” Always fascinated by heights—the loftier the better—Martineau noted, “I seemed to be on another planet, and had the strangest feelings, until the cloud cleared away.” To leave no doubt that this is exactly what a surveyor and mapmaker would most desire, Martineau quickly added, “Below me lay the lake—in fact—hundreds of square miles were spread out like a map.”

From this incredible vantage point, Martineau could see much of the western Utah countryside through which the transcontinental railroad would ultimately run; he notes that Ogden, the Great Salt Lake, “Pilot Peak in Nevada, [and] the Raft River Mountains, were all plainly visible.” After “taking angles,” that is, determining the locations of all the prominent points, Martineau finished after sunset. He adds a hair-raising description of what he did after he finished that mapping, observing “in descending the mountains, in the dark, I slipped[,] rolled, and got to the bottom in all sorts of ways, several times narrowly escaping going over precipices, which I could not see until just on the brink.” For several days thereafter, the bruised but elated Martineau continued
to climb mountains and “took my angles” to ensure that his engineering surveys were accurate. Some of these ascents were so slippery that one of his companions repeatedly “slipped on the frozen earth and slid down the mountain side some distance.” More annoyed than injured, Martineau noted of his companion’s downhill distress: “He presented a very comical appearance, sometimes.”

Both railroads now recognized Martineau’s skills. In December of 1868, he relates, “When I was going to leave the Company, Mr. Morris tried hard to dissuade me, promising me permanent employment by the U.P.R.R. Company if I would stay.” Morris knew that Martineau’s services were valuable to his competitors and hoped Martineau would stay on. Moreover, Morris paid Martineau the ultimate compliment: Martineau proudly noted that Morris “said I was the best topographer on the whole U.P.R.R. line, which, as I am a Mormon, is considerable praise.” Despite this glowing commendation, Martineau decided to return home to the Cache Valley, where his family awaited. In parting from Morris, Martineau notes that “he gave me a recommendation of the best kind, which was endorsed by the principal engineers of the Company . . . .” Upon returning home on December 16, 1868, Martineau began to actively survey numerous towns and section lines in Cache Valley, including Wellsville, Mendon, Hyrum, Paradise, Millville, Providence, and Logan. By late spring in 1869, he began survey work for the Utah Central Railroad, which was the brainchild of Brigham Young, who knew that a rail connection from Salt Lake City to Ogden was essential.

By late 1868 and early 1869, the surveyed route over Promontory Summit was recognized as the approximate location where the transcontinental railroad would run. What mattered now was which company’s route would be chosen as the official route. If Union Pacific felt it was getting a rough deal from the federal bureaucrats that approved or disapproved of maps, it also had other problems during this crucial time. Nature conspired against the Union Pacific through the winter of 1868–1869, for the weather was mild in northern Nevada and northwestern Utah, which was just what Central Pacific needed. Meanwhile, just over the Wasatch Mountains, blizzards raged along Union Pacific’s line in Wyoming, stalling roadbed grading and completion of track.

Union Pacific’s maps of the period reveal its accomplishments and disappointments. The Map of the Union Pacific Rail Road and Surveys of 1864, 65, 66, 67, 1868 from Missouri River to Humboldt Wells by G. M. Dodge, chief engineer, presented a detailed delineation of the topography/hydrology, trails, and, of course, the Union Pacific line. The many years noted on the map represent, in effect, Union Pacific’s claims to the
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region. The Union Pacific map is detailed for a good reason. Dodge’s railroad had aggressively surveyed a large portion of this area in its effort to determine the best route for the railroad and its constituents.

The location of the Union Pacific route on maps of the Promontory area deserves scrutiny. The maps reveal that Dodge and his surveyors had selected a line that closely followed one of the early railroad surveys. From an unknown location near Ogden, the Union Pacific line heads north along the east side of the Great Salt Lake, crosses the Bear River as it turns northwestward, then travels almost directly west to the summit of the Promontory Range, where it descends toward the north end of the lake near Locomotive Springs. From that landmark, it runs straight west, crosses the southern spur of the Red Dome Range, then turns southwestward in a nearly straight line to Hot Springs Creek, where it meanders through the mountains on its way to Humboldt Wells. This route is generally close to, but not exactly, the route that the Central Pacific sought. Certainly, however, it was similar enough near the Promontory Range to ensure a battle with the Central Pacific. The line on Dodge’s map heads up the southeast face of the Promontory Range where time and circumstances would put the Union Pacific and Central Pacific side-by-side, pickaxe to pickaxe.

The battle to grade as much of the line as quickly as possible with little or no governmental oversight resulted in the railroads surveying—and then grading—parallel roadbeds. As might be expected, this duplicate effort became the source of conversation nationwide and consternation in Washington, D.C. The area adjacent to Promontory Summit became ground zero in that fiasco. The correspondence of railroad officials themselves makes equally interesting, and revealing, reading. In a frantic telegram dated February 16, Union Pacific’s S. B. Reed wrote to Thomas C. Durant that he “just returned from Promentory [sic][.]” Reed quickly added that “Ben is moving three hundred rock men on work today[.] Will probably get one hundred from McGees outfit[.] Will commence where both lines are the same[.] Will you order Morris to turn over notes on the line you want built[.] Will see Sharpe & Young tomorrow.” Reed’s terse message sheds considerable light on how disenchanted the railroads could become with graders who dallied. Speed was of the essence here as the railroads sought to grade as many miles as possible—even though they were now bypassing each other, sometimes within yards of each other. In fact, in several places on the grades to Promontory Summit, the railroads’ surveyed grades actually crossed each other! But each mile completed equaled money in the railroads’ coffers.

As the graders blasted and hacked their way up the east side of the Promontory Range, they drew considerable attention. Up to six
thousand workers were reportedly toiling away in a scene that was captivating and chaotic. In characteristic Victorian prose, the Salt Lake City Telegraph described it as “a marvelous view [that] reveals new clusters of tents, hitherto obscured by some towering mass of grey rock” as one approaches Promontory. The beholder of this scene “may delight in vision with the discovery of camps almost innumerable” that were scattered “above the grade, along the grade, remote from the . . . blasting, carting, shoveling, wheeling, picking, etc.” Side by side, often within yards or even feet of each other, the Central Pacific and Union Pacific crews labored mightily, pushed to the utmost endurance to be ready for the track layers rushing upon them now, at such proximity, from front and rear.”

Their handiwork on the east face of the Promontory Range was remarkable. Within about three months, the face of the range changed from an austere, steeply sloping natural surface to one scarred by the cuts and fills that enabled the railroads to gain elevation as if on tilting ramps. By early to mid-spring of 1869, the range had been transformed from a natural feature into a cultural artifact. On the west side of Promontory, too, men at work covered the landscape. Although the western grade was gentler, it still required considerable labor. The Mormon work camp at Cedar Springs was located here, where the view southward toward the Great Salt Lake presented an awesome panorama.
But it is on the southeast side of the mountains that the competition between the two railroads reached its fiercest level. Workers of many nationalities and cultures, including Chinese, Irish, Mormon and Gentile—even about two hundred Paiute Indians—lived and worked for the brief season that would bring Promontory glory. The features they created, including the Big Fill (fig. 3–4) and spindly trestles (fig. 3–5), are legendary. They remain to this day as part of the Golden Spike National Historic Site’s interpretative trail. Here, the extensive cutting and filling remain highly visible reminders that railroads seeking the easiest grades and broadest curves do not always get off easily.

Of the many interesting features here, Chinese Arch (until recently called “Chinaman’s Arch”) (fig. 3–6) is an open-arch formation in the dense gray limestone. Like a Chinese arch, which typically forms the gateway to towns and cities in China (and to Chinatowns in the Americas), Chinese Arch is tall enough to walk through and it helps frame vistas in the landscape. Surprisingly, known historical literature does not comment on this unique feature, at least not by the evocative name that we call it today. Is the name *Chinese Arch* a historical moniker crediting
The Chinese workers who toiled here, or is it a recent name given by history-conscious people of the twentieth century who recognized the efforts of the Chinese workers? Archaeological work is necessary to verify the claim that a cluster of graves of Chinese workers is located nearby (close to the present highway). Moreover, it was commonly stated that the bodies of Chinese workers who were killed or died of natural causes while building the railroad in Nevada would ideally be shipped home to China, though if and how this worked in Utah is unknown.

Even more perplexing than the naming of Chinese Arch or the actual location of the Chinese cemetery is the location of “Junction City”—the place east of Promontory where the two railroads were supposed to meet. By January 1869, a townsite had been platted in anticipation of being that fabled place. One reporter from *The Deseret News* described it as “. . . the largest and most lively of any of the new towns in this vicinity.” Junction City was reportedly located where the railroad lines begin their ascent toward Promontory, which would likely be in the vicinity of Lampo, and “nearly surrounded by grading camps [with] Benson, Farr and West’s head quarters a mile or two south west [sic].” Junction City was reportedly a tame and orderly place while the community of Dead Fall, about two miles distant, was said to be “notorious for its violence.”

![Chinese Arch, eastern slope of the Promontory Mountains, Utah, appears to be a natural feature, possibly modified by construction activities in 1869.](Photo by author)
The location of these camps remains one of Promontory’s many mysteries, and archaeological fieldwork will be needed to find them.  

The surveying frenzy that had provided Martineau and others with work not only caused rampant roadbed grading; it also resulted in a stunning set of maps showing the two competitors’ positions. The Special Pacific Railroad Commission was empowered to determine exactly what both roads had accomplished. These maps produced by the commission were important, for they clarify what led up to the joining of the rails at Promontory. Although the photographs taken on May 10, 1869, suggest that the Union Pacific and Central Pacific met head-to-head at Promontory, in fact, the tracks of the two railroads originally were some distance apart here. Because the United States Congress now demanded the railroads meet here, however, the Union Pacific routed its line closer to the Central Pacific at a point that would become legendary in the history of the West. That, however, only occurred after maps showing the locations of the two routes for the Pacific Railroad from Ogden over to the Summit of Promontory and as far west as the western end of the Great Salt Lake were prepared. These maps could better help federal authorities and Congress comprehend what the railroads had accomplished. Based on the surveys and construction records of the Union Pacific Railroad Company and the Central Pacific Railroad of California (scale 1 inch to 1,000 feet), these maps show the position of the railroads before Congress required they meet at Promontory Summit (fig. 3–7).

The Special Pacific Railroad Commission’s maps, then, reveal the expended effort and the money spent, in places where the surveys and roadbeds were duplicative. As it turns out, the countryside for about forty miles in either direction from Promontory Summit was the scene of a gargantuan battle between two giants. It also happens that this same eighty miles of contested right of way would ultimately coincide, almost exactly, with what we now call the Promontory Summit line of the Pacific Railroad.

In this regard, the large-scale Special Pacific Railroad Commission map section between Ogden City & Bear River is worth a closer look. It shows the City of Ogden consisting of about two-dozen blocks, and located 1,033 miles from Omaha and 744 miles from Sacramento. West and north from Ogden, the railroad lines diverge considerably, with the Central Pacific farther east. They come much closer together at Hot Springs, running nearly parallel with the Central Pacific still east of the Union Pacific. Continuing west-northwest near Willard City, the lines again diverge, and they are about a mile apart at Brigham City. By the time they reach the Bear River, however, both lines again converge. That is because natural features tend to limit a railroad’s options. For
example, an ideal or narrow crossing place of a river like the meandering Bear River will find surveyors in closer agreement as to where their routes will run. It is in this area that Corinne would soon thrive.

From this section of the map set, we see a pattern that tends to prevail wherever Union Pacific and Central Pacific competed. Generally, Union Pacific seems to prefer a lower elevation, in many cases hugging the lakeshore, while Central Pacific takes the higher ground, topographically speaking. This likely happened because Union Pacific was obsessive about keeping its grade as nearly level as possible. Meanwhile, the Central Pacific, which had tackled the Sierra Nevada early on, seemed less concerned about grades and curves. To Central Pacific surveyor teams, in fact, surveying much of western Utah must have seemed to be relatively easy work—except in the area around Promontory.43

No section of the Special Pacific R.R. Commission’s map portfolio was more spectacular than the portion between Bear River & Summit
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For the first twenty-one miles, the lines run across fairly “level ground,” as the mapmakers called it. This includes the Bear River Plains, and continues through the “mud beds formed by Salt Springs” at the base of the Little Mountains. West of this point, after the lines traverse the desolate “Sage Plain,” are the formidable “Mud Flats” and “Salt Marsh.” At Salt Springs Point, the Union Pacific and Central Pacific lines cross each other, running fairly parallel though separated by about one hundred feet. They cross again at an unnamed creek actually known (then and now) as Blue Creek. At this point, things change noticeably, for the railroads are about to tackle the Promontory Range (fig. 3–8).

For the next seven miles, both railroad lines run upgrade as they scale the east slope of the range. For the first two miles, the Union Pacific line is located slightly higher than the Central Pacific line, but from the point where a creek bed is crossed, the Union Pacific and Central Pacific cross. From there to the summit of Promontory, the Union Pacific is located at a slightly lower elevation, and south, of the Central Pacific line. This portion of the line had the most spectacular cuts, fills, and trestles. It
was in this stretch that both railroads speculated about building a tunnel that could avoid the east face of the Promontory Range, but careful surveying proved that would be unnecessary.\footnote{45}

The next adjoining map section prepared by the Special Pacific R.R. Commission shows the \textit{Locations and Routes for the Pacific Railroad between the Summit of Promontory \& Monument Point}. It, too, offers interesting commentary on the battle between the Union Pacific and the Central Pacific. As on all maps in this series, the lines of the two railroads appear in color—Union Pacific in red, Central Pacific in blue. This section map appears to be the first to publicly show the “Summit of Pass” (fig. 3–9). The map reveals a half-mile swath of land as “Summit Level”—the levelness revealed by the lack of any hachure marks. This summit was, in fact, a fairly broad plain, and it would later prove an ideal location for the two railroads to meet.

At that time, however, it was unknown exactly where the railroads would meet. As on the other maps in the series, the two mapped railroad lines shown here make subtle reference to the battle underway. Next to
the line in red, a point about a half-mile west of the summit reads “1086 miles from Omaha,” and a point on the blue line just west of the pass reads “690 miles from Sacramento.” Similarly, at Monument Point (fig. 3–10), the Central Pacific mileage is “666 miles from Sacramento,” and the Union Pacific is “1110 miles from Omaha.” Before grading roadbeds, each railroad had to “file”—i.e., officially submit a map to federal authorities. In several areas between Monument Point and Promontory Summit, a “broken black line” shows the “Line filed by the Central Pacific R.R. Co., Oct. 14th 1868.” In reality, though, both railroads became overzealous in those final months, anticipating approval. To add to the public’s confusion, names like Monument Point, Promontory, Promontory Point, and Promontory Summit were not easy to differentiate. With the terms Point and Summit mentioned so prominently and interchangeably, small wonder the public tended to use the term Promontory Point for where the railroads would meet!

Also contested was the line west of Monument Point, which is located on the sweeping lake plain west of the Promontory Range. To that end,
another map in the series—Map Showing the Locations of Routes for the Pacific Railroad . . .— showing the area from Monument Point to the Summit of Red Dome Pass (fig. 3–11). Drawn at a scale of 1 inch to 1,000 feet, like the map from Promontory Summit to Monument Point, the map reveals how far the two lines diverged in some places. For example, while the Central Pacific ran farther north of the Great Salt Lake in this area, the Union Pacific actually crossed the streams issuing from Locomotive Springs and one called, appropriately enough, “Brackish Springs.”

As the surveyed lines neared Red Dome, however, they continued to run closely parallel, crossing each other in a couple of locations. Once again, in rugged country where options were limited, the two railroads crowded each other. This again reminds us that rugged topography tends to reduce options for railroad surveyors and graders. The drawing of Red Dome features beautiful details using the hachure style so common at this time. The language on this map is telling, for “the Red line indicates line located by Union Pacific R.R.,” but “the Blue line indicates line located and constructed by Central Pacific R.R. Co. of California.”
Mapmakers highlighted those words “and constructed” because they added them in the same script, in darker ink. It is clear from this line in the map’s cartouche that Central Pacific had the edge here.\textsuperscript{47}

During February 1869, the railroads were grading alongside each other in numerous places from Monument to Weber Canyon—a development that caught the full attention of the U.S. Congress. Both railroads wanted a presence in Salt Lake Valley and, in the interest of symmetry and fairness, Congress leaned toward the small Mormon community of Ogden as the ultimate end of each railroad. Even before the driving of the golden spike, then, Union Pacific and Central Pacific were ultimately destined to meet in the vicinity of Ogden, though intense wrangling during the early spring of 1869 dictated a more symbolic, if isolated, locale—Promontory Summit.

No single place better exhibits the railroads’ aggressive surveying and roadbed grading than Promontory Summit. Congress, though, had had enough of this dramatic and costly activity, and threatened to determine the meeting place of the rails if the railroads wouldn’t. Accordingly, on April 8, 1869, Collis Huntington and Grenville Dodge met in Washington, D.C., in order to determine the final meeting point of their railroads. It must have been a tense meeting indeed, with the determined titans finally chained together and told to make peace. After negotiating much of the night, they reached an agreement that finally put Promontory on the map. Their agreement also added to the perpetual confusion about what to call the place, for the document itself identified “the summit of Promontory Point” as the meeting place! On April 10, however, Congress accepted the location, properly identifying it as “Promontory Summit, at which point the rails shall meet and connect and form one continuous line.” Because of the agreement, the Central Pacific crews stopped working at Blue Cut, and Union Pacific halted its construction activities at Monument Point. The goal now was to make the meeting of the rails at Promontory Summit as orderly, and as spectacular, an event as possible.\textsuperscript{48}

In this regard, it is worth looking at the Union Pacific’s maps of the transect from Humboldt Wells to Ogden in a bit more detail. Tellingly, Grenville Dodge’s private copy of the location maps comprising the entire Union Pacific Railroad route end at an unnamed location in the Promontory Range.\textsuperscript{49} There, in a masterfully drawn map, the Union Pacific line reaches skyward into the forbidding, rugged Promontory Range—and stops cold. The fact that absolutely nothing is depicted beyond “1085.88 miles” on the map—no former Union Pacific survey, no Central Pacific line—is symbolic. It is almost as if Dodge ended the story not wanting to publicize the outcome: was it just another job to
him? Dodge knew, of course, that politics and fortune had kept the Union Pacific from reaching as far west as Nevada, and possibly beyond. And yet, that unnamed spot in the Promontory Range would be the location—perhaps *stage* is a better word—for the singular event of the nineteenth century, the joining of the rails.

The diaries and internal correspondence of those working for the railroads reveals some interesting twists on the Promontory story. James H. Martineau’s diary clearly indicates that Union Pacific had now committed to building over the Promontory Range with more than just the Omaha-San Francisco Pacific Railroad contracts in mind. As Martineau makes clear, that was not the only route-related issue concerning Union Pacific. They were also bound for the Pacific Northwest, and had envisioned a junction close to the Promontory Range to do so. Moreover, Union Pacific actually hoped to best Central Pacific at its own game, surveying a lower elevation line to central California over the Sierra Nevada via the Feather River—a route that would later (ca. 1908) become the Western Pacific.

As the two railroads built toward Promontory, Central Pacific was full of surprises, including the widely publicized feat of laying ten miles of track in one day. What seemed like a more or less spontaneous result of hard work was actually a carefully orchestrated publicity stunt. The Central Pacific already knew how much track the now nearly completed Union Pacific had laid in one day. Union Pacific was
now only 9½ miles from Promontory Summit, while Central Pacific conveniently had a gap much longer than that to fill. In anticipating meeting Union Pacific at Promontory, Central Pacific was ready to outshine its competitor in the eyes of the press and the nation. It is clear that the monumental work of building the transcontinental railroad suggested immortality, and Central Pacific wanted that prize in lasting recognition and remembrance.

Getting it required considerable logistical planning and a bit of secrecy. For days, Central Pacific carefully stockpiled all the necessary supplies and equipment at Rozel Flats. Now, in the early morning hours of April 28, with laborers champing at the bit, Central Pacific made its move, or rather staged its show. Carefully coordinated tie-laying crews consisting of Chinese and white workers progressed methodically and rapidly. With the ties now laid, another team quickly dropped rails “at a quick trot,” while mostly Irish workers placed tie plates and spiked the rail. They reached the future site of Rozel at noon and continued their animated pace uphill into the Promontory Range using a cut that Union Pacific had made. By evening, they had reached the ten-mile location, which was about two miles west of Promontory Summit. Amid rejoicing, news went out that the feat had been accomplished. A sign erected here declared “10 miles of Track, Laid in One Day, April 28th 1869” (fig. 3–12). It became a landmark for passing trains for at least a generation, until it succumbed to decades of weathering by the blistering sun, freezing precipitation, and strong winds of the Promontory Mountains.