

## BUILDING THE RAILROAD

The Central Pacific met its greatest challenge at the outset—the towering Sierra Nevada, which presented enormous engineering obstacles and strangling winter snows. Deep fills, rock cuts, high trestles, snaking grades, and 15 tunnels through 6,213 feet of solid granite blooded the CP crews. To protect the track from snowslides, they built 37 miles of wooden snowsheds and galleries. During severe weather they hauled materials by sled and wagon over the crest to the east slope so that work could continue. Blasting of the 1,659-foot Summit Tunnel stopped end-of-track 94 miles from Sacramento from November 1866 until August 1867. Then the tempo of construction increased. By mid-1868, end-of-track was nearly 200 miles from Sacramento, with more favorable terrain for rapid construction ahead in Nevada and Utah.

Union Pacific encountered little difficult terrain until it reached central Wyoming and Utah. Though the terrain was easy, UP had a problem not experienced by CP—Indians. The Sioux and Cheyennes knew that the railroad would end their way of life. They had the will and power to resist, so the Army and the railroad workers (some of them Civil War veterans) had to fight many skirmishes as the rails pushed westward. By mid-1868, UP had completed about 700 miles of track.

## THE GREAT RAILROAD RACE

By mid-1868 the great railroad race was in full swing. The intent of Congress was that the two companies were to build until they met. This junction point was never spelled out in the laws. Both roads wanted to build as much as they could. The prizes were subsidy bonds, land grants, and the trade of the Great Basin. An important but intangible prize was the prestige to be gained by the company that built the greater length of track.

Two provisions of the acts of 1864 and 1866 helped fan the flames of competition. One permitted the companies to grade 300 miles beyond end-of-track. The other permitted them, upon completion of acceptable grade, to draw two-thirds of the Government subsidy bonds before the track was laid.

By spring of 1868, CP surveyors were working as far east as Fort Bridger, Wyo., and UP crews had laid out a line to the California border. CP graders were in the Wasatch Mountains, and UP graders were working halfway across Nevada. The momentum was such that the competing crews built about 225 miles of parallel grades. The race had got completely out of hand. Finally, in April 1869, representatives of the two companies met in Washington and chose Ogden, Utah, as the final junction point. The actual joining of the rails would be at Promontory Summit. UP would build from Ogden to the Summit, and CP would then buy that section of line.

## TO PROMONTORY SUMMIT

In November 1868—before the decision was made in Washington—it became clear to Central engineers that they could not beat the UP to Ogden, and thus capture the Great Basin trade. CP, therefore, settled on the strategem of blocking UP progress west of Ogden. If successful, this would salvage at least part of the Great Basin trade for CP. Driven by this goal, CP went to work with a vengeance between Monument Point, on the northern end of Great Salt Lake, and Ogden. By the end of 1868 they had two-thirds of the grade completed except for the eastern face of the Promontory Mountains.

Union Pacific didn't begin grading west of Ogden until February 1869. But by late March their grade was nearly completed to the eastern base of the Promontory Mountains. Here work on both grades slowed. Ascent of the Promontory required fills, trestles, and deep cuts through solid limestone. To make the ascent, each company built 10 miles of track to cover an airline distance of 5.

The construction features attracting the greatest interest on the Promontory were CP's Big Fill and UP's Big Trestle. Work on the Big Fill began in February 1869. The fill—170 feet deep and 500 feet long—required about 10,000 yards of dirt and the labor of hundreds of men and draft animals for nearly 2 months. The Big Trestle excited even more attention than the Big Fill. UP, in the interest of speed, elected to build a trestle across the deep gorge. UP planned later to replace the trestle with a fill. Construction began in early April. On May 5, workers drove the last spike and a train-load of iron steamed across.

One day, in the heat of the race, UP crews laid about 8 miles of track, and promptly lorded this achievement over CP. Not to be outdone, CP determined to top this record. The date was April 28; the site the gentle west slope of the Promontory. By early afternoon a picked crew had laid 6 miles of track; by 7 o'clock that evening, a little more than 10. This record-setting feat stopped UP jeers and put Central Pacific within 4 miles of the junction point.

## DRIVING THE GOLDEN SPIKE

The companies chose May 8 as the date for joining the rails, but delays set it back 2 days. On May 9, Union Pacific laid track to within one length of the Central Pacific, thus setting the scene for the ceremonies the following day.

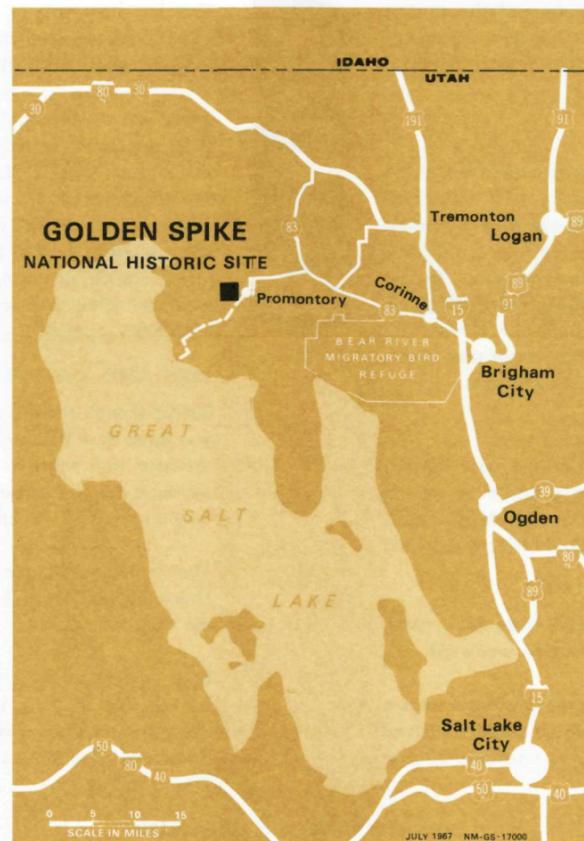
On the morning of May 10, the UP delegation arrived. It was headed by Dr. Thomas Durant, financial genius and vice-president of the road. The CP delegation, headed by its president, Leland Stanford, was already there, having arrived 3 days earlier.

Ceremonies began at noon when Central Pacific's *Jupiter* and Union Pacific's *119* steamed slowly up to the gap in the tracks. Irish and Chinese laborers then put the final rails in place. James Strobridge and Samuel Reed, construction superintendents for the CP and UP, slid a polished laurel tie, predrilled to receive four ceremonial spikes, under the rails at 12:20.

After opening remarks and a prayer, Dr. Durant, standing at the west rail, received two gold spikes from California and dropped them into the tie. Next, Stanford, at the east rail, placed a silver spike from Nevada and a spike of an alloy of iron, gold, and silver from Arizona into their holes. Then these spikes were symbolically "driven" with a silver-plated sledge.

Finally came the actual driving of the last spike—an ordinary spike into an ordinary tie with an ordinary sledge. For the ceremony the sledge was wired and connected to the UP telegraph. Both Stanford and Durant took a swing at the spike and missed. Nevertheless the telegrapher tapped out "DONE" and triggered celebrations in every major city in the Nation.

Amid cheers and the shrill whistles of locomotives, spectators and participants shook hands and broke a bottle of champagne over the laurel tie. The *Jupiter* backed up and the *119* crossed the junction onto the CP tracks. Then *119* backed up and *Jupiter* crossed onto the UP tracks. Thus transcontinental rail travel was symbolized.



REPRINT 1969 \* U.S. GOVERNMENT PRINTING OFFICE : 1969 O-352-382

For sale by the Superintendent of Documents,  
U.S. Government Printing Office Washington, D.C. 20402  
Price 10 cents

## PROMONTORY AFTER MAY 10

The new tent city of Promontory lived a short but evil life after May 10. Even after the terminus moved to Ogden in early 1870, the CP maintained a roundhouse and engines at Promontory to help heavily loaded trains up the east slope.

In 1903, Southern Pacific, which had absorbed Central Pacific, began the Lucin Cutoff across Great Salt Lake to shorten the line. When it was completed in 1906, almost all rail traffic used it, with only occasional traffic being routed through Promontory. Finally, in 1942, Southern Pacific pulled up the rails and contributed them as scrap to the war effort.

All that now remains of those flamboyant and lusty days at Promontory Summit are eroding grades and cuts in the desolate Promontory Mountains of northern Utah.

## ABOUT YOUR VISIT

Golden Spike National Historic Site is about 30 miles west of Brigham City. To reach the site, drive 23 miles westward on Utah 83 to the Promontory Junction; turn left and go 2 miles to the next junction; then turn right and go 5 miles.

You will find restaurants and motels in Brigham City. Facilities for camping are not available at the site.

## ADMINISTRATION

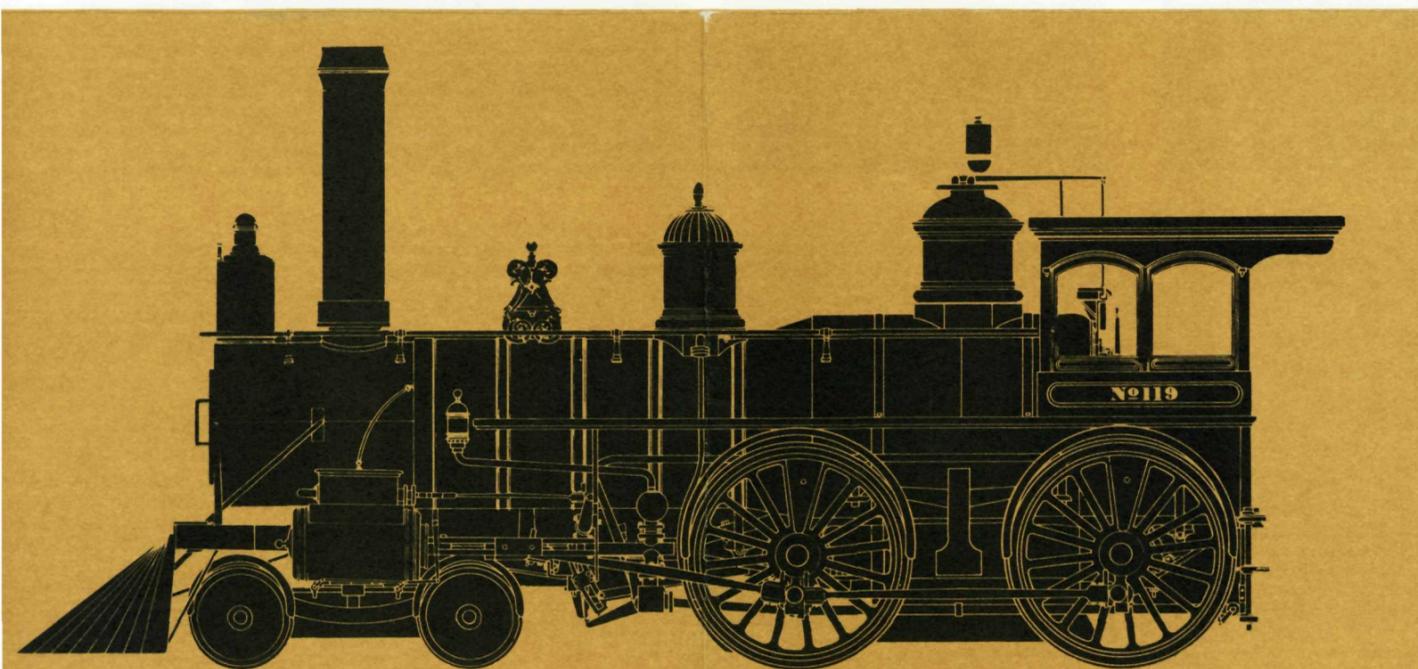
Golden Spike National Historic Site, authorized by Congress in July 1965, is administered by the National Park Service, U.S. Department of the Interior. The site contains 2,173 acres, including approximately 15 miles of the old railroad right-of-way.

The National Park System, of which this area is a unit, is dedicated to conserving the outstanding historical, natural, and recreational places of the United States for the benefit and inspiration of all the people.

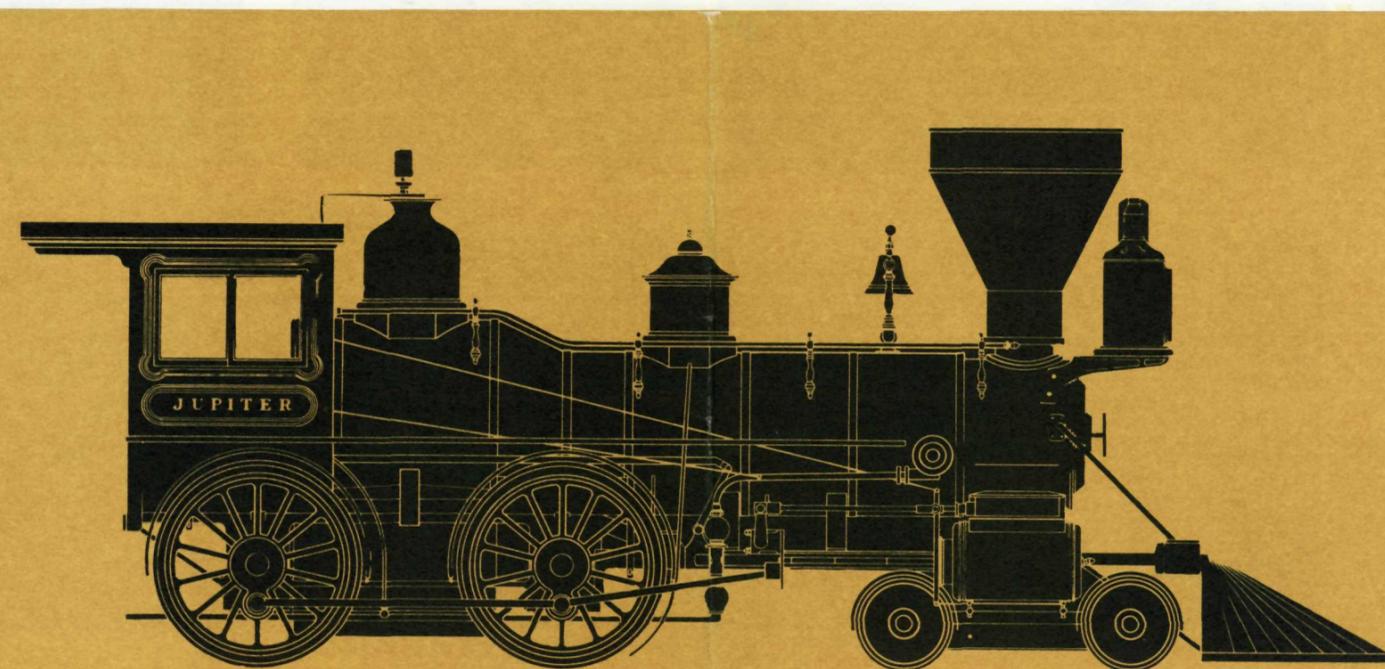
A superintendent, whose address is 623 South Main Street, P.O. Box 639, Brigham City, UT 84302, is in charge of the site.

THE DEPARTMENT OF THE INTERIOR—the Nation's principal natural resource agency—has a special obligation to assure that our expendable resources are conserved, that our renewable resources are managed to produce optimum benefits, and that all resources contribute to the progress and prosperity of the United States, now and in the future.

U.S. DEPARTMENT of the INTERIOR  
NATIONAL PARK SERVICE



**GOLDEN SPIKE**



At 12:47 p.m., May 10, 1869, the telegrapher's three dots—"DONE"—flashed coast to coast from Promontory Summit, Utah. The Golden Spike was driven, and rails from East and West were now connected. The Pacific railroad was a reality.

### THE PACIFIC RAILROAD

Why build a transcontinental railroad? Commerce motivated the private promoters of the Pacific railroad from beginning to end. They foresaw a booming business with California and the western territories and an even more lucrative trade with the Far East. The Pacific railroad would carry the commerce between Europe and the Orient.

But national leaders who backed the railroad had broader and longer range objectives in mind. They saw the railroad as a way of eliminating the Indian menace to travel and settlement in the West, as a way of transporting troops, supplies, and mail swiftly and cheaply, and as a physical connection to strengthen the political relationship of California and the western territories with the rest of the Nation.

The Pacific railroad lived up to all expectations but one. Completion of the Suez Canal 6 months after completion of the railroad prevented materialization of the trade route between Europe and Asia. But unforeseen way business from settlers in the "Great American Desert" tempered this loss. The greatest significance of the Pacific railroad was that it effected the first permanent breach in the far western frontier, set the pattern by which the frontier would be completely eliminated, and thus welded the Nation together. The railroad systems that followed cut the vacant lands into ever smaller parcels, and the tide of settlers that followed these roads made the destruction of the frontier inevitable.

### RAILS FROM COAST TO COAST

The Golden Spike story began in the early 1830's—soon after the development of the locomotive—when men of vision first saw the immense benefits of a railroad from the Atlantic to the Pacific. But the reality of this dream was many years, many miles, many lives, and two wars away.

Years of debate followed. The widely publicized explorations of John

C. Frémont popularized, and the Mexican War dramatized, the need for a transcontinental railroad.

By the 1850's there was general agreement that without Federal help a Pacific railroad could not be built. But the issue of the eastern terminus remained unsettled. The decade of the 1850's was a time of increasing animosity between North and South which colored nearly every public question of the day. Everyone knew that enormous economic benefits would accrue to the section that captured the railroad. This alone would have made the terminus issue difficult to resolve. Add to economics the emotions of the slavery question that wracked pre-Civil War America, and the resolution of the eastern terminus question became impossible before the Civil War. Given this impasse, the only way this question could be settled was to eliminate one of the contending parties from the debate.

### ORIGIN OF THE CENTRAL PACIFIC

While politicians debated the location of the eastern terminus and the four routes surveyed by Army engineers, a group of Californians acted. A railroad engineer, Theodore D. Judah, surveyed a feasible route through the Sierra Nevada, then sought backers for a railroad. In San Francisco he was unable to enlist financial support. But in Sacramento, Leland Stanford, Collins P. Huntington, Mark Hopkins, and Charles Crocker, all successful merchants, saw the commercial advantages that could be theirs. On June 28, 1861, these men incorporated the Central Pacific Railroad Company of California.

### FINANCING THE RAILROAD

The beginning of the Civil War ended the terminus and route debates. Spurred by the tireless lobbying of Judah and a group of eastern railroad promoters and by the urging of President Lincoln, Congress passed an acceptable Pacific railroad bill, and the President signed it on July 1, 1862.

Under this act, the Central Pacific was to build from Sacramento eastward; the Union Pacific was to build from Omaha westward.

Other provisions of the act and later legislation gave the railroads a 200-foot right-of-way through the public domain, 20 sections of land for each mile of completed railroad, the loan of 6-percent 30-year

# GOLDEN SPIKE

U.S. bonds, and permission for the companies to issue bonds in amounts equal to the Government bonds. The Government bonds were to be issued to the railroads at the rate of \$16,000 a mile east of the Rockies and west of the Sierras, \$48,000 a mile through those mountain ranges, and \$32,000 a mile between those ranges.

As generous as these terms seem, they proved inadequate to finance this gigantic undertaking. As a result, both companies indulged in shady financial manipulations—much too tortuous for treatment here—to raise the funds to build the transcontinental railroad. These manipulations not only pushed the railroad to completion in record time but also made its financiers extremely wealthy men. The profits of UP were more than 200 percent; profits of CP have never been fully determined, but they exceeded those of UP.

There was the inevitable reckoning. The financial methods pursued to build the Pacific resulted in inflated capitalization for both companies and meant decades of high rates and operating losses. The *Credit Mobilier* investigation in 1872 brought the railroads bad publicity that strained relations with the public and the Government for many years and produced hostile legislation. However, almost all railroad historians, while deploring the financial buccaneering of the railroad builders, agree that only through such methods could the railroad have been completed without far more liberal Government aid.

### MEN AND MATERIALS

Sordid though the financial history of the Pacific railroad may be, it was more than balanced by the dramatic construction story, in which the men who actually built the railroad justly took pride. By completing a railroad across 1,775 miles of wilderness in less than 4 years, they set a record yet unequalled.

The Central Pacific broke ground in Sacramento in January 1863; the Union Pacific in Omaha in December 1863. Progress was slow until the Civil War ended.

Both companies dealt with tremendous logistical problems. The CP had to ship at great expense all the equipment from the Atlantic coast around Cape Horn or across the Isthmus of Panama to San Francisco. The UP, until completion of the Chicago and North-

western line to Council Bluffs in November 1867, drew its entire stock of materials from Missouri River steamers. Union Pacific even had to import ties until its line first reached the Black Hills of Wyoming and then the Wasatch Mountains in Utah. All material and supplies for the army of workers then had to be forwarded by train from the terminus to end-of-track—a transportation requirement that grew heavier with each mile the rails advanced. Beyond end-of-track the grading crews and surveying parties had to be supplied by wagon train.

Until the end of the Civil War, materials and manpower were in short supply. Then war veterans, mostly Irish immigrants, flocked to Omaha to join UP's construction crews.

The CP had a more serious manpower problem. Railroad wages failed to lure men from the goldfields. Finally, the CP imported Chinese laborers to build its road. By 1868, 11,000 Chinese were working on the CP.

### THE FIELD ORGANIZATION

Both railroads used basically the same organization for their field crews. Grenville Dodge was chief engineer for Union Pacific and Samuel Montague for Central Pacific. (Theodore Judah, CP's first chief engineer, died in 1863.)

The surveying crews, protected by army escorts in Indian country, worked far in advance of the line. Next came the graders and behind them bridge, culvert, and trestle crews. Finally came the tracklayers.

Base camps for construction headquarters and workers were set up near end-of-track. Each time the track advanced 100 or 200 miles, the base camp shifted forward to the new end-of-track. Tent cities sprang up near these camps, and some endured after the base camps moved on.

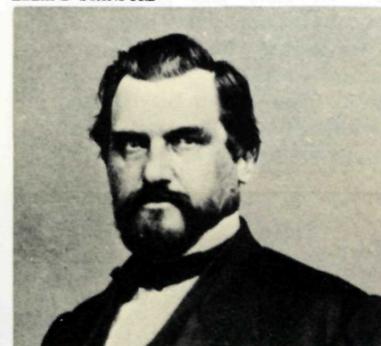
The construction camps of the two railroads were studies in contrast. The UP Irish invited the "Hell on Wheels" that followed them—whiskey, gambling, and all the associated vices. But the CP Chinese drank not at all and gambled only among themselves—poor pickings for the parasites that relieved the UP workers of most of their wages.

CHINESE GRADERS



COURTESY OF CALIF. STATE LIBRARY

LELAND STANFORD

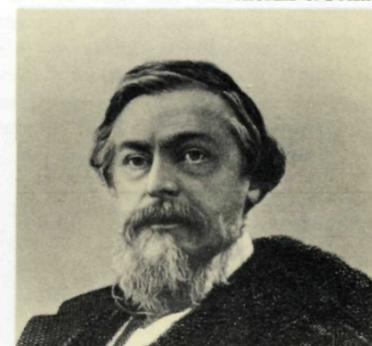


COURTESY OF STANFORD UNIVERSITY

MEETING AT PROMONTORY, MAY 10, 1869



THOMAS C. DURANT



COURTESY UNION PACIFIC RAILROAD

THE BIG TRESTLE

