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THE APERTURE

The Pacific Railroad

When the Telegrapher's three dots — D O N E — flashed coast to coast from Promontory Summit, Utah, at 12:47 p.m. on May 10, 1869, the rails from east to west were joined and the Pacific Railroad had become a reality. It had been a long time in coming.

Despite virtually unanimous public sentiment for a Pacific Railroad, almost four decades of debate and discussion, liberally dosed with meaningless oratory preceded the driving of the last spike. Within a matter of months after the introduction of the steam locomotive to the United States in 1830, farsighted men conceived the idea of a railroad from the Atlantic to the Pacific. By mid-century, after a rail network had spread over the East and Midwest to the Mississippi River, a railroad to connect this network with the West Coast became a great public Issue. Those who advocated the railroad saw both its necessity and the immediate benefits it would bring to the Nation. But only a few, and they but vaguely, understood the vast influence the Pacific Railroad would have on the continental development of the United States. This is a story of the Pacific Railroad—most often called the *Transcontinental Railroad*.

Welcome to the Golden Spike National Historic Site, at Promontory Summit, Utah, elevation 4,875 feet

Visitor's Center at the Golden Spike National Historic Site at Promontory Summit.

During our recent road trip to Glacier Park in Montana my wife and I visited the Golden Spike National Historic Site at Promontory Summit in Utah. This is where, on May 10, 1869 the Pacific Railroad, consisting of the Union Pacific and Central Pacific railroads were joined by the driving of a golden spike thus connecting the Atlantic Ocean with the Pacific Ocean by a ribbon of steel comprised of steel rails measuring 30 feet (9.144 meters) in length and weighing 560 pounds set at 4 feet 8½ inches (1.4351 meters) apart. As General Sherman, one of the strong proponents of this project stated: *"If it is ever built, it will be the work of giants"* — and it certainly was.

Promontory Summits lays at 4,905 feet above sea level on a vast section of Utah high desert just north of the Great Salt Lake. It is not one of the visited sites in the National Park Service (50,000 visitors per year) but it is certainly one of the best kept and has a vast historic legacy. The visitor's center is well staffed with knowledgeable rangers and stocked with plenty of books and other documentation.

The actual join of the Union Pacific and Central Pacific lines on May 10, 1869 where the golden spike was driven

There is a plaque marking the point of the actual point of join and a replica of the Golden Spike encased in a glass case as the original resides at the Stanford University Museum. The two locomotives are well maintained and run at least twice per day. The Central Pacific's "Jupiter" is parked facing east and the Union Pacific's No. 119 faces west, just as on that May Day in 1869.

The Central Pacific "Jupiter"

A short film about the building of the railroad is shown every hour and the museum contains the tools used by the construction crews to build the railroad. As a retired professional surveyor I was amazed at the how much these men accomplished with such a limited tool kit. To set the line they used a compass transit and the graders used mule-drawn drag pans. They did of course have hammers, drills, horses, wagons, and plenty of black powder for blasting their way through rocks and building tunnels. They did not have front-end loaders, backhoes, bulldozers or dump trucks to build this 1,777 mile project (1,087 for the east bound Union Pacific starting in Omaha, Nebraska and 690 miles for the east bound Central Pacific beginning in Sacramento, California)

Union Pacific locomotive 119 approaching Promontory Point from the east

Over the years both railroads realigned their grades and tracks to such an extent that in 1942 all of the original rails were pulled up to provide steel for the war effort. Only a few miles of the original grade and rails exist at Promontory Summit.

Origin of the Pacific Railroad

In 1850 the U.S. House of Representatives' Committee on Roads and Canals succinctly stated the basic motives of the great segment of public opinion that championed the building of a railroad to the Pacific. Such a road, said the committee, would "cement the commercial, social, and political relations of the East and the West," and would be a *"highway over which will pass the commerce of Europe and Asia."*

Proponents of a Pacific Railroad based their arguments mainly on its commercial importance. The settlement of the Oregon question in 1846, the discovery of gold in California in 1848, and the admission of California to statehood in 1850 swelled the· population of the Pacific Coast.

And with commerce almost wholly dependent upon the long, slow journey around Cape Horn or across the Isthmus of Panama, both East and West foresaw a large and lucrative trade speeding by rail across the continent. Even more important, the promoters confidently predicted that a Pacific Railroad would divert much of the trade with Europe and Asia from ship to rail — the real objective point," recalled U.P. executive Sidney Dillon, "continued to be China and Japan and the Asiatic trade."

The commercial motive remained dominant from first to last, but there were other considerations that carried greater influence with Congress, and led the national lawmakers to overcome the deeply rooted opposition to Government-sponsored internal improvement projects and throw the weight of the United States, both moral and material, behind the idea. The railroad would hasten the final subjugation of the American Indians. It would also enormously reduce the time and expense to the United States in transporting mail and Government supplies. With the outbreak of the Civil War, political bonds between California and the Union had to be strengthened to counter the threat of that State's secession. The war also dramatized the defenseless condition of the Pacific Coast. Rapid transcontinental transportation was a necessary ingredient in solving both problems.

As early as 1832, seven years after the successful run of British engineer George Stephenson's steam locomotive in England, an Ann Arbor, Michigan, newspaper, The Emigrant, sounded the first call for a railroad to the Pacific. Even earlier, in 1819, John Mills of Virginia had suggested connecting the Atlantic and Pacific Oceans with a "system of steam-propelled carriages." The idea spread, and in 1836 John Plumbe, civil engineer of Dubuque, Iowa, held a public meeting to discuss such a project-the first of uncounted meetings to be called throughout the Nation in the next 25 years.

During the decade of the 1840's the widely publicized western explorations of John C. Fremont and the stirring events of the Mexican War focused attention on the West and helped to popularize the idea of a transcontinental railroad. Equally effective were the promotional activities of Asa Whitney, a New York merchant active in the China trade whose obsession was a railroad to the Pacific. He wrote articles, lectured constantly, and expounded his views to the foremost public figures of the day. He conceived the first definite plan for a road and laid it before Congress with the endorsement of 16 State legislatures and many public conventions and boards of trade across the country.

Although Congress failed to sanction his plan, Whitney had made the Pacific Railroad one of the great public issues of the day. Throughout the 1850's numerous railroad conventions were held at major cities of the East, and one convened at San Francisco. Leading statesmen such as John C. Calhoun, Jefferson Davis, Stephen A. Douglas, and others-declared their support. Both the Republican and Democratic Parties wrote the Pacific Railroad into their platforms, although the Democrats, still skeptical of Federal participation in internal improvement, made Government aid contingent on its constitutionality. The project inspired such enthusiasm that Senator. Andrew P. Butler of South Carolina was moved to complain: "It was said of the Nile that it was a god. I think that this Pacific railroad project comes nearer being the subject of deification than anything else I have ever heard of in the Senate. Everyone is trying to show his zeal in worshiping this great road."

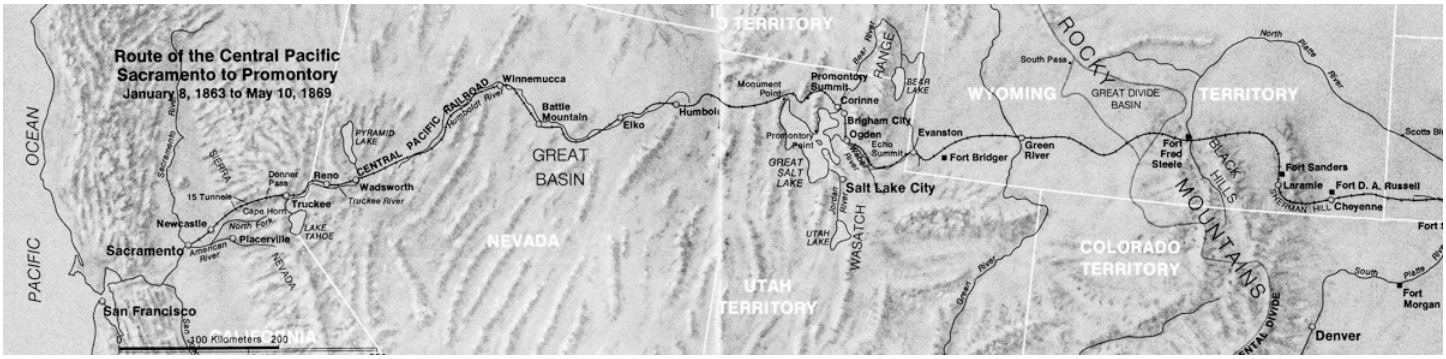
Politicians might agree on the necessity for a Pacific Railroad and on the impossibility of constructing one without Federal aid, yet each year's legislation introduced in Congress for this purpose failed. The lawmakers could not agree on an eastern terminus because the section that captured the terminus would gain immense political and economic benefits. Aside from these considerations, Congressmen knew almost nothing of the comparative merits of the possible routes across the country. To remedy this, they appropriated money in 1853 for the Army's Corps of Topographical Engineers "to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean."

Between 1853 and 1855 the Engineers surveyed two northern and two southern routes. They discovered that a railroad could be built on any one of the four, although the 32d parallel, along which the Southern Pacific later built, would be the least expensive. This route was, of course, as politically objectionable to Northerners as the northern routes were to Southerners. The Pacific Railway Surveys thus failed to resolve the issue; the principal result was a set of handsomely illustrated volumes that contributed enormously to knowledge of the American West. When the first transcontinental railroad was finally built, it followed none of these four routes.

The failure to agree on a Pacific Railroad route was only one aspect of a larger and more important disagreement. By mid-century the people of North and South had grown more firmly entrenched in their sectional views, and compromise, the hallmark of the American political scene, became a word without meaning. In this atmosphere there was no hope for a Pacific railroad, in fact little hope for the Nation to continue as before. The only certainties were debates more acrimonious than the day before. And then came the Civil War.

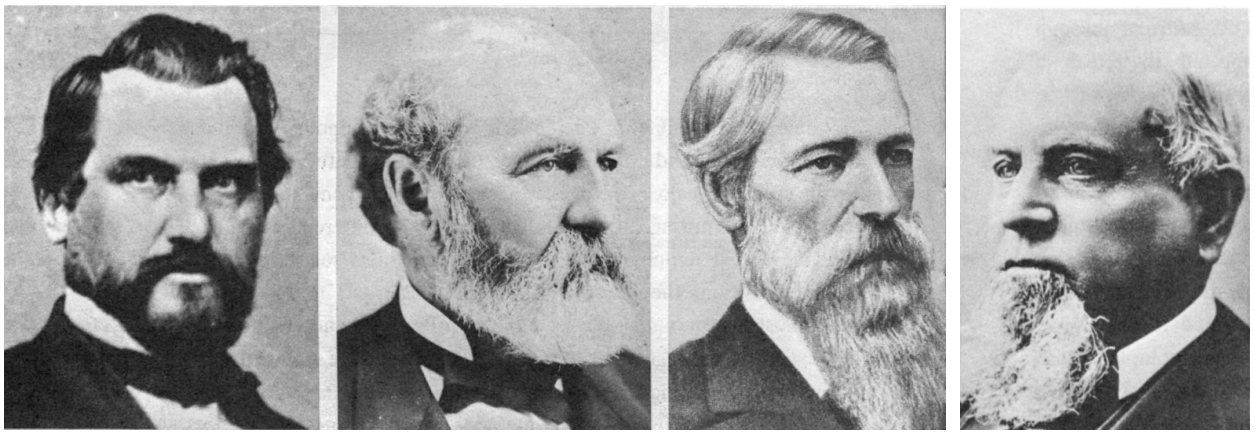
Organization of the Central Pacific

While Congressmen debated in the immediate pre-war years, a handful of Californians acted. An engineer of the Sacramento Valley Railroad, Theodore D. Judah, became obsessed with the idea of a transcontinental railroad. Like Whitney before him, Judah lobbied with politicians, merchants, and financiers, both in Washington and in his home State, Making little headway; he took to the field summer of 1860 to locate a line through the formidable Sierra Nevada Mountains. With preliminary data indicating the feasibility of a route passing through Donner Pass, Judah set out to raise money for the project. San Francisco gave him a cool reception, so he turned to Sacramento.



Final Route of the Central Pacific Railroad from Sacramento, California to Promontory, Utah

Here Judah infected four merchants of modest fortune with his enthusiasm. Leland Stanford, Collis P. Huntington, Mark Hopkins, and Charles Crocker were convinced that a transcontinental railroad could be built and that its builders would become rich and famous. But more immediate advantages interested them at the moment. Not only did the prospect of Federal aid appear brighter than ever in the spring of 1861, but immense profits seemed assured to the railroad that tapped the Nevada mining towns burgeoning on the eastern slope of the Sierra. On June 28, 1861, these men incorporated, under State laws, the Central Pacific Railroad Company of California. As chief engineer of the Central Pacific, Judah went again to the mountains for the summer. In October 1861 he set out once more for Washington, this time with a briefcase full of maps, profiles, and plans.



The Men Who Led The Central Pacific Railroad. Left to right: Gov. Leland Stanford, Collis P. Huntington, Mark Hopkins, and Charles S. Crocker known as the "Big Four"

The Railroad Act of 1862

During the winter of 1861-62, Judah worked tirelessly for legislation to aid the Pacific Railroad. So did a group of eastern promoters who hoped to build west from the Missouri River. President Lincoln convinced not only of the military benefits of the road but also of its necessity for binding the Pacific Coast to the Union, strongly supported the campaign. A similar government sponsored program would be enacted by President Eisenhower — the Interstate Highway Act of 1956 — some 94 years later.

With no prospect of a southern route being adopted and with no Southerners to oppose a northern route, Senators and Representatives had little difficulty agreeing on the terms of an acceptable bill. During May and June 1862 such a bill successfully made its way through Congress and on July 1 received the President's signature.

The Railroad Act of 1862 threw the support of the United States Government behind the transcontinental railroad. It authorized the Union Pacific Railroad, the first corporation chartered by the National Government since the Second United States Bank; to build westward from the Missouri River to the California boundary or until it met the Central Pacific. (Congress fixed the longitude and the President named Omaha the terminus.) The act also empowered the Central Pacific, which already had a charter from California, to push farther east and connect with the Union Pacific.

Government aid took the form of land grants and subsidies. The road was to have a 400-foot right-of-way through the public domain, plus 10 sections of land for every mile of track. These were alternate sections, five out of every ten on each side of the track, or one-half the land in a belt 20 miles wide.

For each mile of track completed, moreover, the companies were to receive 6-percent, 30-year U.S. bonds, principal and interest repayable at maturity, which were to constitute a first mortgage on the railroad. The bond subsidy was fixed at $16,000 a mile east of the Rockies and west of the Sierras, $32,000 a mile between the mountain ranges, and $48,000 a mile in the mountains.

Organization of the Union Pacific

The 1862 Act also named 163 men, 25 of whom constituted a quorum, to form the Board of Commissioners of the Union Pacific Railroad and Telegraph Company. These men were to work out a provisional organization of the company. When $2 million had been subscribed to Union Pacific capital stock and 10 percent of this amount paid in cash to the U.S. Treasury, the provisional officers were to give way to permanent officers.

A quorum of commissioners met at Chicago on September 2, 1862, and elected provisional officers. Within a year the requisite stock had been subscribed and 10 percent in cash paid to the Treasury. In October 7 1863, the stockholders gathered to form a permanent organization. They chose 30 directors, and elected officers: Maj. Gen. John A. Dix, president; Thomas C. Durant, vice president; Henry V. Poor, secretary; and John J. Cisco, treasurer. General Dix never took office, and until 1869 Vice President Durant guided the affairs of the Union Pacific.

The Railroad Act of 1864

Impressive ceremonies-more impressive than those 6 years later at the driving of the last spike — launched the two railroads. The Central Pacific broke ground at Sacramento on January 8, 1863, the Union Pacific at Omaha on December 2, 1863.

Neither road made much progress. The war sent the price of materials soaring and made labor extremely scarce. Capital could not be enlisted, for war prosperity afforded better investment opportunities than in a railroad whose first dividend lay far in the future. In California the Central Pacific found itself bitterly opposed by a powerful alliance of stage, ship, freight, and telegraph companies that fought with every weapon at its command. As California's Republican war Governor, however, Leland Stanford managed to bring some State financial aid to his company.

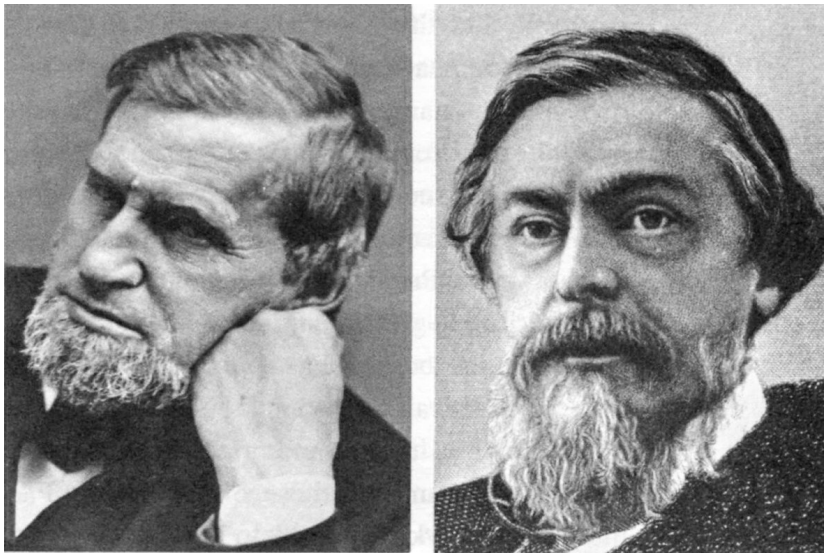
The building of a transcontinental railroad to link the potentially rich and opportunistic western lands to a prospering east where manufactured commodities were readily available was not totally an eastern concept. In 1852, two years after becoming a State, the California legislature resolved:

"…the interest of this State, as well as those of the whole Union, require the immediate action of the Government of the United States for the construction of a national thoroughfare connecting the navigable waters of the Atlantic and Pacific Oceans for the purpose of national safety, in the event of war, and to promote the highest commercial interests of the Republic, and granting the right-of-way through the states of the United States for the purpose of constructing the road." (State of California in Kraus 1969a:7)

With this, and by borrowing on their personal security, the four associates pushed their rails 18 miles east of Sacramento by February 1864.

But the Union Pacific did not even lay its first rail until the spring of 1865. The railroad builders, facing ruin, turned again to Congress with quite valid reasons for more Government help. The Railroad Act of 1864 was the result.

Signed by President Lincoln on July 2, 1864, this act doubled the resources made available to the railroad by the parent legislation. Although reducing the right-of-way from 400 to 200 feet, the 1864 Act doubled the land grant. The companies were now to receive 20 sections of land per mile—10 alternate sections on each side of the track. Of more immediate benefit, the Government relinquished its first lien on the railroad by authorizing the companies, as they received Government subsidy bonds, to issue equal amounts of their own 6-percent, 30-year bonds. liberalities that made compliance with Government regulations far easier than before.



The power behind the Union Pacific. Left to right: Oakes Ames, T.C, Durant

The company bonds were now to constitute a first mortgage on the road, the U.S. bonds a second mortgage on the road. In addition to these major concessions, the act contained a number of minor

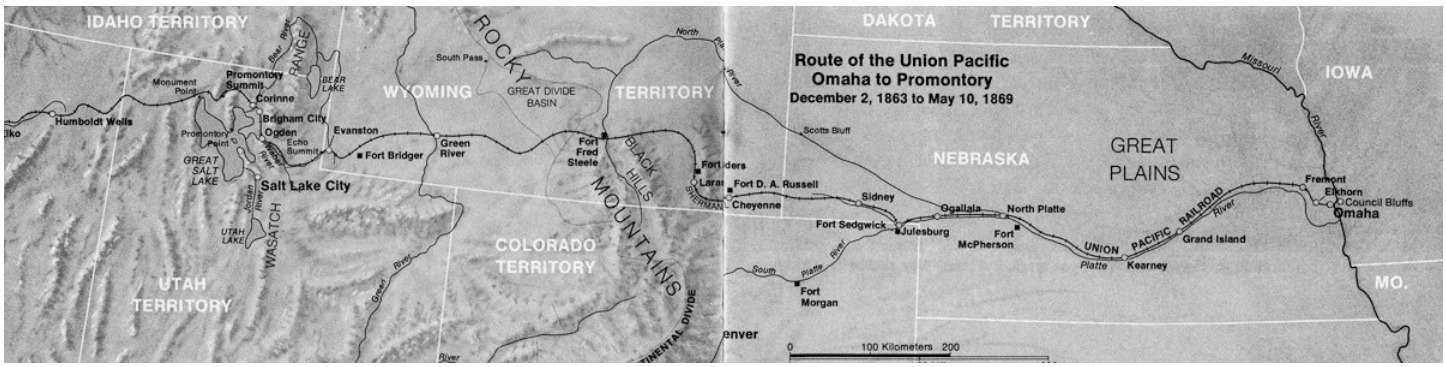
The act limited the Central Pacific to building no more than 150 miles east of the California-Nevada boundary. Of this provision, Collis P. Huntington later wrote: "150 miles ought not to have gone into the bill; but I said to Mr. Union Pacific, when I saw it, I would take that out as soon as I wanted it out." When he did, 2 years later, he fired the starting gun for the great railroad race.

The 1864 Act made the United States "virtually an endorser of the company's bonds for the full amount of its own subsidy," and now both the U.P. and the C.P. could draw on double the amount of subsidy granted for each mile of completed road. "The financial problem has been solved," rejoiced Stanford in July 1865, "and the result is abundant financial means to press forward the work to its utmost development." To abundant finances, the end of the Civil War added abundant labor and material. The two companies marshaled forces for a 10-year job that would take less than 4 years to complete.

Building the Pacific Railroad

The Pacific Railroad had been the subject of discussion, debate, and oratory for so many years that, once construction actually began, it aroused the most intense interest and curiosity throughout the Nation. Few people dreamed in 1865 that there would ever be more than one railroad across the continent.

The expense, almost everyone agreed, would prohibit other roads. Newspapers all over the country therefore followed the progress of the road in infinite detail, and it was described in expansive terms as the eighth wonder of the world and "the great work of modern America." From 1865 to 1869 the Pacific Railroad dominated the national consciousness as did few other events.



Route of the Union Pacific Railroad from Omaha, Nebraska to Promontory, Utah

The Builders

The men who built the Pacific Railroad rank among the most dynamic, brilliant, and resourceful of the 19th century. The key figures in each company were well versed in management and in construction, fields requiring different talents, involving different work, and attracting different temperaments. Working sometimes together, sometimes in opposition, they pushed the Pacific Railroad to completion against almost insurmountable obstacles, both financial and engineering.

Composing the management of the two companies were men skilled in corporate finance and administration. Their methods were those of the 1860's, employed by most of their contemporaries in business-practices condemned as thoroughly unethical by today's standards. Thus the truly great achievement of these men has been tarnished by the judgment of a later generation. They were, in fact, the first victims of the revulsion against such methods that swept the country during the early 1870's.

The Big Four ran the Central Pacific. Leland Stanford served as president and handled all matters requiring State and local political influence and manipulation. Collis P. Huntington, vice president, made his headquarters in New York. He negotiated for purchases of equipment and materials, solicited investment from Eastern and European capitalists, and represented the company in Washington. Treasurer Mark Hopkins-quiet, meticulous, and c1ear-minded-balanced the flamboyant Stanford and Huntington. He exerted great influence over his associates and usually saw the solution to difficult problems. Forceful and energetic, Charles Crocker was a silent partner in the management, earning his principal fame as the field man who supervised construction of the road.

Dominant in the Union Pacific management were Thomas C. Durant and Oakes Ames. Durant was vice president of the railroad, and, until 1867, president of the Crédit Mobilier of America, the construction company that built the road. A man of tireless energy and hair trigger temper, he made enemies of almost everyone with whom he worked.

Yet on the management level, he, more than anyone, was responsible for completion of the Union Pacific. Ames, Boston shovel manufacturer and Congressman from Massachusetts, came to the aid of the company in its blackest financial crisis. His vast resources kept construction going, although in the end personal bankruptcy resulted.

A bitter quarrel between Durant and Ames burdened the Union Pacific management. Durant, a speculator, wanted to make a fortune from construction and then abandon the road. Ames, the investor, was interested in building a good road as a long-term investment. Aggravated by other differences and by a personality clash, the Durant-Ames feud influenced the management of the U .P. throughout most of the construction period.

Other men of importance were Sidney Dillon, who succeeded Durant as president of the Credit Mobilier and later became president of the Union Pacific ; John Duff, director ; and Oliver Ames, brother of Oakes Arne and General Dix successor as president.

Both railroads had capable men in the field. With the exception of Crocker, they kept largely aloof from financial and organizational problems, devoting themselves entirely to building the railroad As a consequence, they escaped the public condemnation that later fell upon the manager of the companies.

For the Central Pacific, Crocker, as president of the construction company, was the driving power. Crocker summed up his role : "Why, I used to go up and down that road in my car like a mad bull, stopping along wherever there was anything amiss, and raising Old Nick with the boys that were not up to time." Crocker's right-hand man was his construction superintendent, James H. Strobridge. Chief Engineer Samuel S. Montague (Judah, so instrumental in forming the Central Pacific, had died in 1863) carried the surveys across Nevada and Utah to Green River, Wyoming, and directed all engineering work from Sacramento to Promontory. His chief assistant was Lewis M. Clement.

The Union Pacific also had an able corps of field men. Chief Engineer Grenville M. Dodge supervised U.P. surveys to the California border. Samuel B. Reed served as superintendent of construction. The partnership of John S. and Dan T. Casement held the contract for track laying and much of the grading. These were the men who carried the rails from Omaha to Promontory — l,087 miles in 4 years.

Theodore D. Judah, Chief Surveyor for the Central Pacific died in 1863

The Construction Companies

Both the Union Pacific and the Central Pacific met the same basic financial difficulty. Government bonds provided only half the necessary capital, and the land grants, potentially of enormous value, supplied no ready cash. Thus construction depended heavily upon private investment. But there was no incentive to investors. A railroad through virtually uninhabited country could not be expected to return a dividend for many years.

And Congress required railroad securities to be sold at par for cash. Both companies therefore resorted to a favorite device of 19th-century railroad builders-a construction company with interlocking directorate free of Government regulation.

The Union Pacific's construction company was the Credit Mobilier of America. In 1864 Durant bought the Pennsylvania Fiscal Agency, a corporation loosely chartered by the Pennsylvania Legislature to engage in practically any kind of business, and renamed it the Credit Mobilier. The directors and principal stockholders of this company were virtually the same as those of the Union Pacific. Greatly simplified, the process worked like this: The Union Pacific awarded construction contracts to dummy individuals, who in turn assigned them to the Credit Mobilier. The Union Pacific paid the Credit Mobilier by check (i.e., cash, for the benefit of Congress), with which the Credit Mobilier purchased from the Union Pacific, at par, U.P. stocks and bonds, which it then sold on the open market for what they would bring. The construction contracts were written to cover the Credit Mobilier's loss on the securities and to return generous profits. In this manner the directors and principal stockholders of the Union Pacific, in their opposite role as directors and stockholders of the Credit Mobilier, reaped large profits as the rails advanced.

The Big Four used an almost identical device to build the Central Pacific. Although in practice continuing to share in the management of the Central Pacific, Crocker resigned from the directorate and formed the construction firm of Charles Crocker and Company, in which Stanford, Hopkins, and Huntington were the only stockholders. The connection between the two companies was too obvious, and in 1867 the Big Four organized the Contract and Finance Company, with Crocker as president. Acting for the Central Pacific, they awarded to this company the contract for building the road from the California line to the junction with the Union Pacific, as well as for supplying all materials, equipment, rolling stock, and buildings. The chief advantage of the Contract and Finance Company over the Credit Mobilier, as railroad historian Robert E. Riegel pointed out, "was that it was able to get its accounts into such shape that no one has ever been quite able to disentangle them."

Such techniques not only pushed the railroad to completion in record time, but also made its financiers extremely wealthy men. The Union Pacific cost about $63.5 million to build, of which about half represented the Government's loan. The best estimate of profits gained is about $16.5 million, although the enormity of this figure emerges only when it is understood that at no one time did invested capital exceed $10 million. Profits thus amounted, not to 27½ percent, but to more than 200 percent. The Central Pacific's figures are more difficult to arrive at, mainly because many of its books were "accidentally" destroyed by fire during the Congressional investigation of the Credit Mobilier. The best authority, however, places the cost of construction at $36 million. The company received land grants and Government bonds valued at $38.5 million, while Stanford admitted that $54 million in Central Pacific stock transferred to the Contract and Finance Company in payment of construction contracts represented virtually net profit.

There was an inevitable reckoning. Both railroads were burdened with inflated capitalization that meant decades of high rates and operating losses. The Credit Mobilier investigation in 1872, moreover, brought the railroads bad publicity that strained relations with the public and the Government for many years and produced hostile legislation. liberal Government aid.

Nevertheless, almost all railroad historians, while deploring the financial buccaneering of the Pacific Railroad builders, agree that only through such methods could the railroad have been built without far more

Methods of Construction

Sordid though the financial history of the Pacific Railroad may be, it is more than balanced by the dramatic construction story, in which the field men of the two companies justly took pride. By completing the railroad across a 1,777-mile wilderness in less than 4 years, they set a record yet unequaled. This railroad building was not even equaled by the Soviet Union building the Trans-Siberian Railroad using 100,000 slave and convict laborers.

Both companies dealt with tremendous logistical problems. At great expense the Central Pacific had to ship by sea all equipment, tools, rolling stock, rails, bolts, and fishplates from the Atlantic Coast around Cape Horn or across the Isthmus of Panama to San Francisco. The Union Pacific, until completion of the Chicago and Northwestern to Council Bluffs in November 1867, shipped its materials and supplies to Omaha by Missouri River steamers or by wagon. Even ties, which the C.P. obtained in profusion from the Sierra Nevadas, the U.P. had to import until its line reached the Black Hills of Wyoming and the Wasatch Mountains. All material, plus 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. And beyond end-of-track the grading crews and surveying parties had to be supplied by wagon train.

During the first years, scarcity of labor delayed construction. For the Union Pacific, the end of the Civil War solved this problem. Veterans of the Union armies, mostly Irish immigrants, flocked to Omaha to enlist in Casement's grading and track gangs. The Central Pacific, however, in distant California, could not draw on this formidable labor pool. Railroad wages failed to tempt men who could earn more at the mines and perhaps, with luck, make a fortune. Strikes plagued the builders. Once, in order to break a strike, Crocker sent for some Chinese workers. They turned out to be excellent workers, and soon the Big Four were sending ships to China for recruits. By 1865 there were 7,000 Chinese, by 1868, 11,000. To them the term of "*Mistuh Clockee*" was applied. Stanford later asserted that "Without them it would have been impossible to complete the western portion of this great National highway." Known as "Crocker's Pets," the Chinese each received wages of $30 to $35 a month and were divided into groups of 30 men. Each group selected a leader who received all wages and bought group provisions. The Chinese workers are credited for saving $20 a month. Every night before supper, the Chinese workmen enjoyed hot baths in used powder kegs. Warm tea was available at the work site (Kraus 1969b:41).

The surveyors for the U.P pose at their camp near Echo Canyon, Utah. They are formally dressed for the occasion. They laid out the line. Most of the time they slept on the ground and did their best to avoid hostile Indians.

"Systematic workers these Chinese — competent and wonderfully effective because (they are) tireless and unremitting in their industry.

Their workday is from sunrise to sunset, six days a week. They spend Sunday washing and mending, gambling, and smoking." (Alta Californian in Kraus 1969a:217).

"They quickly picked up the necessary smattering of pidgin English. Otherwise they remained a segment of old Canton set down in Nevada, and remarkably unaffected by their change.

Their blue cotton smocks and trousers and their broad basket hats were ideal for the climate. When the felt-soled slippers of the new arrivals wore out, they purchased American boots at the company commissary, the price checked off against their wages due. The fit seems seldom to have been very good, for it remained a continuing joke among the superior whites that a Coolie always insisted on his full money's worth in the form of the biggest boots he could get. (McCague, 1964:104-105).

Chinese drilled and blasted a 1,659 foot tunnel through the Sierra Nevada for the C.P. Completed in 1867

Despite differences in financing the track laying and grading, the basic field organization for accomplishing the work was the same for both roads. Far in advance, staking the route, ranged the surveying parties, engineers, rodmen, flagmen, chainmen, axmen, teamsters, herders, and, in Indian country, a cavalry escort. They ran preliminary surveys, followed by actual location surveys.

Transcontinental Railroad track #1, Donner Summit Tunnel #6 (1,659 feet long-same as above). First use of nitro glycerin blasting. Two years in construction. Opened in 1867, now abandoned.

Survey crews from both companies advanced far ahead of railroad construction. By the spring of 1868, Central Pacific surveyors staked a line east across Nevada and Utah into Wyoming. Union Pacific surveyed a line as far west as the California border.

Next came the graders. Usually they prepared 100 miles of grade at a time —on the plains in about 30 days. In the mountains it took much longer and here the graders worked as much as 200 to 300 miles in advance of the track. Bridge, culvert, and trestle crews usually worked 5 to 20 miles from the railhead. The graders used pick and shovel for earth work, wheelbarrow and horse — or mule-drawn wagons for earth movement. For blasting cuts and tunnels through rock, they experimented with liquid nitroglycerine, but, for the most part, they used enormous quantities of safer black powder.

Using picks and shovels, carts, one -horse scrappers, and black powder graders about 20 miles of bed at a time, blasting hills and filing large ravines.

Grade construction followed the survey crews in advance of the track laying. Rivalry flared as both the Union Pacific and Central Pacific graders often worked side by side. This resulted in parallel grade construction between Monument Point and Ogden, Utah and possibly into southwestern Wyoming.

Officials of both railroad companies were optimistic that their line would receive the final right-of-way and the contracts and benefits included. Today parallel railroad grades are obvious and can be seen between Corrine, Utah and Monument Point at the north end of the Great Salt Lake

Horse-drawn drag pan used by C.P. and U.P. graders

"*From what I can observe and hear from others, there is considerable opposition between the two railroad companies, both lines run near each other, so near that in one place the U.P. is taking a four foot cut out of the C.P. fill to finish their grade, leaving the C.P. to fill the cut thus made, in the formation of their grade.*

The two companies' blasters work very near each other, and when Sharp and Young's men first began work, the C.P. 'let her rip.' The explosion was terrific. The report was heard on the Dry Tortugas, and the foreman of the C.P. came down to confer with Mr. Livingston about the necessity of each party notifying the other when ready for a blast. The matter was speedily arranged to the satisfaction of both parties." (Deseret Evening News, March 31, 1869, in Kraus 1969a.238).”

Abandoned C.P. grade just west of Promontory Summit

Behind the graders came the track layers. This phase of work excited the greatest interest among spectators. A correspondent from the East described it on the Union Pacific:

Looking easterly along the original Union Pacific grade just east of Promontory Summit and north of the Great Salt Lake.

“A light car, drawn by a single horse, gallops up to the front with its load of rails. Two men seize the end of the rail and start forward, the rest of the gang taking hold by twos, until it is clear of the car. They come forward at a run. At the word of command the rail is dropped in its place, right side up with care, while the same process goes on at the other side of the car. Less than thirty seconds to a rail for each gang and so four rails go down to the minute. The moment the car is empty it is tipped over on the side of the track to let the next loaded car pass it, and then it is tipped back again; and it is a sight to see it go flying back for another load, propelled by a horse at full gallop at the end of 60 or 80 feet of rope, ridden by a young Jehu, who drives furiously. Close behind the first gang come the gaugers, spikers, and bolters, and a lively time they make of it. It is a grand "anvil chorus”. It is in triple time, three strokes to the spike. There are 10 spikes to a rail, 400 rails to a mile, 1,800 miles to San Francisco — 21,000,000 times are those sledges to be swung; 21,000,000 times are they to come down with their sharp punctuation before the great work of modern America is complete.”

At or near end-of-track was the base camp. It consisted of construction headquarters, tents for housing the army of workers, and acres of materials and supplies to support work at the front. As rails advanced 100 to 200 miles, the camp moved forward to a new location. Adjacent to each camp along the line of the Union Pacific a tent city sprang up almost overnight. Some survived after the camp departed, while others died as quickly as they had been born. The U.P. left a trail of these towns across the country: Fremont, Kearney, North Platte, Julesburg, Sidney, Cheyenne, Laramie, Benton, Green River, Evanston, and Promontory. Until the camp moved, they were roaring centers of fun-making and frequent homicides. The population consisted chiefly of gamblers, whiskey-peddlers, prostitutes, and criminals of every variety. Together they relieved the Irishmen of most of their wages.

On 2,500 ties per mile one crew could lay two pairs of 30 foot, 560 pound rails a minute. Spikers drove 10 spikes per rail, three blows per spike. Rail benders formed curves with sledgehammers. Note the square device at the rear of the track layer crew used to keep the gauge a 4'-8½"

By contrast, the Central Pacific failed to give birth to the "hell on wheels" that characterized the Union Pacific railhead. The docile Chinese did not drink and gambled only among themselves, hence were poor material for parasites looking for easy money. Also, while the Missouri River frontier produced every type of adventurer eager to seek his fortune in the West, Californians had already come west and were content to remain. Crocker and Strobridge, moreover, imposed law and order on their towns and kept liquor and vice under a watchful control.

Sidney Nebraska straddling US 30 today

Progress of the Central Pacific

Although the Central Pacific laid its first rail more than a year before the Union Pacific, it encountered its toughest work-the crossing of the Sierra Nevada-almost immediately. The rails reached Newcastle, 31 miles from Sacramento, on June 4, 1864. For the next 4 years, with numerous delays produced by financial, political, topographical, and weather problems, the C.P. labored to surmount the Sierra. The mountains presented enormous engineering obstacles to overcome in the face of severe weather. Deep fills, rock cuts, high trestles, snaking grades, and 15 tunnels totaling 6,213 feet through solid granite proved necessary. To protect the track from snow slides, 37 miles of wooden snow sheds and galleries had to be built. Recalling some of the difficulties, Construction Superintendent Strobridge testified:

Looking westerly along the Central Pacific transcontinental Railroad at Truckee, CA there was only a single track in 1869

"During the winter of 1866 and 1867 and the following winter of 1867 and 1868 there were unusually heavy snowfalls in the upper Sierra Nevadas.

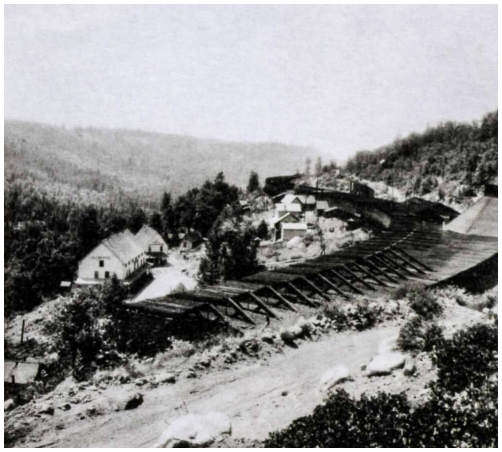
The tunnels were got under way with as large a force as could be used on them and the remainder of the force was sent to the Truckee Canyon on the east slope of the Sierras, where the snowfall was not so great as to entirely prevent grading during the winter, the total force being about 13,500 men at this time. The snow was so deep that it was impossible to keep the tunnel approaches clear and we were compelled to make tunnels through the snow from the dump to the tunnel entrances. Snow tunnels were also required to get into camp. In many instances our camps were carried away by snow slides, and men were buried and many of them were not found until the snow melted the next summer. In the spring of each year the men were taken back from the Truckee into the mountains and an average depth of ten or twelve feet of snow was cleared away before grading could be commenced.

The total snowfall of the season was about forty feet, and the depth of hard, settled snow in midwinter was eighteen feet on a level in Summit Valley and Donner Pass, over which we hauled on sleds track material for forty miles of railroad, three locomotives, and forty cars from Cisco to Donner Lake, where all was reloaded on wagons and hauled over miry roads to Truckee, a total distance of twenty-eight miles, at enormous cost. [Thus] the road was forced to the east slope of the Sierra Nevadas "

The line was opened to Clipper Gap, 43 miles from Sacramento, on June 10, 1865; to Colfax. 55 miles, on September 10; to Dutch Flat, 68 miles, in July 1866, and to Cisco, 94 miles, on November 9. Here end-of-track remained while thousands of coolies blasted in the Summit Tunnel. The tunnel was 1,659 feet long, and, during the year that work on it stopped end-of-track, other crews toiled at grading and track laying on the east slope. After completion of the tunnel in August 1867 the gap quickly closed, and the first train steamed into Truckee on April 3, 1868. The tracks reached Reno, Nev., 154 miles from Sacramento, on June 10, 1865, and Wadsworth, 189 miles, on July 22.

Looking over Donner Lake from Donner Summit Lake Road (the Lincoln Highway)

The Central Pacific had put the roughest part of the job behind it. Ahead lay the Nevada desert and conditions were favorable for rapid progress. Even so, the Union Pacific was far advanced. In May 1868 it had reached Laramie, Wyo., 537 miles west of Omaha. It had laid 348 more miles of track than C.P., but ahead lay the Wyoming Black Hills and, across the Wyoming Basin, the Wasatch Mountains.



Drifts and Avalanches so hindered trains in the Sierra Nevada that the C.P. had to build 17 miles of snow sheds to keep the snow off the tracks

Progress of the Union Pacific

From Omaha up the Platte Valley to the Wyoming Black Hills, the Union Pacific had easy going. The level valley of the Platte River presented few engineering problems. While the Central Pacific struggled in the Sierra, the Union Pacific's grade and track advanced steadily and smoothly.

The Union Pacific followed the old Oregon Trail (now US 30) up Nebraska's Platte Valley. It did not, however, cross the Continental Divide at famous South Pass. In 1865, still in uniform and campaigning against hostile Indians, General Dodge had accidentally discovered what he thought might be a practicable pass across the Wyoming Black Hills. Examination of this pass by U.P. surveyors confirmed Dodge's suspicions. Through Wyoming, therefore, the Union Pacific kept south of the Platte and the Sweetwater Rivers, thus considerably shortening the route.

But the Union Pacific faced an obstacle that never troubled the Central Pacific, and in Nebraska it appeared in its ugliest form. The Sioux and Cheyenne Indians possessed strength and a will to resist that the Paiutes of Nevada had long since lost. As the U.P. invaded their country, the dullest native soon understood what the rails meant to the Indian way of life. War parties swept down on surveyors, graders, and tracklayers, then vanished before pursuit could be organized. Appreciating the importance of the railroad to their own task of destroying the Indian barrier, Generals Grant and Sherman stripped the frontier of troops to place large forces on the line of the Union Pacific. Forts sprang up along the right-of-way-McPherson, Sedgewick, Morgan, D. A. Russell, and Sanders. Soldiers guarded the construction workers and rode with the surveyors.

William "Buffalo Bill" Cody's ranch house, North Platte, NE. Cody, like many other hunters kept the U.P supplied with meat and the U.P would send the hides back east for tanning.

In the Wyoming Basin, where the road penetrated Sioux country, the surveying parties, with their small cavalry escorts, bore the brunt of Indian hostility. One tragedy occurred in June 1867, when Sioux warriors attacked Assistant Engineer Percy T. Browne and eight cavalrymen. Forting up on a knoll, Browne and his men held the Indians at bay until dusk, when Browne caught a bullet in the stomach. The warriors withdrew during the night, and the soldiers carried Browne on a blanket litter 15 miles to LaClede Station of the Overland Stage Company. There he died.

Looking westerly along I-80 at the Continental Divide near Rawlins, WY. I-80 follows the track of the U.P through Nebraska.

On August 6, 1867, with railhead far out in Wyoming, Indians struck near Plum Creek, Nebraska (present-day Lexington).

Chief Turkey Leg's Cheyennes descended on the railroad and, as one of the Indians later recalled, "we got a big stick, and just before sundown one day tied it to the rails and sat down to watch and see what would happen." First came a handcar, which struck the "big stick" and sent its passengers flying. The Indians killed them, except for a man named Thompson, who was scalped but did not die. (A warrior dropped the scalp and Thompson retrieved it. Later, recovering from his wounds, he tried unsuccessfully to grow it back in place. For years it was on display in a jar of alcohol at the Council Bluffs Public Library.) Delighted with their first success, the Cheyennes next pried up some rails. A freight train came along, ran off the track, and piled up, a mass of flames, in a ravine next to the roadbed.

Another train, following the first, quickly reversed itself and backed out of the danger area. The Indians broke into the freight cars and had a grand party with the contents-barrels of whiskey, bolts of calico, ribbons, bonnets, boots, and hats. All the following day they indulged in an orgy of fun-making, like children set free in a toy store. Finally, just as the raiders were leaving, a train loaded with Maj. Frank North's battalion of Pawnee Indian scouts steamed up to the wreck and hastened the departure.

In the Black Hills the Union Pacific encountered its first difficult country and began to draw $48,000 a mile in subsidy bonds. Here, also, smoldering personal animosities within the U.P. hierarchy reached a crisis in the summer of 1868. Consulting Engineer Silas Seymour, Vice President Durant's man at the front, changed and lengthened a location that Dodge had accepted. Durant came west to support Seymour, and probably to try forcing Dodge's resignation. At a tense conference at Fort Sanders, Wyoming., a shaky truce was reached. Dodge would be allowed to locate the line of the road without further interference from Seymour. Also present at the conference were Ulysses S. Grant, who was touring the West as part of his presidential campaign, Generals William T. Sherman and Philip H. Sheridan, who were accompanying Grant through this part of the country, and an array of lesser civil and military notables.

The Union Pacific kept its stride. In 1865 it graded and bridged 100 miles and laid 40 miles of track. In 1866 it completed 265 miles of road; in 1867, 245 miles; and in 1868, 350 miles. In the winter of 1868-69 the rails moved into the rugged Wasatch Mountains where, on the summit and in Weber and Echo Canyons, the U.P. experienced on a lesser scale something of the ordeal that the C.P. had endured in the Sierra Nevadas.

Looking westerly towards the Wasatch Mountains at Echo Canyon, Utah. You can see the tracks of the Union Pacific Railroad running along I-80 on the right. This is still the original grade used by the U.P. in 1868

Surveying parties of both railroads pushed into the Great Salt Lake Basin. Brigham Young, powerful president of the Mormon Church, expected the rails to come through Salt Lake City. But a route around the north end of Great Salt Lake possessed decided advantages, besides avoiding the treacherous salt fiats west of the city. The Union Pacific chose to turn north at Ogden and follow the north shore of the lake, bypassing the Utah capital.

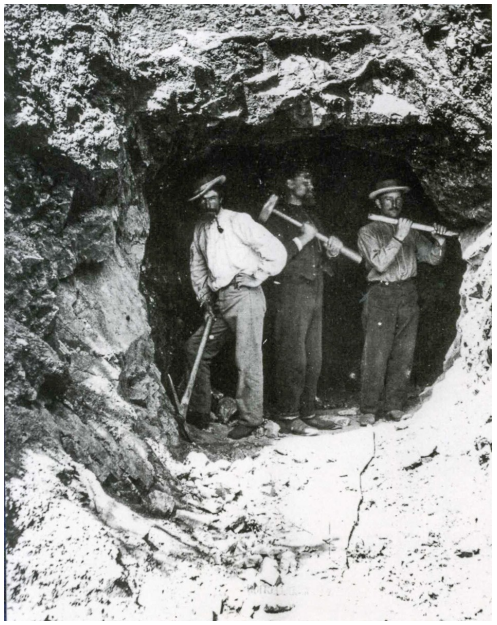
Young was furious, and he threatened to withhold the Mormon aid on which the U.P. had counted. However, when he discovered that the C.P. had also settled upon the northern route, he accepted the decision and threw the support of the church to both the Union Pacific and the Central Pacific, meanwhile organizing his own Utah Central Railroad to connect Salt Lake City with Ogden .

With limited grade construction remaining for both railroads, Leland Stanford awarded a construction contract to Mormon Church leader Brigham Young amounting to more than $2,000,000. Brigham subcontracted the work to prominent church members and ward bishops.

Among them were Joseph Young, President Lorenzo Snow, Ezra T. Benson of Logan, Mayor Lorin Farr, and Chauncey W. West of Ogden. Although disappointed that the railroad would follow a northerly course and bypass the capitol, the Mormons were eager to see its completion.

The contract called for construction of 200 miles of grade west from Ogden. The various jobs entailed in a grading contract, for the Union Pacific in Echo Canyon, may be analogous to contracts along the Promontory Branch:

- Earth excavation, either borrowed for embankment, wasted from cuts, or hauled not exceeding 200 feet from cuts into embankment, per cubic yard $ 0.27
- Earth excavation, hauled more than 200 feet from cuts into embankment, per cubic yard $ 0.45
- Loose rock, per cubic yard $ 1.57-1/2
- Solid lime or sand rock, per cubic yard $ 2.70
- Granite, per cubic yard $ 3.60
- Rubble masonry in box culverts, laid in lime or cement per cubic yard $ 5.85
- Rubble masonry, laid dry, per cubic yard $ 5.00
- Masonry in bridge abutments and piers, laid in lime mortar or cement, beds and joints dressed, drafts on corners, laid in courses, per cubic yard $13.50
- Rubble masonry in bridge abutments and piers, laid dry, per cubic yard $ 7.20
- Rubble masonry in bridge abutments and piers, laid in cement per cubic yard $ 7.65
- Excavation and preparation of foundation for masonry at estimate of engineer.



Mormon crews working for the Union Pacific workers pushed through rugged country to lay more than one mile of track a day. Virtually all the earth moving was accomplished with hand tools and horse-drawn carts. Nitroglycerin was limited and blasting powder was used for large rock cuts.

Records of Mormon construction camps are limited. Field investigations near Promontory Summit found architectural features diagnostic of grade and track laying camps. The authors and Anderson identified tent platforms and dugouts, some with masonry walls and fireplaces. West of the Promontory Mountains, the authors failed to locate isolated grade construction and track laying camps other than those which later became railroad maintenance stations. This may be explained by the relatively flat terrain of the Great Salt Desert. Consequently grade construction moved rapidly and housing became less permanent.

News accounts that describe Mormon grading in Echo Canyon for the Union Pacific, provide an impression of what camps may have been like in the Salt Desert:

Echo City, July 13, 1868

"BELOVED NEWS: - - We are here: and the railroad is coming. Already it is estimated, one half, if not more of the track down Echo Canyon is ready for the ties and rails.

"A birds-eye view of the railroad camps in Echo Canyon would disclose to the beholder a little world of concerted industry unparalleled, I feel safe to assert, in the history of railroad building. All classes of profession, art and avocation, almost, are represented. Here are the ministers of the gospel and the dusky collier laboring side by side. Here may be seen the Bishop on the embankment and his 'diocese' filling their carts, scrapers and shovels from the neighboring cut. Here are the measurer of tapes and calico and the homeopathic doctor in mud to their knees or necks turning the course of the serpentine torrents.

"Here the driver of the quill finds grace in propelling a pick. The man of literature deciphers hieroglyphics in prying into the seams of sand rock. 'Our Local,' when last seen, was itemizing on a granite point with sledge and drill to beat 300 yards or less into 'kingdom come,' or a big fill hard by; and 'Our Hired Man' had pitched into a dugway of loose rock high upon the mountain side, several fathoms above 'eternity's gulf stream' to carve out a new channel for the tide of travel, the track for the iron horse having absorbed the Pioneer road. Here the grey haired scissors-grinder and the editor returning to his wits, with a third party, supposed to be, had formed a co-partnership to run a cart without a horse on a hillside cut. One there was of the homogenous who 'plead' leave of absence to defend a contraband distillery. But such an illustrious corps of practical railroad makers must surely leave their mark. The above are real life pictures . . . (Deseret News, July 22, 1868 in Reeder 1970:33-34)."

The Dash to Promontory

It seems to have been the intent of Congress throughout that the two companies should build until they met, then, wherever this might be, join their rails and form a continuous line from the Missouri River to the Pacific Coast. But at each step in the evolution of Pacific Railroad legislation, Congress found it impossible to frame the statutes with sufficient precision to prevent the companies from interpreting them to serve their own purposes. Both companies had very cogent reasons for wishing to build and operate as large a share of the Pacific Railroad as possible. And they were willing to pay a very high price to attain this goal.

The Great Railroad Race

Although the loose language of national lawmakers made possible the great railroad race, it was motivated by practical considerations far removed from the halls of Congress. Every mile of track, of course, brought its reward in subsidy bonds and land grants. But there were other compelling reasons for speed. Above all, both companies aimed for Ogden and Salt Lake City, for the railroad that captured these Mormon cities would control the traffic of the Great Basin. If the Central Pacific won, it would carry the trade of the Great Basin over its tracks to San Francisco; if the Union Pacific won, this commerce would flow east to the Mississippi. Each contender, therefore, strained to reach Ogden and shut the other out of the Great Basin.

Each company, moreover, bore a constantly mounting interest on the Government loan and on its own securities. Although the 1864 Act gave them until 1875 to finish the road, every day that tied up capital in construction without the offsetting returns of operation made the burden of interest heavier. The Central Pacific faced the hard reality that the line over the Sierra Nevada had been expensive to build and would be expensive to maintain and operate. Without a compensating mileage on the level country of Nevada and Utah, the railroad would be unprofitable. Finally, the surge of public interest that focused on the Pacific Railroad provided a less tangible but no less powerful incentive. Both companies were convinced that the one that built the greatest length of railroad would enjoy the greatest prestige in the eyes of the Nation.

The Railroad Act of 1866, produced largely by the lobbying of Collis P. Huntington, cleared the way for the race. It restored the provisions of the 1862 Act by authorizing the Central Pacific to "locate, construct, and continue their road eastward, in a continuous completed line, until they shall meet and connect with the Union Pacific Railroad". This act did not specify where the point of junction would be, and from president down to spikers and gaugers, the men of the U.P. and the C.P. set out to advance that point as far into the territory of their competitor as possible.

Two provisions in the acts of 1864 and 1866 helped. One permitted the companies to grade 300 miles ahead of end-of-track. The other permitted them, upon completion of acceptable grade, to draw two-thirds of the Government subsidy bonds before the track had been laid.

As soon as Congress passed the 1866 Act, Chief Engineer Montague sent C.P. surveyors to run lines north of Great Salt Lake and east of Ogden in the Wasatch Mountains. By the spring of 1868 they were working next to the flags of the U.P. survey near Fort Bridger, Wyoming Union Pacific surveyors, meanwhile, had staked out a line across Utah and Nevada to the California border.

During 1868 and 1869, the decisive years of rivalry, both companies put grading crews far ahead of track; the Union Pacific even leapfrogged some graders as far west as Humboldt Wells, Nevada in June 1868 Leland Stanford took the stage to Salt Lake City. During the next 6 months he contracted with Brigham Young and other prominent Mormons to grade the line of the C.P. from the vicinity of Humboldt Wells to Ogden, Utah, a distance of about 200 miles. The U.P. had already let a $2 million grading contract to Young for work between Echo Summit and Promontory Summit.

Thus Mormon crews worked on parallel grades, deriving considerable profit from the rivalry and perhaps a measure of satisfaction at the discomfiture of the companies that had bypassed Salt Lake City. In the final reckoning, the Union Pacific and Central Pacific spent about $1 million on grade that was never used. Also, since the U.P. in the end could meet only half of its financial obligation to the Mormons, Brigham Young obtained $600,000 in U.P. rolling stock to equip his own Utah Central Railroad.

By the end of 1868 the Union Pacific had finished grading to the mouth of Weber Canyon and was laying rai ls down Echo Canyon. The Central Pacific, its track still in eastern Nevada, had made good progress on grading between Monument Point and Ogden. Both companies forged ahead. Expense was a secondary consideration. The important thing was to reach Ogden first.

In October the Central Pacific had worked a clever stratagem which came very near succeeding. It had filed with the Interior Department maps and profiles of its proposed line from Monument Point to Echo Summit. Secretary of the Interior Orville H. Browning, who had been hostile to the Union Pacific throughout, accepted the documents. Stanford then proceeded on the theory that the Central Pacific line was the true line of the Pacific Railroad, and the only one on which subsidy bonds could be issued. In Washington, Huntington filed application for an advance of $2.4 million in subsidy bonds, two-thirds of the amount due for this portion of the line.

The Union Pacific, of course, protested mightily. Dodge and the Ames brothers hurried to Washington and used all their influence to block the move of the Central Pacific. Browning retreated and in January 1869 appointed a special commission, headed by Maj. Gen. Gouverneur K. Warren, to go west and determine the best route through the disputed territory. Congressmen friendly to the Union Pacific exacted a pledge from Secretary of the Treasury Hugh McCulloch that he would not issue the bonds until the commission had reported the results of its investigation.

They failed, however, to take account of Huntington's powers of persuasion. As the administration of President Andrew Johnson drew to a close, the Treasury Department prepared the bonds for issue. By March 4, 1869, when Ulysses S. Grant took office as President, it had turned over $1.4 million to Huntington. When the Warren Commission reached Utah, it found that the Union Pacific was almost to Ogden and had obviously won the race. The commissioners therefore confined their investigation to the line between the two railheads. But the issue was to be resolved in Washington, where the new President and the officials of both railroads had been brought by events to appreciate the necessity of working out a compromise.

Dodge and several others interested in the Union Pacific met with Huntington in Washington on April 9, 1869. They drew up an agreement "for the purpose of settling all existing controversies between the Central Pacific and Union Pacific Railroad Companies." The agreement gave both railroads access to the Great Basin, with the terminus to be located west of Ogden at a point to be agreed upon by both companies. The U.P., however, was to build west from Ogden to Promontory Summit and there unite with the C.P. Then it was to sell this segment of the line to Central Pacific. Subsidy bonds were to be issued to the Union Pacific as far as the terminus near Ogden, and to the Central Pacific from the terminus west. The following day, April 10, Congress by joint resolution put its stamp of approval on the agreement.

End of Part 1 of the story of the Pacific Railroad.

In our next installment we will cover the last days of construction, driving the Golden Spike and the scandals involved surrounding our first transcontinental railroad

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

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