

Transcontinental Railroad

Transcript

Narrator: The first Transcontinental Railroad has been called the engineering marvel of the 19th century and a flat-out swindle; it opened new economies in the American West, while consuming vast quantities of its natural resources; it birthed one way of life on the Great Plains and destroyed another.

In making the road, a young nation would display its capacity for boldness, ingenuity, and industry. It would also reveal its capacity for greed, graft, and mindless violence.

New heroes of business and industry -- such as hardware dealer Collis P. Huntington and construction boss Jack Casement -- would make names for themselves. As would the engaging but rapacious scoundrel, Thomas C. Durant.

Phil Roberts, Historian: These were bigger than life kinds of adventures that were going on out West. Here was, in essence, the railroad representing civilization moving into the wilderness.

Fred Gamst, Anthropologist: It was just the feat that boggled the imagination -- that from Omaha and the Missouri River, they could build all the way to Sacramento and the Sacramento River with nothing in between these two early settlements.

Wendell Huffman, Historian: The Transcontinental Railroad was the technological manifestation of Manifest Destiny. This was how we were going to make this all one country.

Narrator: Even before construction began, the Transcontinental Railroad had precious freight to bear: the hopes and dreams of an entire nation. It hauled the promise of new wealth to the filthy rich, the landless poor, and everybody in between. As the road was built, Huntington,

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Casement, and Durant would be joined by Congressmen, engineers, prostitutes, laborers, and Main Street merchants in a desperate race for the loot. But the stakes were not merely personal. With the railroad complete, it was asserted, America could take its place as "the first nation of the world, in commerce, in government, in intellectual and moral supremacy."

The man who would fire America's first Transcontinental Railroad, Theodore Judah, was born in 1826 -- to a nation on the rise. The United States was a young republic but already possessed of big ideas for itself. And as early as the 1830s, while Judah was still a schoolboy, pamphleteers began to champion one entirely new idea: a railroad from the Atlantic to the Pacific.

The earliest railroad projectors were zealous as missionaries, and about as practical. None of these men had even seen the Far West. Yet they insisted this railroad would be the main commercial road between Europe and Asia. "The whole commerce of the vast world," one exclaimed, "will be tumbled into our lap."

Few Americans bought into these dreamy projections. Much of the West was presumed useless: a land, said one United States Senator, "which no American citizen should be compelled to inhabit unless as a punishment for crime."

Donald Fixico, Historian: There's so much land, so much space, air, the clouds, everything. It's almost magnified. The Rocky Mountains to the West. They're awesome. Rivers when they're flooding, awesome. A tornado, awesome. So these things are much greater than a human being.

Wendell Huffman, Historian: The country was empty essentially. Miles and miles of sage brush between anything they recognized in the Missouri River Valley until they got into the mountains of the West. It was basically a big blank slate.

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Narrator: There were a few lonely military and trading posts out west, the Mormon stronghold of Salt Lake City, and about 350,000 Indians, some friendly, many not. And as discovery of gold in California began to draw travelers across that land, those who made the nearly 2,000 mile trip found out how malicious the interior west could be.

David Bain, Writer: It was five months of sheer misery, and there were many people who died along the way whether if by the hands of Indians or from dysentery or cholera, accidents, starvation, lack of water.

Wendell Huffman, Historian: The 40 mile desert got its name during the overland immigration to California during the gold rush. It was the distance from the last good water of the Humboldt River as it evaporated and trickled into the sand before they finally got to the Truckee River. Forty miles without water in a world that's powered by animals is a long distance.

Carol Bowers, Historian: As the animals had difficulty they might have to lighten their loads. And so they might have tossed aside things like cook stoves, rocking chairs, furniture, almost any type of household goods. And certainly all along those trails, there are graves where people had to bury their loved ones and move on without them.

David Bain, Writer: There was a danger of the bodies being dug up by wolves and other predators. So usually people would be buried right on the trail itself, and then the constant tapping down of all of those covered wagons going past would just harden the earth and make it impossible for the grave to be desecrated. So most of the graves were not marked, and there's no way of knowing how many thousands of people died along that route.

Narrator: As gold-rich veins of ore were cracked open in California, the U.S. Army began to worry about protecting this valuable but far-flung state -- and safeguarding both the people and precious goods flowing east and west. A railroad could do it -- with all sorts of side

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benefits. Railroads in the east were already generating enormous revenues for owners -- and prosperity for the towns and cities along the lines. Many in Congress recognized that there was potential in a railroad to the western sea -- and agreed to fund surveys of possible routes for what was known as "the Pacific Railroad."

Wendell Huffman, Historian: They had personal stakes in the matter. Very realistic stakes. The Congressmen that were active on behalf of specific geographical points to be starting points for the railroad were, for the most part, invested in those communities. Stephen Douglas owned property in the site of Chicago. He also owned area in Duluth.

David Bain, Writer: Thomas Hart Benton, for instance, was very interested that the railroad would go through Missouri and head off toward the Rockies that way. Stephen Douglas would not cooperate unless the railroad went through Illinois. The Southern politicians -- people like Jefferson Davis -- wanted it to start in Georgia and move across. There was just no way that they could come to any kind of decision.

Narrator: Though Congress appeared to be hopelessly deadlocked, the idea of a coast-to-coast railroad had captured the imagination of engineers all over America -- and none more than Theodore Judah. Judah was a practically trained civil engineer, having begun work on eastern railroads at age 13 before heading west in 1854 to build the first railroad in California.

Wendell Huffman, Historian: His wife, years later, said that Theodore Judah took the job that took him to California because he wanted to have something to do with the Pacific Railroad. I suspect every civil engineer in the United States, at the time, wanted to have something to do with the Pacific Railroad.

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David Bain, Writer: He really had what his wife liked to call "the Pacific Railroad bug." And there were some people in Sacramento who called him "crazy Judah" because he was such a mono-maniac about the railroad.

Narrator: Theodore Judah had passable engineering skills but a genius for friendly persuasion. He could rhapsodize about 90-ton locomotives with driving wheels 14 feet in diameter, pulling freight and passengers across the plains at a hundred miles an hour. Judah also understood that before investors came on board they wanted to know what it would really cost to build the road through prairie, desert, and mountains, to grade and bridge and tunnel, and to lay nearly 2,000 miles of iron rail.

But Judah simply didn't have the money to conduct the sort of survey that would answer those questions. So he went to Congress to try to get a few happy incentives for potential investors.

When Theodore Judah arrived in Washington in the fall of 1859, talk of slavery and secession was crowding out all other business in the nation's capitol. Still he pressed his case. Even without a proper survey, Judah insisted a railroad could race across the plains, scale the Rockies and push easily through the Great Basin. The biggest obstacle was the Sierra Nevada Mountains -- and he'd yet to find a way through. So in his earliest projections, Judah's railroad would skirt the range to the north.

Wendell Huffman, Historian: In 1860, he's still thinking in terms of a railroad coming around the northern part of the state. And up until that time, he had never been in the Sierra Nevada looking for railroads. But in July of 1860, California is a different world than it was when he left the previous October. Everybody is trying to get to Virginia City, Nevada. The Comstock was discovered in late 1859. California had basically been in a depression for five years. The gold rush had been over. And suddenly there's silver just across the mountains. And there's this huge rush from California to Virginia City. And people are beginning to think that they

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could build a railroad to Virginia City. There's suddenly financial incentive to build directly into the Sierra.

Narrator: In October of 1860, a local storekeeper named Daniel Strong invited Judah to have a look at a place where he thought a railroad could cross the Sierras. If it worked, Strong knew, it was the straightest line to the Comstock Lode, and his little town of Dutch Flat would prosper.

It was a difficult, two-day ride to the summit, but on top, when Judah looked east -- out along an immigrant trail largely abandoned after the Donner Party's ugly demise -- the engineer understood immediately what he saw.

Wendell Huffman, Historian: So many places in the Sierra Nevada, there's a double summit. You come across the mountains and you drop down into a valley such as the valley where Lake Tahoe is. And then on the other side, you got another mountain ridge that you have to cross. And at Donner, you've only got one Summit. You come up the American River, you go down the Truckee River. And by being on the ridge above the river, you have a nice continuous plain that you use as a ramp. He knew that this was going to be a shortcut to Virginia City. This was going to make money.

Narrator: Judah and Strong drew up articles of incorporation for the Central Pacific Railroad Company and started looking for investors. At a meeting in Sacramento, Judah managed to entice one very important Main Street businessman.

Collis P. Huntington was a hardware wholesaler known for his willingness to bury competition and for his shrewd business sense. When Huntington said he was considering Judah's railroad proposition, other Sacramento merchants followed: Huntington's business partner, Mark Hopkins, dry-goods merchant Charles Crocker, and his brother, the attorney E.B. Crocker, and Leland Stanford, a wholesale grocer and would-be Governor.

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Taken together, the five were worth less than \$150,000; they were mistrustful of others and fiercely protective of their solid credit ratings. But with California's Gold Rush waning, and their revenues falling, this new project offered some hope. Even if the Sacramento merchants failed to get a railroad through the Sierras, they could at least use Judah's engineering for a wagon road to Virginia City.

Wendell Huffman, Historian: Huntington was very practical. And he wanted to know: what's the return? Hopkins didn't want any part of it. He was saying, what are we doing getting involved in this railroad? We've already got a good thing going with this hardware business. And so all they did initially was give Judah enough money to do a survey. And following that survey, in October of 1861, Judah went back to Washington, D.C. This time with maps and with profile.

Narrator: In an office in the Capitol building, Judah unfurled a 60-foot long map and smaller profiles of his proposed line across the Sierras. When Representatives and Senators wandered in, the 35-year-old engineer was always there to explain his plan: It would take just over \$12 million to build the line across California, he'd tell his visitors. He'd show them where the bridges and tunnels would go, the curves, the grades, the water tanks and depots.

David Bain, Writer: Looking at a map was one thing. But what Judah would have to face in reality was the 7,000-foot high Sierras with the terrible weather, the 30-foot snow drifts, the mud slides, the deep rock cuts that had to be done, the tunnels that had to be dug. It was going to be a tremendous amount of work to actually get this dream across the mountains.

Narrator: In the Sierras, Judah's plans called for bridging rivers and ravines, carving 20-foot wide shelves out of sheer mountain faces and driving 18 tunnels -- one more than a thousand feet long -- through solid granite. And there was not a manufacturer on the Pacific coast who could provide them locomotives or railroad cars, let alone drills, spikes, and rails.

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Many in Congress shied at starting such a difficult and costly project as the Civil War raged. But President Abraham -- who had long championed a Pacific railroad -- was lobbying hard for the project.

Fred Gamst, Anthropologist: Lincoln had a problem. The federal union was falling apart. He was fighting a costly and bloody civil war to put the union together. And here we had three Pacific states -- California, Oregon 1859, Nevada 1863 -- three Pacific states that were a continent away.

Wendell Huffman, Historian: It was essential for the conduct of the Civil War to have California money. California had a fairly strong secessionist movement. There was no way of guaranteeing that California would remain in the Union. That railroad is essential to keep the two coasts together.

Narrator: On July 1, 1862, President Lincoln signed a bill that gave Judah's own Central Pacific the right to build from Sacramento east and chartered a second company -- the Union Pacific -- to build from the Missouri River west. The legislation did not specify a meeting point for the two roads, but it did grant the railroad builders 6,400 acres of land for every mile of track laid, and as much as \$48,000 in government bonds for each mile completed.

There were strings, of course, and enough of them to hang both companies. The government would withhold nearly 20 percent of the bonds until the *entire* line was in working order, and it would not release a single dime to either company until it had built 40 miles of working railroad. If the road was not completed between the Missouri and Sacramento Rivers within a dozen years, all railroad company assets would be forfeited.

Wendell Huffman, Historian: When Theodore Judah returned with a franchise to build a Pacific Railroad, I think his partners -- and at that time they were all equal partners in this

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corporation -- I think they were a little bit surprised. And realized that it was time that they had to put up or shut up.

Narrator: On the morning of January 8, 1863 -- with Judah notably absent -- the Central Pacific began work with great fanfare. In downtown Sacramento, where the railroad grade began, thousands of people watched California's new Governor, Leland Stanford, throw the first shovel full of dirt. From the bunting-fronted grandstand, dignitaries heralded the coming of "a mighty tide of wealth such as mankind has never realized before."

When the party broke up, the CP partners found themselves alone. Few others were willing to invest in such a dicey project. When they began issuing contracts to local construction firms, it proved a mess.

Wendell Huffman, Historian: They discovered that the contractors were bidding against each other for the fairly limited labor market. And, they weren't getting the job done. And so it seemed to them that a better way to do it was to, for one of them to go out and just have one contract. And supervise and coordinate all of the construction effort. And for whatever reason, Charles Crocker was the man that became the contractor initially. And, Theodore Judah was uncomfortable with that.

David Bain, Writer: He just did not trust Crocker. He didn't trust the idea. He was afraid that these men were going to try to bleed the railroad dry. He wasn't convinced that they were really serious about doing it.

Fred Gamst, Anthropologist: Judah didn't have a good working relationship after the start with the big four. And they really took the reins in their hands after they could see there was feasible civil engineering ways of going through, through the mountains. And, that's what they did. They left Judah by the wayside.

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Narrator: Even as their crews were grading along Judah's line, the Sacramento shopkeepers were slow in paying their chief engineer. They cancelled contracts Judah had made with iron makers in the East, even questioned his lines of survey.

Wendell Huffman, Historian: In the summer of 1863, there's a showdown. And they basically tell Judah either you buy us out or we'll buy you out. But there was absolutely no way they were going to go down the same path together from that point on. Officially, Judah was still carried as chief engineer of the Central Pacific Railroad, but Judah sailed east, for the East Coast in the fall of 1863. He had seen grade built. He had seen a bridge built at Sacramento. He had not seen any rail laid. He had not seen any locomotives. He had not seen any part of the railroad. Judah is heading to New York. We know that he's looking for partners there to help him buy out these guys in California that he's not getting along with.

David Bain, Writer: Judah was really convinced that he could find some backers in the East. He maybe even had them lined up. So he and his wife got on the boat and headed down to Panama, crossed Panama and got on another boat heading for New York. And we will never know who those secret partners might have been because Judah contracted either typhoid or yellow fever along the way.

Narrator: When Judah's ship docked in Manhattan, the 37-year-old engineer was carried off the boat on a litter and deposited in a sickbed in the Metropolitan Hotel. On October 26, 1863, while Judah lay a continent away, the first rails of the Central Pacific were spiked to their ties. Before the news of the event reached him, Theodore Judah was dead.

The 1862 Railroad Act did not specify a starting point in the East. Railroads had already been built out past the Mississippi River, so the jumping off point for the new road would be somewhere along the Missouri. But again, Congress could not agree. The burden of decision, like so many other burdens, fell on the stooped shoulders of President Abraham Lincoln.

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In November of 1863, two days before he gave the Gettysburg Address, Lincoln puzzled over the maps and financial affidavits provided him by the Union Pacific company. Lincoln knew the 450 miles across Nebraska's Platte River Valley offered a cheap and easy start. He also knew he had political favors to repay. So he chose as the eastern terminus Council Bluffs, Iowa.

Stanley Hirshson, Historian: He was nominated in 1860 on the third ballot. Seward had been leading on the first ballot. And his managers made all kinds of deals. And, the bulk of the Iowa delegates at the Republican National Convention switched over to Lincoln and he really owed them something after the 1860 election. And this was kind of a pay-off to Iowa.

Narrator: This was happy news for Thomas Clark Durant. The vice president of the new Union Pacific Railroad Company was heavily invested in real estate just across the river, in Omaha, Nebraska. That real estate would be much more valuable if the railroad west began there. So the real terminus, as far as Durant was concerned, would be Omaha.

Thomas C. Durant had begun his professional career as a doctor of ophthalmology but found the world of business a more invigorating occupation for a man of his thrusting personality. He was a restless, energetic man who loved making money and knew how to do it. In fact, throughout his life, Durant showed a remarkable integrity of purpose. The Civil War, he discovered, was a bang-up way to cash in on contraband cotton.

Wendell Huffman, Historian: Durant comes across to me as a scoundrel. He's like someone that would bet on the other team. He would manipulate the market against his own company just for his own personal fortune.

Stanley Hirshson, Historian: He was a tremendous stock manipulator. In one episode he made \$5 million in one week pushing the stock of one railroad down and the stock of another railroad up and then going back into the original stock.

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David Bain, Writer: Durant had seen railroads being built across Michigan and into Illinois. He knew that there was a lot of money to be made. But usually it was along the side. His whole life with the Union Pacific-- he really-- I don't think cared whether it actually got finished. He just wanted to make as much money along the side as he could. And the people who worked under him knew that.

Narrator: Durant's earlier railroad projects were small potatoes compared to the Union Pacific. This new road was the biggest single government-funded construction project ever, and the 43-year-old Durant wasn't going to miss out. He managed -- illegally -- to get control of \$2.2 million worth of shares in the Union Pacific, installed his own straw man as president, and took charge of the company.

In 1864, in hopes of getting extra government aid, the Doctor distributed \$435,000 in cash and a quarter million dollars in bonds among legislators, their proxies, friends, and relatives. "If you think it safe," Congressman Lorenzo Di Medici Sweat wrote to Durant, "please let me into some purchase of stock will you... I will give my personal attention to your interests here." The Honorable Sweat and his colleagues passed a revised railroad bill in the summer of 1864.

The new act doubled the land grants, permitted the UP and the CP to borrow money in advance of the line built and ceded to the railroad companies all coal, iron and precious minerals found on the granted lands.

With these new enticements in place, Durant set up a separate corporation: a top secret entity called Credit Mobilier. Only a few of Durant's special friends were offered stock in the new company.

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David Bain, Writer: The Credit Mobilier was almost a revolutionary business practice at the time. It was the idea of a railroad company being able to borrow money on the land that they didn't even own yet but would if they actually built the railroad. That was the first principal. The second principal though was the real center of energy for it, and that was the notion of limited liability. Up until then, anybody investing in a company, if the company got into trouble, that person would be liable for not only what they had in the company, but their own personal fortunes, their own houses, their own property. But with this new idea, if a company got into trouble, the investor would only lose his investment. And this was a kind of an insulation that had never been practiced in business before.

Stanley Hirshson, Historian: The Credit Mobilier was really formed by the directors of the Union Pacific to do the construction. Now, originally, Durant gave the contract to an associate named Herbert Hoxie. What Hoxie did was hold the contract for a short period of time, sell it to Durant for \$10,000 so the Credit Mobilier would build the road and then charge the Union Pacific. In effect, Durant was paying himself for building the railroad.

The Hoxie contract called for building the railroad up the Platte Valley at \$50,000 per mile. Peter Dey was the chief engineer and he made the statement that anybody who charged \$50,000 for a railroad down the Platte Valley was nothing but a thief.

Narrator: The contract was worth \$12.5 million for building the first 247 miles of the Union Pacific Railroad. Peter Dey figured it would cost half that. The rest was pure profit. But the Doctor knew nobody was really watching; Congressional oversight was virtually nonexistent. So Durant's next move was the boldest yet.

David Bain, Writer: They were being paid by the mile, so why not make the line longer? So what he did was he took a perfectly good railroad survey and he lengthened it with this tremendous ox-bow shaped route that went out in a different direction from Omaha and added about a half million dollars to Durant's pocket in the bargain.

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Narrator: Peter Dey resigned in protest, but it didn't much matter. More than two years after Congress had chartered the company, the Union Pacific was little more than a paper railroad. When the Civil War came to an end in March of 1865, the UP had not spiked a single length of track. When the railroad's great champion Abraham Lincoln was assassinated a month later, the company still had not laid any iron. And on Independence Day, 1865, still nothing.

Many in Congress were wondering if they should simply cut losses and withdraw support from the Union Pacific Railroad. Thomas C. Durant had good instincts for self-preservation, and he understood it was now in his interest to start *building* a railroad. Suddenly, he cared about nothing else.

David Bain, Writer: He just sent a veritable blizzard of telegrams out to the poor people who were working for him out on the line saying, "Hurry up, hurry up, we're far behind our time. What are you doing wrong? I can replace you very easily. I want more work out of you. I will not accept no for an answer and I will not accept failure."

Narrator: Day after day, Durant wired his crew-bosses in Nebraska: "Do you or do you not want more men to lay 60 miles this fall, if so what kind? ...If men are not fed well and made comfortable they will not stay -- see to this.... What is the matter that you can't lay track faster."

For the Central Pacific, the earliest work -- nearest Sacramento -- had proved the least difficult. By the spring of 1865, the company had received more than \$2 million worth of federal and state bonds for track built -- and had revenues in both passenger and freight service for the 31 miles between Sacramento and Newcastle. Collis Huntington had moved to New York, where he could arrange for shipments of iron and raise East-coast money. Charlie Crocker had found a construction boss: the profane, hard-driving James Harvey Strobbridge, who could run the mostly Irish immigrant crews.

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But Strobridge had constant problems finding dependable men to fill grading and track-laying crews; California still had a small population; and most laborers preferred work nearer the comfort of town, or out in the gold fields.

David Bain, Writer: They put out handbills all over northern California advertising they needed 5,000 workers immediately for good pay. They advertised for 5,000 and 200 showed up, and they were absolutely desperate. They finally had the money. Money was burning a hole in their pockets, and what were they going to do?

Charlie Crocker suggested to their labor boss, James Harvey Strobridge, "Let's try some of the Chinese from down in the Valley and see if they work out." And Strobridge didn't like this idea. He said, "They can't be good workers. They're too weak. They're too insubstantial."

Sue Fawn Chung, Historian: Strobridge did not feel that the Chinese were physically able to do the kind of heavy labor that was required, especially in the Sierra Nevadas, the rocks, the granite, you know, the moving of this massive material. And, Charles Crocker said, "No, no, they can do it. They built the Great Wall. They can do it."

David Bain, Writer: Crocker persuaded him to try 50 and the 50 worked out. So they tried another 50. And those 50 worked out. So then they hired another 100 and slowly but surely, the labor force built up.

Frank Chin: They especially recruited the Chinese. They sent out circulars saying, you know, good jobs on the railroad, and it attracted us. We needed the money.

Narrator: In the Kwangtung province of China, decades of flood, famine, war, and depression had left much of the population without a decent living. Many men left home for railroad jobs in America to support their families; others left simply to make a new life in a new land.

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Frank Chin: I don't think they saw the West as a white country. They saw it as a country, just a country for anybody. And the Chinese wanted a piece. They were willing to work for it. But they wanted a piece for themselves, a piece for the families.

David Bain, Writer: They were certainly harder workers and more conscientious. They didn't get drunk every night and have fights. But one of the most interesting things that I think kept them going was just the question of diet. If you went to the Irish camps, you would find them eating boiled beef and boiled beans and drinking boiled coffee. And if you went over to the Chinese, you'd begin to smell the fertile aromas of garlic and cuttlefish and stir fried pork. When they drank, they didn't drink from ditches. They drank boiled tea. And they also didn't come down with dysentery the way that the Irish workers did because of this boiled tea.

Sue Fawn Chung, Historian: It was at least better than working in China where there was very little food and famine and starvation going on. A Sunday meal for the railroad workers was an elaborate banquet in their eyes. They would have imported foods from China that they were familiar with: oysters, dried meat. They would have pork, and chicken and abalone. This was really a magnificent meal.

Narrator: By the turn of 1866, the Central Pacific had 6,000 Chinese immigrants on the payroll, from ages 13 to 60. As much as 80 percent of the CP work force was Chinese. For \$30 a month -- less board -- the men worked six days a week, 10 to 12 hours a day, chopping down trees, blasting out cuts or shoveling in huge fills to even the grade. At the imposing Cape Horn, rising above the town of Colfax, they had to make a ledge where track could be run 1,300 feet above the valley floor.

David Bain, Writer: The only way to get the railroad line across was to start slow, to carve out a narrow shelf just wide enough for a man to walk. Then, over time, it could be enlarged until they could get entire crews out to chisel away the cliff face.

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Frank Chin: They had to cut a very hard rock. It had to be cut by hand. Tediously, cut by hand. It's hard, back-breaking, dangerous work.

David Bain, Writer: They lowered them by ropes, probably looping them around trees a couple of times up on the top and they would drill in a foot into this cliff face and then they would fill it with black powder and attach a fuse and light it and then scramble up those ropes as quickly as they could.

Narrator: By mid-summer 1866, track-laying crews were pushing out beyond Colfax, 55 miles east of Sacramento, laying 350 iron rails, 2500 wooden ties, and 10,000 spikes every mile. And that was the easy labor. Grading remained the balkiest work. Up to 500 kegs of black powder a day were spent blasting through cuts. Deep ravines had to be bridged by wooden trestles or dirt fill. As the crews pushed farther up the western slope of the Sierra Nevada, shale, sandstone, and cemented gravel began to give way to granite -- and the big question loomed: could those mountains be bested?

Out on the Great Plains, Thomas C. Durant was still in a swivet. The Union Pacific had completed only 40 miles of railroad in 1865, and they were the easiest 40 on the line. But as the company geared up for the 1866 work season, there was no shortage of labor. Tens of thousands of Civil War veterans had landed out of work, roaming the country, anxious to get as far as possible from the scenes of horror they'd witnessed.

Durant hired as his new chief engineer General Grenville M. Dodge. Dodge had been a commander for the Union Army in Tennessee and Georgia, and then on the Great Plains. He was a confidante of the two most important military men in the country: Generals Ulysses S. Grant and William Tecumseh Sherman. And he had already proved a useful agent to Durant. As a Union officer, Dodge had provided the Doctor classified intelligence to aid his contraband cotton operation.

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Stanley Hirshson, Historian: Dodge was probably as good a chief engineer -- that is surveyor locating routes -- he was as good as Peter Dey. But he was nowhere near as honest. He was imbued with this overwhelming desire to make money.

Narrator: The other man Durant sought that winter was a former Union Army cavalry officer named Jack Casement. Jack and his brother Dan had a reputation in railroad construction. On the Philadelphia and Erie, before the war, Casement crews had once laid three miles of track in a single day. But when Durant pushed him to take the track-laying contract, Jack said he'd have to check with Mrs. Casement. He lived in a democratic household, he said, and generally his wife outvoted him.

In fact, Frances "Frank" Casement was in a fragile state. Work and war had kept her husband away from their Painesville, Ohio, home nearly five of their seven years of marriage. And just weeks before Jack's new job offer, the Casement's four-year-old son, Charlie, had died of scarlet fever. But like Dodge, Jack Casement was a man in a hurry, convinced misfortune could be outrun, and fortune could be run down.

Casement spent the winter in Omaha overseeing construction of boxcars specially outfitted to serve as dormitories-on-wheels for his track-laying crews, waiting for the spring thaw so supplies and iron could be shipped up the Missouri River to UP warehouses, and trying mightily to hold to the temperance pledge he'd given his wife, who remained home in Ohio.

Voice, reading letter from Mrs. Casement: My Dear Husband, When I go to bed here all alone I think so much about Charlie and I see his little pale face while he lay sick, then his little body as he lay in his coffin and then that little mound of earth. I have never missed Charlie so much since he died as I have since you left me. I love you dearly and it is so hard for me to live away from you. Your Wife, Frank.

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Voice, reading letter from Jack Casement: My Dear Wife, I am first rate but impatient to have the ice go out of the river. It is mighty lonesome here and I am impatient to get to work. I want to see the thing start before I leave here. Just as soon as I get a bar laid I mean to travel home for my true love. I love you more than all the world besides. Write to me often. God Bless you and Keep you happy. Jack.

Voice, reading letter from Mrs. Casement: My Dear Husband, How many lonesome Sundays I have had in the past five years and I suppose I must expect more if I live. This cold weather does not look much like opening up the river, does it? I am trying to be patient, but it is rather hard. Goodnight dearest. Your wife, Frank.

Voice, reading letter from Jack Casement: My dear wife, The river is beginning to rise. I have been working with a few men grading and putting in a side track. We will commence track-laying next Monday. God Bless you and Keep you happy. Jack.

Narrator: The flat Nebraska prairie presented little difficulty for UP crews. The real obstacles were the people who saw themselves as the stewards of the land: the Northern and Southern Cheyenne Indians, the Sioux and the Arapaho. Skilled on a horseback, and with bow-and-arrow or rifle, these tribes moved by season from field of plenty to field of plenty, from hunting ground to hunting ground, sustained by the seemingly inexhaustible supply of buffalo.

Donald Fixico, Historian: The buffalo is a great symbol and great being to the Plains people because it's really their staff of life and even more than that. They figured out how to use the buffalo 52 different ways for food, supplies, war hunting implements, things like that. And so the hooves for example are boiled to use as glue. The hump back is, that part of the buffalo is really kind of sturdy and so it's used for making shields, the hides making a teepee for example. Took about 12 to 14 hides to do that.

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Narrator: For many Plains Indian tribes, the buffalo was the center of the natural world; following the path of this animal, they learned to respect the potency of nature: in its power to give, and to take away.

So when white settlers began streaming across the plains toward gold in California and then nearby Colorado, Indians regarded them as a new force of nature -- and an increasingly dangerous one. These travelers spread smallpox and typhoid, ran off buffalo herds, decimated the Indians foraging fields and fouled their water sources. By the time Pacific Railroad construction began, starvation and disease had wracked the Cheyenne, the Sioux, and the Arapaho.

Donald Fixico, Historian: The white intruders were changing the land. The game was becoming more difficult to find. Elk and buffalo, antelope was becoming more difficult to pursue because the people on the wagon trains, they also needed food. And obviously you had warriors who were, especially young warriors who were very upset by this.

Narrator: Though many of the Plains Indians remained on friendly terms with the Anglo-American travelers, the more militant tribes treated them as they would any other rival: they robbed and looted wagon trains, raided settlements and ranches, stole horses, mules, and cattle. On occasion, they killed, scalped and mutilated their victims. Peace was fragile; settlers rarely tried to distinguish between friendly and unfriendly Indians. U.S. militia units didn't always recognize a white flag.

Fred Gamst, Anthropologist: More and more white settlers came and coveted more and more of the land. Governor Evans of Colorado territory in 1864 abrogates the treaties with the Plains Indians. And then he encourages Colorado militias, vigilante type militias to go attack and raid the Indian camps. And in 1864, the camp of Cheyenne Chief Black Kettle was raided. And about 140 men, women, and children of the Cheyenne were badly butchered by these

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vigilante militias. They were clubbed, stabbed, shot. Accounts of the time talk about Indian women trying to crawl away from the carnage and being chased down and killed.

Narrator: Immediate and bloody reprisals followed the butchery at Sand Creek; an army of a thousand Northern Cheyenne, Arapaho, and Sioux stalked up the Platte Valley, murdering soldiers and civilians, menacing stage lines and wagon trains, ripping up miles of telegraph wire and destroying the town of Julesburg, Colorado, which sat astride the proposed UP line.

But by then, Indian leaders understood dramatics would not slow the steady press of westward migration. Pawnee warriors read the signs, and joined up with the U.S. Cavalry to help protect western settlers from other warring parties. The more visionary Cheyenne and Sioux leaders -- like Red Cloud -- concentrated their efforts north in the Powder River region, where the Bozeman trail threatened to destroy the only good buffalo hunting left to them. Farther south, near the Union Pacific line, their people were simply fighting for their lives.

David Bain, Writer: The winter of 1865 and 1866 had been a very brutal one. It had been colder than usual, and the Indian tribes had suffered terribly from famine. The U.S. government knew that there was trouble afoot. They had scheduled peace talks for June. And the tribal leaders were inclined to wait to see what the whites were going to bring to the peace table. But they just absolutely could not control the younger hot heads who, as soon as they could get out onto the Plains, were going out and rustling horses and livestock to feed their families, to survive.

Narrator: Small parties of Union Pacific surveyors were harassed and shot at. A few men were even killed. And their boss, Grenville Dodge, was apoplectic, sending pleas for help to his old army mate, General William Tecumseh Sherman. So the commander of the U.S. Army's western district headed out to assess the problem for himself.

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Stanley Hirshson, Historian: They met very few Indians at all. When they did meet a few Indians, they were very, very friendly. When they got to Colorado City a delegation came and asked them about protection against the Indians. And Sherman's answer was, 'There's no Indian menace around here. All you want is the Army stationed here so it will make Colorado City prosperous.' He came to the conclusion in 1866 that the Indian menace was vastly overrated.

Narrator: By the summer of 1866, the Casement crews were a juggernaut. In July, they built past the hundred mile mark; by fall past the 100th meridian. Jack Casement's men made as much as three miles in a day, fixing into place 300 tons of iron rail in 12 hours' time -- moving down the tracks in the 85-foot-long rolling dormitories Casement had built.

David Bain, Writer: Casement knew how to manage men. He knew how to get a 10 or 11 hour day out of his workers. He was very efficient and tough about moving forward.

Fred Gamst, Anthropologist: The model of organization, the marshaling of material logistically, etc. was done along military lines. A lot of the construction workers were Confederate and Union soldiers used to taking orders and, and the discipline that this kind of work required.

David Bain, Writer: Plus you had thousands of poor Irish who had just come over after the potato famine. They had filled up the teeming cities of the East and slowly been pushed westward. It was a rough life. The days were long; the work was hard; the sun beat down; the winter winds howled; there was always the threat that there was an Indian band over the next hillside.

Fred Gamst, Anthropologist: Well, if you're a laborer there, there wasn't too much good news. They had simple, simple foods: boiled beans, the equivalent of hardtack. The water often had Giardia in it; it caused dysentery. They lived in tents and the outfit cars with their

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berths four or five high that you slept in. They had very little opportunity for baths or bathing, personal hygiene. So the stench both within the cars and outside of the cars had to be tremendous. You got your two or so dollars a day and your inadequate meals such as they were. And then you could look forward to the pleasures of Hell On Wheels.

Narrator: Hell On Wheels was a town made to carry; as the railroad workers moved down the prairie, the entire town could be packed onto flatbed cars or wagons and hauled to the next felicitous spot, re-constituted and renamed.

Carol Bowers, Historian: End of tracks towns sprang up very quickly as the railroad came along. Many of the buildings were tents, maybe four posts in the ground with a canvas top for a cover. Many of the gambling halls and the saloons would operate 24 hours a day and one of the things that settlers mentioned frequently in their letters and journals was the annoyance from the noise of these gambling halls, the saloons. People shouting in the night. It was very noisy, very crowded, and very rough.

Most of the women coming along in that point were entrepreneurs. They were prostitutes who were here primarily for the same reason that the men were following this westward press of empire which was to make quick money and lots of it. And so they would locate themselves wherever there was a fluid population of men with money to spend.

Voice, reading W.O. Owen: It cost a man about \$10 an hour to trip the light fantastic with those soiled doves, and if he had anything left they would drug him and strip him of everything of any value before kicking him into the street. Immediately in front of Bull's Big Tent occurred the first murder I ever witnessed. In 10 minutes after that shot was fired the excitement had subsided. The street was clear, the games were in full blast, and the cry of "Promenade to the bar!" was issuing from the Big Tent. -- W.O. Owen

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Carol Bowers, Historian: Bull's big tent was a full-service establishment. They had almost every kind of gambling game that anyone could desire to play. And in the back there were cubicles that were partitioned with canvas for the women to transact business with their customers. And then a Dr. Allen announced that he had established offices in the rear of Bull's Big Tent and specialized in the treatment of sexually transmitted diseases. So actually you could go to the big tent, you could spend an afternoon or evening's diversion, catch things that you really did not want to have, and hopefully have them taken care of before you headed back on the railroad.

Narrator: As winter brought work to a halt in 1866, many railroad workers settled into the lascivious comforts of the newest end of track town: North Platte, Nebraska. Jack Casement had much to celebrate: his crews had made 265 miles in 1866, and back home in Ohio, his wife had given birth to a son. But not even that happy news could pull Casement from his pursuit of money. General Jack decided to stay on in North Platte, to make a little extra on side bets. That winter he built a boarding house, a general store to cash in on his free freighting privileges, and a cattle ranch so he could take a contract to provide beef to his own UP work-gangs.

Voice, reading letter from Mrs. Casement: Dear Jack, Be careful of your health. And for the sake of our little boy more for your own sake, beware of the tempter in the form of strong drink. Do come home as soon as possible. Your wife, Frank.

Voice, reading letter from Jack Casement: My Dear Wife. Here it is almost Christmas and I am still here. and if I get home on New Years now I shall feel thankful. There is so much to do. We want two or three hundred cows for next summer, are building a large ice house, have built a good slaughter house and Blacksmith shop, wash house and corral, so you see we are getting quite a ranch. Darling be as patient as you can. You don't want to see me more than I do you. God Bless and Keep you happy. Jack."

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Voice, reading letter from Mrs. Casement: My Dear Husband, If you don't come home and stay with us some this winter you will never know any thing more of this baby than you did of your first. Your wife, Frank.

Narrator: Jack Casement wasn't about to go home, not now that America was watching. With the North and South reunited, the nation had finally turned its attention to the joining of East and West.

The railroad line was crawling with correspondents and photographers. A new and exotic dateline -- "End of Tracks" -- festooned newspapers across the country. Telegraph wires strung alongside the tracks carried news of the iron road, its daily progress, and future it promised: "Great indeed will be the vitality of the republic when the warm blood from its heart pulsates to the remote extremities. This magic key will unlock... a world-encircling tide of travel, commerce and Christian civilization."

All that stood in the way of this new bounty was the road's completion. But that would prove more difficult than anyone imagined.

In the fall of 1866, as the Central Pacific completed its track to Cisco, 92 miles east of Sacramento, Chinese work gangs were hurried to Donner Summit, where seven separate tunnels had to be dug. The most difficult was number six, the Summit Tunnel. November snows were already beginning to blanket the mountains.

Forty-four snowstorms hit the summit that season. But inside the man-made caves, work continued around the clock, in three eight-hour shifts, at four separate headings: one on the east side, one on the west. And two in the center, where the men had to be lowered by ropes a hundred feet down an eight-by-12-foot man-made shaft.

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Even with 12 to 15 men drilling at each face and hundreds of barrels of black powder expended daily, the Central Pacific partners figured it would take 15 months to break through the tunnel.

David Bain, Writer: The Summit Tunnel was 1,659 feet long and its through some of the hardest rock in North America. And remember that we're working with hand drills and black blasting powder. It's not very efficient. It takes a lot of human effort and a lot of money to pay for that blasting powder.

Wendell Huffman, Historian: The Central Pacific is building a foot a day through these tunnels -- and it's just agonizing for them. They recognize that the Pacific Railroad is going to generate revenue from Omaha to San Francisco. And their portion of that revenue is going to be based on how many miles of track was the track that they built. They want to get as far east as possible. Those mountains are slowing them down. Meanwhile the Union Pacific has finally gotten organized. They've hired this guy Casement and he was bragging that he could build five miles of track a day.

Narrator: In his office in New York, Collis P. Huntington was reading breathless newspaper accounts of Casement's rapid advance -- with a growing sense of dread. If the CP crews remained stuck in the tunnels too long, Huntington figured, the Union Pacific would build right by them and all the way into San Francisco. Four years of work would be for nothing. The CP partners would be ruined beyond repair.

The Central Pacific's best hope was a dangerous gamble: liquid nitroglycerin. Nitro was the most powerful explosive ever made, and the least stable. In 1867, transportation of liquid nitro was illegal in the state of California -- and for good reason. Accidental explosions had all but disintegrated a Panama steamer and blown up half a block in downtown San Francisco. Body parts were found atop of buildings hundreds of feet from the blast site. But when a

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British chemist named James Howden told E. B. Crocker he could mix the compound on site at the tunnels, the CP partner shipped him straightaway to the summit.

Frank Chin: Nitro is a very temperamental compound. It tends to blow up on its own. And the Chinese had to handle it delicately.

David Bain, Writer: They had a surprisingly good safety record with this. And they were able to do more than twice the amount of work with nitroglycerin. It blasted more, it smoked less, it cleared out quicker. And they could really start to move on those tunnels.

Narrator: Construction boss James Harvey Strobridge hired Welshmen from Nevada's hard-rock mines to further speed the work. But he was surprised to see the Chinese gangs out-distance the Welsh crews week after week. The Chinese did the most difficult work and the most dangerous; and they were paid the least.

David Bain, Writer: Californians had suddenly come up with the idea that these Chinese were good workers, and so they were being hired away from the Central Pacific. The Central Pacific raised the wages to \$35 a month. It wasn't enough. This little crew went on strike. They were threatened, we will fire you if you don't go back to work. So they raised their demand to \$40 a month and it got around to the other camps and then all of a sudden all of the Chinese camps were on strike. So the Central Pacific cut off their food and cut off their supplies.

Frank Chin: Strobridge and Crocker, you know, they weren't thinking of the Chinese as human. They never thought of the Chinese as having a family. They never thought of the Chinese as having a wife. They never thought of the Chinese as supporting people across the ocean. And the Chinese were. And they thought, well, the Chinese can live on a dollar a day. It's the white man that really needs the money.

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David Bain, Writer: After about a week of running out of food, the Central Pacific managers brought what looked very much like a posse of whites up to just make sure that there wasn't any rioting going on up there on the mountainside, on this empty mountainside. And when these hungry Chinese looked out and they saw this mob of deputized whites and they realized that there was really nowhere to go, they went back to work and they went back to work for \$35 a month.

Narrator: From its inception, all that slowed the Union Pacific was bad management and politics. The company was chartered by Congress; its engineering, construction, and financing had to have federal government approval. More than a few in the capital doubted the integrity of a company run by Thomas Durant.

As far back as 1864, a second axis of power was fighting for control of the Union Pacific boardroom: that power was chiefly the Ames brothers, who had been early investors in the UP and early beneficiaries of Credit Mobilier.

David Bain, Writer: Oakes and Oliver Ames were the sons of a wealthy manufacturer who had made an immense fortune by supplying the gold rush with its shovels and picks. And Oakes Ames had a real civic spirit. He stood for Congress and was elected from Massachusetts during the Civil War.

And, through that, he became known to Abraham Lincoln. And Lincoln took Oakes Ames aside and said, I want you to get involved in this Union Pacific business. If you don't take hold of it, no one will, and it's not going to get done. And if you do this, it would be a great service to the country, and it would make you the most remembered man of the century.

Narrator: By the summer of 1867, the Ames and their Boston counting-house friends had gained controlling interest from Durant and installed Oliver Ames as president; the Doctor had begun what would become a blizzard of lawsuits against the board, but remained as vice-

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president, director, and major stockholder. Whether they liked it or not, Durant and the Ameses were in harness together. Durant still provided remarkable drive. The Ames brothers provided respectability. When Oakes sprinkled Credit Mobilier stock through Congress, he did it quietly.

Stanley Hirshson, Historian: What Oakes Ames did was to pass out only 343 shares -- they were worth \$200 each -- to members of Congress to influence them in voting for things for the Union Pacific. And no one received over 100 shares of stock. It really amounted to nothing. But it showed how easy it was to buy the influence of representatives and senators.

Narrator: While Congressman Oakes Ames greased the skids in Washington, Chief Engineer Grenville Dodge led the Union Pacific into a remote corner of the Dakota territory. In July of 1867, 90 miles north of the only metropolis of the Rockies, Denver, Colorado, at the intersection of two small creeks, Dodge staked out a new town. It was about halfway between Omaha and Salt Lake City, a straight shot to the rich coal fields of western Dakota, and the spot where the land begins its gradual rise into the Rockies. Here would be the roundhouse where west-bound trains beginning their ascent took on extra locomotives, and where east-bound trains shucked theirs.

The town would be a Union Pacific division point, with a machine shop and watering tanks, a depot, dining room, and hotel. A brand new military post would set up nearby. Dodge named the town Cheyenne. And announced that it would one day rival Denver. The last little bit was to help drive up the price of lots the Union Pacific was selling off.

Phil Roberts, Historian: It wasn't going to be like those other Hell on Wheels towns that were going to be there just as long as the tracklayers were coming in to buy their liquid refreshments, etc. It was going to be a place that was going to endure because the railroad said it was going to endure. Within a week, there were people locating there. And within a month, there were businesses that were established there. There were speculators. There

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were fly-by-night operators that simply wanted to follow the tracks. But there were also a number of people who had made some determination that they were going to move their families out to this area. And they were going to put down roots and establish themselves.

Narrator: All America was watching the railroad's progress, and some folks were inspired to hop on the train. Anybody traveling to Cheyenne on the railroad in 1867 saw the future shimmering before them. Railroad workers had dropped off to take up farming along the line in Nebraska; their wives and children had followed. Towns behind the end of tracks were filling in, becoming safe for schoolmistresses and seamstresses. The most adventurous kept heading west toward Dakota Territory and the Magic City of the Plains.

By September of 1867, Cheyenne's population was in the thousands, and rising. A newspaper went to press with plenty of advertising columns full of the new businesses setting up on the main streets. A town council was established, and a public school. As the U.P tracks neared Cheyenne, the price of a town lot skyrocketed from \$600 to \$4,000.

"Here is the City of Cheyenne," exclaimed the town's first mayor. "May she ever prosper, and the tribe of Indians after whom she is named be completely exterminated." The sentiment, it was reported, was much applauded.

David Bain, Writer: Up the Platte River Valley, the railroad is going up right through the center of this place. And all of these tribes were used to crossing through this valley. The buffalo herds, which had been in the millions in the 1840s, were being decimated by all of the emigrants going across, by the forces who were trying to get meat for the thousands of railroaders.

Donald Fixico, Historian: By the late 1800s, there is perhaps about 1,200 buffalo altogether. We're talking about an animal that was almost literally erased from this earth. For the Plains

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Indians tribes, it affected their whole scheme of life and understanding of their universe. And they saw that their life was being taken away from them.

Phil Roberts, Historian: There were people coming out on the train that were shooting buffalo from the train as they were passing through the plains. So a lot of these Indians saw this march of the railroad as a far more permanent presence than even the trails. And far more threatening than the trails because this demonstrated a great deal more permanence than simply a few people passing through in a covered wagon.

Donald Fixico, Historian: Plains Indians began to realize that they were going to have to do something and to fight for their lands, in a way to fight for the buffalo. They're defending their lands. I mean anyone would defend their lands, their homelands.

Narrator: In the summer of 1867, Union Pacific advance men were being picked off with growing frequency. News of dead surveyors -- bodies punctured with bullets and arrows -- burned the telegraph wires between Cheyenne and Omaha. From Plum Creek, Nebraska, came the news that Cheyenne warriors had torn up tracks, derailed and looted a train, killed an engineer and a brakeman, scalped them, and set them afire. Their charred bodies were soon on display at the Plum Creek station. As was telegraph repairman William Thompson, who had escaped alive but skinned. In a pail of water at his side was his recently removed scalp.

After that ugly summer, peace conferences were held, and Cheyenne and Sioux leaders pled their case. If they were expected to control their most angry and militant men, they would have to give them a chance to feed their families. Few whites were in sympathy.

Phil Roberts, Historian: Where initially there was fear on the part of a lot of people about the possible threats from Indians and from the Native population, as time passed, that fear became one of almost, almost hatred. And that's not universal, of course. But it was a pretty

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strong feeling that we've got to get rid of these people. Yeah, we're trespassing on their lands you might say, but we have to permanently get them out of the way, dispose of them.

Stanley Hirshson, Historian: Dodge was in favor really of just exterminating all the Indians, just getting rid of them all. He kept telling Sherman that we need more soldiers out here. We have to protect our parties.

David Bain, Writer: Sherman was interestingly a conciliator at the very beginning. He had a lot of feeling for the Indian tribes. But when relations broke down and reprisals began to happen, he came over rather quickly to the other side of things and really just decided that if these people didn't make way, then they just had to be annihilated.

Narrator: "I have no sympathy with the Red Devils," wrote one surveyor. "May the greedy crow and dark-winged raven hover over their silent corpses. May the coyote feast upon their stiff and festering carcasses... Education and civilization will be satisfied when they cease to be." In new towns like Cheyenne and Laramie, where the front lines of western culture pushed through, the march of civilization was no ennobling procession.

Fred Gamst, Anthropologist: Let's face it, cut-throat types who probably would be on wanted posters in post offices today were busy operating there. So if you protested that you were short-changed or someone was cheating at the cards, they were liable to follow you outside and do bodily harm to you or even kill you.

Carol Bowers, Historian: Laramie tried to mount a town government, to seat a town government. The town council and the mayor resigned after three weeks saying the town was so wild, it was virtually ungovernable. And a number of the more unruly members of the community took over -- Con Wagner, Asa Moore, Big Ed Wilson, and some of their cronies.

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Voice, reading the words of W.O. Owen: It was the consensus of opinion that something had to be done. Accordingly, a vigilance committee was organized and its first act was the hanging of a boy known as "The Kid." This act of the vigilantes served only to intensify the bitter feeling of the lawless element and these now threatened openly to burn the town. -- W.O. Owen.

Carol Bowers, Historian: Finally the respectable people had decided the town had to be brought under control. Something had to happen. And so there was a vigilante sweep through Laramie. Prostitutes and other undesirables were loaded on flat cars, on the Union Pacific Railroad, and sent off to Rawlins, the next end of track town which probably wasn't all that wonderful for Rawlins. But others such as Wagner, Moore, and Wilson were hanged. And because of the scarcity of the trees in Laramie at that time, finding places to hang people was a bit of a challenge. And so Wagner and his cronies were hanged inside a cabin from the rafters. And they were also shot I believe before they were hanged so it was a bit of overkill. People wanted to be sure they were rid of Wagner and Moore and the scourge they were bringing to the town.

Voice, reading the words of W.O. Owen: Early the following day my chum and I hastened to the Keane log building and viewed the bodies . . . We then returned to the streets and had been there only a short time when our attention was attracted to a body of men coming down the street. The party had in their midst a man known as "Long Steve," who was talking excitedly. He begged them to let him go."Boys," he said, "for God's sake let me go and I'll start right down that railroad track and never stop til I get to Omaha!" They then crossed the street to a telegraph pole, which stood near the Union Pacific Railway Company's oil house and executed the poor wretch in the presence of a large crowd. The hangings made Laramie about as safe a town to live in as could be found on the continent. -- W.O. Owen.

Narrator: Up on Donner Summit in the summer of 1867, the Central Pacific crews were still fighting through the Summit Tunnel. The anxious CP partners had already had track laid east

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of the tunnel, out along the Truckee River. But they couldn't connect the track -- or collect their ample government subsidy -- until the tunnel was finished.

David Bain, Writer: We get to August, and the crew down on the western shaft is working. There's a nitroglycerin blast. They clear away the smoke and they pull away the rubble, and all of a sudden, there's a fresh breeze of cool air coming in at them. And they've linked the two western shafts together. And there's this tremendous feeling of accomplishment which redoubles their effort in the eastern face. And three or four weeks later, at the end of August, they're through on that side.

Narrator: "For these years past gravitation has been so continually against us," wrote Mark Hopkins. "At last we have reached the summit, are on the downgrade and we rejoice." In five years of construction, the Central Pacific had laid just more than a hundred miles of track; the Union Pacific had laid five times that. But with the Sierras finally conquered, Collis P. Huntington wired Charley Crocker that he could supply him money and iron to lay 350 miles of track in 1868. Could they do it? "If the Union Company lay more track '68 than we do I will pay the damage," Crocker wired back. "We will beat the Union Pacific to Salt Lake. Stick a pin in there."

In the spring of 1868, on a windy plain 8,200 feet up in the Rocky Mountains -- 30 miles west of Cheyenne, 530 west of Omaha -- the Union Pacific Railroad laid rails at the highest point on the transcontinental line and Thomas Durant shot off a telegram to Central Pacific President Leland Stanford, announcing the achievement. Stanford wired back his congratulations, with a sly rejoinder: "May your descent be rapid."

The effect of the original railroad legislation was just now becoming clear: it had made the two companies bitter rivals. This was a zero sum game: every dollar gained by one company was a dollar lost to the other. And only one company would get the valuable coal fields in western Wyoming and eastern Utah. "I'll be damned," Durant had said, "if I would not prevent

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the CP from coming more than 200 miles east of California." In the nation's capital, especially, it was beginning to look like the fight would be costly.

David Bain, Writer: We have Congressman Oakes Ames down in Washington; the Credit Mobilier had just declared a dividend. It was quite a high dividend and the congressmen got wind of it. And this almost anonymous man from Massachusetts walks out to his desk in the Hall of Congress and all of a sudden he is just absolutely surrounded by congressmen and senators looking to buy into this Credit Mobilier -- to get whatever they could for free, if possible. Or perhaps to be loaned the purchase price and he couldn't keep up with it. These were men who would be voting on railroad legislation and yet they were becoming stockholders in the very company that was getting the railroad built.

Narrator: Collis P. Huntington was passing out cash and stocks, too, in hopes of winning the rights to the Wasatch coal fields east of Salt Lake. "If \$100,000 will get the line located," he wrote to Hopkins, "I shall get it done."

Central Pacific engineers were at pains to keep the supply trains running through the deep Sierra snows. High in the California mountains, carpenters were constructing 37 miles of wooden snowsheds, using 65 million linear feet of lumber.

David Bain, Writer: The Central Pacific had prided itself on its workmanship. I mean you go up in the Sierras even today and you look at those retaining walls and those culverts that were built by hand by the Chinese, and they're still doing their job, and they're still objects of beauty. But when the railroad got down in 1868 into Nevada, the real rush was on.

Narrator: "Make it cheap," Huntington told his partners. "When you can make any time in the construction by using wood instead of iron for culverts, etc., do it, and if we should now and then have a piece of the Road washed out for want of a culvert, we could put one in thereafter."

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Wendell Huffman, Historian: Huntington kept saying, build faster. Build with the devil behind you and heaven ahead of you. Build. Build. Build.

Narrator: Speed was never easy for the Central Pacific. Everything -- from locomotives to rails to spikes -- still had to be built at iron works in the east and then sailed around the tip of South America to the San Francisco docks, loaded onto steamboats and shipped up the Sacramento River. Schedules rarely held.

Much needed spikes, rails, and rail-chairs sat under becalmed sails; a locomotive sank in the Hudson River, parts of another in San Francisco Bay. Rail fell overboard into the Sacramento River. Shipments that made it to the Sacramento's docks were packed onto trains for a perilous ride forward to the work crew.

By 1868, 51 CP locomotives were pulling freight trains and passenger cars on only one track. The Central Pacific used a standard system known as Timetable and Train Order Operations. Conductors carried timetables, but they had to wait for telegraph orders at every station before they could proceed with their 50-ton locomotives pulling hundreds of tons worth of iron. Racing up and down steep grades, trying to make up lost time, engineers could never be sure what lay around the next curve.

Fred Gamst, Anthropologist: The Central Pacific and Union Pacific were both what is called dark territory -- there were no wayside signals -- and these written train orders on tissue paper blanks -- called by the crews "flimsies" because they're on flimsy paper -- were all that keeps trains apart.

Frank Chin: You send a train out. It's supposed to be at such and such a place at two o'clock. But you have a hot box. Or a flat wheel and it could take you three or four hours to split the train, move your part of the train down to where you can leave it safely and then go back for

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the car that has to be removed. And meantime, the rest of the train is left on the track. Nobody knows it's there.

Fred Gamst, Anthropologist: It might take a half a mile or a mile to stop one of those trains. The engineer could try to reverse the motion of the engine and use that as a braking force. But the main braking force was the handbrakes.

Frank Chin: You didn't have air brakes in those days -- so you'd have to tie each brake on each car by hand.

Fred Gamst, Anthropologist: When the engineer whistled, one whistle signal, that means down-brakes, then the brakemen on top of the cars would start tying down the handbrakes.

Frank Chin: A brakeman would start from the engine end, and a brakeman would start from the caboose and they'd be working their way down each car, tightening the brakes. The space between cars is roughly five or six feet. And, you're liable to slip, especially in the wintertime. And if he slips, probably the whole train will crash.

Fred Gamst, Anthropologist: And if the locomotive boiler or any of its pipes were broken, which they would be in a crash, the live steam could cook the meat off the bones of a person in just a matter of half a minute.

Narrator: In one three-month span, there were four separate crashes on the Central Pacific line. These wrecks crippled new locomotives, wasted materials, crushed and burned engineers and brakemen.

As the pace of construction quickened, the toll increased for both companies. The nation's great railroad project devoured lives. Iron workers making rails in Pennsylvania dropped dead

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from the heat of blast furnaces. At the tunnels near Donner Summit and across Nevada, hundreds, maybe even thousands, of Chinese workers died while building the line.

Sue Fawn Chung, Historian: We do know that in 1870, there were six carloads of coffins that were going to be shipped back to China, and the cost of the freight was \$10 per coffin. Beyond that we don't know.

Frank Chin: I wonder about their names, and I'll probably wonder about their names until the day I die. The bodies were just buried by the wayside and later, you know, some of them were moved and went back to China. And unfortunately, not one name, the railroads didn't take names. They only took bodies.

Narrator: On the Union Pacific side, the surveyors out front had it worst. In his personal diary of the summer of 1868, surveyor A.N. Ferguson noted 45 men killed by Indians, six drowned, one construction worker killed falling off a bridge, 10 shot dead in robberies or fights and one killed by a stray bullet, while sitting in his tent.

That summer was the most brutal yet for the men on both sides of the line. Three years and 680 miles into construction, and the UP was finally running into the sort of obstacles the CP had faced in the Sierras. In the mountains of eastern Utah, four tunnels had to be dug, one through black limestone and another through quartzite. The tunneling and grading work in Utah was contracted out to Brigham Young and his Mormon followers. Behind them, the Union Pacific tracklayers were choking in western Wyoming's alkali desert. Temperatures rose to more than 100 degrees by day and fell below freezing at night. Mules died by the dozens, left to rot track-side as the crews moved on.

Five hundred miles west, Charley Crocker's Central Pacific crews were working their way across Nevada's 40-mile desert, where they had to haul thousands of gallons of water a day by train to men and livestock. Curves still had to be bent by hand, literally hammered into an

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arc. But the CP had finally learned to build fast. In a single day, out in that Nevada desert, Crocker's crews laid more than six miles of rail.

Speed mattered more than ever now; big money was at stake -- and with the entire nation looking on, so were bragging rights. When Casement got news of Crocker's six-mile day, he went him one better, laying down seven miles of rail in a single shift. After three years of exhausting labor, Jack Casement was pushing his crews harder than ever.

Voice, reading letter from Mrs. Casement: My Dear Husband, I had hoped that tonight the anniversary of our wedding would bring me a love letter from you but I am disappointed. The fourth week is now passing that you have been away and not a letter yet. What is the matter dear Jack? Your wife, Frank.

Voice, reading letter from Jack Casement: My Dear Wife, We are bothered to get material to keep us going. We are straining every nerve to get into Salt Lake Valley before the heavy snow falls. God bless you and keep you happy, Jack.

Voice, reading letter from Mrs. Casement: My Dear Husband, I expect that you are bending all your energies to out-do everybody else and do the biggest thing that was ever heard of. There are a few things that pay in this world and I hope that is one of them. How glad I shall be when the last mile is laid -- Your wife, Frank.

Narrator: At the turn of 1869 surveyors, graders and tracklayers were all nearly spent. And the end was not yet in sight. The issue of meeting point was still unsettled, and as such, unsettling to both ends of the track. When Collis Huntington met with Oliver Ames and Grenville Dodge in Washington to try to fix a meeting point, it devolved into a shouting match. Ames offered a point in the middle. "I'll see you damned first," Huntington replied, and suggested the mouth of Weber Canyon. Ames stormed out.

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Grading crews from the companies had already gone past one another and were working side by side, leveling two separate lines, sometimes a hundred feet apart. But only one company would be paid for its work. The Union Pacific, especially, was desperate for cash. Both the Casement and the Mormon crews were working without pay. Meanwhile, Credit Mobilier was paying out huge sums to Durant, the Ames brothers, and other stockholders -- including the wife of Union Pacific's grasping chief engineer, Grenville Dodge.

Stanley Hirshson, Historian: Mrs. Dodge owned a hundred shares of stock in the Credit Mobilier and the dividend was absolutely enormous. The Credit Mobilier over an 18-month period paid 341 percent. So if a stock was worth \$200 a share -- at a hundred shares -- she got a dividend of almost \$70,000. They're paying themselves all this money and the Union Pacific has no money left.

Narrator: A malodorous scent was beginning to surround the entire project; nearly everybody involved was on the take or in the till: from the former UP president who was blackmailing company directors to the clerks on the line who took bribes to look the other way when freight arrived lighter than its weigh-in.

Government inspectors were rolling over for the companies. When they called the Central Pacific's construction through Nevada "worthy of... a great national work," Huntington wired Charley Crocker: "I think you must have slept with them." And if construction on the CP side was shoddy, the Union Pacific's shortcuts were criminal. Three separate UP bridges collapsed under their own weight, before a locomotive had a chance to test them.

"The truth is," opined the New York Herald, "there is cheating on the grandest scale in all these railroads." Many in Congress were in high dudgeon -- especially those who hadn't been cut in on Credit Mobilier stock. With some of the press turning sour, the federal government even delayed payments to the cash-strapped Union Pacific Company. By April of 1869, the

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Central Pacific and the Union Pacific knew they had better settle their hash, before Congress got punitive.

David Bain, Writer: The two companies finally got together. And it was Grenville Dodge and Collis Huntington in a meeting place in which there was a lot of stalking out and slamming doors, but they finally decided that what they would do would be that the two railroads would meet in the Promontory Mountains, at a place called Promontory Summit -- the most God-forsaken place that you could imagine.

Narrator: Collis P. Huntington had been forced to give up his dream of owning the Wasatch coal fields, and he wasn't happy about it. But for CP construction boss Charley Crocker, eight years of work and worry were finally coming to an end. Charley had one last thing to prove to the Union Pacific work crews.

Wendell Huffman, Historian: Finally, on almost the last day, the Central Pacific held off, they got organized and they build 10 miles of track in one day. And in New York, Huntington wrote back and said, "Well, I read in the newspaper that they built 10 miles of track in one day. It was an amazing thing. I wish they would have done it when it made a difference.'

Narrator: In early May, 1869, the competing companies neared the north end of the Great Salt Lake and the day of completion. Company VIPs and government dignitaries traveled by private car to Promontory, while the track-layers literally worked their way to the finish line - stringing the telegraph wires as they went. On the morning of May 10, 1869 -- under brilliant blue skies -- all gathered at a recently tossed-together settlement in northern Utah. And the whole country listened in for news of Promontory.

David Bain, Writer: The rails are almost touching at this point, and the telegraph wires are going from Promontory Summit out across the deserts, across the plains and the mountains; and they're going to the settled places: San Francisco, Sacramento, New York, Boston,

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Washington. And it's as if there's a gigantic electrical circuit linking the nation together for the first time in history. In every city and town in the United States, it was like there was a collective, in-drawn, breath taken.

When the signal flashed across the United States, a cannon faced over the Pacific and one over the Atlantic went off simultaneously warning the world what was about to happen. Church bells and fire alarms in every city and town in the nation went off. Crowds cheered. Fireworks went off. Parades began. Thousands of people kneeling in prayer. It was as if the entire country was suddenly linked at this moment.

Narrator: "Tis Finished!" wrote a Union Pacific surveyor who was there that day. "This great and mighty enterprise that spans a continent with iron and unites two oceans... the future is coming and fast too."

Much of the original transcontinental railroad line was so poorly built that both companies were forced to begin shoring it up right away. But even that first rickety road had done its job.

By 1880, the two railroad companies were hauling \$50 million of freight every year -- much of it between Europe and Asia. Nearly 2 million acres of land had been taken under the plow by immigrants coming west on the railroad. The tattered remains of the Plains Indian tribes had been shoved onto reservations well north.

For those involved in the railroad's making, the results were not always happy ones. For the Chinese, the thanks of a grateful nation included a series of vicious laws that blocked them from citizenship. The Mormons never did receive the money owed them by the Union Pacific. And though Frank Casement got her husband home for a time, he soon left Ohio to chase fame and fortune building a new road.

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When the railroad companies' financial shortcuts became an issue in the 1872 elections, Congress embarked on dramatic and well-publicized hearings. Collis Huntington and his partners were little help in the investigation. They *were* sorry, they said, but they'd thrown away all their records. Thomas C. Durant, as always, slipped the noose. Even as he was testifying, he was buying up more than 700,000 acres of land in upstate New York, developing a new railroad. Congressman Oakes Ames -- who had dealt Credit Mobilier stock to his fellow legislators -- became the lone scapegoat.

David Bain, Writer: Oakes Ames was tossed out of the Congressional club and virtually everyone else got off scott free. Ames retired in disgrace and went back to Massachusetts, and he was dead within a matter of weeks. I think just of accumulated grieves over the whole scandal.

The scandals are important, the corruption, what it says about American society, what it says about what happened to the Plains Indian tribes. But on the other side of this coin, is how this did bind the nation together and it signaled a new era.

Donald Fixico, Historian: It brought so much change at a rapid, exhilarating rate. It meant change in the lives of Indian people, white settlers, even the game in the area. In a way, it was the mark of an era, an era that meant perhaps even national completeness.

Carol Bowers, Historian: It was an enormous event for the country. A journey that might have taken six months by wagon could now be accomplished in a matter of a week or two. Goods became available, readily available. Towns sprang up along the railroad.

Sue Fawn Chung, Historian: You see a whole new world opening up at a critical time in America's development. The railroad now allowed ideas to go from the East Coast and the West Coast, the newspapers, stories, novels. So it's not just goods. It's not just products. It's not just ideas. It's a whole, in a sense, revolution.

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Phil Roberts, Historian: It did connect the East with the West Coast and it did, in essence, provide us with a continental culture. And it really did bind the country together.

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