

The Iron Horse

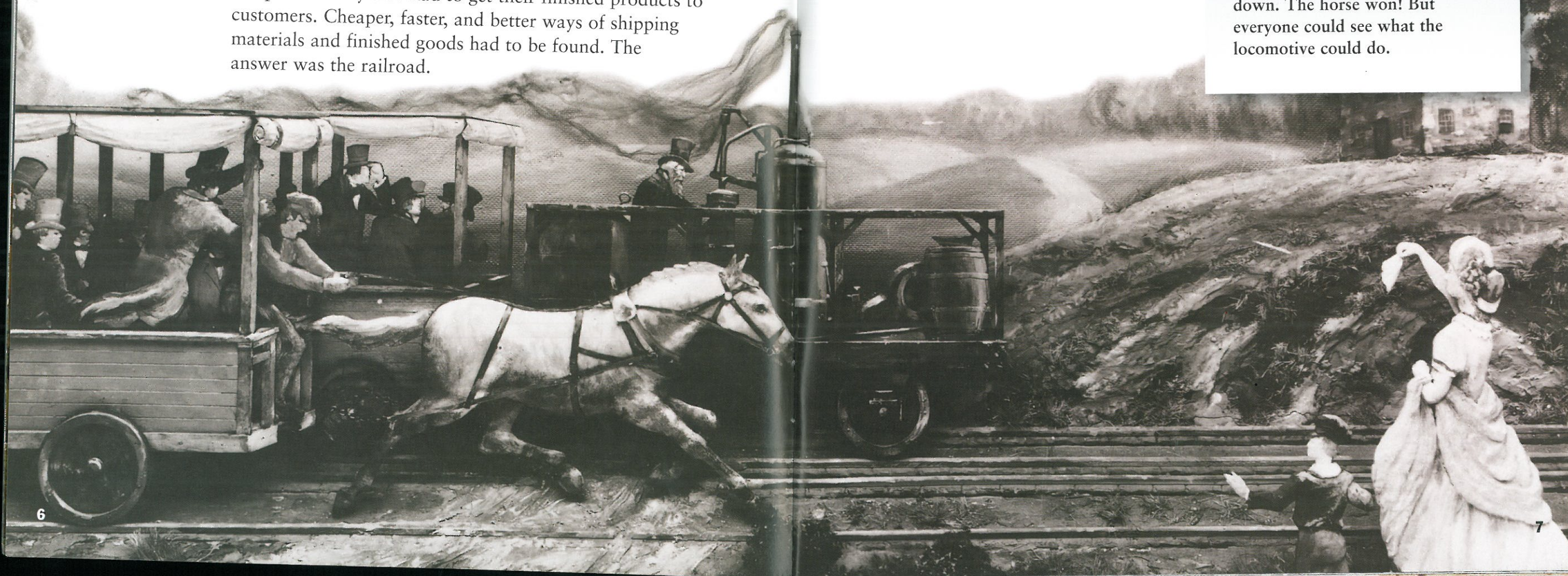
In 1800, the United States was a rural country. Most people never traveled far from their homes and villages. They grew or made just about everything they needed on their farms, or they traded with their neighbors. If they had to travel, they rode in horse-drawn carriages or wagons along dirt roads. Sometimes they traveled by boat. Traveling from place to place took a long time.

By 1825, the United States was beginning to industrialize. Factories were built. These factories needed raw materials to operate. They also had to get their finished products to customers. Cheaper, faster, and better ways of shipping materials and finished goods had to be found. The answer was the railroad.

During the 1700s, inventors developed the steam engine. This machine used steam to do such work as turning wheels, grinding grain, or sawing wood. In 1800, a mechanic in England had the idea of attaching a steam engine to a carriage. This idea of a horseless carriage powered by an engine led to the development of the railroad.

Meet the Tom Thumb

In 1830, a New Yorker named Peter Cooper built the first locomotive in America. The engine was so small that it was named *Tom Thumb* after the storybook character. On its first trip, the locomotive was challenged to a race with a horse-drawn carriage. The horse leapt away in the lead. The *Tom Thumb* quickly gained speed and passed it. The race seemed to be won! Suddenly, a piece of the locomotive's engine broke. The engine began to slow down. The horse won! But everyone could see what the locomotive could do.



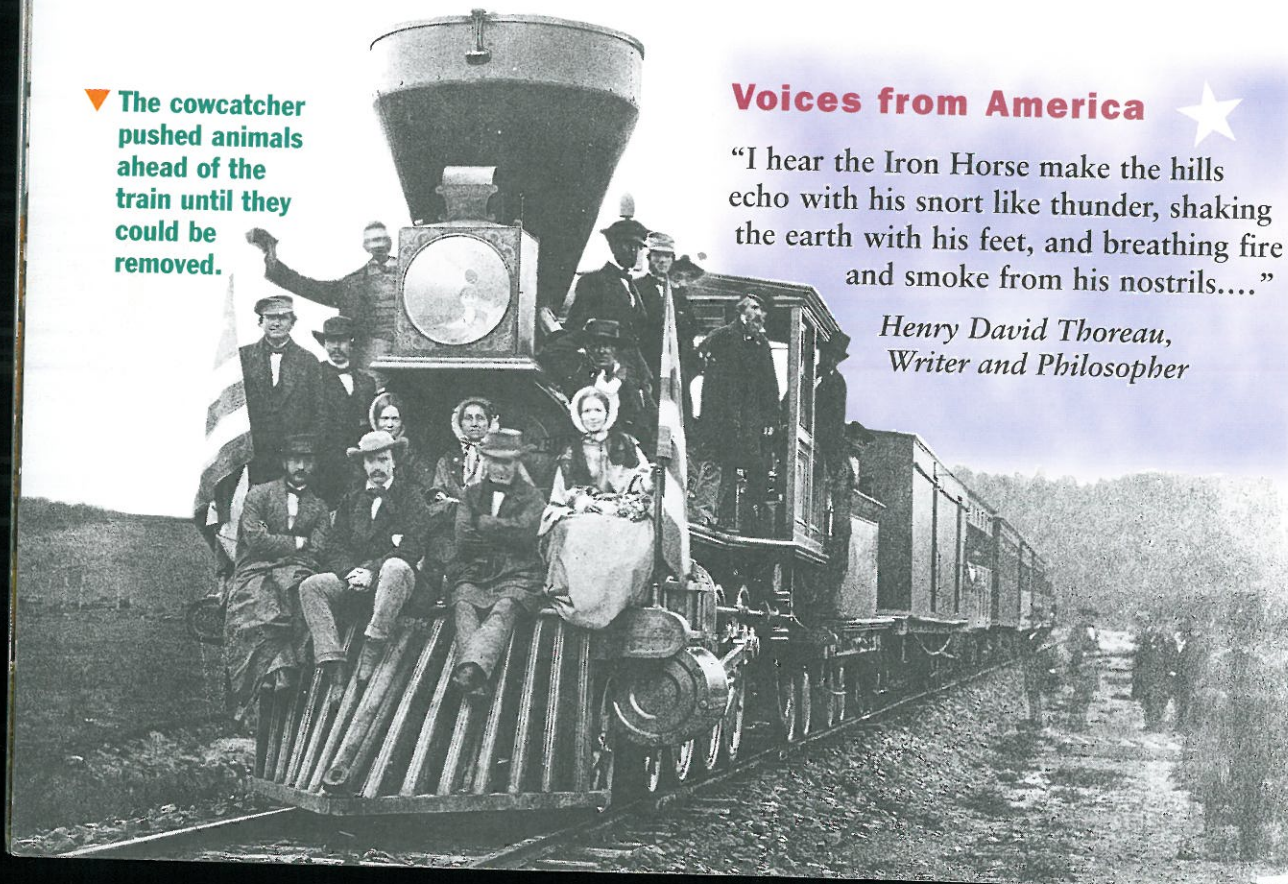
Faster! Safer! Better!

In the 1830s, "railroad fever" hit America. It seemed as though every inventor was trying to build a better railroad.

Early rail travel was dirty, uncomfortable, and often dangerous. The open cars didn't protect passengers from bad weather. Sparks from the engine burned passengers' clothes and hair. Sometimes animals strayed onto the tracks, causing accidents. Brakemen on each car of the train had to apply the brakes by hand. So, stopping was a problem. Rail cars often tipped over when going around curves.

American engineers tried to solve these problems. They added a cowcatcher to the front of the engine. They also added a whistle and a lantern to let animals and people know the train was coming. Spark arresters on smokestacks reduced the risk of fire. Other inventions improved the railroad's safety, comfort, and speed. The railroad industry grew rapidly.

▼ The cowcatcher pushed animals ahead of the train until they could be removed.



Voices from America

"I hear the Iron Horse make the hills echo with his snort like thunder, shaking the earth with his feet, and breathing fire and smoke from his nostrils...."

*Henry David Thoreau,
Writer and Philosopher*

Stop the Railroad!

By 1835, more than a thousand miles of track had been laid. Rail lines stretched across the eastern half of the United States. Not everyone was happy with the railroad.

Trains were noisy. They belched thick smoke and red-hot sparks. They frightened cattle grazing on farmland. They scared horses pulling carriages and wagons. Farmers didn't want trains crossing their land.

Stagecoach drivers, canal owners, and innkeepers also objected to the railroad. They didn't want the competition. They were afraid they would lose business.

However, the railroad couldn't be stopped. Railroads made it easier and faster for people to visit friends and relatives. Goods could be shipped more quickly, easily, and cheaply. So, factories and stores grew up around the railroad. People moved to the railroad towns. Towns built along a railroad route grew rapidly.

The "Wrong" Side of the Tracks

The railroad created a "right" and a "wrong" side of the tracks. The wind usually blew the trains' black smoke in the same direction, over to the "wrong" side of the tracks. This became the cheap rent side, the side where factories were built and the poor lived. The "right" side was where expensive shops and fine homes were built.



Finding the Money

Judah persuaded four businessmen from California to supply the money to start up his railroad. The four men were called the "Big Four." They were Collis Huntington, Mark Hopkins, Charles Crocker, and Leland Stanford. The new railroad company was called the Central Pacific.

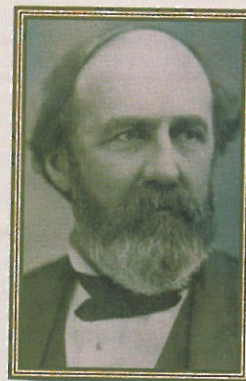
Collis Huntington and Mark Hopkins were partners in one of the biggest hardware stores in the West. Charles Crocker was the owner of a dry goods store. Leland Stanford ran a wholesale grocery business. These men had left the Northeast to seek their fortune in the California gold rush. They didn't find gold, but they did get rich selling supplies to the miners.

By the 1860s, the California gold rush was slowing down. New discoveries of gold and silver had been made in Nevada. Towns there were booming. The four businessmen wanted to do business in Nevada. Judah convinced them that his railroad would make that possible.

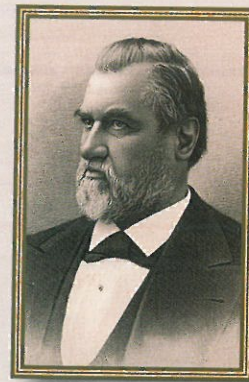
Voices from America

"Everything [Judah] did from the time he went to California to the day of his death was for the great continental Pacific railway. Time, money, brains, strength, body and soul were absorbed. . . . It used to be said 'Judah's Pacific Railroad crazy.'"

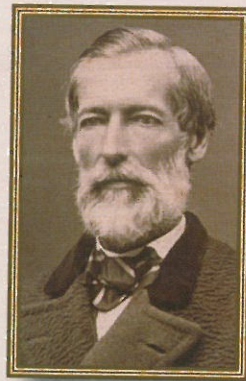
— Anna Judah, Ted Judah's wife



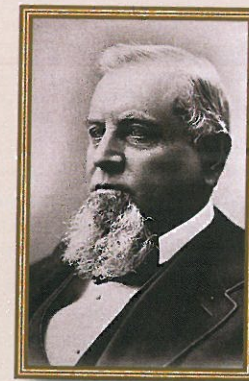
Collis Huntington



Leland Stanford



Mark Hopkins



Charles Crocker

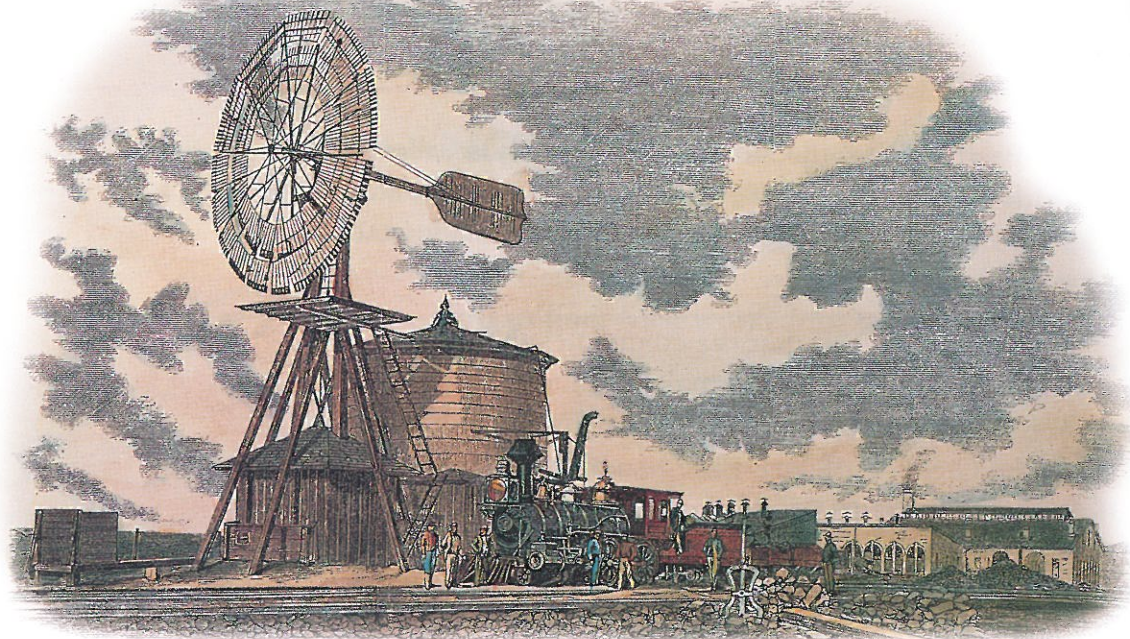
Two Railroads Formed

The Big Four sent Ted Judah to Washington, D.C., to ask the government for land and money to build the new railroad. Judah was successful. President Abraham Lincoln signed the Pacific Railroad Act of 1862.

This Act set up two companies to build the transcontinental railroad. The Central Pacific Railroad Company would begin work in California. It would lay tracks east. The Union Pacific Railroad Company would start at the Missouri River. It would lay tracks west. Somewhere in the middle, the tracks would meet!

The Big Four wanted to celebrate the start of the Central Pacific's work. They held a **groundbreaking** ceremony on a muddy street in Sacramento, the capital of California, in early 1863. A brass band played. Leland Stanford spoke: "We may now look forward to the day when... the Pacific will be bound to the Atlantic by iron bonds."





▲ Windmills were built to pump water from deep underground for the Union Pacific.

Building the Union Pacific Line

In April 1865, the Civil War ended. The building of the Union Pacific could finally begin. By the spring of 1866, the frontier village of Omaha, Nebraska, had become the headquarters for construction. Building materials were shipped there. Workers began to pour into town looking for jobs.

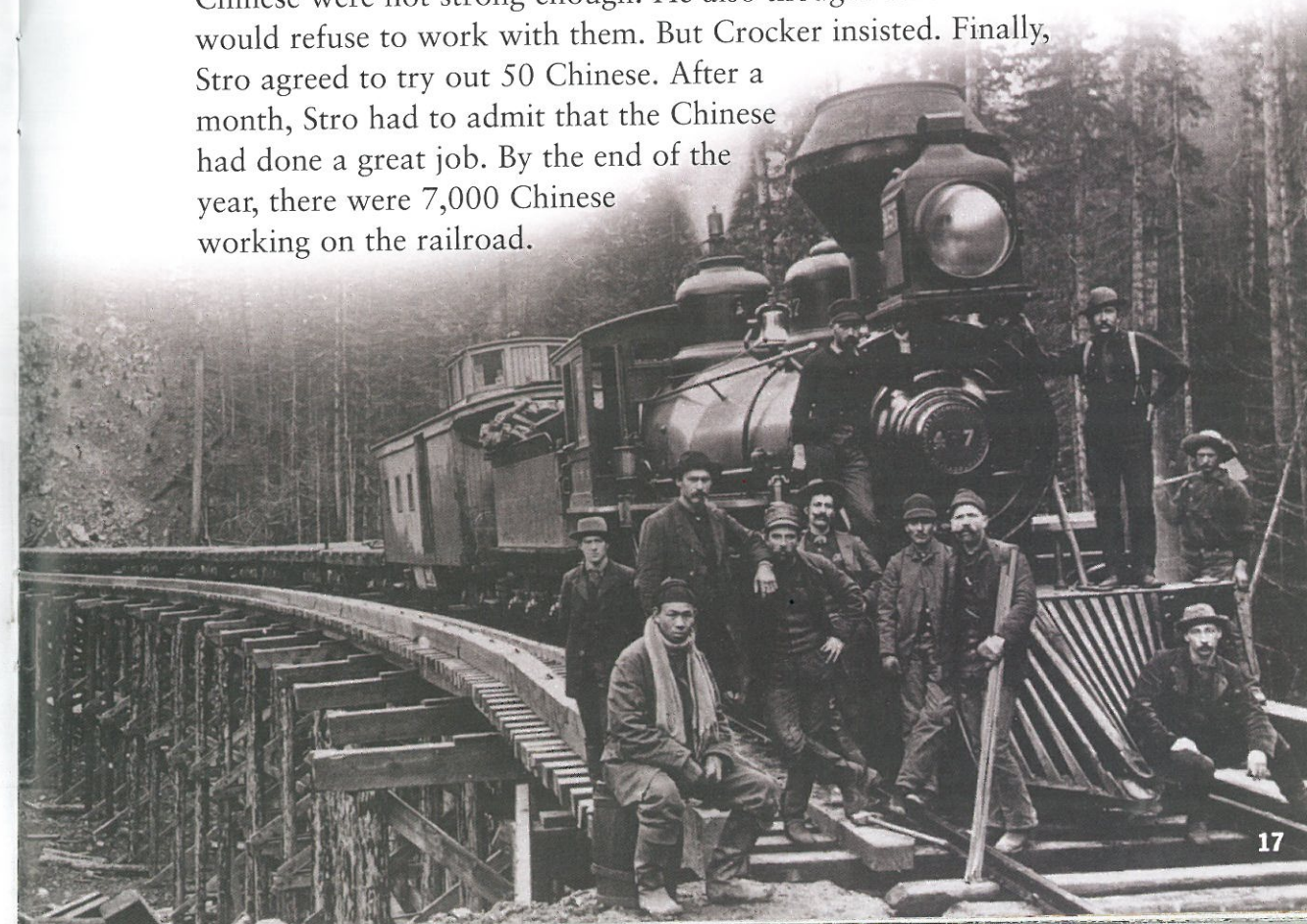
The Union Pacific's job of building the railroad may have been harder than that of the Central Pacific. First of all, the Union Pacific had farther to go. For most of the western land it crossed, there were no maps. No one knew where the mountains, lakes, or rivers were. Also, Native Americans lived throughout the area. They hated the railroad because it crossed their hunting grounds and disturbed the buffalo. Sometimes, Native American war parties attacked railroad workers.

There were other problems. Much of the region had little wood or water. Wood was needed to make the railroad ties. The wood that was available was cottonwood, which was soft and rotted easily. So, hardwood and water had to be brought long distances to the railroad workers.

The Workers

At its peak, there were over 30,000 workers building the transcontinental railroad. Finding those workers was very difficult. The Central Pacific hired workers, only to lose them to the gold and silver mines. The mines paid better.

Charles Crocker, one of the Big Four, became construction supervisor of the Central Pacific. He hired Irishman James Harvey Strobridge, known as "Stro," as his construction boss. Desperate for workers, Crocker suggested hiring Chinese. The Chinese would work for only \$35 a month, much less than other workers earned. Stro turned down the idea. He thought the Chinese were not strong enough. He also thought other workers would refuse to work with them. But Crocker insisted. Finally, Stro agreed to try out 50 Chinese. After a month, Stro had to admit that the Chinese had done a great job. By the end of the year, there were 7,000 Chinese working on the railroad.



Blasting Forward

The Central Pacific Railroad had to cross the Sierra Nevada mountains. Many laughed at the idea! The Sierras cut California off from the rest of the country. They form an enormous ridge 400 miles long. Mountain peaks rise as high as 14,000 feet.

Nothing was going to stop the Central Pacific from moving forward. Workers drilled, blasted, built bridges, dug tunnels, and cleared forests. Work was painfully slow. Then Stro and his crew came to a wall of rock called "Cape Horn." Somehow the railroad track had to curve around the mountain. Hundreds of explosives had to be set off to blast the granite from the mountains and form a ledge for the track.

Engineers thought it couldn't be done. A Chinese foreman told Stro that the Chinese were good at this kind of work. After all, the Chinese had invented explosive powder. All they needed were reeds from San Francisco. Desperate, Stro ordered the reeds.



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The Chinese Way

The Chinese wove the reeds into large baskets. Then a Chinese crew lowered Chinese workmen in the baskets down the cliffside. Swaying in the wind, each man drilled holes into the rock, added explosive powder, and lit a fuse. The worker was hauled up the cliffside quickly. He had only a few seconds to make it back up the cliff before the explosion. Most made it, but some didn't.

The Chinese workers insisted on following their own customs. They were divided into gangs of 12 to 20 men, each gang with its own headman and cook.

The Chinese also bought their own food. It was shipped in from Chinese merchants in San Francisco. The Chinese ate oysters, fish, fruits, vegetables, and very little meat. They drank only warm tea made with boiled water. Other workers drank water directly from streams and lakes. Many got sick. The Chinese stayed healthy.

The Chinese shared small tents. They took daily sponge baths and washed their clothes. In their spare time, they led quiet lives. They stayed away from the other workers. Most saved their money. Some later settled in California and raised families. Others returned to China.

Voices from America

"Without the Chinese it would have been impossible to complete the western portion of this great National highway."

—Leland Stanford

Cooks' assistants carried tea to Chinese workers all day long. ▶



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A Day in the Life of a Railroad Worker

The men rose each morning at first light. They washed their hands and faces in a tin basin. They ate a big breakfast and began work. The work was backbreaking. The men worked under a burning sun as well as in bitter cold and snow.

At noon the workers had an hour to eat a heavy dinner. They had soup, fried or roast meat, potatoes, coffee, and sometimes pies or cakes. After the noon meal, they took naps or rested. Then they went back to work. They stopped work an hour before supper. This meal was less rushed. Afterwards, the men played games, talked, and sometimes sang before going to bed.

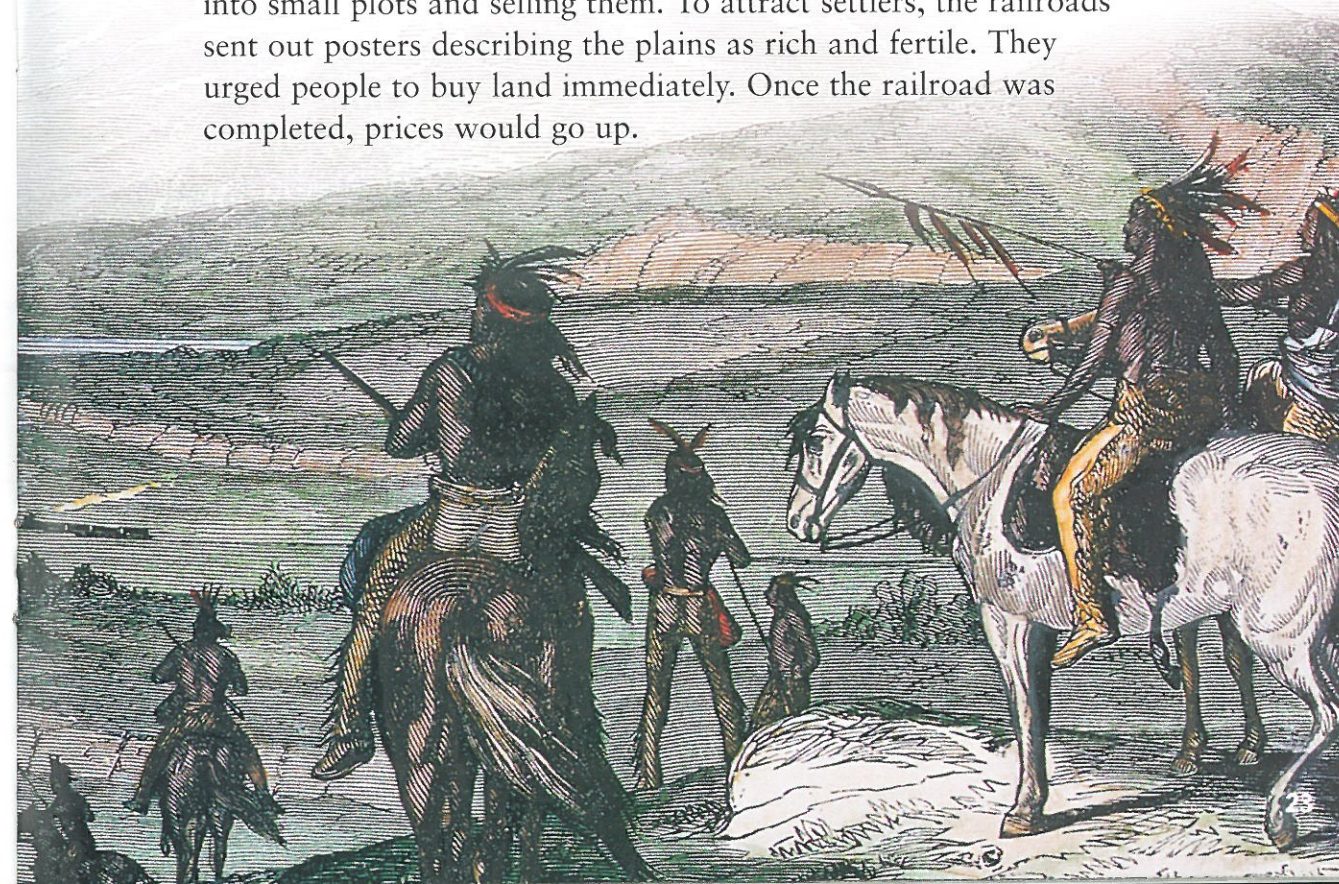
Room and board cost \$5 per week. The men slept in bunk beds on one of the train cars. These cars held 78 bunks stacked in threes. In the summer, the men slept outside on top of trains. They rarely bathed and almost never washed their clothes. Most had long hair and beards or mustaches.

The Wild West

The Union Pacific Railroad crossed land on the plains that was mostly wide-open spaces. Native Americans lived and hunted on these lands. Herds of buffalo and other wild animals roamed there. Traders and gold prospectors had crossed the plains, but they had built very few settlements. Most Americans thought the plains was a great desert.

Now the Union Pacific wanted settlers to move onto the plains. The railroad was being built to carry goods and passengers from place to place. Where would these goods and passengers come from?

The government had given the railroads enormous amounts of land. The railroads could make money by breaking up this land into small plots and selling them. To attract settlers, the railroads sent out posters describing the plains as rich and fertile. They urged people to buy land immediately. Once the railroad was completed, prices would go up.

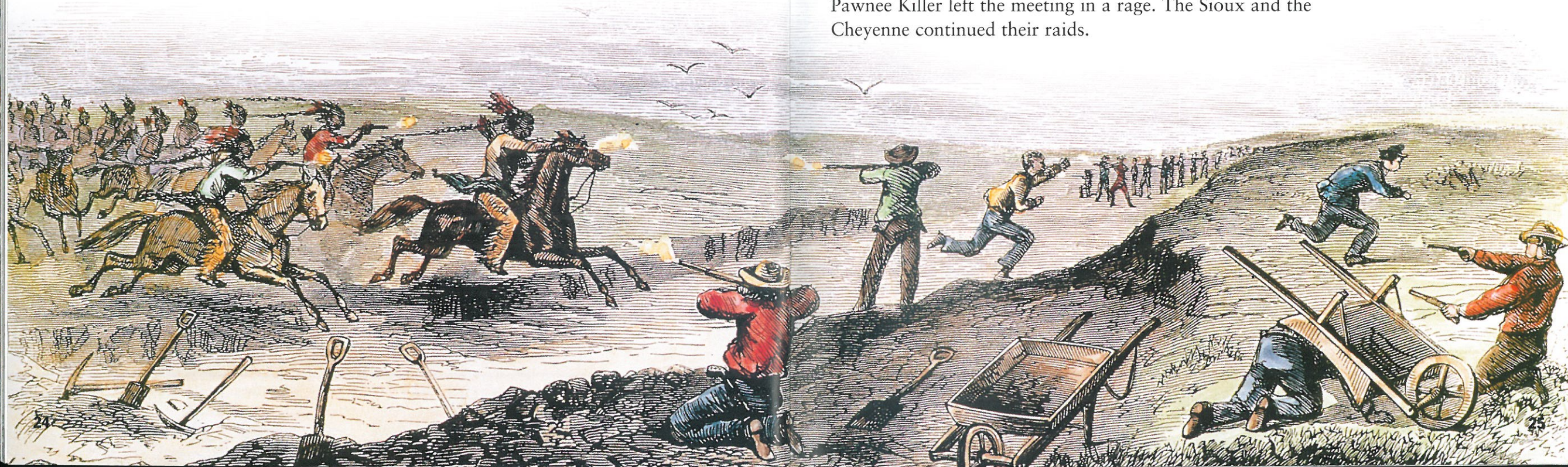


The Native Americans

One group of people was not pleased to see railroad workers laying tracks across the plains. They were the Plains Indians. These tribes included the Sioux, Lakota, Arapaho, and Cheyenne. For years, politicians had been calling for Native Americans to be removed entirely from routes to the West. Some tribes had already been forced to move onto reservations. Reservations were areas of land that no one else wanted. They were far from the tribe's usual hunting grounds.

The Native Americans were angry at the way they were treated. They hated the Iron Horse. Snorting and whistling, the railroad scared away wild animals. And white settlements followed the railroad.

Native Americans had always depended on wide-open spaces for hunting. Their way of life was being destroyed. As soon as tracks were laid across Native American territory, war parties of Sioux, Cheyenne, and Arapaho began to attack workers building the railroad.



Attack!

One of the worst attacks was by a party of about 40 Cheyenne led by Chief Pawnee Killer. They attacked the Union Pacific, cutting telegraph wires and bending the rails. When a train hit the damaged rails, the engine overturned. Seven crew members were killed. Another freight train crashed into the wreck and also overturned. The conductor ran back along the track and stopped a third train just in time. The Cheyenne burned the overturned trains.

Railroad workers feared for their lives. Railroad owners, politicians, and military men wanted to crush the Native Americans. Troops went after them. Soldiers attacked both Native American war parties and peaceful settlements.

Finally, a Peace Commission was called. The generals told the Native Americans that they must let the railroad be built. Chief Pawnee Killer left the meeting in a rage. The Sioux and the Cheyenne continued their raids.

Voices from America

“We built iron roads, and you cannot stop the locomotive any more than you can stop the sun or the moon.”

—General William T. Sherman,
Army Commander



The Last Rail Is Laid

By the end of 1868, the two railroads were less than 400 miles apart. People had expected the transcontinental railroad to be completed in 1876, the 100th anniversary of the nation's birth. Instead, the railroad would be joined in 1869, seven years early!

The two companies finally agreed on a date and place of meeting: Promontory Point, Utah, May 10, 1869. The date and place had been set far enough ahead so that officials could arrive in time to take part in the ceremonies. The Central Pacific finished first, on April 30.

The big day arrived. The weather was perfect. Hundreds of people gathered around the two-rail gap. A huge American flag flew nearby. Chinese workmen carried one last rail. An Irish crew carried the other one. Everything was ready except the final spikes that fastened the rail to the wooden ties. Several bands played. The crowd cheered, and the last rail was laid.

Across the United States, people celebrated. In San Francisco, people in the streets celebrated late into the night. In Chicago, a parade seven miles long wound through the streets. In New York, a hundred guns were fired off.



▲ “Doc” Durant and Leland Stanford drove in a golden spike and joined together the Central Pacific and Union Pacific railroads.

Riding the Transcontinental Railroad

Less than a week after the joining of the two railroads, train service began. Now, a person could travel from New York to San Francisco in seven days. By June 1870, the cost was \$136 for a first-class ticket, \$110 for coach, and \$65 for third-class. The same trip used to take months and cost more than \$1,000.

The cost of shipping goods by railroad was also much less than it had been. Mail sent across the country took only a few days instead of weeks to arrive and cost pennies instead of dollars.



What Changes Did the Railroad Bring?

The building of the transcontinental railroad forever changed the landscape of America. It also changed lives. Most Indian tribes lost their battle to hold onto their lands. They were forced onto reservations. Many immigrants who had helped build the railroad used their earnings to buy farmland from the railroads and settle the Great Plains.

Villages, towns, and cities grew up around train lines. Industries developed. The railroad brought valuable lumber and minerals from the West to factories in the East. Factories shipped their products by rail to customers quickly and cheaply.



The railroad even changed time. The trains needed reliable schedules. But every city, town, and village operated on its own time. They called it local or sun time. If it were 12 noon in one town, it might be 12:30 in a town a mile away. The railroads set up time zones across the country that followed the sun. Called “standard time,” these time zones made railroad schedules work.

The building of the transcontinental railroad was one of the greatest achievements of the American people in the 1800s. It united the country from “sea to shining sea” and set the stage for a time of great growth.

Glossary

avalanche a fall or slide of a large amount of snow, ice, or earth down a mountainside

boomtown a town having a sudden rise in population

custom practice followed by a particular group

excursion a short trip made for pleasure

frontier the far edge of a country where few people live

fuse a cord that is lighted at one end to cause an explosion at the other end

groundbreaking the act of breaking ground to begin a construction project

immigrant a person who leaves one country to settle permanently in another

industrialize to set up businesses and factories

investor a person who gives or lends money to something, such as a company, in order to get more money back in the future

payroll the total of all money paid to workers

prospector a person who explores an area looking for gold, silver, or other valuable resources

raw material a substance in its natural state that is treated or processed and made into useful finished products

reservation an area of land set aside by the government for a special purpose

rural to do with the country or farming

transcontinental crossing a continent