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Limited Edition

CHINESE RAILROAD WORKERS

Cutting a Path, Sierra Nevada, 1866.
Painting courtesy of artist Mian-Situ.

THE IRON ROAD: HOW ONE RAILROAD CHANGED THE U.S.

If you had to travel to the other side of the country, how would you do it?

In the 1860s, before cars and planes, taking a train was the fastest way to travel. The Transcontinental Railroad—the first of its kind!—connected one side of the United States to the other. It reached from the Atlantic Ocean all the way to the Pacific Ocean, adding 1,776 miles of track in the West and the Mid-West to connect with older railroads in the East.

The Transcontinental Railroad made moving people and goods across the country faster and cheaper than ever. Before the railroad, it would take people about six months and \$1,000 to cross the country. The railroad shortened the journey to under a week, and for \$150—a fraction of the cost!

The railroad—and the enormous task of building it—launched the U.S. into a time of great change. Construction began during the Civil War. President Abraham Lincoln hoped that the railroad would physically unite, or bring together, the divided country. But the Transcontinental Railroad did much more than that. Its completion shaped the United States' future in many different ways. Read on to find out how!

CIVIL WAR

The Civil War was fought from 1861 to 1865 between the northern and southern states of the country. Many issues divided the north and the south, but one of the biggest was the issue of slavery.

GLOSSARY

What does **TRANSCONTINENTAL** mean? Let's break up the word: the prefix **TRANS-** means across, and the root word **CONTINENTAL**, in this case, refers to the continent of North America. **TRANSCONTINENTAL** then means that it reaches across North America!

Source: Photo by Alfred A. Hart, Department of Special Collections, Stanford University Libraries.

It's said that history is written by the people with power. Who does that leave out? Even though they did some of the hardest jobs, the Chinese who worked to build the railroad by hand were rarely honored throughout history. At the time, bosses didn't even bother to write down their names! How can we honor these forgotten workers today?

HOLES IN THE HISTORY

THE TRANSCONTINENTAL RAILROAD: 1869



WHO BUILT THE RAILROAD?

The construction of the railroad was a competition. There were two railroad companies building in opposite directions, and both were paid by the mile. If tracks went uphill, workers were paid even more. As a result, the Central Pacific Railroad Company, which built in the west, and the Union Pacific Railroad Company, which built in the east, raced to lay as much track as possible. They needed as many workers as they could find. The Central Pacific Railroad Company eventually turned to Chinese **immigrants** for help.

THE BIG FOUR

The Central Pacific's "Big Four" railroad bosses Leland Stanford, Collis Potter Huntington, Mark Hopkins, and Charles Crocker are often the only people named and written about in history textbooks—but the people who actually built the railroad are not! Why might that be?

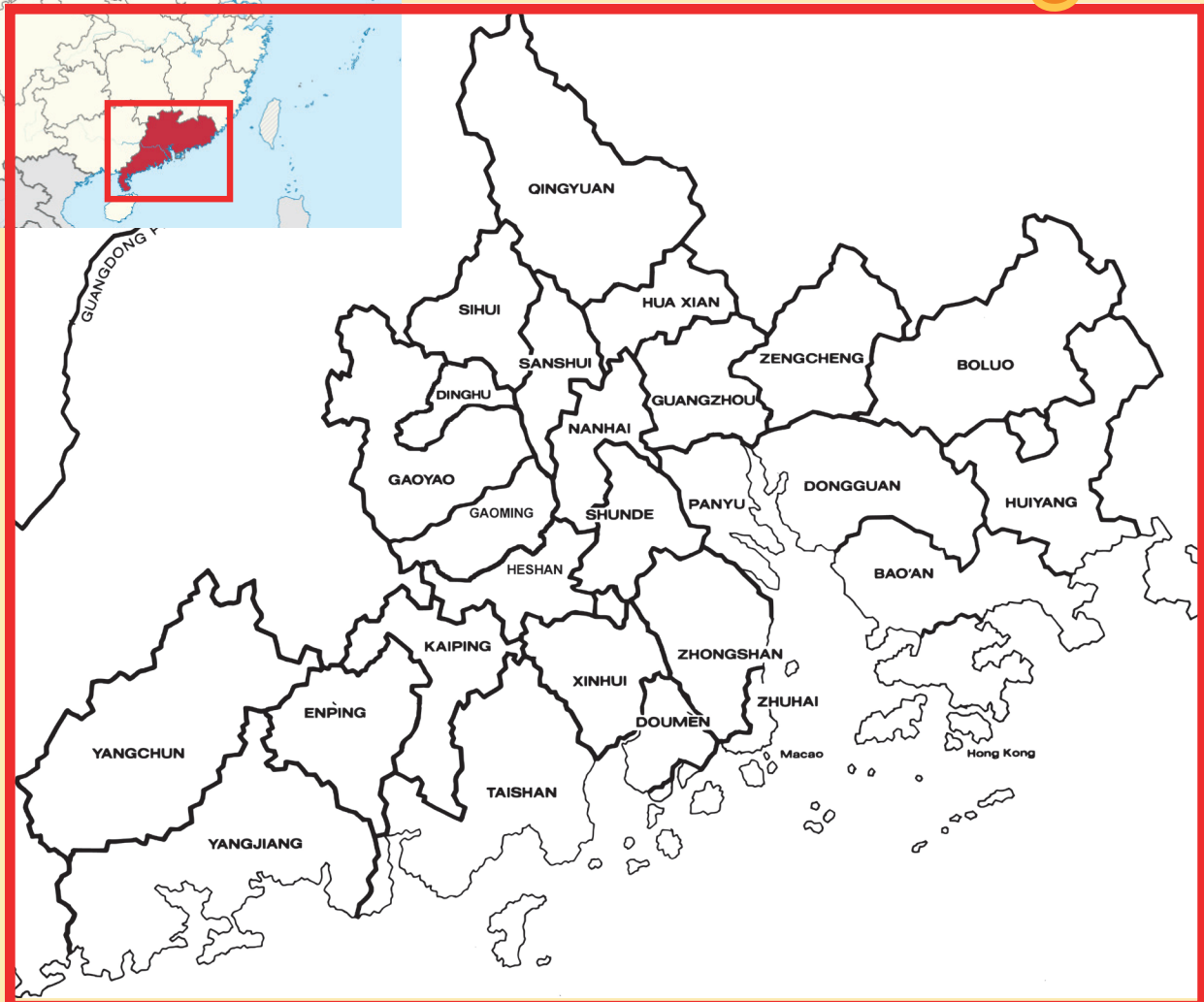
Most of the Chinese railroad workers came from Guangdong (Canton), China. This region, highlighted in red on the map to the left, was split into several counties. Many immigrants came from the same four counties: Taishan, Kaiping, Xinhui, and Enping. Can you find and color the four counties on the map below?



GLOSSARY

IMMIGRANT

a person who leaves their home country to live permanently in another country



WHO BUILT THE RAILROAD? (cont.)

In the mid-1800s, life in Southern China was not easy. Families faced war, famines (or food shortages), and a lack of jobs. Opportunities to mine for gold in California, or to find mining and farm work in South America, drew Chinese men across the Pacific Ocean. Many more found work building the Transcontinental Railroad. The Central Pacific Railroad line came to rely on the labor of Chinese immigrants so much that they eventually began to advertise for workers in China. More and more people crowded onto boats and made the difficult three week journey to the United States, where they would work hard to send money back to their families. Eventually, about 15,000 Chinese immigrants would leave China to work on the Transcontinental Railroad! They left behind their loved ones and traded all that they knew for an uncertain future.

It's hard to find information about the individual Chinese immigrants who worked on the railroad. Payroll records often listed only their bosses. Chinese workers' names, if recorded, were often written as nicknames or as shortened versions of their actual names. Not one letter or journal from a Chinese Transcontinental Railroad worker has been found. As a result, scholars today have to rely on other sources to learn about their lives.

HOLES IN THE HISTORY

There were lots of jobs on the railroad and many different people hired to do them. Chinese railroad workers, who at one point made up 90% of the Central Pacific line's workers, were joined by the Union Pacific line's Irish immigrants and Civil War **veterans** in the east. **Mormons**, African Americans, and some Native American tribes, specifically the **Pawnee**, helped to build the railroad as well. Building the railroad took a lot of hard work and communication.

GLOSSARY

VETERAN

a person who has fought in a war

MORMONS

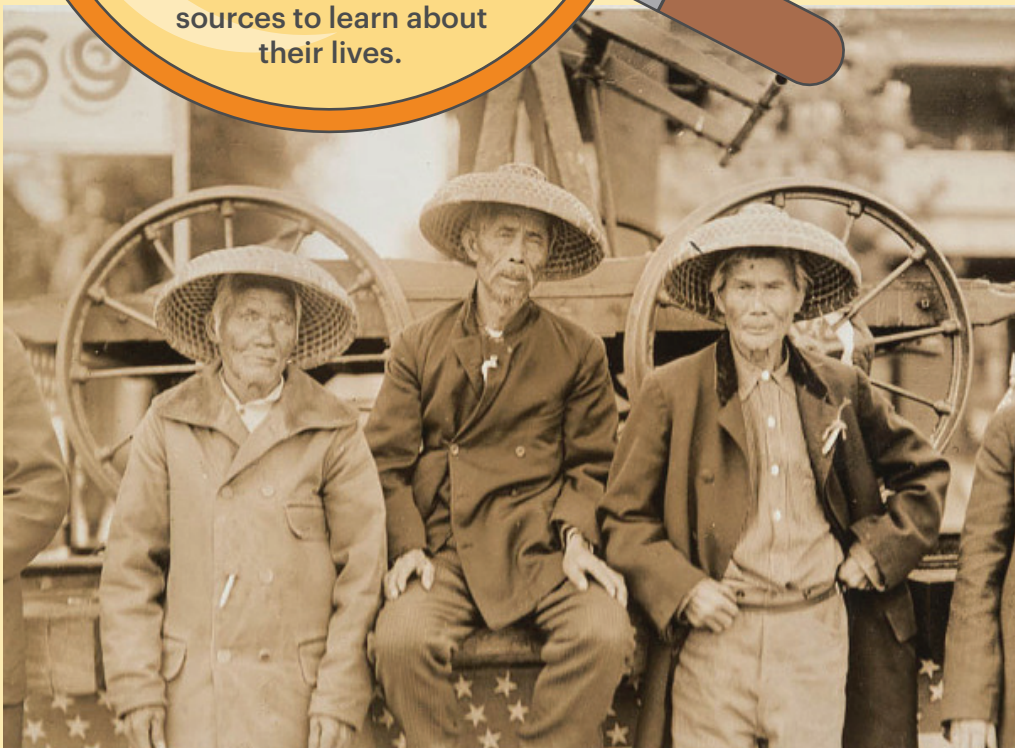
a group that practices a religion called Mormonism. Many worked hard to help build the railroad through the state of Utah

PAWNEE

one of many Native American tribes from the Great Plains

SCHOLAR

a person who studies something by doing research or gathering information on a particular topic



This photo shows three Chinese Railroad workers—Ging Cui, Wong Fook, and Lee Shao—at the Transcontinental Railroad's 50th Anniversary in 1919. These men were three of eight Chinese workers who put the last rail of the railroad in place!
Source: Amon Carter Museum of American Art Archives, Fort Worth, Texas.

WORKING ON THE RAILROAD

Chinese railroad workers, who often did the most dangerous railroad tasks, had to:

- 1 Lay heavy pieces of track and hammer in spikes all day long
- 1 Blast through rocks using nitroglycerine and other explosives, clear out land and rubble in the way, and dig with shovels and pickaxes along **steep** and uneven pieces of land
- 1 Hang down the sides of mountains, on ropes or in baskets, to hammer holes and pack them with gun power, which would be used to explode parts of the mountain
- 1 Use pickaxes and explosives in the dark to pound away at tunnels through the solid rock walls of the Sierra Nevada mountains
- 1 Clear away pounds and pounds of snow that often blocked tunnel entrances

Take a closer look at the photo of Summit Tunnel. What are three words you would use to describe it? How would it feel to work all day in a place like this?

GLOSSARY

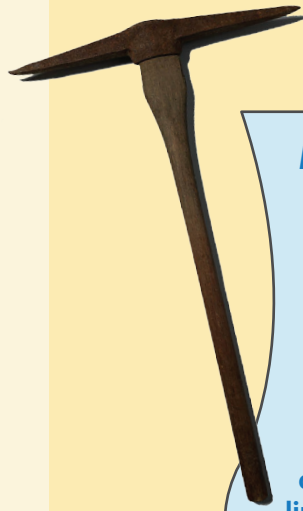
STEEP

in this case, land that is tilted so much that it's difficult to stand on

AVALANCHE

a dangerous amount of snow, ice, and rocks falling down a mountainside at a terrifying speed

The Chinese railroad workers worked through all seasons, including summers with extreme heat and two of the coldest winters recorded at the time. Between 1866 and 1867, there were 44 snow storms and some areas received up to 18 feet of snow. Sudden **avalanches** could bury and freeze entire camps of Chinese workers. People often went missing in the deep and fast-moving snow.



NITROGLYCERINE

Nitroglycerine is a very powerful, but also very dangerous liquid explosive. Before workers began using it, they were only able to dig through several inches of rock each day. Nitroglycerine increased this amount to over two feet of rock per day. However, it also killed Chinese workers on a weekly basis when their pickaxes accidentally struck rock near the explosives. Railroad companies continued using it until the government placed limits on its use.



Above is a picture of Summit Tunnel on Donner Pass. It was the longest tunnel through the Sierra Nevada Mountains and the toughest to construct. To dig through the solid rock of the mountain, railroad workers relied on pickaxes, like the one above this photo, and incredibly dangerous explosives. Imagine chipping away at a mountain all day... and in the dark, too. It would be hard to see your own hands. Tunnel work turned out to be some of the most difficult, and a tunnel like this would have taken a long time and a whole team of people to complete. Sources: (Summit Tunnel) Photo by Alfred A. Hart, Department of Special Collections, Stanford University Libraries; (pickaxe) Smithsonian National Museum of American History, Behring Center.

WHAT DID THEY EAT?

THINK ON YOUR FEET!



It was important for Chinese railroad workers to stay hydrated and healthy while working hard on the railroads.

1. What do you think they drank?
 - a. Boiled water and tea
 - b. Cool water from the river
 - c. Rain water collected overnight
2. What do you think they ate?
 - a. Rice, dried oysters, dried fish, dried fruits and vegetables
 - b. Beef, beans, and potatoes
 - c. Pork, poultry, shrimp, salted cabbage, mushrooms, and fresh vegetables

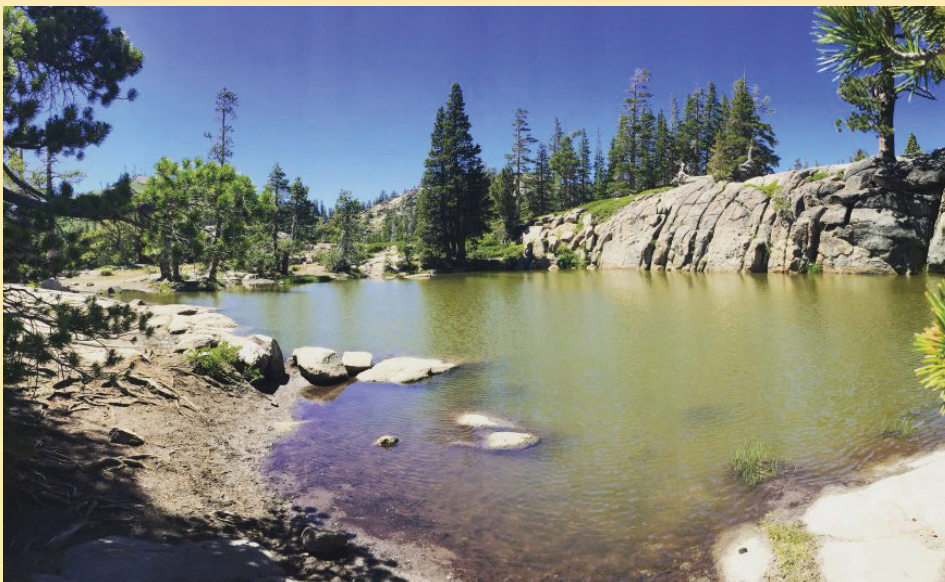
Flip for answers!

Question 1: A) Boiling the water made it cleaner and prevented Chinese workers from getting sick.
Question 2: Both A and C Chinese workers, who had to pay for their own food, had their own cooks who cooked with a variety of ingredients.

WORK AND WAGES

Chinese railroad workers were paid \$26-30 a month (30-50% less than what white workers made), and they worked six days a week. If you did extra dangerous work, such as working on the tunnels, you could earn an extra dollar a month. Chinese workers also had to pay for their own food and housing, while white workers were given both. How would you feel if you were paid less than others who worked just as hard as you?

Today there is a pond at the top of Donner Pass (see pg.6) filled with catfish. But originally, there were no catfish in this pond! It's thought that the fish were brought to the pond in the 1860s to feed Chinese workers working nearby. Catfish have lived there ever since, so it is now called Catfish Pond!



Sources: (left) Panoramic view of Catfish Pond. Photo by Olivia Flechsig. USDA Forest Service; (right) Catfish feeding at Catfish pond. September 5, 2018 edition of the Tahoe Weekly.

WHERE DID THEY LIVE?



While the railroad companies offered white workers train cars to live in, Chinese workers lived in tents like these. Source: Photo by Alfred A. Hart, Department of Special Collections, Stanford University Libraries.

Tents are just one example of a shelter that could be put up and taken down at a moment's notice. Chinese workers would sleep overnight in camps like the one to the left, where tents offered the simplest protection from bad weather. Extremely cold winters meant freezing temperatures and lots of snow: How would you improve your shelter to make it safe for the winter?

SHORT-LIVED SHELTERS:

Working on the railroad meant that workers were always on the move and had to quickly build and take down temporary shelters. If you had to build a place to sleep for just one night, what would it look like?

Draw your idea for a shelter below.



Source: Library of Congress Prints and Photographs Division.

ANOTHER SIDE OF THE STORY

Though many Americans believed the Transcontinental Railroad would help lots of people, it didn't benefit everyone. Builders planned for the railroad to cut through the Great Plains (see map on pg. 3), where many different **indigenous** tribes made their homes. The Lakota, Shoshone, and Cheyenne tribes, along with others, fought to protect their communities as railroad builders forced their way through Native American land.

The building of the railroad, which included cutting down trees and blowing up mountains, also destroyed wildlife and their habitats, or homes. For instance, the railroad's construction drove the American bison, which roamed freely throughout the Great Plains, to near **extinction**. This made the losses that many Great Plains tribes faced even greater because they relied on bison for food, clothing, and shelter.

Finally, the railroad encouraged farmers, miners, and travelers to move further west. These new **settlers** built towns and continued to force indigenous groups from their homes, forever changing the landscape of the west.

The construction of the Transcontinental Railroad reduced the bison population from tens of millions of bison to only a few hundred. Many settlers hunted them for fun rather than food. Do you know of any other animals that are going extinct?

GLOSSARY

INDIGENOUS

original or native to; the first people to live in and care for an area of land. Native Americans are an example of indigenous peoples

EXTINCTION

when a group of living things completely dies out or no longer exists

SETTLERS

people who move onto land that is originally lived on by other people

THE CHALLENGES OF BEING CHINESE

At first, railroad bosses didn't want to hire Chinese workers because they believed the Chinese weren't strong enough to work on the railroad, but there weren't enough white workers willing to do such backbreaking work. Even when the Chinese workers proved the bosses wrong by working harder and accomplishing more than expected, they still faced threats and **discrimination** from bosses and other workers. White workers who thought the Chinese were racially inferior, or not as good as they were, yelled at the Chinese workers and sometimes even hurt them.

GLOSSARY

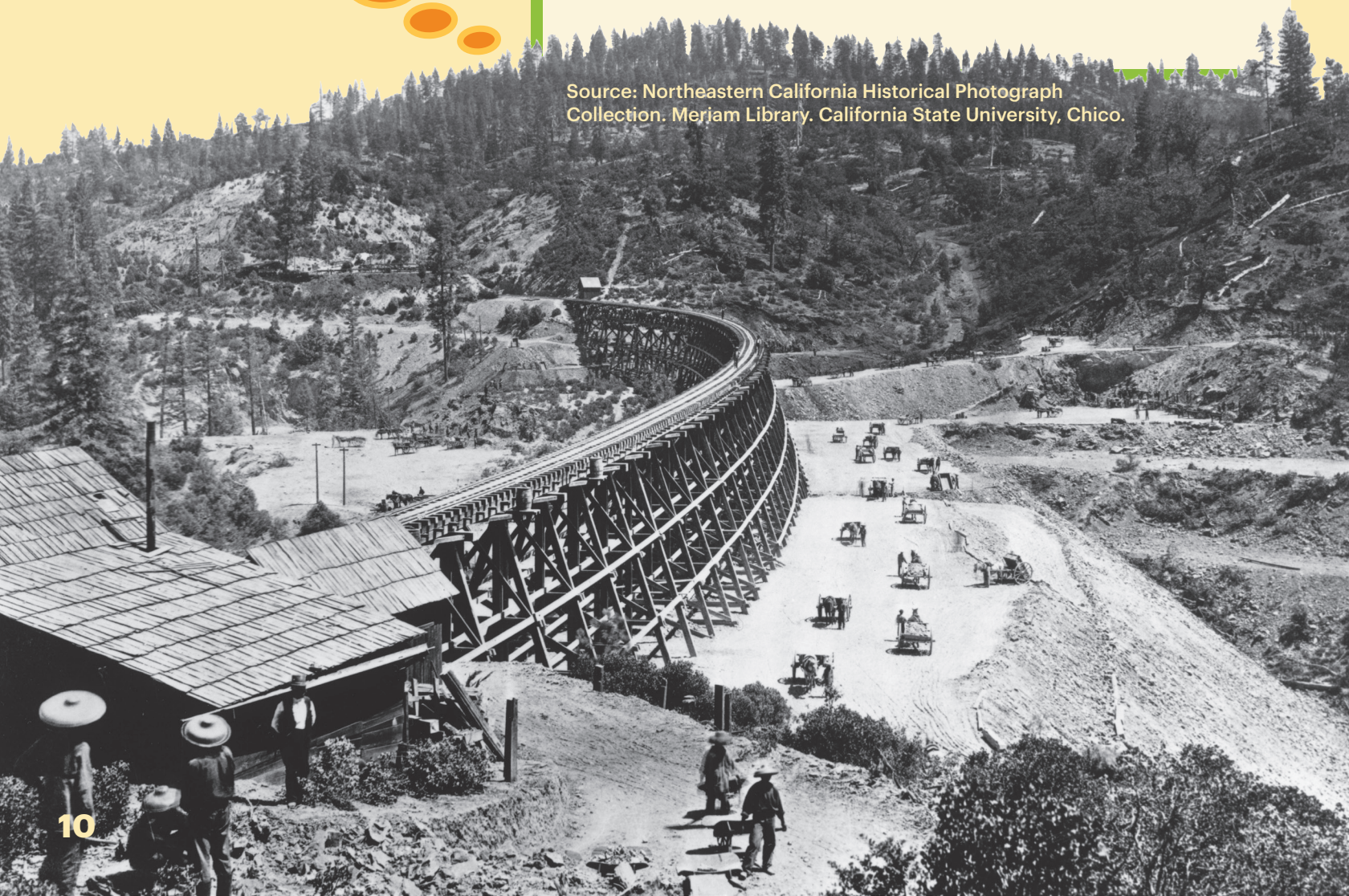
DISCRIMINATION

the unfair treatment of a group of people based on categories like race, gender, religion, and more

What do you think this location might have looked like before the railroad was built?

This is a photograph of Chinese railroad workers and the Central Pacific Railroad in 1874. The railroad cuts through the Sierra Nevada Mountains. Workers built through high mountains and over low valleys, changing the natural landscape as they went along. They had to break down and cart away rocks, tree trunks, and other parts of the environment.

Source: Northeastern California Historical Photograph Collection. Meriam Library. California State University, Chico.



A CHALLENGING JOURNEY

Chinese railroad workers encountered many obstacles while building the Transcontinental Railroad. **Trace your way to the completion of the railroad. Make sure to PASS THROUGH EVERY OBSTACLE.**

START

END

OBSTACLE KEY:

- The Sierra Nevada Mountains
- Discrimination from bosses
- Bullying by non-Chinese workers
- Harsh winters with blizzards and avalanches
- Dangerous explosives
- 3-week journey from China to the United States

STRIKE!

Despite working longer hours and taking on more difficult tasks, Chinese workers were paid much less than white workers—and they faced more dangerous conditions, too. On June 19th, 1867, there was a terrible accident in one of the tunnels—an explosion that killed one white worker and five Chinese workers. The sound of the blast could be heard for miles.

Chinese workers had had enough. On June 24th—just five days after the explosion—three thousand Chinese railroad workers, standing along thirty miles of track, went on strike: they dropped their tools and refused to work. They demanded equal pay and shorter hours, especially when it came to working in the crowded, dangerous tunnels. Together, they threatened not to work until these demands were heard. Their strike made railroad bosses angry because it cost the companies time and money. Yet the bosses refused to listen, even though they worried about how long the strike would continue.

The strike lasted for a total of eight days. It ended without the immediate changes they wanted, but it showed that when working together, the Chinese workers could have power over their bosses.

GLOSSARY

STRIKE

a highly organized form of protest in which a group of workers all refuse to work in order to get bosses to listen to their needs. There is power in numbers—a single stick can be snapped, but a bundle of many can't be! Can you think of another example of people working together to fight for change?

TEN MILES IN A SINGLE DAY

Towards the end of the railroad's construction, two bosses made a bet about the skills of the Central Pacific's workers. This competition led to an incredible accomplishment, which required a lot of hard work, strength, and communication. Working together, a team of eight Irish rail workers and 5,000 Chinese workers laid more than ten miles of track in less than twelve hours. That's 240 feet of track—about the size of two soccer fields—every minute! All eight Irish workers would lift one rail as the Chinese workers hammered spikes and carried other railroad parts. People who saw the work compared it to a carefully planned dance. Everyone worked tirelessly at the same quick speed until the last rail was spiked into place.

Look out below !

碌奧、卑盧

有一大石崩去

A large stone has broken away.

嘔罈治、市墩靴市、布碌徑、嘔畏

這是警醒的人

That is a warning for the men.

曰於市、嘔窩甯、乎於文

我們要整備發炮

We must do some blasting.

委媽市、都心霸罈盛

問此管工要的發藥彈子

Ask the foreman for a few dynamite cartridges,

啞市、於科文、乎嘔啡底汝米、咳秩治

勿俾佢跌下他即能轟爆

Don't let it fall or it will explode.

棟咧咽、科路、柯咽和路、咽士普律

汝拈條引藥來

Check out this page from a Chinese to English translation guide: why would Chinese workers want to know these phrases in particular? Source: Chinese and English Phrase Book and Dictionary, 1911. Courtesy of Marcella Chin Dear, MOCA Collections.

10 MILES IN 1 DAY!

IN 1 DAY, THEY LAY:

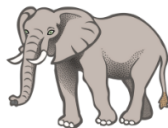
25,800

TIES

That's over 5 million pounds! 1 railroad tie weighed 200 pounds.

430

ELEPHANTS



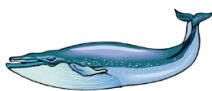
3,520

RAILS

That's over 2 million pounds! 1 rail weighed 560 pounds.

10

BLUE WHALES



55,080

SPIKES



14,050

BOLTS



HOLES IN THE HISTORY

While the railroad celebrated the eight Irish workers in a parade and recorded their names in history books, not one of the 5,000 Chinese workers' names were recorded. Even today, we have no record of their names. Imagine that you worked really hard on a group project, but you were the only one not allowed to write your name on it. How would you feel? What would you do? What can you do to make sure that more people from history are recognized for their work today?



The railroad's rails, or tracks, likely looked similar to this one. Workers would hammer spikes into the rails to keep them in place. A reporter watching noted that it would take three hits to hammer in each spike. There were ten spikes for each rail, and four hundred rails in a mile. Imagine the sound of all those hammers clanging at once! Source: Utah State Historical Society.

GOLDEN SPIKE

By May 10, 1869, the workers of the Central Pacific had laid 690 miles of track through the Sierra Nevada Mountains and the Great Basin Desert. They also blasted and chipped away at rock to construct 15 tunnels. Union Pacific workers, by 1869, had covered 1,086 miles through the Rocky Mountains and the Great Plains (see map on pg. 3). Both sides met at last in a grand ceremony at Promontory Summit, Utah. The final spike, which joined the two sides, was a special spike made of gold. Leland Stanford was given the honor of the first hammer hit, but people who were there said that he missed the spike completely! Instead, a railroad worker hammered the final, golden spike, marking the end of the nine-year project.

2019 marked the 150th year anniversary of that special day—on May 10, thousands of people, many of whom were **descendants** of the Chinese railroad workers who were not honored during the 1869 celebration, gathered to remember and celebrate the hard work of their **ancestors**. Remembering and recognizing the important role of the Chinese workers is one way we can honor them today.

GLOSSARY

DESCENDANT

someone related to a person who lived in the past

ANCESTOR

a person from long ago who is related to people in the present



This is a photograph of the Golden Spike Ceremony in 1869. Who do you see in this photograph? Who is missing? Source: Underwood Archives/Getty Images.



The 2019 Spike 150 Ceremony celebrated the 150th anniversary of the completion of the railroad. Many of the people who attended the event were descendants of Chinese railroad workers. Source: Photo by Chang W. Lee, The New York Times.

HOLES IN THE HISTORY

Despite doing some of the hardest work on the railroad, few, if any, Chinese workers were included in the 1869 Golden Spike Ceremony. Parts of the photo are blurry, so we may never know for sure. What we do know is that many Chinese workers left before the ceremony to improve quickly built railroad lines and start work on new ones.

THE TRANSCONTINENTAL ROAD: A TIMELINE

**November
1860**

Theodore Judah forms the Central Pacific Railroad Company with the goal of building a railroad that crosses the whole country.

July 2, 1862

Abraham Lincoln passes the Pacific Railway Act, which allows the Central Pacific Railroad to build east from California and the Union Pacific Railroad to build west.

**October 26,
1863**

The Central Pacific lays its first tracks.

**June 24,
1867**

Three thousand Central Pacific Chinese workers go on an 8-day strike.

**June 19,
1867**

A tunnel explosion kills one white worker and five Chinese workers.

**July 10,
1865**

The Union Pacific lays its first tracks.

**January,
1865**

The Central Pacific hires the first Chinese workers.

**August 28,
1867**

Central Pacific workers successfully blast 1,659 feet through a peak in the Sierra Nevada Mountains to construct the Summit Tunnel.

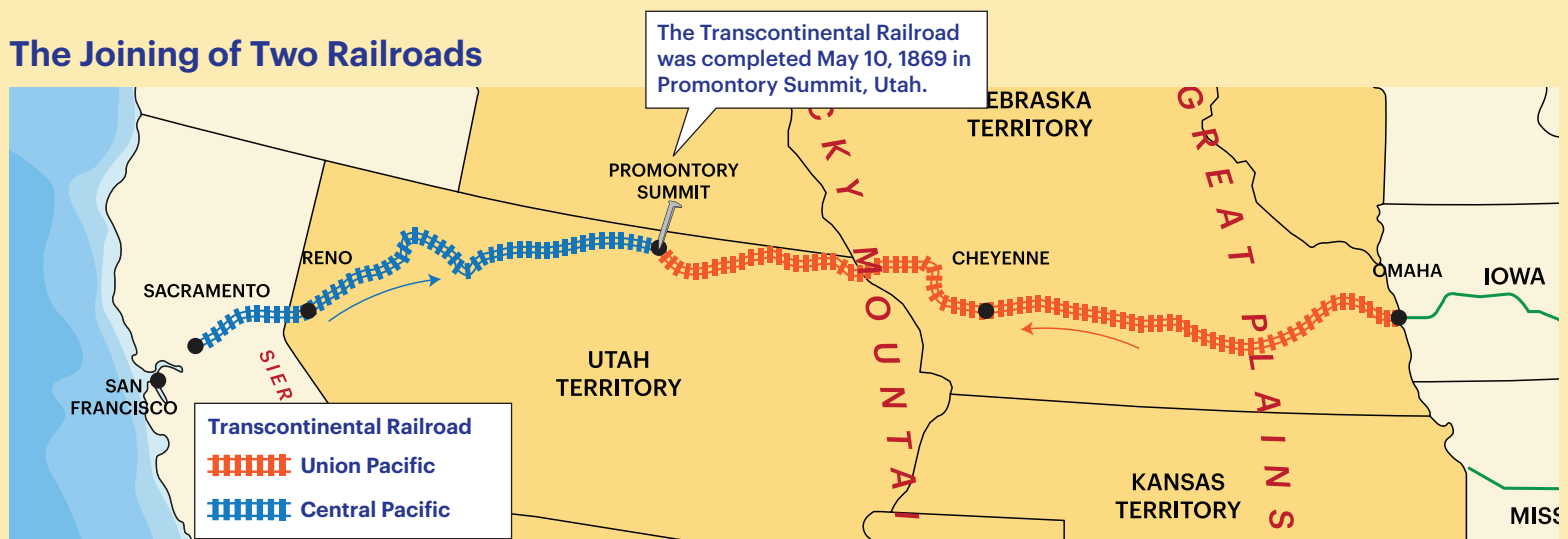
**April 28,
1869**

Central Pacific workers lay ten miles of track in a single day.

**May 10,
1869**

The Golden Spike ceremony celebrates the joining of the Central Pacific and Union Pacific lines at Promontory Summit, Utah.

The Joining of Two Railroads



Close-up map of the completed Transcontinental Railroad. Together, the railroad covered 1,776 miles when it was completed in 1869. For many Americans, it represented hard work, progress, and the coming together of the country.

WHAT DID THE CHINESE WORKERS DO NEXT?

What did the Chinese immigrants who came to work on the railroads do once the railroad was completed? While some went back to China, many stayed in the United States, where they continued to work on railroads all across the country. This included fixing and improving areas of rushed construction for the Central Pacific and Union Pacific lines, as well as constructing new track in other places. Railroad workers also went north to Canada, where they helped build another transcontinental railroad. Immigrants who were sick of working tirelessly on tracks turned instead to farming, mining, and chopping down trees for wood. Some of them opened their own shops! They also found jobs along the west coast in Chinatowns and factories.

As they settled into new lives in the United States, discrimination against the Chinese only increased. For instance: though he hired so many of them to work on the railroad, Leland Stanford himself referred to Chinese laborers as “an **inferior** race” and fought for their **exclusion** after the completion of the railroads. Eventually, negative feelings and violence against Chinese immigrants got so bad that the government passed the 1882 Chinese Exclusion Act, a law that banned Chinese immigrants from coming to the United States. The law remained in place for 61 years. It has had long-lasting effects on Chinese Americans and continues to shape Chinese American history today.

GLOSSARY

INFERIOR

not as good

EXCLUSION

being kept out. “To exclude” means to not include



Source: Bettman Archives/Getty.

This picture offers a powerful image of how railroad workers, and especially Chinese railroad workers, have been represented throughout history. The figures can be seen at work but their faces are shaded, or hidden from view. Similarly, past historians and record-keepers have acknowledged Chinese railroad workers as a group and made note of the work they did, but rarely mentioned individual names and stories. How can we recover those details and honor the individuals today?

A LASTING LEGACY

Once called an impossible task, the building of the Transcontinental Railroad was an incredible accomplishment. It changed the United States dramatically, and in more ways than expected. Travel time from one side of the U.S. to the other was shorter than ever. The railroad made it easier to send goods across the country, which meant people could buy and sell more items than before. It opened the West up to new settlers, and it also led to the destruction of indigenous communities, animal life, and the environment. With its important and long-lasting impact, the Transcontinental Railroad marked a new chapter in Chinese American history.

Today, we know so much about Chinese railroad workers' experiences thanks to the hard work of their descendants, as well as the research of historians and scholars. By learning about, remembering, and celebrating the lives of Chinese railroad workers, we can start to recover what was lost.



Ceramic bowls are some of the most common objects found at old campsites. Objects like these can tell us a lot about how the workers lived! Source: Photo by Ken Cannon, The Archaeological Conservancy.

GLOSSARY

FIRST-HAND ACCOUNTS

information that came directly from people who were alive at a time in history

How do we learn about the past?

While a lot of the **first-hand accounts** of Chinese railroad workers' experiences, such as letters, are missing, and though official historical records often ignored Chinese workers, there are still some things we know about the workers and their lives. How do you think historians learned these details?

Circle the sources you think helped historians learn about the experiences of Chinese railroad workers:

photographs

newspaper

objects and artifacts

business records

articles

interviews with descendants of railroad workers

Answer: All of them! Researchers have had to rely on a wide variety of sources to learn more about how Chinese railroad workers lived. Even today we are still uncovering more!

