



No. 10

Railroads



Even though the Civil War was raging, President Abraham Lincoln approved a law passed by Congress in 1862 to help build a railroad across the frontier. Two companies started from opposite directions. The Central Pacific Railroad started in Sacramento, California, and built east. The Union Pacific Railroad started at Omaha, Nebraska, and built west. The first railroad tracks to cross Nebraska were begun on July 10, 1865. Nebraska was easy to build across, being quite flat.

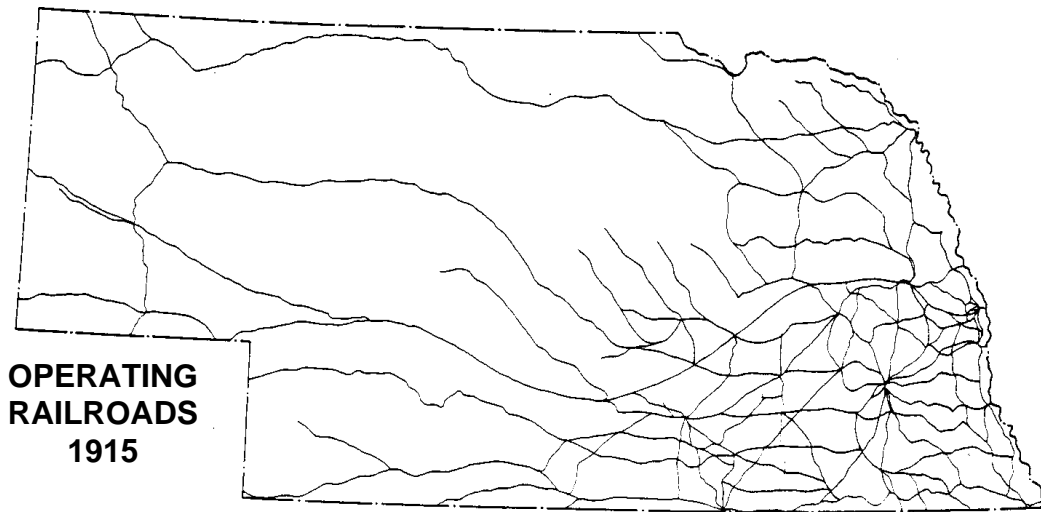
Thousands of laborers worked hard for four years. The two rail lines met at Promontory, Utah, on May 10, 1869. The photograph above shows the driving of the last spike, which was made of gold.

Now that people could travel by train from coast to coast, the Oregon Trail was no longer needed. It was gradually abandoned.

Nebraska is home to the great Union Pacific Railroad, which is headquartered in Omaha.

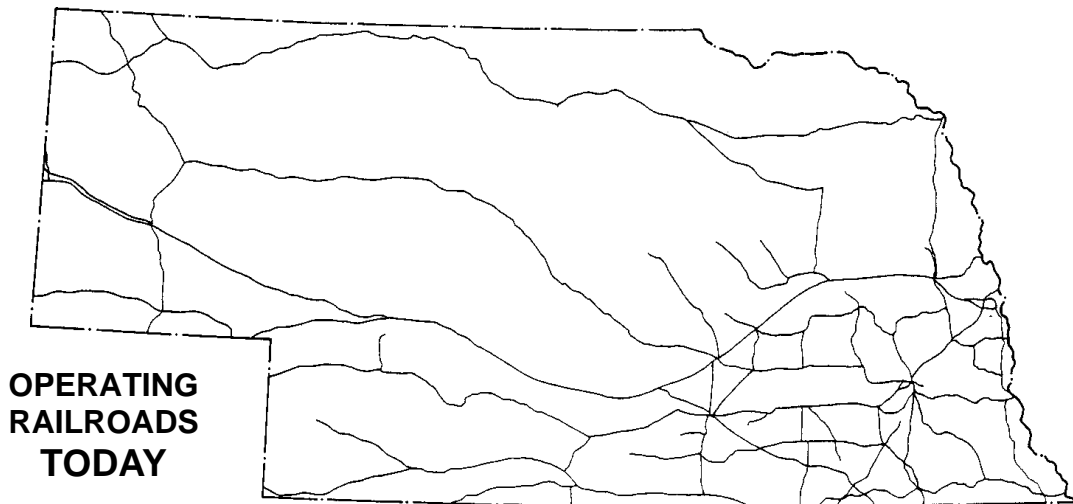


To build a railroad, surveyors first had to pick out the route that would be easiest to build. Then scrapers were used to make a **bed** of earth. Wooden **ties** made from logs were laid across the bed. Steel **rails** were laid on the ties and nailed down with iron spikes. Rocks, gravel, and cinders, called **ballast** were then dumped between the ties to help hold them in place.

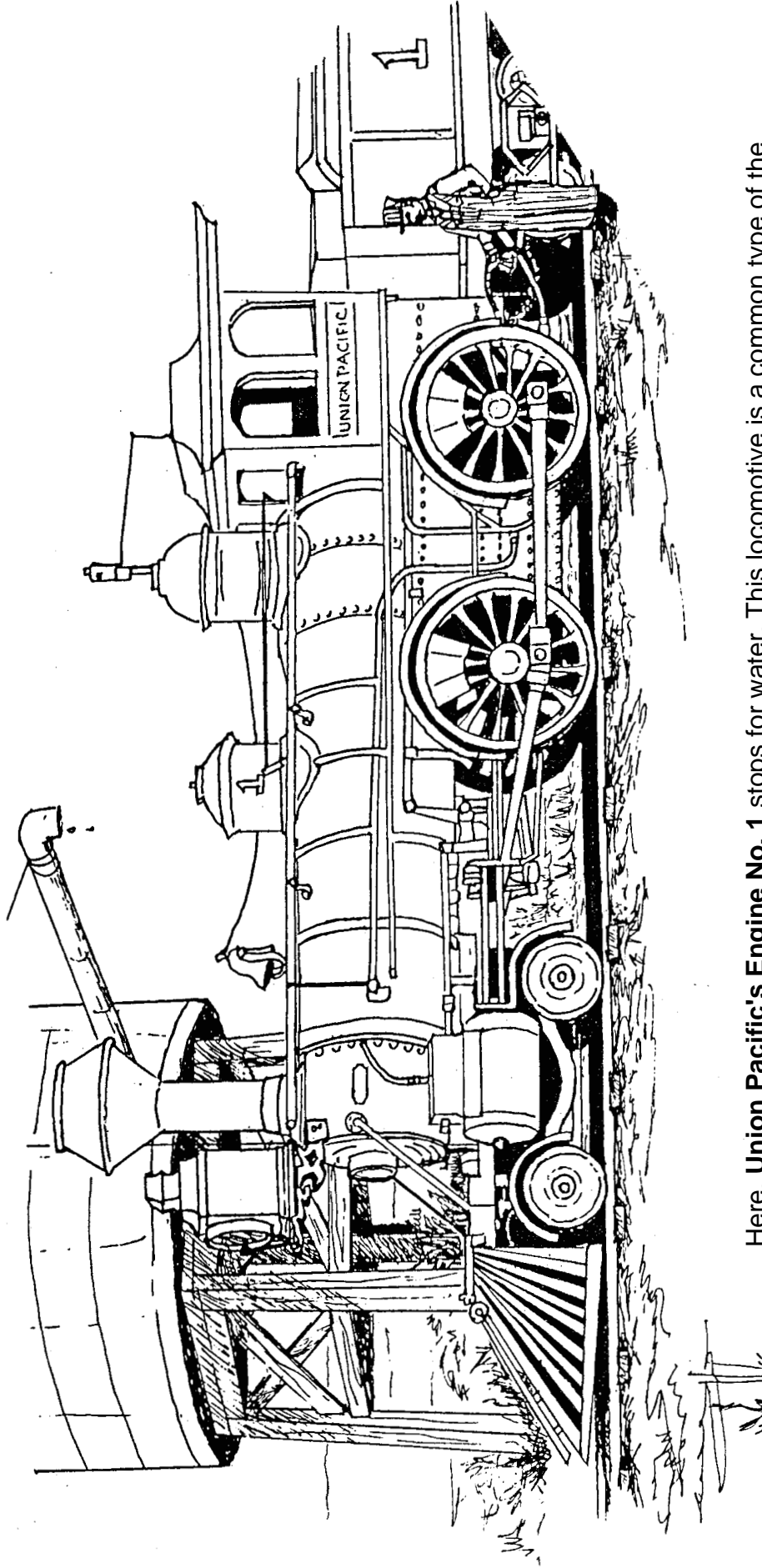


In 1915 there were many more miles of railroad in our state than today. There were no paved highways then and only horse-drawn wagons and a few cars and trucks. Almost everything and everyone traveled by train. Today most people travel by automobile or airplane. Much freight is hauled in trucks. Railroads often carry trucks loaded with freight "piggyback" on flatcars. The railroad is still important for hauling coal, grain, and other freight.

Was your town started when a railroad was built through your county? Is your town still served by a railroad?



FROM STEAM POWER TO DIESEL POWER



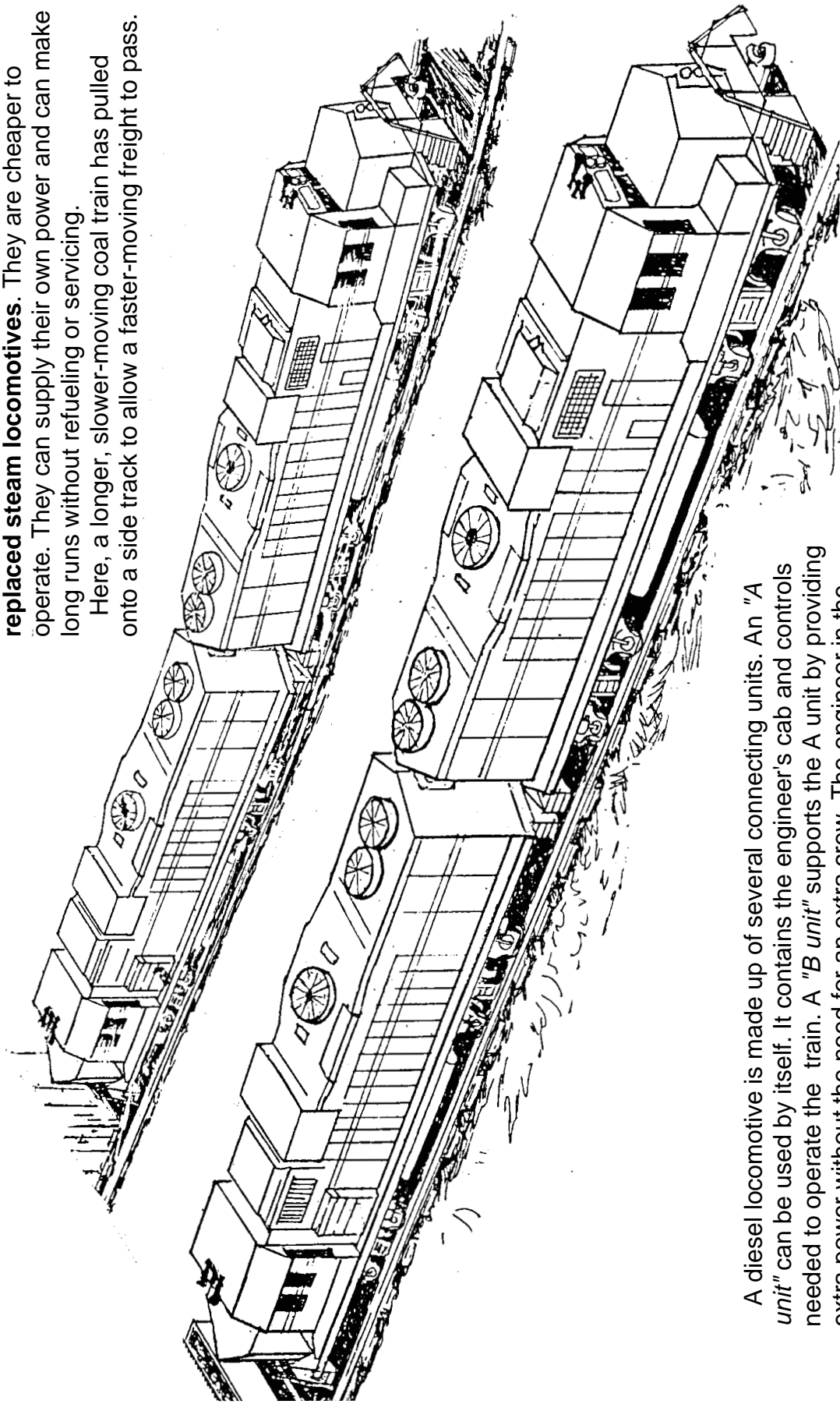
Here, **Union Pacific's Engine No. 1** stops for water. This locomotive is a common type of the 1860s and 1870s. The engineer is checking for "hotboxes," or overheated bearings.

Today very few steam locomotives are in use by railroads in the United States. There are museums and parks, however, where you can ride a train powered by steam. Grand Island's Stuhr Museum is one place in Nebraska. Perhaps you know of others near your home or school.

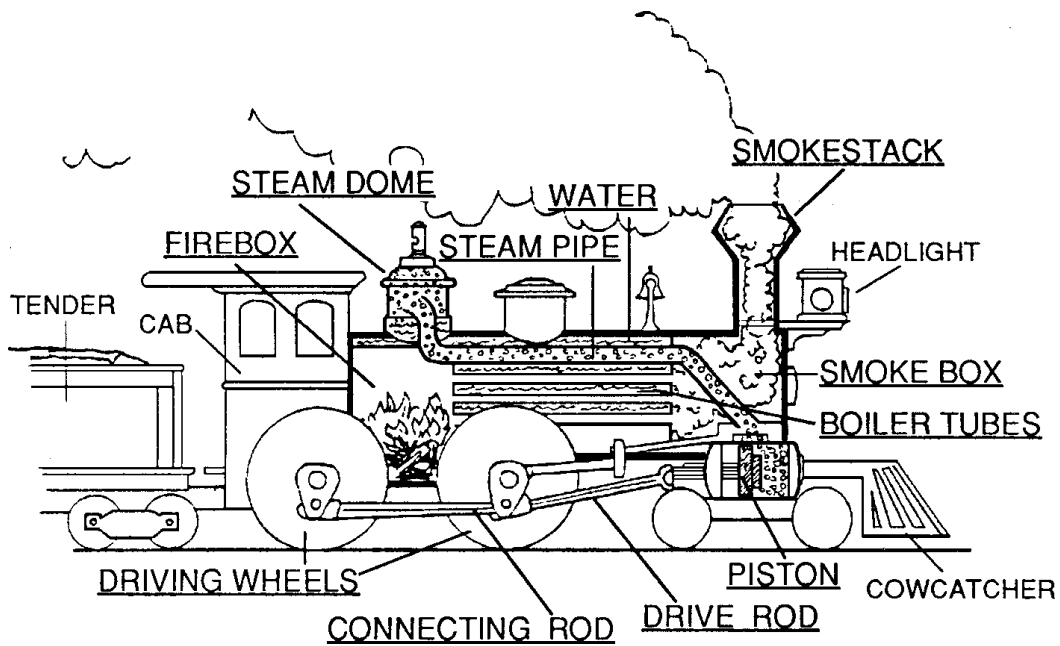


Diesel-electric locomotives have almost entirely replaced steam locomotives. They are cheaper to operate. They can supply their own power and can make long runs without refueling or servicing.

Here, a longer, slower-moving coal train has pulled onto a side track to allow a faster-moving freight to pass.



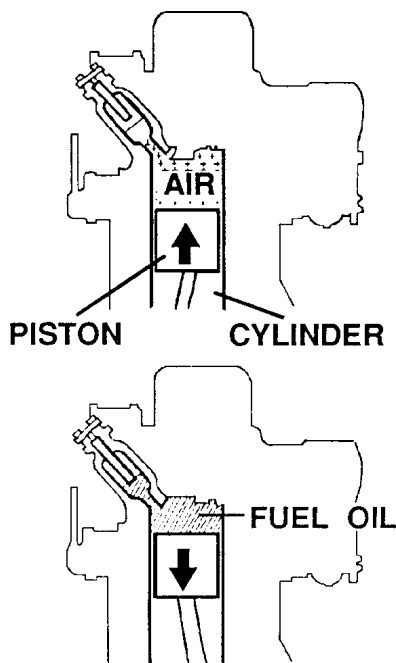
A diesel locomotive is made up of several connecting units. An "A unit" can be used by itself. It contains the engineer's cab and controls needed to operate the train. A "B unit" supports the A unit by providing extra power without the need for an extra crew. The engineer in the lead unit controls the B units by radio signals.



HOW A STEAM LOCOMOTIVE RUNS:

A steam locomotive burns wood or coal in a **firebox**. The heat turns the water in the **boiler** into steam. The pressure forces the steam into the **steam dome** and through the **steam pipe** to the cylinder where the **piston** is forced back and forth. As the piston moves, so do the **drive rod** and **connecting rod**. This turns the **driving wheels**. The "choo-choo" sound you hear is the sound of the steam pushing the piston first one direction and then another. The smoke gathers in the **smoke box** and escapes through the **smokestack**.

Attached directly behind the locomotive is the **tender** that holds the wood and coal.

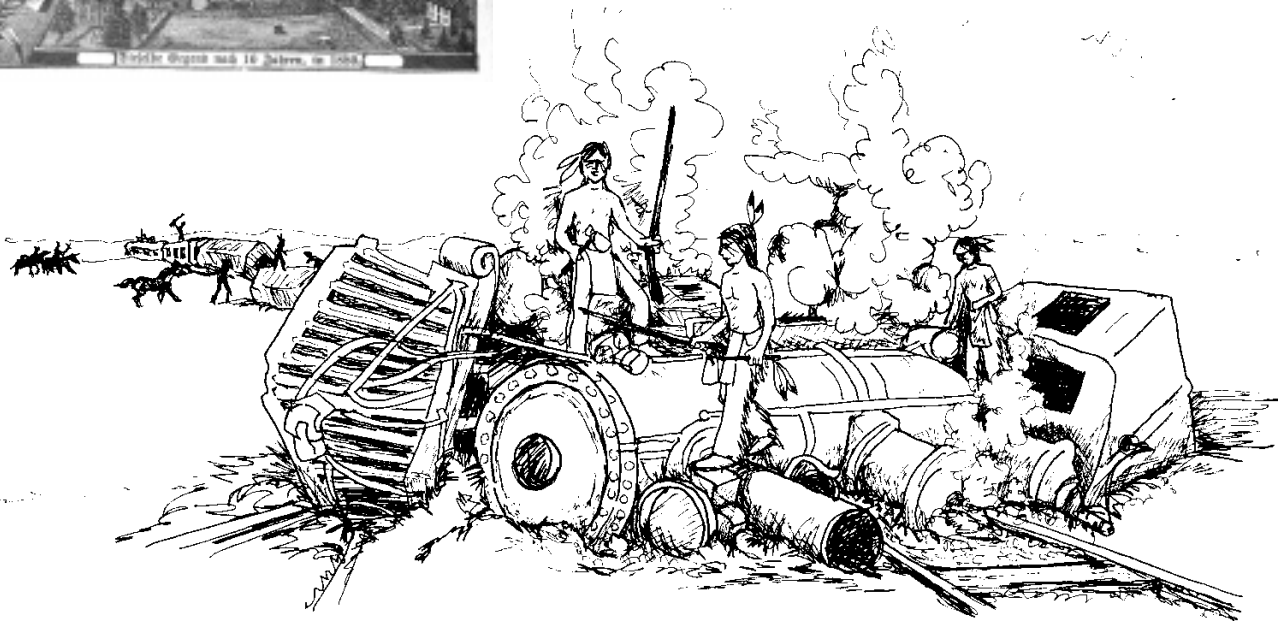


HOW DIESEL POWER WORKS:

The diesel engine in a locomotive is similar to the one in a semi truck. It works by *compressing*, or squeezing, **air** in chambers called **cylinders**. (Most locomotive diesel engines have 12 to 16 cylinders.) The air is compressed in each cylinder by a **piston**, and the temperature rises. This rise in temperature sets fire to the **fuel oil** that is squirted into the cylinder. The resulting explosion pushes the piston back. This produces the power to drive an electric generator. The electric generator turns the drive wheels and the locomotive moves.



To encourage railroads to build tracks where few people lived, and to help settle the country, the government gave land to the railroad companies. The companies then laid out towns and sold the land to farmers. Many of these farmers came from Europe, where they had experienced many problems. The railroads sold the land to them very cheap. Often large numbers of Europeans came to Nebraska from the same country and settled in one place. That is one reason why Nebraska has communities where many of the people are of Swedish, Czech, or German ancestry. This is a poster used by agents of the Burlington Railroad to encourage Germans to buy land from the Burlington and come to live in Nebraska. Altogether, the railroads received over 8 million acres (one-sixth of the state). By selling this land, the railroads helped pay their bills, and helped settle Nebraska. They also created a market for their services, hauling passengers, livestock, grain, mail, machinery, and other freight.



On August 6, 1867, Cheyenne Indians led by Chief Turkey Leg attacked a railroad repair crew and derailed a train near Plum Creek (present-day Lexington), Nebraska. The Indians looted the train after it was wrecked. Seven railroaders were killed and four escaped. One man, William Thompson, pretended to be dead. He was scalped alive. The Indian who did that accidentally dropped the scalp. Mr. Thompson later recovered it and escaped. The scalp is on exhibit at the Union Pacific Museum in Omaha. You should see the museum, which has many wonderful things in it.



Nebraska is flat, with no mountains and few hills. Only in the far northwest corner of the state, in the Pine Ridge country near Crawford, was it necessary to dig a railroad tunnel. The Belmont Tunnel was used from 1889 to 1982. In 1982 the Burlington Northern Railroad completed an open cut beside the tunnel with double tracks to carry trains in both directions. This was the only tunnel built in Nebraska, and it is now abandoned.

Trains have a difficult time going up a steep hill. The railroad track must be as level as possible. High spots must be cut down and low spots filled up. Rivers and large low places are often crossed with a bridge. This is a picture of the Missouri River bridge built at Rulo, Nebraska, by the Burlington Railroad. Are there any railroad bridges near your home?



In a town or city where many rail lines came together or the rail yard was very busy, the company usually built a roundhouse where repairs could be made. A roundhouse had several tracks inside it, like the spokes of a wheel. The floor, called a turntable, could actually move like the turntable on a record player. Locomotives and train cars entered on one track, then the turntable revolved. The engines or cars could then move onto a different track. The roundhouse workers repaired the cars and locomotives inside the building. This shows the old roundhouse in McCook.



Many of Nebraska's towns were built along a new railroad track. The first important building in some of these towns was the **depot**. The depot was used by the passengers waiting to depart and by people waiting for passengers to arrive. There were offices for the railroad employees and a telegraph office to send messages. There were rooms to store baggage and freight. Sometimes there was a **porter** who helped with baggage. There was usually a **drayman** who delivered packages to businesses in town. The drayman also drove people to homes or hotels, like a taxi today. Since most railroads no longer carry passengers, few depots are still used by the railroads. This Burlington Railroad depot in Beatrice is now the Gage County Museum.

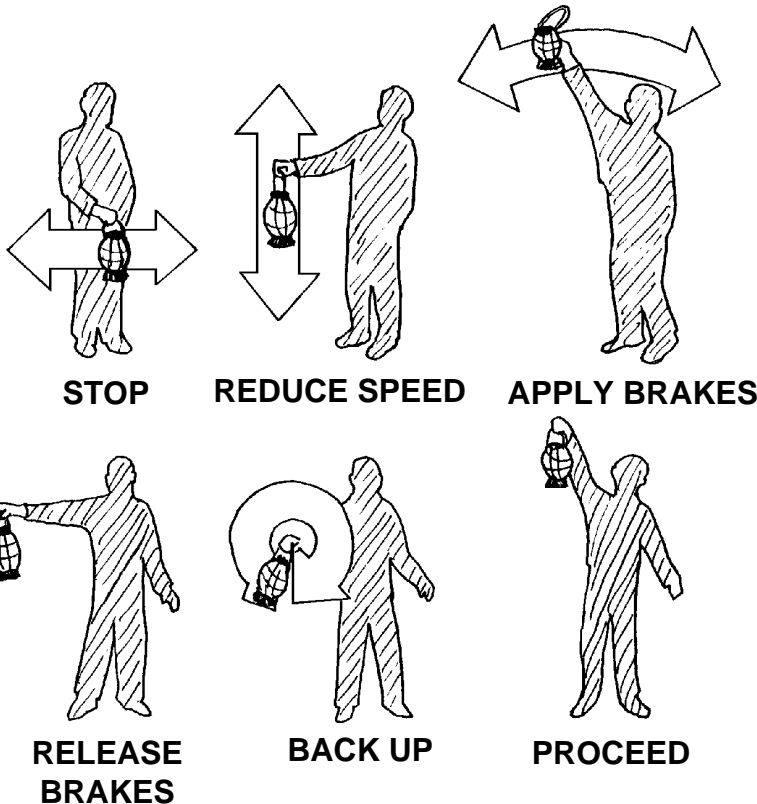
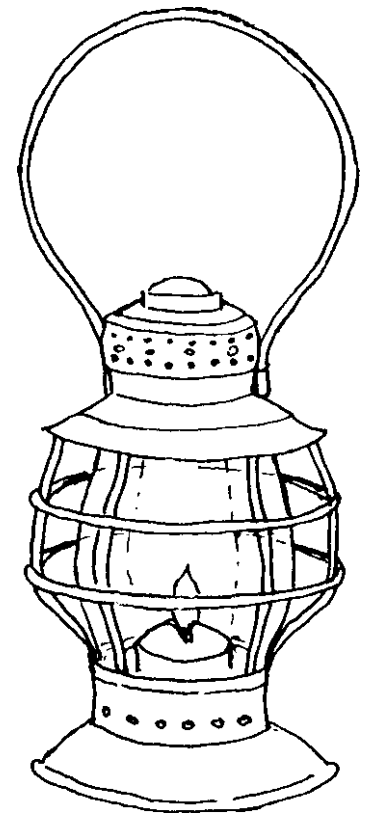
One of the finest buildings in Nebraska is Omaha's Union Passenger Terminal. Passenger trains of the Union Pacific system used it. The station, built in 1931, was next to the Burlington Railroad Station. That made it easy for people to travel almost anywhere on either railroad company's trains. Even though the Union Pacific and most other railroads no longer carry passengers, many people in Omaha thought the building was too beautiful to tear down. Today the Union Passenger Terminal houses the Omaha History Museum. All Nebraskans should visit it.





During World War II (1941 - 1945), the railroads carried most of the supplies and troops America used. The largest rail yard in the world was at North Platte. The local citizens set up a "canteen" for the military people traveling by train. During the war, the North Platte Canteen became famous. 4,000 soldiers, sailors, and airmen were fed refreshments every day. A total of more than three million persons were served. In this photo, soldiers enter the canteen from their troop train.

Railroaders have invented many ways of communicating. They have used telegraphs, telephones, walkie-talkies, little explosive pellets called torpedoes laid on the tracks, hand signs, semaphores, colored lights, horns, and whistles. One way to signal at night is with a lantern. This is a picture of a railroader's lantern. Here are some of the signals he might send in the darkness to a train crew:



BUILDING YOUR VOCABULARY

Underline the words below that are related to railroads. The answer is upside down at the bottom of the page. Do any of them have more than one meaning?

SLEEPER	TORPEDO	WHISTLE	DIESEL
TURNTABLE	BOILER	CROSSING	SECTION
HOTBOX	LOCOMOTIVE	LANTERN	RAIL
CABOOSE	CONDUCTOR	STEAM	DEPOT
GONDOLA	COWCATCHER	PLATFORM	CAR
YARD	ENGINEER	FLATCAR	TRAIN
PORTER	TRACK	FIREMAN	SPIKE
BAGGAGE	TIE	SWITCH	SPUR
GRADE	TENDER	BALLAST	BRAKE

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All of them are related to railroads. Look up any you did not underline in the dictionary
and find the meaning that relates to railroads.