

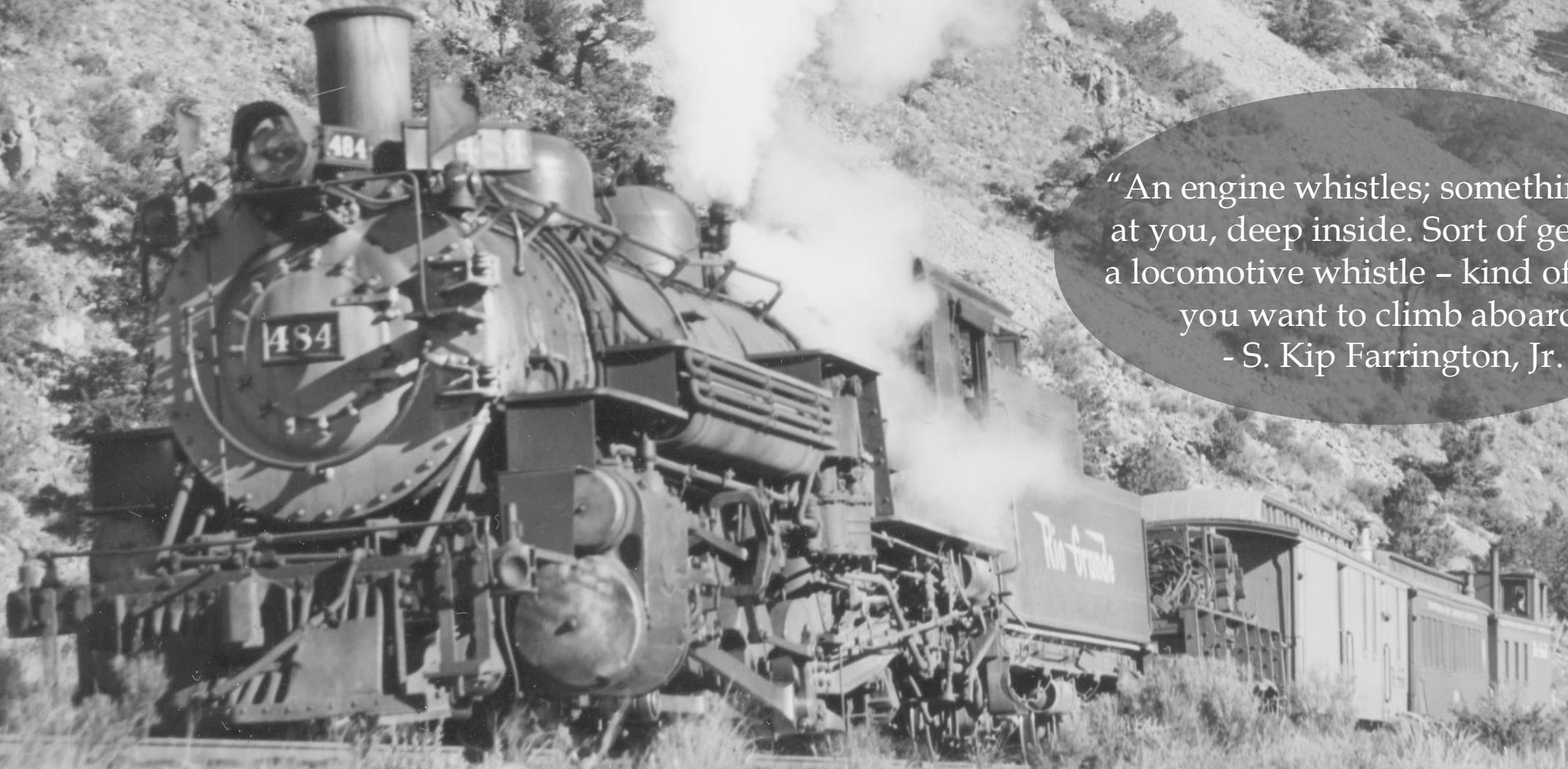
Do you hear the whistle blowing?

Steam Whistles: An Early Communication Tool for Railroads



"An engine whistles; something tugs at you, deep inside. Sort of gets you, a locomotive whistle – kind of makes you want to climb aboard."

- S. Kip Farrington, Jr.

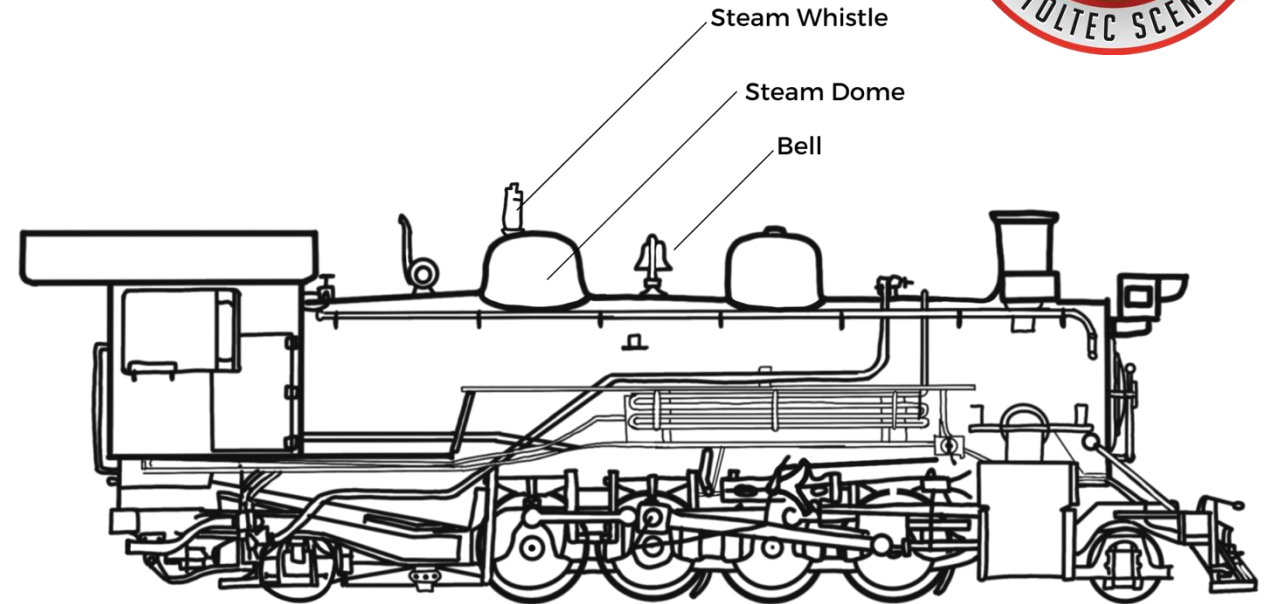


What is a steam whistle?

Steam **whistles** are used on steam **locomotives** to provide safety warnings and share information and instructions.

Whistles were used along with **bells**, lanterns, and flags to communicate with people who were not nearby. This type of communication was especially important before the days of portable radios.

While steam whistles are no longer used across most of the country, many historic railroads still use them today.



History



FCTS AMP01-001

Builder's photo of D&RG #1 "Montezuma. Built in 1871 by Baldwin Locomotive Works. Notice the bell at the center. Taken circa 1871.

The earliest steam locomotives were primitive, much smaller, and slower than those used today on the Cumbres & Toltec Scenic Railroad. These locomotives had bells that the engine crew rang as trains approached road crossings or moved through train yards. Steam whistles were "more forceful" than bells and could be heard from longer distances. Steam whistles became increasingly important as the country's rail system grew and as locomotives got bigger, faster, and louder.

On steam railroads, like the Cumbres & Toltec, bells are used in conjunction with steam whistles, especially in places like railyards. As the train moves through the yard, the bell is rung as a constant reminder that the locomotive is moving.





The right side of the steam dome with the whistle and bell.

A Little More History

The use of steam whistles on trains originated in Great Britain and early American railroads quickly jumped on the idea. With railroad tracks crossing roads of all sizes and passing through rural areas and cities in every state, the federal and state governments and railroads imposed various safety requirements to help prevent train collisions and other accidents. Those requirements resulted in locomotives across the land being fitted with steam whistles that the engineer could blow to let people know a train was approaching so they should get away and stay off the tracks. Engineers also blew the whistles to get livestock, such as cows and horses to stay off the tracks in front of the train.

Over time, different makers of steam whistles produced devices with sounds that varied, some with roaring voices and others very shrill. And the engineers who operated whistles often did so in ways that produced different sound effects. That made it possible for people to recognize a train's engineer by the sound of its whistle.

As technology progressed steam engines were replaced by diesel locomotives. Without a boiler producing steam they could not use a steam whistle, so these locomotives were equipped with a horn. This is a very loud horn that can be heard at very long distances.

How do steam whistles work?

Steam whistles are powered by steam blown through the whistle. Steam is produced by the steam engine when water is boiled by a fire.

The fire may be fueled by wood, coal, or oil. The water is boiled, and steam is released. Most of the steam produced by the steam engine is used to power the engine's gears and wheels, allowing the locomotive to move along the tracks.

The engineer can pull a cord that activates a lever inside the locomotive. The lever opens a valve releasing steam through the whistle. As the steam moves through the whistle, it produces sound. Steam whistles come in many types, shapes, and sizes each making a different sound.

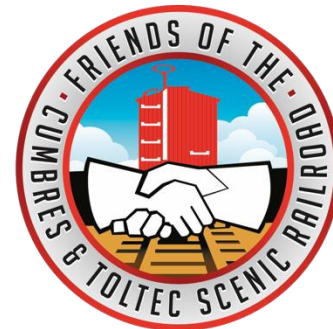




How are steam whistles used?

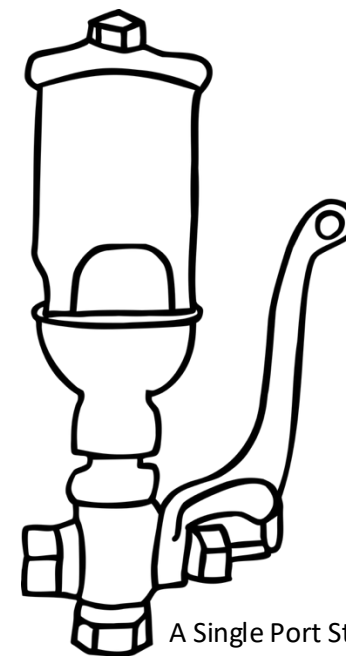
- To provide safety warnings
 - Example: The locomotive engineer wants to tell people or livestock to get off the tracks in front of a moving train.
- To share information
 - Example: The engineer wants to tell train workers and passengers that the train is going to start or stop.

The Cumbres & Toltec daily passenger train blowing the whistle at sheep in the tracks.



Whistle Signals to Provide Warnings

- Train stations
- Road crossings
- Bridges or trestles
- Tunnels
- Curves in the track ahead of the train



A Single Port Steam Whistle

"The 'whistle' sign is a common feature on the railroad landscape. It is placed before highway crossings, bridges, and tunnels – wherever the tracks might be blocked by people or cars or animals. It tells the engineer to sound the most common of whistle messages – two long blasts, one short, and another long."

-Roger B. Yepsen

Whistle Signals to Provide Instructions or Information

- When a train is about to depart a station
- When a train is moving through the railyard
- When more than one locomotive is powering a train and the engineers need to know when to have their locomotives move and stop, all at the same time



Ernie Robart, 21 years old, as the engineer of a train in Chama, NM in 1968.



Whistle Boards

While engineers are trained to be familiar with the area along the tracks and any hazards where trains operate, railroads install wooden and metal signs often called “whistle boards” along the tracks to remind engineers to blow their whistles at certain places.”

Most whistle boards are at places where trains approach crossings, stations, and other locations where people might be near the tracks. Whistle posts are coded by letters, so the engineer knows what whistle code to use.

Whistle Boards:

- X for Road Crossings
- S for Stations
- W for Whistle (This is a catch-all used for tunnels, bridges, and curves in the track.)



An S Whistle Board on the Cumbres & Toltec Scenic Railroad

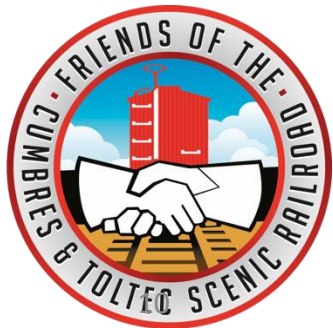


C&TS locomotive 484 blows its whistle as it approaches the highway crossing.

Whistle Signals Provide Safety Notices to the Public – Road Crossings

Train engineers are required to blow the whistle when they approach crossings so people walking and vehicles driving would know to stay off the tracks. Many modern road crossings have gates that come down when a train approaches, but some crossings do not. In the era of steam trains, these gates were not around.

Trains often require long distances to stop because of their weight and the fact that they ride on smooth steel rails. That makes it important for drivers not to try to cross the tracks when a train is approaching. Blowing the whistle helps drivers by letting them know before the train gets to the crossing.





C&TS 484 sitting on the tracks at Osier, the lunch stop.

Whistles are also used for safety to alert people that a train is about to start moving. This notifies passengers they must board immediately and notifies any bystanders the train is about to leave.

When you ride the Cumbres & Toltec Scenic Railroad, you will hear four long blasts that signal the train is preparing to leave the Chama and Antonito Stations, and as the trains prepare to leave Osier, Colorado after lunch.

Whistle Signals Provide Safety
Notices to the Public – Passengers
and Bystanders



Operational Communication

Train engineers use a variety of whistle signals – combinations of long and short blasts – to provide instructions or information to crew members and other railroad workers while trains are either moving or stopped.

For the safety of the railroad employees working along the tracks in train yards, a whistle signal that a locomotive is about to move tells workers they should get out of the way of the train. That helps to prevent injury. Similarly, for employees working on the tracks in the countryside or on a bridge, a whistle blast from an approaching train warns the workers to get off the tracks. That is important because engineers' views of the tracks ahead of their train may be limited by curves in the track, trees next to the track, or circumstances such as darkness or bad weather that make it difficult to see people and objects far away.

Listening for these whistle signals is important for anyone near the railroad to avoid injury. The Friends of the Cumbres & Toltec volunteers pay attention to these signals as they work along the railroad trimming trees, working on signs, and other tasks along the right of way.



Friends of the Cumbres & Toltec volunteers trimming trees along the right of way.

Operational Communications

“Then, with the orders delivered, the freight is ready to highball. Two curt blasts crack from the dome of the lead engine, and there are echoing blasts from the helpers, saying, in effect, ‘Let’s go!’ The big locomotives then buckle down and go to work.”

- S. Kip Farrington, Jr

Engineers use whistle signals to communicate with other railroad workers about things like stopping unexpectedly on the tracks. This creates a risk of collision if another train approaches a stalled train. Before radios came into use, a crew member from the stalled train would hike out away from the train to wave a lantern or flag to signal other trains so they could safely stop. When the problem was resolved, and the train was ready to move, the engineer would use the whistle to signal the Brakeman that it was okay to hike back to the train. Railroads had specific signals to tell workers what to do in these situations.

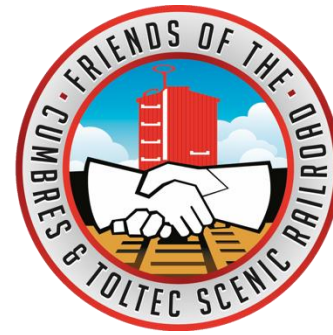
Another way whistles were used to communicate was between train crew. One engineer could provide instructions to other engineers that were helping power their train. This allowed several locomotives to work together to move the train. Whistles helped engineers to stop a train at precise locations, such as when each locomotive in a train needed to take on water to refill its tender. In fact, mountain railroads such as the Cumbres & Toltec to this day still have specific whistle codes for engines on the same train to use to reset its air brakes as it stops and starts at places like water tanks. That is different on most modern railroads where trains often have several locomotives, but the engineer in the lead locomotive operates the other locomotives by remote control.



A long freight train climbs up Windy Point to Cumbres in 1963. This freight train has one locomotive in front and another in the middle of the train. Taken by Henry E. Bender, Jr.



Cumbres & Toltec Scenic Railroad Whistle Signals

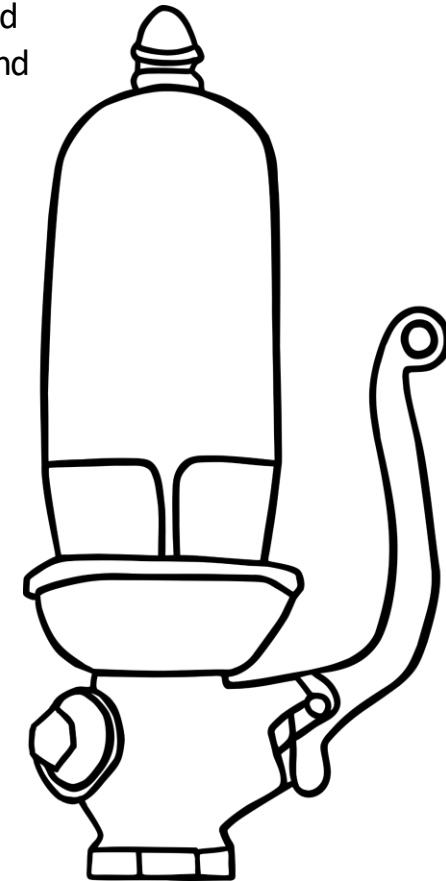


The Cumbres & Toltec Scenic Railroad uses 19 whistle signals. These signals are listed below.

	Sound	Indication
A	•	Apply brakes. Stop.
B	— —	Proceed. Go.
C	— • • •	Flagman protect rear of train.
D	• • • —	Flagman protect front of train.
E	— — — — —	Flagman return from west or south/5-minute departure warning
F	— — — — —	Flagman return from east or north
G	— — — —	Train has parted.
H	• •	Release brakes. Answer to any signal not otherwise provided.
I	• • •	When standing, back up. When running stop at next station.
J	• • • •	Call for signals.

	Sound	Indication
K	— — • —	Approaching public road crossing. To be prolonged or repeated a minimum of 15 seconds and a maximum of 20 seconds and until engine is through crossing.
L	—	Approaching station.
M	— — •	Approaching waiting or meeting point.
N	— •	Warning at locations where view is obstructed. Response to yellow flag. Warning to persons on or near track.
O	• • • • • •	(Succession of short sounds) Warning to persons or livestock on track and in imminent danger.
P	• — •	Engineer with control of air brakes set brakes and cut doubleheading cock. Engineer on lead engine take control of air brakes and acknowledge by repeating whistle signal.
Q	• • —	Engineer on second engine take control of air brakes. When engineer on second engine has control of air brakes, acknowledge by repeating whistle signal.
R	• —	Inspect train line for leaks or brakes sticking.
S	— • • • • •	Track patrolman return to train.

— = long sound
• = short sound



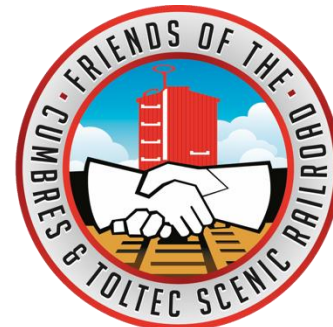
Dual Port Whistle



Times Change

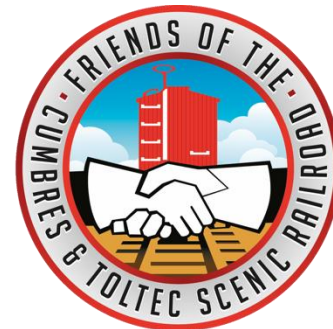
Modern-day trains have multiple locomotives but the engineer in the lead locomotive operates the other locomotives by remote control. Modern train crews also have radios to communicate with railroad employees like engineers, brakemen, conductors, track crews, yard crews, and dispatchers.

However, modern technology has not replaced all whistle signals. Whistle signals can still be heard as trains approach road crossings, stations, and more.



Glossary

- **Bell:** A noise-making device fitted onto the early steam locomotive and still in some use today on some railroads today to provide safety alerts. Bells ringing sounds signal that a locomotive is either moving or about to start moving.
- **Horn:** A noise-making device fitted on diesel and electric locomotives. Air horns produced by electricity came into common usage in the mid-20th century with the development of diesel locomotives. The horns on train locomotives resemble those mounted on large trucks and are typically larger and louder.
- **Locomotive:** The powered machine that pulls a train. Power sources for modern-day locomotives include diesel fuel and electricity. Steam locomotives, a type of locomotive that is far less common today than a century ago, are powered by burning wood, coal, or oil to boil water and produce steam that drives the wheels to move the train
- **Whistle:** A noise-making device fitted on a steam locomotive and used by the engineer to provide information and safety warnings. The noise is produced when steam from the locomotive's boiler is fed into the whistle. Whistles came into common usage early in the development of locomotives because bells were not loud enough to be heard far away.



Printable Activity Sheets and Hands on Activities

- “When the Whistle Blows” a matching activity sheet
- Whistle Signal Practice Guide
- Steam Whistles Printable Booklet
- Build Your Own Train Whistle Tutorial <https://youtu.be/cnIPjnnsVSo>



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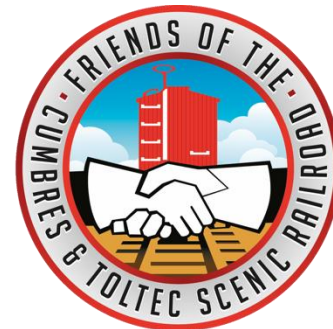


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Prepared by the **Friends of the Cumbres & Toltec Scenic Railroad
Education Committee.**

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