

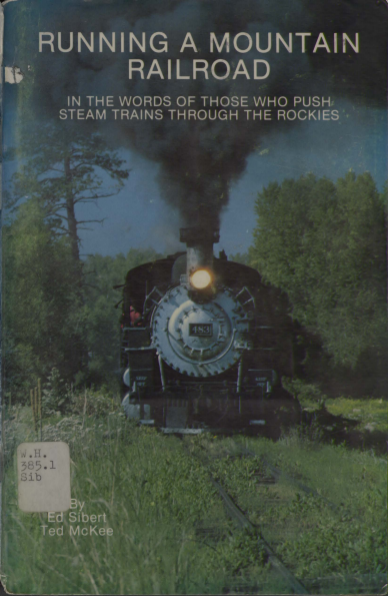


374

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# RUNNING A MOUNTAIN RAILROAD

IN THE WORDS OF THOSE WHO PUSH  
STEAM TRAINS THROUGH THE ROCKIES



W.H.  
385.1  
81b

By  
Ed Sibert  
Ted McKee

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W.H. Sibert, Ed  
385.1 Running a mountain  
Sib railroad

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## PREFACE

Most people, when they hear the word "railroad," think of tracks and trains. The story of American railroading is most often told in terms of powerful locomotives, elegant passenger trains, impressive depots, dreadful wrecks, robber barons, and bankruptcies. To be sure, these are all a part of American railroading — but they are not the whole story.

Most of all, railroading is a human story. The railroads were conceived, developed, financed, built, maintained, and operated by people. For over a century the railroad industry was the largest employer in the United States. It employs people of all classes, all ages, and all levels of education and training. A railroad job is usually — but not always — a secure, well paying job. It is also likely to be a hard, dirty, sometimes dangerous, often tedious job. To survive, a railroader has to be reasonably intelligent, alert, dedicated, flexible, hardy, and willing to function within a very tight set of rules and regulations. This was true 100 years ago when the technology was fairly primitive, and it is true today.

The Cumbres & Toltec Scenic Railroad is one of the finest surviving examples of a pioneer American railroad. It was built in 1880 and has changed remarkably little since that time. Today it is an operating museum. It is a living memorial not only to the technology of an earlier day but also to the men who kept the trains running when that was just about the most important thing anybody could do. Today its employees have learned, and are using in their daily work, many crafts and skills which are obsolete in the modern world, as well as those which could be easily transferred to other current occupations.

The story of men and women "just doing their job" is an important and fascinating story which deserves to be told. We are pleased that the authors of this volume, who attempt to tell the story in terms of railroad jobs, have chosen the C&TS for their model. Working for the C&TS is not just an economic pursuit, it is a labor of love. We enjoy our work, and we enjoy sharing it with others.

Clovis Butterworth  
 Former Assistant Manager  
 Cumbres & Toltec Scenic Railroad

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## AUTHORS' PREFACE

Our activities while creating this book were primarily those which put us underfoot and in the way of the employees of a busy and productive railroad. With camera and tape recorder we were allowed to poke in the niches and crannies of the facilities — buttonholing anyone and everyone in sight. The extreme patience and good nature of everyone involved makes this book — a personal narrative of a number of the key employees of the railroad — possible!

The nature of today's Cumbres and Toltec operations are of necessity abbreviated. The tracks no longer inter-connect with the nation's rail system and freight traffic is not part of current operations. Today's passenger equipment resembles that used on early day railroads in this region rather than the more familiar equipment used during its operation into the 1960's.

This book is the story of railroads — not rail enthusiasts — that perform jobs today very much like jobs were performed when the railroad was first built. To help the reader put what is being said in the proper context we have included a short photo album from the days when the Denver & Rio Grande Western operated the narrow gauge as part of its larger railroad.

The continuity of operating practices is shown by excerpts from the rules taken from Employee Time Table Number 19 which was published by the D&RG on July 23, 1882. Both visually and in the manner in which things are done, the Cumbres and Toltec is truly a living memorial to the railroaders who did so much to enable Colorado and New Mexico to develop into the great states they are today.

Thanks to the kindness of Boyd West, Clovis Butterworth, Richard Bracken, Gary Gettman, John Oldberg and many, many others we have been able to present a little bit of the story of a dedicated group of railroaders doing traditional jobs in traditional ways to preserve an important facet of our region's history.

## INTRODUCTION

A proud publisher wrote the following message in his new magazine called *The Railroad Man's Magazine* in October 1906:

The railroad, second only to religion, has been the greatest civilizing and enlightening force in the world. It has eliminated space and brought backwoods sections in touch with the polish and alertness of the cities. In conjunction with the telegraph, it has daily placed the news of the world before the farmer and mechanic in the once remote places on the country. It has built up the great West — a region which was a limitless waste when this country was born, and which would still be a vast, uninhabited tract of barren prairie but for the railroad. It has stretched out from the little hamlets along the seaboard and created an empire the like of which does not exist in the Old World.

With a population today of well-nigh ninety million, the United States owes perhaps fifty million to the railroad, without which our development would have been confined to the Atlantic coast. We would have had no way of bringing grain and cattle from the West, no way of transporting coal from the mines and iron ore to the furnaces, or of carrying the finished product to the centers of trade. Gold and silver and copper would still largely be locked up in the recesses of the mountains.

An over statement perhaps but none the less true in essence. Railroads, powered by steam, were the single most significant element

in the development of vast sections of our country. This was especially true in Colorado and New Mexico. Railroads opened the mountains and plains of these states to development. The lumber, cattle and mining which were basic to their economies could achieve little without the railroads.

In recognition of the significant role played by railroads in their development, Colorado and New Mexico jointly purchased 64 miles of the narrow gauge mainline built in 1880 by General William Jackson Palmer's Denver and Rio Grande Railway. This line was owned and operated by the Denver & Rio Grande Western Railroad, successor to General Palmer's "baby road" as late as 1968. It had the distinction of being the last surviving mainline which was both narrow gauge and steam powered operated by a major U.S. railroad. Thus the states hoped to preserve for posterity this last vestige of the pioneer railroads which were the foundation of their modern prosperity.

The railroad and its associated rolling stock and engines are operated today in order that the romance of steam railroading can be preserved in an operating form. This book tells the tale of what steam railroading is today. It tells that tale in the language of the railroaders that operate the line today. Their words are in bold face.

A railroad is an industrial plant with a specialized purpose which is to produce efficient bulk transportation. It has three basic elements: a track consisting of two steel rails laid parallel on a prepared roadbed; a train composed of power units and cars designed to carry freight and passengers; and people, including investors, managers, and laborers. During the 150 year history of American railroading there have been many variations and much technological progress. By the end of the Civil War the need for a standard gauge (width between the parallel rails) was recognized, and a gauge of 4' 8 1/2" was adopted. But local conditions sometimes made it more attractive to adopt non-standard gauges. Possibly the best known example of this was the extensive 3-foot narrow gauge railroad network which was necessary to economically penetrate the rugged terrain of the Colorado Rockies. The power units, or locomotives, necessary to move trains over the line have always reflected the latest developments in the technology of converting energy into motion. For nearly 125 years the steam locomotive was the dominant power unit, but during the past quarter century these magnificent machines have virtually disappeared from American railroading. Today, there are only a handful of places in the United States where steam era railroad technology is preserved and operated in its "natural" state. The people who make these unique operations possible have a different purpose from their predecessors, which is to preserve an important part of American history.

## THE ENGINES AND GETTING UP STEAM

Steam railroading today starts at the same point that it did one hundred years ago. You have the train, and have the rails for it to run on, and have the people who make it go.

The engines used on the Cumbres & Toltec were formerly owned by the Denver & Rio Grande Western Railroad which called them K-36 class Mikado engines with a 2-8-2 wheel arrangement. Ten of these engines were built by Baldwin for the Rio Grande in 1925 numbered by the railroad starting with #480. These were the last of the narrow gauge engines to be acquired by the railroad and of the 10, six are still on the Cumbres & Toltec in service or awaiting rehabilitation.

These engines are primarily freight engines but back in the days when the Rio Grande railroad was operating the line the 480 series engines frequently were pressed into service on the deluxe daily passenger train named the San Juan. These engines weigh 286,000 pounds with their loaded tenders and can pull with 36,200 pounds of effort. The tenders carry 10 tons of coal and 5,000 gallons of water.



Shoveling coal is a dusty job.

When talking with the men who work on or around these engines you detect a love-hate relationship. The satisfaction of being an engineer on a steam powered train seems to over ride the dirty back breaking labor in a hot smoky cab.

The first thing to do is check the water level to make sure you have enough in the boiler. It takes five to ten minutes to get

the water up. It's usually down a little to low but only a few inches. It takes more time to set up the connections than pump the water.

The next step would be to get some scrap wood and throw that in. It doesn't take very much oil. I just throw some paper in, soak it in the oil and light it. We've put a stack fan on at that time to induce a draft. As soon as the fire got going substantially, I'd turn on the fan, otherwise, it tends to blow the fire out.



Early morning finds train crewmen readying engines for the climb up Cumbres Pass from Chama, N.M.

It's struggling, so just let it cook. It may be that you need to throw in more oil to get it spread out. It takes a few minutes to spread out over the grates. If we start with cold water, it could take over an hour to get up steam.

The pattern of the draft seems to dictate the shape of the fire. With these engines that seems to work best. Actually, with the 487 it seems that a perfectly flat fire with even thickness all the way around is perhaps better than a horseshoe. Every engine is different, even though you can't figure out why, but that's always been the case with steam engines. All the old-timers talk about how one engine steamed well and another steamed poorly, and another you just had to fire differently and it would steam.

Most firing is done in a horseshoe pattern. The thing about the horseshoe is that it gives you a "bank" along the sides of the firebox where the heating really takes place. The water is inside the wall, so if you build a little bigger fire there, it is probably more effective. You certainly don't want the fire to go dead along the side sheets, or the firebox walls, or you'll be cooling off the water even though you may have a huge fire in the middle of the firebox.

## GREASING AND OILING

While steam is being raised, someone minds the fire, someone will be greasing the locomotive, and someone else will be greasing the side bearings. We put a soft grease in the narrow spaces between the drivers and the side bearings. Someone will check the journals on the locomotive to make sure they have plenty of oil and are in good condition. Someone will be filling the mechanical lubricators for the cylinders and the hydrostatic lubricators for the air pump. Also they will be filling the oil cups for the air end of the pump with special air pump oil. The thing that's special about this oil is it's not supposed to make carbon. If it burns it makes a white ash that doesn't clog up the compressor. I'm not 100% convinced that it works but it's supposed to be better. After getting steam up, we start the air pump and often the greasing job isn't done until we have air on the engine.

The operating steam pressure is 195 pounds per square inch. Once we have steam up, we tighten packing and anything we find wrong we fix. We always coal the engines up. The way we're set up now we use a front end loader of some sort.



An air hose and a can of grease aid in the necessary daily maintenance work.



Each and every day that an engine sees service, it is carefully inspected prior to its being coupled to its train.

## OPERATING THE ENGINE

In controlling the engine, you have the independent brake, or engine brake. Straight air (more air means more brakes) is fed to the brake cylinders on the engine. You have the

automatic, or train brake, which is a reverse air system (less air means more brakes) that goes back to the train. The pressure is normally 90. When you reduce the pressure, the brakes on the train will set proportionately to the reduction you've made. With a 90-pound pressure on your brake pipe you have 27 pounds maximum reduction.

You have a minimum of smoke in the cabin, but it's still a miserable job. When you're cleaning the fire, you get choked by carbon monoxide and all kinds of gases and ash dust. The wind is always blowing into the cab rather than away from it; it's inevitable. One of the two men will do that job and the other will blow the ashes out of the ash pan with a hose that we have rigged up with a line and a valve on it.

### EMPLOYEE TIMETABLE

1882

#### Engineers Receive Instructions, etc.

97. Engineers belong to the department of Motive Power, and in all things relating to that department, are strictly responsible to the Master Mechanic or his proper representative; but for all matters connected with road service or train rights and duties they will receive their instructions direct from the Superintendent of the Division, under whose direction they are subject after crossing the turntable for train service.

#### Be on Hand.

98. They are required to be at their engines, so as to get them ready for train service, forty-five minutes in advance of Time Table leaving time, or sooner if necessary.

#### Inspect Bulletin Boards

99. They are required to inspect the general bulletin boards as well as those in Round House before starting from initial stations.



Smoke is the constant companion of the engineer in the cab.



Engine #487 getting up steam in the Chama, N.M. yards early in the morning. An electric fan mounted on the smoke stack creates additional draft in the boiler.

Wet ashes left in the pan would corrode it. Hot ashes might actually burn through it. So we do that with the bottom door of the ash pan open in the ash pit. A lot of it falls out and we blow the rest out with compressed air. Then we go to the north end of the yard and blow down (releasing water and steam) a little bit as the brakeman changes the switch, if we have a brakeman, or the firemen will usually throw the switch, and the engineer will blow down near the north switch.

We get steam up the day before the train is to run. We do all the preparation and maintenance work on that same day. On the train day, all we have to do is come down at 7:30 in the morning. We have a watchman who keeps the fires banked all night and keeps the water up. We hope to have around 150 pounds of steam, a nice neat bank around the

### Compare Time

100. They will compare time with their Conductors before starting from initial stations. They will also, when practicable, compare time with the Conductors and Engineers whom they meet on the road, and their special attention is called to Rule 24, when carrying signals for another train, and also to Rule 57.

### Prevent Fires, etc.

102. Engineers must use every precaution to prevent fire catching from their engines along the line. They must carefully and frequently inspect nettings and other apparatus provided for averting sparks, and see that they are in good order. They will not throw out any burning waste or similar material along the line.

### Persons Not Allowed on Engines

104. Engineers will not allow ANY PERSON not employed upon their engines to ride there except the officers of the road, the Conductor and forward brakeman of their trains, and the supervisors of bridges and tracks.

108. Engineers are required to handle their own engines, and ARE NOT PERMITTED TO DELEGATE THAT DUTY TO OTHERS unless they may have an order to do so from the Superintendent of Machinery or his representative, and to a party duly authorized to handle engines.

fire door area, and our fill of water. Then what we'll do is, once we get the pump running, get air pumped up; we'll go down to the ash pit and shake the ashes out of the fire. The reason for the banking technique is that when you get to the ash pit you have a dead fire over almost the whole fire box and you shake the ashes out with a minimum of trouble.

When we say "blow down" we mean to release some water from the boiler. The blow down valve is located at the lowest point of the boiler which is on the side of the fire box on each side. It is a big gate valve and you pull on the lever, arranged as a handle, until you can jerk it open; it shoots water out of a two inch pipe. The idea is that it will blow out any mud or other debris that's settled in the water to help keep your boiler clean. It's good to do this fairly frequently because by blowing out a considerable portion of the water and replacing with fresh water you keep the water purer in the boiler.

## THE TENDER AND FIRING THE ENGINE

The engine of the train provides the power for the movement of the train but the engine is useless without an attached tender to carry the supplies of coal and water necessary to keep the boiler running smoothly. The fireman on the train is responsible for maintaining the fire in a manner so that the water in the boiler is most efficiently heated. It's a back-breaking job involving shoveling coal from the tender by hand through the firebox door into the boiler.

When a fireman gets his firing technique down, I would say he has to fire about every 3 or 4 minutes but he gets to ride in between. If he's new at it, he works really hard. Once you've got the technique perfected, you can fire with a lot less coal and a lot less effort. I would probably put in six or seven scoops at a time in one fire, maybe as many as eight, and that would carry it along for several minutes. I would try to do a balanced job; put in three scoops on the left and three on the right and maybe one up the middle. In firing, you try to keep a horseshoe shaped fire with the front bare. By front, I mean towards the front of the locomotive — that's the convention — the 'front' is at the front of the locomotive.

We can make a round trip, and then some, on a load of coal. I would guess, since they hold about ten tons, that means about four tons per trip. It seems to work out about even going each way, though you would think that the



heavy grade here might use more coal. It works out even because we have the same vertical climb each way. I don't know if you're aware that both ends are about 8,000 feet.

We buy our coal from a small company owned by a woman. She charges a 1930's rate for the coal because she believes the coal prices are too high and that the prices are set by the government. She refuses to abide by them; she and her family can produce coal reasonably and they are not going to rip off their customers because the government tells them to. She's been on nationwide TV a couple of times. A local Chama man trucks the coal here to our facilities.

We fill up twice during a run and come in full of water at the end of a trip, or very nearly full so only a few hundred gallons will be needed to top it off. Over night a garden hose will take care of it. One thing that helps is to put a supply of cold water in the tender. It's very important to have cold water, because if the water has been sitting overnight with steam up on the engine, a little steam will be leaking all the time through the injectors back into the tender and if it gets warm the injector doesn't perform well.

The water in the tender is moved into the locomotive's boiler by means of injectors, perhaps the most contankerous of the devices on the steam engine. The engineer is responsible for the operation of the injectors but the fireman's responsibility includes the replenishment of water within the tender.



Taking on water at Cumbres Pass.

## GETTING WATER TO THE BOILER

The injectors are what pump water into the boiler as you use water up. You have to replace it continually. Injectors are a system of steam jets and are very contankerous things. The steam jet system, is going to take steam out of the boiler at approximately 200 pounds and try to force water back in against 200 pounds. If you can comprehend how a pump would work with a large piston using a large amount of steam to pump a small water piston, you can see it's the same basic principle. An injector doesn't really have pistons and not being a positive mechanical system is probably why they get so contankerous. One of the advantages of injectors is that you don't need feed water heaters. When you put cold water in the boiler, it knocks everything out of your steam. The injector is mixing water with steam so you end up with boiling water going in and that doesn't lower the steam pressure quite as much.

## THE CARS

Railroads have been primarily designed for and used for the movement of freight. Passenger service which they've provided over the years has not necessarily been accomplished with the full enthusiasm of railroad management. It was not unusual for railroads in the west, particularly those with limited financial resources, to be rather casual in their provision of passenger equipment for use on their railroads. Occasionally, cars would be modified by the railroad itself to provide minimum accommodations for passengers. For example, put sides on a flat car, a temporary roof over it, add some benches, and a railroad would call it a passenger car. This was done most often to provide extra cars for occasional excursion service.

While the Cumbres & Toltec is exclusively in the passenger business, it inherited a large collection of freight cars and no passenger cars. Since the cost of having new passenger cars manufactured would have been prohibitive for this fledgling enterprise, C&TS management adopted this time honored practice of adapting excess freight cars for excursion use.

There is sort of a prototype for these cars. You may know that Colorado Midland did this in the 1880's by using flat cars built up into summer excursion cars that looked similar to these. There was a railroad in southern New Mexico called the Almagordo & Sacramento Mountain

Railroad which used similar excursion cars during the period about 1900-1910, actually serving as a model for our version in terms of overall appearance.

The passenger cars just evolved. That was done before I got here

but I assume there were some plans drawn up for it. I've never actually seen them. The men who got involved in this thing were fairly creative craftsmen. They may have just seen the picture and said, "Hey, we're going to do that," and did. They probably got out there with their rules and marked off where they were going to put the windows, — I don't know.

There are seats in the cars, bucket-shell type which are attached to the floor. Each car has thirty two seats, except the restroom cars which have twenty two. There are smoking areas in the cars, a P.A. system, plexiglass windows that can be raised or lowered depending on the weather. There are safety chains between the cars. A very comfortable train.



Interior of the passenger cars.

## ORDERS AND CONDUCTORS

Tradition and over one hundred years of work rules have established the conductor as the person in charge of all aspects of the operation of an individual train. This is true whether the train is a fast freight operating on a major railroad or a steam powered excursion train.

The buck stops with the conductor. If there's a decision to be made, the conductor makes it. The engineer is the skilled person who runs the locomotive, but the conductor is the one in charge. If there are special orders for that day, he's the one who hands them out to the engineer, but they are both responsible.

We don't use formal written train orders since our operation generally deals with just one train a day. Normally the only extra people out on the line are the people working on the tracks. They are familiar with the schedule of the train and it is their responsibility to get off the tracks when they know the train is coming. We run a patrol car ahead and behind the train, so that adds a bit of cushion to the situation. The section men are well aware when the train is coming. When you do have a second train out on the line, you have regular written orders. The section men have to know about that second train so everyone will have the same orders. The conductor has a copy of the orders and he passes them on to his brakemen. The engineer also has these orders and he and his firemen read them. Everyone understands what's going to happen and what you are supposed to do if it doesn't happen the way it's set up. The orders have to take every possibility into account.



A brakeman gets a ride on the tender of Engine #484 as it does switching duties.

There is a regular routine in the morning that as a trainman you go through. First of all, you carry with you on board the train, packed in every empty corner, everything from spare journal brasses to brake clubs, re-railing frogs to spare hooks for curtains between the cars, spare hooks for the windows —

## CONDUCTORS

### Conductors' Responsibilities.

74. Conductors will have charge of trains, and will in no case permit a train to leave a station before its time without special orders from the Superintendent or Train Dispatcher. The time indicated in the schedule is the leaving time for all trains, except at point where both the arriving and leaving time are specified. Conductors will be held responsible for the safe management of their trains and for the performance of duty on the part of men engaged with them while on the road. They must know that their trains are at all times provided with everything necessary to enable them to comply with the regulations of the road.

### Disabled Cars.

75. Conductors must report to the Superintendent by telegraph the numbers and initials of any disabled car which they are compelled to leave upon the road.

### Attention to Passengers.

76. Conductors of passenger trains must give particular attention to the safety and comfort of their passengers.

### Be on Hand

They will be at their trains an initial stations thirty (30) minutes before leaving time, and give personal attention to the seating of passengers.

### Remain With Train

They will remain with their trains at terminal stations until passengers have alighted, and see that all needful assistance is given them.

### Compare Time

Every Conductor will inspect the bulletin boards before departing from initial stations, and will compare time with his Engineer and with other Conductors and Engineers when meeting or passing on the road, if practicable to do so.

And also in the morning, there is an inspection of the whole train. The car men, who have done their repair work in the yard, have the responsibility of making sure that everything is mechanically correct underneath all of the cars. You can't crawl underneath every car and inspect every coupler every day, so the car men do that for you. If something goes wrong, it is the responsibility of these men to make the necessary repairs. You look at the overall condition of everything, set the train up, make sure that it is properly cleaned and in safe order for the passengers. If everything is right and in order, there's not too much for you to do.

### Remain With Train

They will remain with their trains at terminal stations until passengers have alighted, and see that all needful assistance is given them.

### Compare Time

Every Conductor will inspect the bulletin boards before departing from initial stations, and will compare time with his Engineer and with other Conductors and Engineers when meeting or passing on the road, if practicable to do so.

### Do Work Promptly.

77. Promptness in doing work at stations is enjoined. MAKE EVERY MINUTE COUNT. The running time of a train between stations is intended to be USED IN RUNNING, NO MATTER HOW SLOW IT IS. This rule applies not only to freight trains doing work at stations, but also to passenger trains in loading and unloading baggage and passengers.

### Collect Fares

82. CONDUCTORS WILL DEMAND AND COLLECT FARES FROM ALL PERSONS traveling on their trains except train employes actually on duty on their trains; and those persons who have SUPPLIED THEMSELVES WITH A TICKET OR PASS.

The engines back down and couple up to the train and then you do a brake test of the train before you leave any terminal. Every car on the train is checked to make sure that it is working properly. You have the engineer apply the brakes. In our case, we go down and inspect each and every brake on the train, and see that each of the twenty-one cars did apply its brakes. When you get to the far end of the train, you press the signal line button, which is a brief signal that rings a bell in the cab and tells the engineer that the brakes are working properly.

When you finish your brake test and put your steps down, your responsibility shifts to the boarding passengers. They always have lots of questions about 'where's my car' and 'where's the restroom' and that sort of thing.

When the train leaves, you can really get tense. Everything

is rolling now and you are collecting tickets throughout the train. You are watching out of the train all of the time, from both sides, trying to see anything that may be going wrong. Besides watching, you are listening for certain things. The train has certain sounds about it, and if something doesn't sound quite right, you can often pick it up. Sometimes you can smell things that aren't right. The smells are different; if your brake shoes are sticking, or your wheel is sliding, or if you are getting a hot box. Sounds and smells are almost as important as your eyes.

As the trip continues, you give a commentary. I think that's necessary; it's an adventure to board the train. It's a trip from here to there, and people like to know what's coming up next. On this train, it's a crossing from one side of the mountain range to the other and that's what I try to emphasize to the people. We are here on this side and we are going up, or we have just passed the high point and we are going down.

The brakemen are the conductor's extra eyes and ears and they ride other parts of the train. The conductor cannot be everywhere. If there is more than one person watching, the probability is there that someone will see something if it does go wrong and do something about it. As such, their duties are the same as the conductors. They have to know everything the conductor knows. The only difference is that the conductor makes the ultimate decisions. He's the dictator of the train just like the captain of the ship. Someone has to make the decisions.

#### No Discretion Allowed

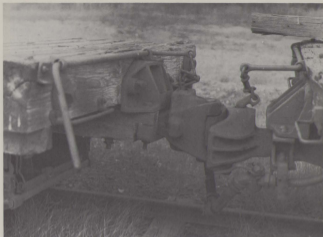
THEY ARE ALLOWED NO DISCRETION WHATEVER IN THIS MATTER.

#### Train Men Must Wear Badges, etc.

84. Conductors, Baggage men, Brakemen and Porters of Passenger Trains when on duty are required to wear the regulation uniform and badges.

#### Imprudent & Disorderly Passengers

87. Conductors must prevent passengers endangering themselves by imprudent exposure. In the event of any passenger being drunk or disorderly, to the annoyance of others, he must use all gentle means to stop the nuisance, failing in which he must, for the safety and convenience of all, exercise his authority



Couplers — the system which connects cars.

## COUPLERS AND BRAKES

Between each of the cars and the engine are devices called couplers. As the term implies, the purpose of couplers is to hook the train together with enough flexibility so it can proceed down the track and take all curves in the track. In addition, starts and stops must be accomplished without damage to freight or discomfort to passengers.

A pretty typical railroad practice is where you assess what it will take to do the job, then double it and then maybe add a little bit more. You would have to literally tear the guts out of one of the cars to pull those couplers loose. That safety chain is only there in the event of a complete catastrophe, were the couplers to come apart vertically, or something. It would stop the cars from running over the ends of each other. Each one of those chains is quite capable, singly, of pulling the entire train. I inadvertently found that out one evening when we were switching. I forgot to take one off and uncoupled the cars, and we still managed to move about one-half of the train with all of the brakes set, using the locomotive and just one chain. I was still able to unscrew the device holding the chain by hand. Nothing was bent and nothing was strained.



A wheel on top of each car operates the hand brakes.

George Westinghouse didn't make his fortune by providing the means for keeping folk's beer cold. His first mark on history was the development of the means to stop trains smoothly while protecting the passengers, crew and freight. The air brake he developed has changed somewhat over the years but the principles remain the same.

## AIR BRAKES

### Air Gauge.

109. Engineers will carry air pressure in proportion to length of train, so that when brakes are fully applied no more than forty pounds will be shown on the gauge.

### Take Up Slack, etc.

110. Before leaving initial stations, Engineers of freight trains must apply the brake, and train men examine each car, and if on any of the slack is not taken up, it must be taken up on dead lever by train men.

### Emergencies.

111. The brake must never be applied full, except in emergency. He who uses the least air is the best brakeman.

### Air Pumps etc. Must Be in Order.

112. Engineers must know before leaving the engine house that the air pump on their engine and all hose connections and couplings are in good working order. In leaving cars at stations train men must apply the brakes by hand after the engine is detached. This will be done, also, whenever an engine is detached from the train anywhere along the road.

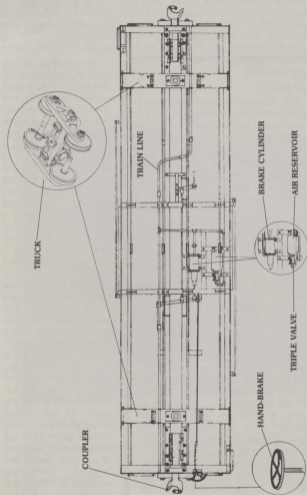
### Hand Brakes

#### All Hose To Be Coupled.

115. Before leaving any station, ALL THE HOSE MUST BE COUPLED so as to use the brakes on the WHOLE TRAIN.

The brakes on the cars are standard air brakes. An older model, but they are standard air brakes. You can still get parts for them and they function quite well. I think the newer models are more sophisticated and work with quicker action on high speed trains but for our ten to fifteen mile per hour operation these work just fine.

All the cars have hand-brakes. They are used basically like emergency brakes on our automobiles. We also must have retainers on this brake system, which were fairly standard in mountain railroads, which we use on coming down the hill on Cumbres Pass or on some of our other downgrades. Retainers serve to bleed off a certain amount of air that keeps the brakes partially engaged to reduce the possibility of the brakes fading away



when you go downhill.

It's a very simple system. The smaller cylinder is the actual brake cylinder. The other cylinder is an air reservoir. This funny shaped thing at the end here is called the triple valve. The pipe coming into the bottom half of the triple valve is the air line running along the entire length of the train. That air line charges up the reservoir. Then, when you want to apply the brakes the engineer reduces the pressure in that train line by two or three pounds. The triple valve senses the difference between what's in the reservoir and what's in the train line. The air in the reservoir is then used to apply the brakes. You have a lower pressure in the reservoir so if you increase the pressure in the train line back to ninety pounds, the triple valve senses the difference the other way. It releases the brake and recharges the reservoir.



Westbound Engine #484 passes Apache Canyon on its climb up Cumbres Pass.

## ON THE TRAIN

Today's traveling public seems to travel on its stomach. Any form of transportation has provision for the great American pastime: snacking. The Cumbres & Toltec provides two special purpose cars. One is the snack car. A second car carries gifts and souvenirs.

We have a gift shop on the train. This car was originally converted as a display car when it was used as a promotion at a shopping center in Albuquerque. They had show cases in it and we just did a little redesigning; put a counter in, added a hand-powered cash register and wired it up for electricity. We are still wondering how to get electricity to it when you are sixty miles from nowhere. We had a generator on it that worked for a year, but we can operate without electricity. It's just one of those basic thirty foot box-cars, thirty feet by eight feet. Whatever we can display, store and sell is what we will carry.

Tradition has it that on the railroad the caboose is the home of the conductor and brakemen of freight trains. Tradition for the most part is upheld on the Cumbres & Toltec but the trains rarely carry a caboose although two are available for use.

We don't operate a caboose as part of our standard operation, but we have charter cabooses available. We will use a caboose to cover our bloopers; with it we can accommodate occasional overflow crowds. We may have a dozen people who want a ride and there are no seats available on the train. We can pick them up at Cumbres Pass and put them on the caboose and haul them the rest of the way.

Once the train has been assembled, the crew gathered and the passengers boarded, the real function of the railroad begins. Railroads exist to provide transportation. Passengers and freight are hauled between two points.

Our standard crew consists of a conductor, engineer, fireman and one or two brakemen, depending on the size of the train. If you have three hundred people you may only have one brakeman. The length of the train isn't so great then but if you have five or six hundred people, then you'd need to have two brakemen because the length of the train precludes you from moving through it too quickly. Station one at the back, one man in the middle and another man moving about the train. There's always an engineer and fireman up in front, but the crew will vary from four to five. In addition, you always have two motor car operators, so you may have as many as seven persons necessary to run one train. It's a labor intensive thing.



Engine #484 eases its train down the east side of Cumbres Pass.

## RUNNING THE TRAIN

We back down to the train, which is sitting at the depot, hook up and pump up the brake system. Meanwhile the conductor, or brakeman, is going back and releasing handbrakes. When he gets to the rear of the train, he gives us the go ahead to pull the train up opposite the depot; — it's pushed down a little beyond the station for storage, so that we don't block the road for fire access. Once the train's hooked up, we could move the train in an emergency without any trouble. Then we pull it up where it's conve-

nient for the passengers to board. At that point we do our brake test with the brakeman walking along the length of the train checking each car. When he gets to the rear, he presses the button for the alarm system. We have an electronic siren in the cab and when he presses a button at the rear, it sets off the alarm; that's our signal to release. It's also a test of the alarm system. The alarm is for emergency stops. If something goes wrong, there's a button in every car and the brakeman or conductor can use it. Also, it's a normally closed-circuit, so if something breaks, it'll come on automatically.

When we double head we actually have two engines on the head of the train. We're too worried about these wooden cars having too much strain on them to run one engine in the back. If the front engine slipped out and completely lost traction, stopped or even slowed down, the back engine would still be pushing and not even know what had happened. You'd be a considerable distance back with 21



Engine #484 backs down to connect with the waiting train.



Trainmen confer briefly as they ready Engine #484 for its trip up Cumbres Pass.

cars and you could break or derail cars quite easily that way. If the rear ones slipped out, suddenly the front one would be doing all the work and putting tension strain on the cars. That doesn't seem like a good idea to us. Since we need only two locomotives, two on the front works out just fine, that way they act as a unit. If one slips, they're still coupled together so there's no change in stress on the train.

The theory of double heading is that the lead engine of the two is in control of the brakes because he has the best visibility. He also controls the speed. The second engine is supposed to work a relatively steady amount of power and then the front engine can vary his power up and down ac-



ording to the terrain, or whatever conditions are present. If he wants to slow down he would just decrease his power.

We have two-way communications between the engineer and the conductor. Unfortunately all we have with this capability is one engine at a time hooked into that system and we have to switch. There's a box with all the stuff in it, the loudspeaker and microphone, some relays and battery and the siren system.

It's all in one unit and has one cable to connect it. We have only one of those built so far so you have to switch it when you switch engines. The only communication between engines is hand signals and that works fine, or we can use whistle signals. If you want to go a little faster give two toots on the whistle, but that's after you're already moving. Three would mean slow down, although I don't think we have an official signal, we

## GENERAL RULES FOR RUNNING TRAINS

### Regular and Irregular Trains

28. Regular Trains are those which are specified on the Time Tables. All other trains are Irregular.

### Authority for Irregular Trains

30. Under no circumstances are Irregular trains or engines allowed on the road, except by special order from the Superintendent or Train Dispatcher, and the rights of all irregular trains to the road are limited by the orders they receive from them.

They will be known and described according to their character, as Special, Passenger, Freight or Working Trains or engines.

### Superior Class Trains

34. Trains of a superior class have the ABSOLUTE RIGHT TO THE ROAD over trains of an inferior class.

### Pass Switches & Stations Cautiously.

44. All trains and engines must approach all stations and switches with great care, and with train under control of engineer.

### One Train Following Another.

45. No train or engine shall leave any station to follow any other train or engine until five minutes after such train or engine has left.

When two or more trains are running in company, they must be kept at least one mile apart while running, and the train or trains following must approach all starred stations with extreme caution, in expectation of the leading train having been signaled to stop — and as an additional safeguard, but not to relieve a following train of any responsibility in case of a collision without it, a leading train stopping at a starred station, whether within station limits or not, will immediately protect itself by signals as prescribed in Rule 52, and all trains following will observe the same precautions as they successively arrive.

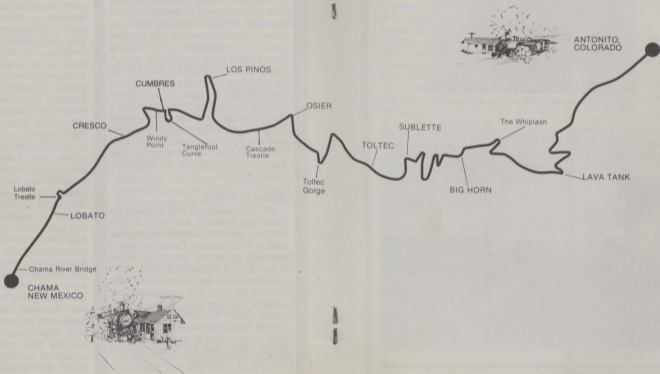
### Speed of Trains.

49. The maximum rate of speed for Passenger trains is one mile in two minutes, and for all other trains one mile in four minutes. Faster running is positively prohibited, except by special orders from the Superintendent.

Trains must not exceed the time allowed by Time Table on grades exceeding one hundred feet per mile, under any circumstances. Trains behind time may moderately increase their speed when it can be done with entire safety, but not exceeding the limit above described.

just look at each other frequently and just give an easy sign.

When we go east-bound up Cumbres Pass, we are operating at the maximum capacity of the train. If you're the road engine which is hooked to the train and in an emergency you don't have communications, all you have to do is set the brakes or cut your power. Usually, just cutting your power back is enough. It takes full power of both engines to make it up the hill at twelve miles per hour. If either engine cuts his power down, the train slows down; there's no real problem there. To speed up you just whistle twice, and if the other man's got anything left, he'll give it to you. You can whistle one long one for a stop. If we had an emergency stop the other man will immediately respond to that. Two long ones will be the starting signal for starting up from the trestle or after we've made a stop on the grade for





Railfans found spectacular photo opportunities from the highway.



Motorists on New Mexico Highway 17 have numerous spectacular views as the train climbs Cumbres Pass from Chama.

#### Use of Switches.

51. Conductors must personally see that switches used by them, or by their engines or trains, are properly opened and closed, and they will be held responsible for the adjustment of the switches which may have been used by them, except when a regular switchman is stationed and on duty at the time. When there is more than one train to use a switch, Conductors must not leave the switch open for the following train even when in sight, unless the Conductor or Brakeman of the following train is at the switch and takes charge of it.

WHOEVER OPENS A SWITCH ON THE MAIN TRACK IS RESPONSIBLE FOR ITS BEING CLOSED.

#### Disability of a Conductor.

54. When a conductor is disabled, the Engineer will have full charge of the train and be accountable for its safety until an authorized person takes charge of it, and whenever a train or engine is run over any portion of the road without a Conductor, the Engineer will be regarded as both Conductor and Engineer, and will act accordingly. He will be required to make the Conductor's usual reports to the several departments.

any reason, we'll both whistle. The first one to get a signal from the conductor will blow the whistle twice and then the other man will answer with the same signal.

The Rio Grande had rules limiting the number of engines that could be on the Lobato trestle at a time to one. We continue this practice.

It's a nice photo opportunity for the passengers, but, we have just run one across and he'll go a little bit up the hill on the trestle and wait, and then the second engine train will start. It'll pull just to the far end of the trestle, not onto the actual grade. The front one will back down a bit and as soon as we are coupled, we will go.

The most common problem we encounter going up the hill is running low on water, not in the tender but in the boiler. The injectors are really cantankerous devices after you get about half-way up the hill, they inevitably almost quit, or the capacity will decrease

There are two on each engine. We've found that you can't run both injectors even throttled down as far as they will go, and keep up steam. You're at an impasse when that happens. You have to run the second injector but that will always knock the steam pressure down, — or find some solution to the problem, of the first injector. Usually the thing will quit on you, we call it breaking. When you restart it, it usually will work fine again.

When we get into Antonito, we're not through either. At that point we have to go through all the greasing and the daily maintenance again. We do the greasing, refill the lubricators, and clean the fire the next morning.

### **Train Baggage-men, Brakemen and Porters Be on Hand.**

95. Passenger Brakemen and Train Porters must be at their trains at initial stations forty-five (45) minutes before leaving time, to attend to the wants of passengers, and see that coaches are properly warmed, ventilated, lighted and supplied with water — that the bell cord is attached to the cab bell, and connected throughout the train — that the air brake is properly connected and in working order, and for the performance of any other proper duties.

### **Articles Found in Cars**

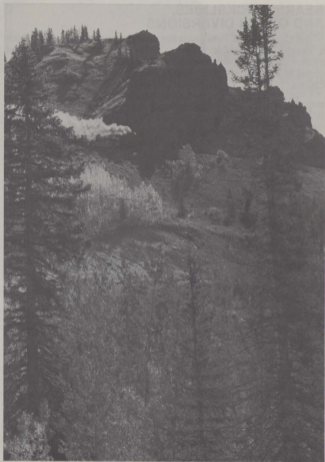
96. Any articles found in coaches, they will turn over to the Conductor, who will leave the same with the Agent at the station where their trip ends, unless previously delivered to the owner.

### **DOUBT**

137. In all cases where instructions in these rules are not understood, or when the course to be pursued admits of any doubt, the parties in charge must so act as in no way to compromise the safety or interest of the road, seeking afterward, at the first opportunity, the necessary explanations from the proper officers.

In case of doubt, always take the safe side.

GEO. W. RISTINE  
Assistant General Manager



An eastbound train steams past Windy Point.

## BEARS, ROCKSLIDES, AND OTHER DIVERSIONS

The Cumbres and Toltec runs through a great deal of territory which is basically inaccessible to man. A highlight for several hundred passengers several years ago was the sight of a bear, frightened by the noises of the steam engine, running full tilt down the valley toward Chama.

That's the only bear I've ever encountered with the train, but that will happen occasionally. We often scare deer out of the bushes about half-way up the line. There is a patch of oaks perhaps 100 or 200 feet out from the tracks and then there's open ground. They go running across this beautiful meadow so everybody gets to see them. We've seen several eagles in the last couple of weeks, but that's unusual.



Rail personnel flag traffic to a stop each time the train crosses the highway.

The engineer of a train is responsible for routine maintenance of his engine and the operation of the engine under the direction of the conductor. An elaborate series of signals is arranged to provide communication between the conductor and the engineer involving hand signals, the blowing of the engine's whistle and an electrically powered public address system which provides communication between the engine and various portions of the train.

## SIGNALS

### Danger Signals

13. A Red Flag by day, a Red Lantern by night, a Lantern swung across the track, a Torpedo exploded thereon, or any object violently waved on the track is a SIGNAL OF DANGER, on perceiving which the Engineer shall IMMEDIATELY STOP HIS TRAIN, and he shall not receive information from anyone whatever, until his train is brought to a stand, when he shall make sure that he ascertains and understands fully the reasons for displaying the signal.

### Headlight

19. Each engine, after sunset, with or without a train, while running or attached to a train on the main track, must display a WHITE HEAD LIGHT in front of the engine.

### Caution Signal

20. A Blue Flag by day, or a Blue Light by night, displayed on the road, is a signal for caution in passing over the track.

23. Signals with lanterns are as follows:

Swung across the tracks, STOP.

Raised and lowered vertically,

GO AHEAD.

Swung in a circle, BACK.

We have a signal system like any passenger train has, only ours is electric instead of air operated, like they used to be. When you press the signal, it rings a bell in the cab and the ringing of the electric bell, or the ringing of any bell, stops the train. It's that simple. It's a fail-safe system where there's an electric current passing through the line all the time. Any interruption of that current rings a bell. You can talk to the engineer over the P. A. system and he can also talk back to the conductor. The big problem is that you can't give instructions over the P. A. system to the engineer, especially about movement of the train. It's much better for the engineer to look back and get a visual signal than to think he heard "go ahead," or "stop," or something else. A signal to go forward, or back



Using an air line to blow ashes from the firebox grate.

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up, could be misunderstood over the P. A. and it could make a big difference. You have to be very careful so we use visual signals. It's pretty hard to mess up the visual signal. We carry little orange cards in plastic pockets which hold our time tables. These are basically a flag. You hold it up for your various signals and they can see you from a great distance with that.



Engine #484 pulling up to the ash pit at Chama, N.M.

We have radio communication from the train back to the depots. You are pretty much on your own and if you have a trainload of passengers the most important thing is to get those people back safely. In the event that you get into trouble, the first thing that you worry about is the passengers and the most expeditious way to get them on with their journey. Hopefully it will never happen, but you've got to think about it.

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Even the bell on the engine receives attention.

#### Precautions to be observed.

118. In case of an extraordinary rain storm at any point on the road, no train must pass over bridges, trestles or culverts until the train has first come to a full stop, and a man has been sent forward to make a thorough examination of the bridge, trestle or culvert. Conductors and Engineers are required to make inquiries at every stopping place, and if necessary, make extra stops for the purpose of ascertaining the severity of the storm in different localities; and in case of doubt as to the safety of proceeding with their train, or in case of the telegraph line being obstructed, they will place their train upon the siding and remain until they are certain it is safe to proceed.

Agents, Telegraph Operators, Bridge and Section men will consider it their duty to impart to train men all the information in their possession as to the severity and extent of the storm in their vicinity and the extent of damage done, and when possible to do so, impart the same information to their Superintendents by telegraph.

We told everybody over the P. A. system what the problem was and asked for volunteers to come up and move rocks. People are very resourceful and generally respond well to a problem like that and we got about fifty men up there in the cut. We took our time and moved the rocks out and an hour and fifteen minutes later we were back and underway. I still have people come up and tell me, "I was aboard the train when the rock slide..." and that's the only thing they remember. They don't care what the weather was like that day, and not much of anything else, but they do remember that rock slide and how they had to move the rocks from it.

We had a rock slide in July of 1976. It must have been about 25 miles from Antonito. It was getting along later in the afternoon and the lead motor car stopped us. The train crew walked up ahead and we looked at the biggest pile of rocks I had ever seen on the track and at a place where we had never had any trouble before. Well, the decision was basically made for us. It was far too long to back up to any place near the highway. We had to go on down to Antonito and the only logical thing to do was to get some help from passengers on the train.

After the last signal is blown, fires in the engines are banked and a relative quiet settles on the terminal area. Night is the province of the watchman.

We have a watchman at each end when the engines are fired up over night. We keep them fired up because it would take too long in the morning to get ready. After we are finished with the maintenance, which is maybe at 6 or 6:30 P.M., the watchman takes over from there. We bank the fire and fill the boiler with water and shut everything off. Then it's his responsibility till we come in about 7:00 in the morning.



The water tank at Antonito, Colorado.

## WEATHER

Even now we have not told the complete story. Weather has always been a factor in the operation of railroads. Any weather phenomenon is capable of giving trouble to railroads. Snow is probably the most serious obstacle to railroad operations and over the years equipment has been adapted to overcome this challenge. The yards in Chama contain the two remaining steam powered rotary snow plows.

The many water courses over which any rail line must pass give railroaders pause. Rain and the problems it brings have been met head on by rules.

Too much or too little water pose problems. Out along the track too much water can easily loosen rocks and mud which can and occasionally do come down to block tracks.



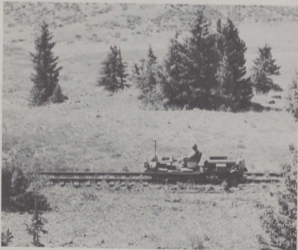
As the passengers climb off the train at Antonito, Colo., trainmen confer at the front of the lead motor car.

Dry weather can be nearly as much of a problem as very wet weather. Steam engines produce great quantities of smoke and every once in a while a little bit of fire in the form of sparks. The railroad routinely protects against each of these conditions, too wet or too dry by the use of motorcars. One is sent ahead of the train to spot blocked trackage and one to follow along behind to put out any fires that the engines start.



There was a whole group of names, most of them four-letter words that referred to the things — "motor car," "speeder," "put-put," or "blankety-blank," but we generally call them motor cars.

The big red tank on our fire wagon has water in it and the smaller tank has a hundred and thirty pounds of compressed air. We have tried other systems. We had a gasoline pump with water in the tank but we discovered it takes too long to start up the gasoline pump and the motor. The motor car operators were reluctant to do that. They would much rather flail out the fire with their wet burlap sacks than go to all that trouble. So, we've finally devised a basically fool-proof system where you have compressed air and water. There is enough compressed air in that air reservoir to completely exhaust the water in the water tank. With the garden nozzle on it, the thing will run for better than thirty minutes with typical household water pressure coming through the garden nozzle. You can put out a lot of fire in that amount of time.

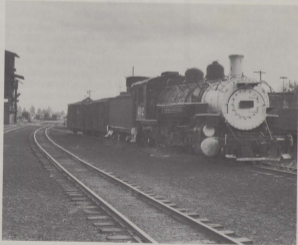


The fire wagon runs along behind the train to put out any fires set along the roadbed.

We average about one fire every other trip. I'm talking about a bush, or grass, burning next to the ties; something that you just step off and stomp on with your size elevens and that's it. You are back on the motor car and on your way.

## ON THE RAILROAD

The section men sometimes actually mow our right of way. This year we started early, in April. Some years we don't start till June and the sagebrush over near the track will grow up and as the wheels of the train come along, they mash it down on the rails and it becomes just like grease on the track. If you go along with a little mower, you can cut off the tops of the sagebrush and it stops that problem. There are just certain types of herbicides that you can use; it's got to be digestible by the cattle; they've got to be able to eat it by the ton and not get sick. It's kind of expensive and the revenues of the railroad just can't pay for that much stuff yet. We'd like to get rid of the weeds, but you just can't go around spraying DDT anymore.



Engine #492 sits in the east yards at Chama, N.M. awaiting overhaul. This engine was last used when it was owned by the Denver & Rio Grande Western Railroad.

Some aspects of railroading remain unchanged. Equipment must be maintained and maintenance requires extensive and specialized equipment. Each engine is evaluated for its potential and, during the winter, maintenance is conducted which is designed to prolong the life of the engine.

Let me just say something about all the engines. When the state bought those engines they were already junk. The Denver & Rio Grande Western Railroad didn't want to spend a lot of money to keep those engines in first class condition. When they were about to abandon them, we got them; they were worn out and we've had to patch them up as we go along. In the first few years they weren't too bad but as time went on, we just didn't have the maintenance capability to keep them from wearing out; it was a physical impossibility. In 1973 the 483 was used beyond the point of being worn out, which doesn't mean that we destroyed the engine, it just means that we can't use it anymore until we have a greater backshop capability so the 483 has been retired.

### **Track Men and Bridge Men Examine Track Daily**

125. Section foremen must pass over and examine their sections daily, and ascertain that the track, slopes, cuts and bridges are safe. This should be done in the morning if possible before the passage of any train.

### **No Material to be Placed within Six Feet of Track**

126. They must see that no lumber, wood, stone, material or tools are placed at any time within six feet of the rail on main track, nor within six feet of the rail of switches.

### **Caution Signal, etc.**

131. At all times when work is going on which renders the track UNSAFE FOR TRAINS TO PASS at their usual RATE OF SPEED, a blue flag must be set at least six hundred yards from the spot in each direction, as a caution to approaching trains to run slowly. After severe rains or a thaw a hand car must be sent over the road before the passage of regular trains.

132. A Red Light, when used as a danger signal, must never be out of the hands of a reliable man.

133. Hand cars, or other property belonging to the Company, must not be used except for the business of the Company.

134. Care must be taken that the fences on each side of the road and at crossings are in good order, and that cattle guards are kept in repair.



The lone diesel owned by the Cumbres and Toltec pauses in its switching duties in the new engine house at Chama, N.M.

We are developing backshop capability; as of now we have only enough to take care of the engines that are just tired, or on the point of being retired.

Given enough time, we can do anything. We don't have any hooks or overhead cranes to lift the boilers and frames off drivers. It's one of the few things we can't do. Now the new engine houses in Antonito and Chama have drop pits which would serve somewhat the same function; — dropping the set of drivers out from under the boiler. We could do that if the need arose.

Trains are only part of the story of the Cumbres and Toltec. Extensive facilities are maintained at both ends of the line. Tickets must be sold, reservations taken and general business matters attended to.

Even this office work is pretty specialized. Knowing where to look and find out what you need is essential. The reservation process, explaining to the public about our operations; everyone who works in the office is a public relations person and salesman for the railroad. When we answer the phone and talk to someone we've got to not only know the basics of when the train leaves and where it goes but we've

got to be able to tell them where they can stay within 100 miles of here, how to get from here to Albuquerque, or wherever they're going, and suggest an itinerary. These things are all important to us as salespeople. It can make the difference between getting a reservation or not getting a reservation. That's why I'd rather do it myself than have someone just out of high school to answer the phone. We try to be very professional in every respect. We're running a tourist attraction. We've got to look at it that way.

#### Agents

122. Ticket offices will be opened fifteen (15) minutes or more before the leaving time of any train carrying passengers.

Ticket Agents must not sell tickets to points at which trains do not stop.

The C&TS terminal areas serve at least two functions, the traditional one of providing for passengers and a new function of serving as a living memorial to the West's essential and exciting railroading past.

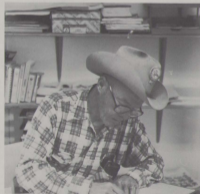
It's interesting how many people come here and say, 'where's the museum,' because they expect to have something formally organized.

That will come as part of the development. The fact that we've got a display track in Antonito with a typical freight train on display is in itself quite an accomplishment. A few years ago we didn't even have that. The display train, of course, was prepared through volunteer efforts. The remnants of the Narrow Gauge Railway Association scraped together the money and got some matching money as part of the Centennial/Bicentennial in 1976. Some of our people here who are NGRRA members and enthusiasts went beyond the call of duty and spent their spare time scraping and painting equipment along with the people from Los Alamos, Denver and other communities in Colorado and New Mexico. Eventually, we will have some signs attached either to the cars or by the cars explaining what they are. As far as this end of the railroad goes, we can't put a train on display because every track in this yard gets used one way or another some time during the operation.



Smooth operation and passenger satisfaction depend upon the skills of those staffing the ticket offices.

There just isn't any place we can set a train that won't be in the way. So we kind of look at this whole yard as a living museum.



Not all railroading is steam engines and passengers. Offices must be used and books must be kept.

## A VERY LITTLE HISTORY

The rails upon which the Cumbres & Toltec trains run and the bridges, trestles and tunnels which it uses are over 100 years old. They were conceived of and constructed by William Jackson Palmer, a Civil War General who was able to attract the interest of Colorado and European investors in the building of a narrow gauge railroad to open Colorado to development. The San Juan Division, which ran from Alamosa, Colorado up to Silverton, Colorado, was built during the period 1880 to 1881.

The years between 1876 and 1880 were extremely busy for General Palmer. He sought to open the mountains for development utilizing his Narrow Gauge "baby road." It was said of him at this time that if there was a man with a wagon load of pumpkins over the crest from the railroad that General Palmer would gladly build a spur out to service the man's needs. While it might not have been true of pumpkins it certainly was true of mining districts, both those that exist and those that were being developed.

The Narrow Gauge between Alamosa and Silverton had a number of goals when it was constructed. The prime purpose for the construction was to provide the first part of a contemplated route to Santa Fe, New Mexico. The route under consideration went from Alamosa to Antonito and then diagonally down to Espanola and it was hoped then to go into Santa Fe. This was part of an overall scheme proposed early in the development of the railroad. It would live up to the implications of its name and be a north-south railroad between Denver and El Paso, Texas.

Most railroad construction during this period was accompanied by a great deal of dispute between various railroad companies and the government entities which provided charters for their activities. The



A Denver, Rio Grande Railroad survey crew pauses briefly during their work on the narrow gauge.  
(DENVER PUBLIC LIBRARY)

Denver & Rio Grande Railway was no exception to the problem. During the development of the Rio Grande, money was in short supply and General Palmer's plans always exceeded his purse.

The events revolving around the famous stand off at the Royal Gorge do not have a great deal of bearing on the development of the line from Alamosa to Durango with the exception that it shows the difficulties under which the Rio Grande was functioning at the time they were attempting to develop a main line into northern New Mexico. The bitter fight between the Denver and Rio Grande Railway and the Atchison, Topeka and Santa Fe Railroad have led to a great deal of folklore about railroads in general and western railroads in particular. As General Palmer sought to extend lines into Leadville, a thriving mining district, his surveyors were telling him the only practical line would extend from Pueblo through Florence and Canyon City. It would then pass through the Royal Gorge, a very narrow canyon, to Salida and then to Malta and Leadville. The question of who had the right to build tracks in the Royal Gorge was hotly contested between the two railroads. So hotly contested that the dispute took on the appearance of warfare with armed men protecting construction camps and fortifications being built at the mouth of the canyon.

The intensity of the court battles led to acts that, if true, represented substantial government corruption. At one point one of the railroads was accusing the other of paying a county clerk to disappear so that their opposition would be unable to record a highly significant document. All in all, the events of this period resembled the work of a highly imaginative Hollywood script writer. When it did come time for Hollywood to make the movie, little had to be done to jazz up the story as truth was substantially stranger than fiction in this instance.

In searching for money, General Palmer turned to Europe for funds and found a fair amount of success in England. Enough so that his settlement of Colorado Springs was known popularly as "Little London."

The Atchison, Topeka and Santa Fe Railroad was successful in the courts. The court decreed that there should be a valid lease of the Rio Grande to the Atchison company until such time as the financial circumstances of the Rio Grande improved. Meanwhile the court battles to determine who had the right to build in which directions were being pursued.

Court battles, an adversary lease by a competitor and a chronic shortage of money was the background for the development of the lines to the south but construction proceeded even with these major handicaps. The line was quickly pushed south from Alamosa to Antonito over the flat but somewhat marshy country side of the San Luis Valley and plans were made to extend the tracks on to Santa Fe, at



Proud section workers pose for a Denver & Rio Grande Railroad photographer.  
(DENVER PUBLIC LIBRARY)



A construction camp used by the Denver & Rio Grande Railroad during the building of the narrow gauge.  
(DENVER PUBLIC LIBRARY)

that time having no railroad service. The so called Chile Line was hastily built to the south as far as Espanola but before the railroad could be developed to Santa Fe a court settlement was imposed on the Rio Grande, a portion of which required that the Rio Grande not build any further south than Espanola.

The citizens of Santa Fe eventually obtained railroad service by building their own line from Santa Fe to Espanola.

While all of the excitement of development in northern New Mexico was occurring, the Rio Grande was continuing to push around the San Juan Mountains into the silver capitol of the west, Silverton. During 1880 the spectacular countryside around Cumbres Pass was conquered and the line was extended into the sleepy little Spanish town of Chama. The following year the rails were pushed into Durango and in subsequent years the rails extended through Rockwood into Silverton.

General Palmer's San Juan division of his narrow gauge empire has proven to be a challenge over the years to maintain. The same hand techniques originally used by the D&RGW must, by necessity, be used today. They differ only in that section men no longer live and work out along the line. Today's workers live in town and commute by truck, speeder, and work trains.

## RECOMMENDED READING

For the history buff and the rail fan

Athearn, Robert. THE DENVER AND RIO GRANDE WESTERN RAILROAD. Lincoln, Nebraska: University of Nebraska Press, 1962.

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Chappell, Gordon. "Farewell to Cumbres" in the 1967 RAIL ANNUAL, Golden, Colorado: Colorado Railroad Museum, 1967.

Le Massena, Robert A. RIO GRANDE TO THE PACIFIC, Silverton, Colorado: Sundance Ltd., 1974.

Of general interest

Oldberg, John E. CUMBRES AND TOLTEC GUIDE BOOK, Chama, New Mexico: John E. Oldberg, 1976.

Osterwald, Doris B. TICKET TO TOLTEC, Lakewood, Colorado: Western Guideways, 1976.

## NOTES