



**FRIENDS OF THE
CUMBRES & TOLTEC SCENIC R.R.**

C&TS Dispatch

Vol. 13 No. 2 SUMMER 2000

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Railroad Opens on Schedule

by John B. West

It's worth pausing for a moment to reflect on the magnitude of the job the Friends have now undertaken. . . . The Friends/RGRPC operation . . . is, without doubt, the most audacious such scheme in the world at this time. . . . If they can make a go of it, as we all ardently hope they can, the Friends will be writing a bold new chapter in volunteer-sponsored railroad preservation in the United States.
—Erick Ledbetter in the *Railway Preservation News*, March 7, 2000
<www.rypn.org/Briefs>

On May 27 of this year the Cumbres & Toltec Scenic Railroad began its 30th season right on schedule. C&TS engine 487 departed Antonito promptly at 10 a.m. with seven cars and 121 passengers. And engines 463 and 489 doubleheaded out of Chama on time at 10:30 a.m. with 12 cars (including a water car due to fire danger) and 329 passengers.

Those departures marked a successful beginning for operation of the C&TS under the stewardship of the Friends. Opening day went remarkably well, with only a few minor problems. And another pair of well patronized trains the following day ran even more smoothly. As you read this, trains are operating daily until October 15 over this historic and scenic line. Success will come only with time, but the early indications are positive.

As reported in the last issue, the Friends incorporated a new entity, the

Rio Grande Railway Preservation Corporation (RGRPC), to submit a bid to the Cumbres & Toltec Scenic Railroad Commission to operate the railroad on a not-for-profit basis. The commission accepted the bid on March 1, 2000, and RGRPC took possession of the railroad on April 1, 2000.

The RGRPC had only two months to get ready for opening day with a rundown railroad to fix. The success to date of this effort has been largely the result of three factors: a talented and hard working group of long-time C&TS employees, enough money to give those folks the tools and materials to do their job, and a little bit of leadership.

The greatest strength of the C&TS is the experienced professional railroaders who know how to do their jobs. Most of these men and women have worked for the C&TS for many years. Their steam engine maintenance and operation skills are as much a part of the preserved history as the hard assets.

Fortunately, the locomotive shop crew had been working during the winter, paid for by a combination of commission funds and grants from the Friends. Had the Friends not supported the winter shop program, it is unlikely the railroad could have opened on May 27.

See *Railroad*, page 7 →



The eastbound train from Chama on Saturday, May 27, 2000, coming out of the Narrows. Locomotive 463 is the helper and 489 the road engine. To reduce the risk of fires, Rotary Snowplow OY's water car sprayed water along the right of way. (Photo by Tom Cardin.)

C&TS Dispatch

Friends of the Cumbres & Toltec Scenic Railroad
 William Lock, Founder

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The Friends is the official museum support group for the Cumbres & Toltec Scenic Railroad, a 64-mile-long operating railroad and museum of railroad history and technology between Antonito, Colorado, and Chama, New Mexico. The railroad is owned by Colorado and New Mexico and is operated by the Rio Grande Railway Preservation Corporation. As the museum support group, the Friends is dedicated to the preservation and interpretation of the railroad. The Friends is an Affiliate Member of ARM (Association of Railway Museums) and a Member of TRAIN (Tourist Railway Association).

Family membership in the Friends is \$25.00 per year; outside the USA membership is \$35.00. All contributions are fully tax deductible and will be gratefully accepted. Please write us in Albuquerque or call us at (505) 880-1311 for information about the Friends. The Cumbres & Toltec Scenic Railroad is both a National and a State Registered Historic Site.

Cumbres & Toltec Scenic Railroad



Denver & Rio Grande Railway—1880 to 1886
 Denver & Rio Grande Railroad—1886 to 1921
 Denver & Rio Grande Western Railroad—1921 to 1970
 Cumbres & Toltec Scenic Railroad—1970 to 2000

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PRESIDENT'S COLUMN



We have weathered a difficult and uncertain winter and have achieved what many had doubted—the Cumbres & Toltec Scenic Railroad is running trains in daily service in this, its 30th year, thanks to the efforts of the Friends.

John West's lead article describes the many issues the new operating company had to confront in the two months prior to opening. It was a Herculean task and one that would not have been possible without concentrated efforts from Friends volunteers and veteran railroad employees.

As opening day approached, we also confronted another situation affecting the operation of daily train service—the very dry condition of the national forests that the C&TS runs through. In May there were two devastating fires in New Mexico. Both state and federal forestry officials were concerned that sparks from our smokestacks might start another one. In past dry years the railroad had taken special measures to prevent and suppress fires on the Cumbres grade: a water tank from snowplow service outfitted to spray water to a distance of four feet on and beside the track and a speeder car equipped with water tank and fire suppression tools followed the train. This year we took additional measures: the railroad's fire truck was joined by fire trucks from the Forest Service and the Village of Chama to follow the train on the highway, and the Jordan spreader was placed in service to make a fire break by stripping vegetation along the right of way. (We'll have pictures and tell you more about this operation in the next issue.) Rio Grande Railway Preservation Corporation directors met with New Mexico state forestry officials to discuss the measures being taken and were able to satisfy their concerns so that the trains could continue to run pending arrival of the annual monsoon rains.

On June 16 the railroad hosted special grand opening festivities with members of the state legislatures and media representatives riding special cars on the regular train, nicknamed the "Thank You Express." About 30 Friends volunteers rode the trains to answer questions and tell the guests about the history of the railroad and the activities of the Friends. Legislators who had not ridden the train before expressed a new enthusiasm. One guest was New Mexico Governor Gary Johnson's press secretary, Diane Kinderwater. She took video and invited us to be interviewed on her weekly public affairs television program. I and Directors Spencer Wilson and Howard Bunté took part in episodes which will be aired in August and September.



President's Column continued

Other members of the press wrote good stories about the opening and the new operation of the railroad. We are grateful for their help in letting the public know about this great scenic and historical experience.

—Terri Shaw 🍀

ELECTION RESULTS

More ballots were cast in this year's election for directors of the corporation than in any previous year—747 ballots were returned by members. The following directors were reelected to two-year terms (the number of votes for each candidate is also given). Roger Breeding, 733; Roger Briggs, 741; and Arthur Nichols, 736. New directors elected were Curt Bianchi, 724; Robert Craine, 734; F. Parker Fowler, 739; Philip McDonald, 743; and Warren Smalley, 736. The board of directors have elected the following officers of the corporation for 2000-2001: Theresa Shaw, president; Geoffrey Gordon, vice president; Richard Cowles, treasurer; and James Herron, secretary.

COMMISSION APPOINTMENTS

Governor Gary Johnson of New Mexico has reappointed Medardo Sanchez to the Cumbres & Toltec Scenic Railroad Commission and has named William John Swartz of Santa Fe, former president of the Atchison, Topeka & Santa Fe Railway, to the commission (succeeding Dr. Robert Lynn). Their terms expire in 2002.

Track Repair Contribution

The organizing committee of the 19th National Narrow Gauge Convention has contributed \$1,000 to the Rio Grande Railway Preservation Corporation, operator of the railroad, for track rehabilitation not reimbursed by the U.S. Economic Development Administration grant.



Lowering one of the ex-East Broad Top hoppers onto its trucks at the wye in Chama. The Cumbres & Toltec Scenic Railroad Commission purchased five of these hoppers from the East Broad Top, two of which were brought to Chama on flatbed trucks during the May volunteer work sessions. The commission purchased the cars with funds from the Economic Development Administration grant for track rehabilitation. The cars will provide an efficient way to move ballast; the historic fleet doesn't include any hoppers. The drop-bottom gondolas in the historic fleet are not robust enough for rigorous regular service, and they dump along the outside of the rails, requiring manual shoveling. (Photo by Tom Cardin.)

Donors to the Ralph Flowers and the Mike Hipkind Memorial Funds

June 8, 2000

The following names should be added to the list of donors given in the Spring 2000 issue. (*Donors to both funds)

- | | | |
|------------------|--------------------------|----------------------|
| Lou Aprile | Jim Hamblin | Harry Sage |
| Jim Bax | Terry Herweh | Steve Schroeder |
| George Bayless* | Paul Highland | Carl Sonner |
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Historic Preservation—The May Pre-Season Volunteer Work Sessions

Text and photographs by Tom Cardin



The Antonito team replaced dry rot wood on three coaches and painted these coaches as well as two others. They also painted an observation gondola and a snack car. Here, two coaches in the Antonito enginehouse have been masked in preparation for painting.

Thirty-nine volunteers gathered in Chama and Antonito from May 15 to May 26 to work on passenger cars and other rolling stock in preparation for the 2000 season. The work at these two sessions made it possible for the railroad to have clean, attractive, and well-maintained cars ready for the opening day passengers. Gardens were cleaned up and flower boxes replanted. The Friends thank Maureen Gonzales of the Chama Super Market for donating the plants. Brake lines and rigging were checked, and many drawings of rigging on the cars were completed for the railroad to have current documentation.



This Antonito coach is almost ready for painting. All loose paint has been scraped and Rich Casford masks the windows.



Caboose 0503 with the new red oak end sill in place.

In the Chama yard, Chuck Irvin, Marshall Smith, and Jack Salisbury remove old decking from the platform of caboose 0503 so they can get to the bolts holding the deteriorated end sill. The old end sill was replaced with a new red oak one. The seats were also removed so they can be re-covered.



Bob Ground removes the old linoleum from Chama coach Cumbres. Volunteers then installed a new floor. They also replaced broken windows and repaired seat mounts.



Chuck Templin and Bob Craine working on the new wood decking of Rotary Snowplow OY's water car.

VOLUNTEER ROSTER MAY 2000 WORK SESSIONS

(1) May 15-19	Ed Lowrance (2)
(2) May 22-26	Richard McLean (2)
Alta Berkstresser (2)	Jim Phelps (1, 2)
George Berkstresser (2)	Orville Pratt (1)
Roger Briggs (1, 2)	Art Randall (1, 2)
Ole Bye (2)	Don Richter (2)
Mary Cardin (1, 2)	Warren Ringer (2)
Tom Cardin (1, 2)	Andy Ross (2)
Rich Casford (1)	Richard Ross (2)
Bob Craine (2)	Jerry Sahnd (1)
Al Dross (1)	Jack Salisbury (1, 2)
Myrna Dross (1)	Warren Smalley (1)
Steve Fowler (1)	Marshall Smith (1, 2)
Bob Ground (1, 2)	Mary Jane Smith (1, 2)
David Hebblethwaite (1, 2)	Craig Sutherland (2)
Charlie Irvin (1, 2)	Chuck Templin (2)
Linda Irvin (1, 2)	Retha Templin (2)
Al Judd (2)	Paula Thomas (2)
Tony Kassin (1, 2)	Dudley Thomas (2)
Bill Kepner (2)	Tillie Thomas (2)
Edward Kobiela (1)	



Outside the Chama depot, torn seats and seat backs from the coaches are ready to be sent for re-covering.



Putting final touches on coaches in preparation for opening day. Three coaches in Chama were painted. On the exterior of all the Chama coaches, loose panels were repaired and all the trim was tightened.

Year-Round Opportunity for Friends' Volunteers

The Friends' work crew meets every first and third Saturday of the month at The Western Museum of Mining & Industry in Colorado Springs, starting about 9:00 AM. The museum is located at the Northgate Blvd. exit to the east of I-25. All members and the general public are invited to participate. For further information contact Roger Briggs at (719) 495-4973 or Jerry Sahnd at (719) 573-5688, email <JBSahnd@prodigy.net>.

PRESERVATION PERSPECTIVE: NO. 18



With the upper end of the Los Pinos valley in the background, D&RGW 488 has a clear stack as it passes Los Pinos tank with a 1953 Rocky Mountain Railroad Club excursion. Note the three Silverton coaches at the front of the train. (Photo by Otto Perry, courtesy of the Denver Public Library, Western History Collection.)

LOCATION, LOCATION, LOCATION

by Keith E. Hayes, AIA

I'm not one to keep up on the news in every community, but I'll bet you've been reading about growth where you live. Our busy economy seems to be creating jobs everywhere, and those folks need places to live and work. Developers are having a heyday and every week we read about new development. Every day, nine square miles of undeveloped land are turned over to the development of new homes, office buildings, and shopping centers.

Growth pressures are everywhere—the issue is not limited to the edge of urban areas. As our cities become more crowded, people look elsewhere for a break. Sometimes this might be a second home to escape to on holiday. Computers now afford some the opportunity to live and work away from the office. What was pastoral land now has a valuable home on it, increasing the value of both the land the new home is on and adjacent properties. Rising land values pose a problem for large land holders.

Ranching families are now frequently faced with a dilemma: their land is so valuable that they cannot afford the tax bill. The choices are either to quit and sell outright or develop their land into smaller parcels. A family death can create the dual tragedy of an estate that heirs cannot afford to inherit. The pressure to sell or develop can be tremendous.

So, what does growth have to do with the Cumbres & Toltec Scenic Railroad? Well, have you wondered who owns all that land you see from the train? Often, it is the Federal government, but in some cases, private individuals hold the deed. From Lava Tank to Cresco, the railroad passes through Rio Grande National Forest in Colorado and Carson National Forest in New Mexico and property managed by the Bureau of Land Management. However, for the first eight miles west of Antonito, track passes through privately owned land, and the same is true of the last nine miles into Chama. Further, land along the Los Pinos in Toltec Gorge is private, as is the area near the Los Pinos water tank adjacent to Highway 17. You have probably seen some nice fishing cabins along the Los Pinos below Mud Tunnel and in the valley below the water tank.

The Friends have been instrumental in helping preserve the railroad. The Cumbres & Toltec has an international reputation as a "trip back in time." Part of this is due to the pastoral landscape the railroad traverses. Encountering a herd of cattle at Lobato or Tanglefoot is not just quaint—it is historic. This area retains an element of the wild and the West that remains unchanged today from the way it looked a century ago. Passing a subdivision on the way out of Antonito or Chama would compromise both the historic landscape and the ride.

For the record, the public lands are unlikely to change. Forest Service land is limited to extractive and renewable use, and short of a ski area being developed, the grazing cattle can expect little competition except for a passing train. As for the private land, there are several options. Ranch owners can look into conservation easements and land trusts; tax breaks are given in exchange for preserving the land in perpetuity. Also, property surrounded entirely by National Forest may be exchanged for other parcels through programs intended to consolidate Federal lands. But property with access and water are hot commodities ripe for development: it will happen.

As I said before, growth is a hot topic in many communities. You may not have thought about growth along the Cumbres & Toltec Scenic Railroad before; perhaps it doesn't seem as pressing along the Colorado—New Mexico border. We welcome your opinions on this matter and hope to share them in a future Preservation Perspective.

Keith's column appears regularly in the C&TS Dispatch. Write to him in care of the editor (see page 2). ✎

Railroad, continued from page 1

After winning the bid, RGRPC put the locomotive shop on overtime, immediately started repairs on maintenance-of-way equipment, and called back track repair crews as soon as weather permitted. As work progressed RGRPC rehired experienced enginemen and trainmen, as well as office employees.

But money was also essential. RGRPC was fortunate that the potential loss of the C&TS had motivated a group of generous donors to contribute over \$300,000 in working capital for the railroad. And hundreds of individuals contributed a total of over \$80,000 to the Ralph Flowers Memorial Fund for locomotive repair. This together with some funds from the Friends provided RGRPC with about \$400,000 to work with. The substantial working capital was absolutely necessary because engines, cars, and track had to be repaired before a penny of revenue could be collected.

Supplementing this private fundraising, Friends members were proving themselves to be effective lobbyists. They quickly convinced the Colorado and New Mexico legislatures and governors that state funding was essential. The Railroad Commission had already received a grant from the U.S. Economic Development Administration (EDA) for \$800,000 in Federal funds to begin rehabilitation of track. But that grant was in jeopardy because it required \$100,000 more in matching funds that the commission no longer had. And additional funds were essential to restore locomotives to operable condition.

Friends-sponsored legislation began working its way through the two state legislatures to provide the commission with over \$800,000 (about \$400,000 from each state) in funds to help RGRPC repair locomotives, provide matching funds for the EDA grant, and fund other essential activities. The New Mexico appropriation was approved in March, the Colorado appropriation in April. As a result of funding from the Friends, the EDA monies, and the state appropriations, over \$2 million of new money is being

invested in the restoration and operation of the railroad this year.

Leadership was provided initially by a steering committee appointed by Friends president Terri Shaw. This group included, in addition to Terri, Friends directors Geof Gordon, Howard Bunté, and Dick Cowles, and members Joe Vigil (a former C&TS general manager), John West, and John Craft. Members of this group, plus Warren Smalley, another Friends director, subsequently formed the RGRPC board of directors and management committee. This group quickly determined that the railroad needed a professional staff, and should be run like a business separate from the volunteer organization of the Friends. These recommendations were submitted to and approved by the Friends board of directors. The Friends board appoints the members of the RGRPC board.

Cash flow projections indicated the effort could be viable financially, assuming the states and EDA contributed what they had been asked for, and if ridership is not substantially less than in prior years. Initially, the various management responsibilities were divided among the members of the steering committee. Work was begun on track inspection, accounting, payroll, concessions, bus service, a reservation system, and marketing, while work continued on locomotives and track repairs.

As soon as a contract with the Railroad Commission was signed, the single highest priority was to hire a General Manager. Candidates were quickly identified and interviewed. The RGRPC board selected Ed McLaughlin, who not only had the necessary qualifications, but could be on the property almost immediately.

While most of the people needed were already at the C&TS, one of the new general manager's immediate contributions was to find Acting Chief Mechanical Officer Bob Wright. And two former D&RGW division engineers, Mike Kenyon and Friends' member Jim Ozment, were retained to provide recommendations regarding track repairs.

On May 18 three Federal Railroad Administration inspectors toured the railroad by special train from Chama to Antonito. While it was clear to all that much work needs to be done to improve the track, and that regular track inspection is essential, the FRA found no severe safety defects. The FRA inspection was a welcome validation of RGRPC's commitment to running a safe railroad.

The RGRPC's board of directors serves without pay, and board members pay their own expenses. And the passenger coaches received much-needed work during two very well organized and productive volunteer work sessions in May (reported on elsewhere in this issue), with more work scheduled for June and August.

While opening day was an important and successful milestone, much remains to be done. Track repairs are only beginning. Five ex-East Broad Top Railroad hoppers have been delivered to Chama, but a lot of work is required to put them into condition to haul ballast. This season should see the most intensive track work on the C&TS since the 1930s, with over eleven miles of line in Toltec Gorge to be ballasted, ties replaced as needed, rail surfaced, drainage ditches restored, new culverts installed, and track shoulders rebuilt. Work will continue until the snow flies. Locomotives 463, 487, and 489 were in pretty good condition for opening day. But 497 needs to be finished (it is hoped by mid-June), and 484 and 488 remain to be worked on. Bob Wright hopes to have 484 on line by mid-season, and 488 (requiring major boiler work) during next winter's shop program. This spring's fire danger only increased the challenge with much effort going into removing vegetation along the right-of-way, providing additional fire fighting equipment, and increasing patrols.

But ultimate success depends on ridership. We hope that high gas prices and the worry about fire danger will not discourage riders. So tell your friends that the C&TS is alive and well, and it's a great ride. And visit yourself.

John B. West is Vice President, Rio Grande Railway Preservation Corporation. ✎

NARROW GAUGE NEAR AND FAR: NO. 17

“GOIN’ FIRING”

by Earl G. Knoob

How do you envision the job of fireman on the coal burning steam locomotive? One extreme is the “romantic” version—poised proudly in the left-hand window, waving at the fans and pretty girls at the crossings. The other extreme is “dirty, nasty job” version—down on the deck heaving coal with all you’ve got for hours at a time, while the engine, on hands and knees, beats itself to the top of the hill. As you may guess, reality is a middle ground somewhere between these two extremes. In this issue, I thought I’d pass along some theories and hard-learned facts to dispel (and confirm) some of the legends.

Of course, these opinions and practices are mine, if you ask 10 people how to fire, they will tell you 10 different ways. When I was learning this art, I had five people tell me five different methods. After politely listening, I developed my own practices based on those methods.

Basic Duties

There are three basic duties that a fireman must perform. The first two are of equal importance: to maintain proper water level in the boiler and to watch the track on the left side—especially left-hand curves. The third duty is to maintain proper steam pressure.

Maintaining proper water level is imperative because if there is insufficient water in the boiler, the roof of the firebox will be exposed and can cause the boiler to explode. Too much water will be carried into the cylinders, causing several problems, including broken pistons, bent piston rods, and blown out cylinder heads. The visible water in the glass, and thus the apparent water

level in the boiler, changes with the grades that the locomotive is traversing. If a locomotive shows one-half a glass of water on level track, when facing up a four percent grade, the water level will be nearly full. While heading down the same grade, the water would sink to the bottom of the glass. In addition, the water will rise up in the glass when the throttle is opened. It is not uncommon for the water to climb a good inch when the throttle is opened. Knowing how much water is needed at any particular point



Locomotive 489, “Queen of the fleet . . . fired easy, steamed well, and burned its fire very evenly. It can’t be beat.” (Photo by Art Nichols.)

on the railroad is a matter of practice and experience.

Water is introduced into the boiler by the injector. Locomotives have two injectors, but under normal conditions the fireman’s injector on the left side is used to maintain the water level. The best plan is to match the injector’s input to the amount of water that is being boiled away into steam. This way you are maintaining the status quo. Water input is regulated by a valve on the injector itself. By turning on the deck hose (which is fed from the injector’s output) you can get a visual reference. When wide open, a solid stream comes from the hose. As the injector is cut back, steam starts to come out with the water and becomes a finer spray. Knowing

how much to cut the injector back is, once again, a skill learned through experience.

Heaving coal into the firebox is yet another art form. The trick is to build a fire that burns down in a pattern across the grates. You then place the coal into the firebox in this same pattern. Sounds real “zen” doesn’t it? The fire draws its air through the grates from openings above the ashpan on the sides and rear (the rear of the firebox is toward the rear of the locomotive, and

the front of the firebox is toward the front of the locomotive). Therefore, the sides and rear of the fire get the most air, and burn the coal faster than the front and center of the grates. Most firing efforts are directed down the sides and under the fire door. I divide the firebox into 10 sections, or targets: 1.) Left Front Corner, 2.) Center Front, 3.) Right Front Corner, 4.) Left Side, 5.) Center, 6.) Right Side, 7.) Left Rear Corner, 8.) Left Under the Firedoor, 9.) Right Under the Firedoor, and 10.) Right Rear Corner.

Or, think of it as three across the front, three across the middle, and four across the back. By placing the coal in a checkerboard fashion of alternating spots, you keep the fire burning evenly and keep the smoke to a manageable amount. Smoke is caused by the fresh coal added to the fire, reducing the fire temperature in that small location. Coal is made up of many compounds that burn at different temperatures. Some of these compounds burn at a high heat, until the fresh coal is heated to that point these compounds simply go up the stack as a pretty cloud of black smoke. A black, dirty fire is a sign of too much coal placed on the fire at one time; a fire that is too cool to support good combustion.



A pattern that worked for me for many years was to throw in five scoops at a time. Hit the corners and center in the first pass. Hit the sides, front center, and under the door in the second pass. Occasionally you have to double up the scoops into the back corners as they tend to burn up faster.

The art of shoveling coal is a feat worthy of mention. To keep your balance on the deck while swinging the shovel as the locomotive is dancing down the track requires a good 3-point stance. Your right foot is planted on the apron between the cab and tender. Your left foot is on the cab floor in close proximity to the firedoor pedal. Brace your caboose against the back wall of the cab, and there you have it. Your left hand on the shovel handle lifts the shovel and guides it, your right hand and shoulder provides power to shoot the coal into the firebox. Dig for a scoop of coal with your right shoulder and arm, lift with your left as you hit the firedoor pedal with your left foot. Swing around and use your left arm to guide the scoop toward the door. As you propel the coal toward the door with your right arm, loosen your grip on the shovel with your left hand and let the handle slide through your hand as you push the scoop in with your right arm. It's sort of like shooting pool with a shovel. (Do not try this at home!!! You know the rest.)

Hitting the spot with the scoop of coal in one try is the secret of success. Every time you miss, you double your work. You don't want to lob the coal in or you will bounce it off the arch brick and end up with a big pile in the center and nothing in the front. Shoot the coal in as straight as possible. When placing coal into the back corners, do a hook shot with your left arm to propel the load into the corners. When you put coal into the center of the fire, bounce the scoop lightly on the bottom of the firedoor and the coal will scatter over a wider area.

Another point to be made is "be neat as possible." As you fire, pieces of coal invariably fall off the scoop onto the floor. Once you're done with your fire, clean up your mess. This will make the engineer think more highly of you, but



Locomotive 463, "It was a bit like a little 480." Locomotive 488, "It drafted harder than any other K-36, and pulled harder too." (Photo by Art Nichols.)

more importantly, if you don't clean up, a hunk of coal will find its way under the pedal. You will stomp on the pedal, swing the scoop and run full speed into a closed firedoor, scattering coal everywhere (including the engineer's lap). Whereupon the engineer will have a much lower opinion of you.

Chama to Cumbres

Now that we have all this information, let's put it to work. In our hypothetical trip up Cumbres, we will have locomotive 489 and a nearly full tonnage train of six coaches, an open gon, and caboose 0306 on the rear. About 15 minutes before departure, we begin building our fire up. As the steam pressure rises, turn on the injector to get the water level up to a full glass before leaving town. It is not desirable to have a huge fire and full steam pressure upon departure. The 489 will not be working very hard initially, and all that fire will be wasted in black smoke and a roaring safety valve. You do need enough fire on the grates as you pull out to last you out of the yard. Your job leaving the yard is to watch the track and watch for signals from the train crew. You can't do that if you're on the deck firing.

As the train picks up speed across the Chama River Bridge and approaches

the highway, keep the fire light with a minimum of smoke. Once across the highway, start building up your fire. You want to have the fire going strong when the engineer opens the throttle at the bottom of the hill beyond the Yard Limit sign. As the 489 settles into its work, the steam gauge will rise. Turn on the injector and, with the deck hose as a guide, trim the injector back about halfway. With the injector set, get back down on the deck. The 489 is working hard now, and your fire isn't quite up to what is being asked of it. Getting up the first hill in good shape is very important. Trying to catch up on steam or water is difficult when you have a heavy train. It is MUCH easier to stay ahead.

Through the Chama River Narrows the grade stair-steps along. The best plan is to put in a fire (alternating the checkerboard pattern) in the sags before the engine starts to work. Firing the moment the throttle is opened nearly always results in a loss of steam pressure. Once on the four percent grade at milepost 341, things settle down. 489 is buckling down to do her work at a 10-12 mph clip. The water should be right at the top of the glass. With the engine working steadily, you can get into a cycle watching the stack and steam gauge. When the stack clears, and the steam pressure appears to be as high as it will get, give her a fire. Five

See Firing, page 10 ➔



Locomotive 484, "It seems the rear always needed attention. If you got behind on steam, fill up the back." (Photo by Tom Cardin.)

Firing, continued from page 9

scoops will lower your steam pressure about two to three pounds. As the fire burns hotter and the stack begins to clear its black smoke, the steam pressure will climb again.

Of course once you get your act together, you arrive at Lobato, where the grade levels off. By letting the fire die out a bit before the engineer eases off the throttle, you can keep the safety valve from lifting. The relative flat grade at Lobato allows a brief rest. Don't relax too long, for immediately after crossing the trestle, the engineer will lay the throttle out wide. Once on the trestle, start building your fire. There is a left-hand curve just beyond the trestle that you have to watch, don't get caught napping.

Beyond Lobato, firing settles into a routine. Keep the steam pressure between 190 and 193 psi. Try to time your fires so that you can watch the track on the left-hand curves. Keep a close eye on the water. It should "wink" at you in the easier parts of the grade and raise out of sight on the steep stretches. With the heavy train

you have today, somewhere around Dalton the water will begin to drop. Open the water valve a quarter turn to increase the injector flow to full capacity (no need to mess with the deck hose here). You probably will keep the injector running like this the remainder of the trip up the hill.

With things well in hand, let's try some "smokeless firing." This is done by firing only two or three scoops at a time in an X pattern. You end up firing fairly constantly; I usually stand while I fire this method. Using the same firing targets I mentioned earlier, the first fire hits the left front corner and two scoops into the right rear corner. Wait about 15 seconds, then hit the right front corner and two into the left rear. Next, bounce one into the center, and place two under the fire door to the left. Your next fire will go down the left side and two scoops under the door to the right.

Finally, your last fire goes down the right side and up front center. As you can see we just covered the firebox, only it took five fires to do so. Each fire will send a very brief puff of smoke out the stack, but little else. The steam pressure will not vary more than a pound. It takes real practice and an ability to sense exactly when the engine needs another fire (another one of those "zen" things). In the long run, you end up using less coal this way as less is lost as smoke.

And so it goes, keep the water up, keep the steam up, watch the left-hand curves—simple as that. There will come a trip sooner or later where you run into water trouble where, with the injector running wide open, the water continues to drop. On the right-side water glass of the K-36s is a tag at the one-third mark stating "water must show here on a three percent grade." On a four percent grade, half a glass MINIMUM is required. If the water gets to three-fourths, I start to worry, at two-thirds of a glass it's time to stop and get our water back. Before you get that far, however, the engineer's injector can be run to help catch up. Realize, though, that the locomotive

will not keep up steam with both injectors running. If you need to run the other injector, build up a big fire (one that surely will lift the safety valve), and have the engineer start his injector. Now, sit down. Putting in more coal will accelerate the pressure loss. Tough it out for a couple minutes while your steam slowly goes down. At about 180 pounds, turn off the engineer's injector. Now, get your steam back. Two or three cycles like this will bring your water up a good inch and a half, but it's a lot of work. The best advice is to not get behind.

Experience has shown that two-thirds of a glass of water in the boiler when rounding Windy Point will get you over the top at Cumbres. As the engineer eases off on the throttle and the grade levels at Cumbres, the water in the glass will drop lower and lower and lower, until it is barely visible in the bottom of the glass when the train comes to a stop. If you've done your job right, the water will settle back up to about one-fourth of a glass after stopping.

Firing the east side of Cumbres uses the same principles. With considerably easier grades and less demands on the locomotive, firing is a little less stressful. Changes in water levels, steam pressure, and fire condition happen at a much slower rate. Heck, you can even enjoy the scenery occasionally!

Well-Remembered Traits

It is said that no two engines perform the same. There are many variables that affect how an engine fires and makes steam. Smokebox layout, grate arrangement, valve timing, and how the engineer handles the throttle and reverse lever all have great effects on the fire. Below are some well-remembered traits of individual locomotives.

484 – This locomotive always seemed to draft very hard in the rear of the firebox. It seems the rear always needed attention. If you got behind on steam, fill up the back. 484 steamed well enough, but you could get into trouble on occasion.

487 – Some firemen hate the 487. I never had much trouble with it. You →

could run your water higher in 487 than on any other engine without getting into trouble. It did draft a bit funny. The trick was not to get in a hurry. If the stack was dark, you'd sit back and let it clear up before adding more fire. 487 would make steam all day with a dark gray haze to the stack—a bit darker than the others. It definitely is a locomotive you want to stay ahead of and never get behind.

488 – I have never been a fan of 488. It drafted harder than any other K-36, and pulled harder too. It burned a lot of coal. If you kept it loaded up, it would steam well, but it seemed to be constantly asking for more coal. Because of the deeper fire bed required, getting 488 to steam with a clear stack was real tough.

489 – Queen of the fleet. 489 fired easy, steamed well, and burned its fire very evenly. It can't be beat.

Then there are the "other" two.

463 – It was a bit like a little 480. It had a very shallow firebox and it was very easy to get too much coal in her. You fired 463 with smaller shovelfull at a more constant rate. 463 seemed to like more coal in the center than the 480s. 463 has quite a bit of heating surface, but the actual volume of the boiler is small. Getting a head start on steam making is important. It has lifting injectors that are more than capable of keeping the water level where it should be. Because the steam dome is quite far ahead on the boiler, the water can be carried very high without worry.

497 – The K-37s are a whole different story. The big difference between 497 and rest of the fleet is it fires "backwards." You bank the fire heavy against the front and keep it light to the rear. The firebox is a good two feet longer

than a 480, and it takes a serious windup with the shovel to get it all the way to the front. The firedoor is very low, making firing a bit difficult. But all in all, 497 makes good use of its extra grate area and steams wonderfully. Like 463, it uses lifting injectors which, at times, can be troublesome, especially when the water level in the tender starts to get low. There are two steps up the fireman's seat (unlike the other locomotives which have but one), so I usually stood while firing 497.

OK, are you all ready for Fireman's Exam number one?

Sometime in the future we'll tackle running the locomotives!

Earl is a consulting director of the Friends. His column appears regularly in the C&TS Dispatch. ✎

FRIENDS SHOW KIT

by Cal Smith

Over the past few years, the Friends have started an outreach program of attending railroad shows across the country. We are now regulars at the annual Narrow Gauge Convention, shows in Denver and in Albuquerque, and at what is probably the largest railroad show in the U.S.—the Amherst Railway Society show at the Eastern States Exposition (Big E) grounds in West Springfield, Massachusetts. Attendance at the Big E runs around 20,000 for the two days, providing we don't have a New England blizzard!

After shipping stuff in ratty cardboard boxes all over the place before and after the Big E show in February 1996, I decided that there must be a better way, and the Show Kit was born.

Our booth at a show typically consists of one or two eight-foot tables, on which we display various items telling the story of the Friends and the C&TS. The display usually includes a large overhead banner, a video player (snowplow tapes attract attention), a storyboard made from the C&TS map with photos and narratives of Friends projects, other photos and posters of

the railroad, the mission statement, a couple of awards the Friends have received, and Friends and C&TS brochures.

The first version of the show kit was a wooden box that had everything needed except brochures and the video player. Wonderful, but when it was completed, it was large and heavy (over 50 lbs.) and was too much to carry without a hand truck. So, out came the trusty skillsaw to lop off the compartments for the banner and the electrical conduit frame to attach it to the display tables.

The version now in use weighs about 35 lbs., can be shipped for about forty dollars (UPS ground), and has all the stuff of the 50 pounder less banner frame, along with a few tools and some other items needed in setting up the display.

Do you have a railroad show in your area? Think about giving the Friends and the C&TS a

boost! The kit has most of what you need, and I can assure you that you will get tired feet and have a lot of fun talking to folks about the railroad and the Friends and what a great ride the C&TS provides. Check with our (informal) show committee, Howard Bunté, Sam March, or Cal Smith about issues, contracts, and logistics.

Cal Smith is a former director of the Friends. He can be reached at (904) 448-8276. Howard Bunté can be reached at (505) 856-7485 and Sam March at (303) 699-8329. ☐



Member Peter Smith greets visitors to the Friends' booth at the 1998 Big E show in West Springfield, Massachusetts. Over 20,000 persons attended this two-day show. (Photo by Cal Smith.)

2000 Schedule of Friends' Events

August 7–11, Monday–Friday
Volunteer Work Session C

August 14–18, Monday–Friday
Volunteer Work Session D

October 15, Sunday
Planned Closing Day

October 20–21, Friday–Saturday
Friends Freight Special

Visit the Friends on the Web:
<http://CTSFriends.railfan.net>



K-37 class locomotive 492 and K-36 class 484 parked north of the Chama enginehouse in May 2000. The 492, along with locomotives 494 and 495 on display in Antonito, has not operated since before the abandonment of the narrow gauge by the Denver & Rio Grande Western Railroad. The one operating K-37 on the C&TS, 497, was obtained from the Durango and Silverton in 1991 for K-36 class 482, which had not run since approximately 1958. In April 1999, locomotive 484, which has been in service on the C&TS since 1971, sustained damage in a derailment west of Los Pinos tank. Both locomotives will be moved into the enginehouse, 492 for asbestos removal and 484 for repairs. (Photo by Tom Cardin.)



**Friends of the Cumbres & Toltec
Scenic Railroad, Inc.**

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