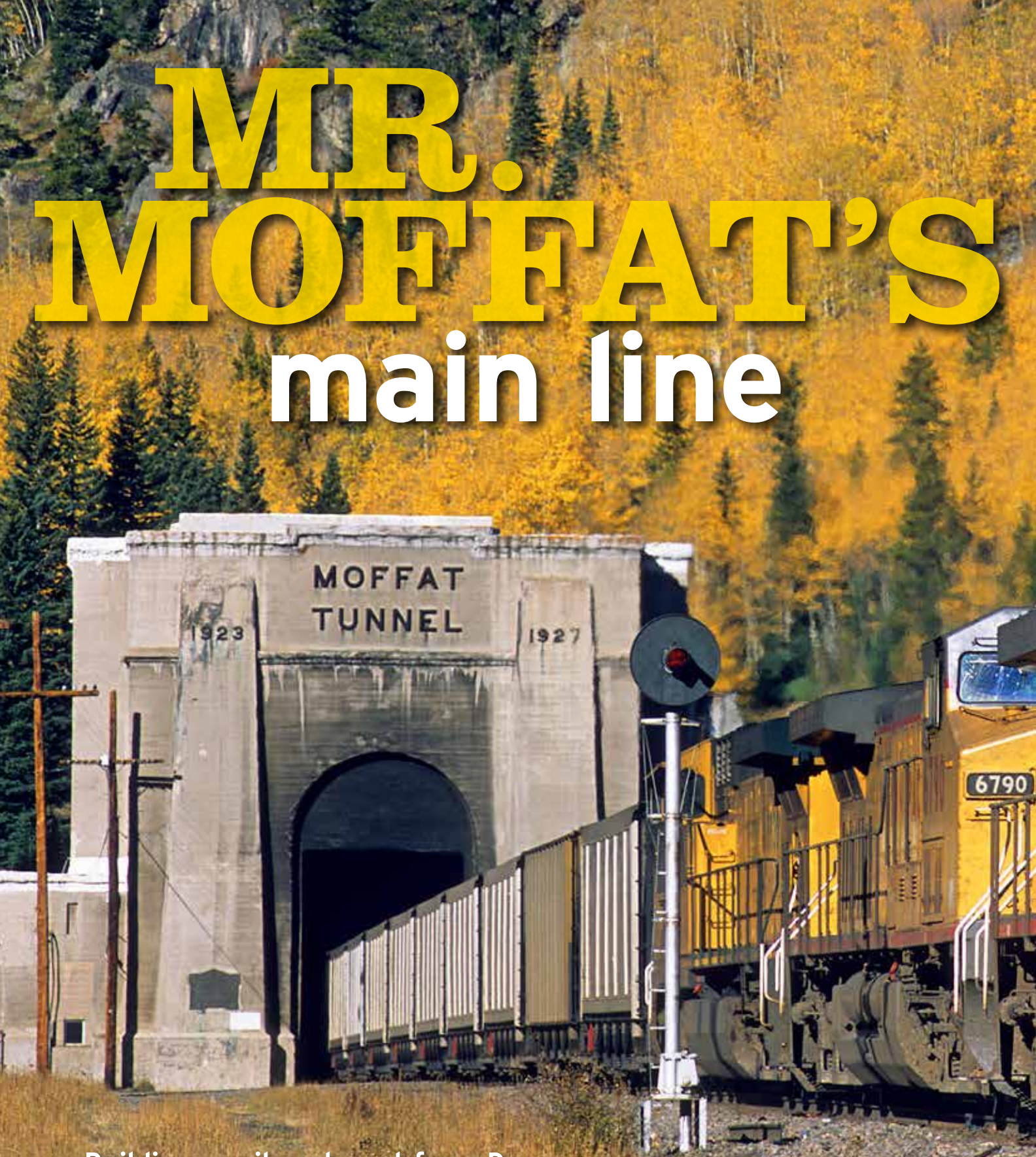
MR. MOFFAT'S main line



Building a railroad west from Denver was a challenge, but the spectacular results live on

Story and photos by Mike Danneman

The paint on the Union Pacific AC4400CWs matches the color of aspens in autumn as an eastbound coal train exits Moffat Tunnel at East Portal, Colo., on Sept. 24, 2001.

Passengers examine 30-foot snowdrifts at Corona on the Moffat Road's Rollins Pass line. Two photos, L.C. McClure, TRAINS collection

Look west from Denver on a clear day and you'll see the domineering Continental Divide of the Rocky Mountains. No railroad could penetrate this formidable barrier, could it? Would Denver ever be on a transcontinental railroad? Maybe a narrow gauge pike or two could reach mining camps in the high country on steep grades and twisting curves, but that might be it.

This thought could have passed through David H. Moffat's mind as he looked out a window from his office as president of First National Bank in Denver more than 125 years ago. Moffat, however, believed the answer to both questions was yes — and, with his business associates, formed a railroad company to ensure that was the case.

Today, those formidable mountains remain. But so does Moffat's railroad — although its construction proved to be the lengthy saga suggested by the geography it faced.

INTO THE MOUNTAINS

When the first transcontinental railroad was being built, and Union Pacific surveyors were scouring the Rocky Mountain region to find the best route west, residents of Denver hoped the fledgling line would pass through their city. During one survey, Union Pacific chief engineer Grenville Dodge and his party barely reached safety after an early winter blizzard chased them out of the mountains. Soon thereafter came word there was no practical transcontinental route through Denver.

With Union Pacific choosing an easier grade through the rolling terrain of southern Wyoming, the Rockies looked to be a barrier that could forever leave Denver off the path of mainline railroads. This didn't sit well with city leaders. Cheyenne appeared to be in position to replace Denver as a major transportation hub, which could jeopardize the city's growth and prosperity.

Moffat had the means and knowledge to address this. Born in New York in 1839, he became an entrepreneur at an early age and entered the banking business. After moving to Denver in 1860, he became involved in Colorado banking and built a substantial financial empire, much of it involving the growth of Colorado's railroads. By the turn of the century, Moffat was reputed to be the wealthiest man in the state.

Drawing on his railroad experience, Moffat and business associates established the Denver, Northwestern & Pacific Railway in 1902. Its goal was a mainline railroad west to Salt Lake City. As with the ambitious plans of so many other infant railroads of the day, the "Pacific" part of the name would remain a dream.

Moffat hired the brilliant H.A. Sumner as chief engineer, and construction began on Dec. 18, 1902. Rails soon pushed up the Front Range of the Rockies toward South Boulder Canyon. To maintain a 2-percent grade, and since South Boulder Creek dropped out of the mountains at a much higher gradient, Sumner devised a way to enter South Boulder Canyon at the highest possible elevation. He laid out a route on a nearby mesa that looped back on itself, wrapped around the mouth of Coal Creek Canyon and bored through eight tunnels, entering South Boulder Canyon high above the creek. With additional tunnels on a 2-percent grade, South Boulder Creek was soon nearly at track level as the railroad pushed west to Pinecliffe. That turnback loop and series of bores became known as today's "Big 10 Curve" and the "Tunnel District."

Thirty tunnels later, DNW&P reached Mammoth (soon renamed Tolland) in 1903. Originally, Moffat planned a long tunnel through the divide, but lack of funds and time forced the carrier to forge ahead over 11,680-foot Rollins Pass on a "temporary line." A series of switchback curves, once clearly visible from Tolland and eventually known as "the Giant's Ladder," brought the rails over the lofty pass at Corona. Severe weather haunted the highest through mainline railroad ever constructed. Winters were brutal, with snow and high winds making travel nearly impossible and often unprofitable.

By winter 1904, the railroad reached Arrow, 11 miles west of Corona. It then marched across the floor of Middle Park to the town of Fraser by summer 1905. With slightly easier going, the tracks reached

A train pauses at Arrow on the Rollins Pass line in 1905. At left is the main line west to Middle Park, with its 4-percent grade.

Kremmling a year later, leaving an arduous push through Gore Canyon ahead.

Gore Canyon presented incredibly difficult topography along the Grand (later Colorado) River. But that wasn't the only obstacle to construction. The newly formed New Century Light & Power Co. planned a large reservoir and dam in Gore Canyon, thoroughly blocking the Moffat Road's path. Legal wrangling and other battles finally came to a head with a hearing by President Teddy Roosevelt. The facts that emerged — such as insufficient planning for electrical generation and a lack of bedrock for a major dam — soon opened Gore Canyon to David Moffat and his railroad. Union Pacific's E.H. Harriman is believed to have been behind New Century Light & Power in an attempt to thwart Moffat's transcontinental dreams.

Tracks finally reached Steamboat Springs in 1909. Construction of the DNW&P reportedly cost $75,000 per mile, with one rugged mile through Rock Creek Canyon costing at least $250,000. Worse, operations over Rollins Pass soaked up a fortune with each passing snowstorm. Moffat is estimated to have poured over $7 million of his own wealth into the railroad.

Needing money to advance the road westward, Moffat headed for the East Coast to pursue funds to extend the line to Craig and finance the main range tunnel. The trip became his last when an exhausted David Moffat died in New York City on March 18, 1911.

THE BIG TUNNEL

With no new investments, the DNW&P went bankrupt 15 months later. The railroad was soon reorganized as the Denver & Salt Lake Railroad and by Nov. 20, 1913, with financial help from some of Moffat's associates, rails finally reached Craig. But this long-anticipated milestone didn't mean business would quickly materialize in the sparsely populated area. Slowly, traffic such as coal, forest products, and seasonal livestock developed.

What the D&SL needed was the main tunnel through the Continental Divide. The treacherous route over Rollins Pass used up resources and was frequently blockaded, making shippers unhappy. World War I brought an increase in traffic, especially coal from the Yampa coal fields, but the long, expensive trip over the hill remained a problem. Coal used for pulling trains over Rollins Pass during the war cost $2,000 a day. In 1917, the hapless railroad fell into receivership again. It would eventually reorganize as the Denver & Salt Lake Railway.

In 1922, the state of Colorado voted to build the main range tunnel, establishing the Moffat Tunnel Improvement District. Work started from both sides of the divide using a "pioneer bore" method, with a smaller parallel tunnel allowing crosscuts to the main tunnel to work additional headings. Upon completion of construction, this "pioneer bore" would transport west-slope water to Denver — a feature that was instrumental in passing the tunnel legislation. The tunnel was "holed" through in 1927, and on Feb. 26, 1928, the tunnel opened, beginning a new era for the Moffat Road.

Completing the tunnel was not the last part of David Moffat's dream. Having reached Craig, 231 miles from Denver, the D&SL desired to extend its reach to Salt Lake City by building either its own line to Utah or a 40-mile line to connect with the Denver & Rio Grande Western. Western Pacific approved of the cutoff, but Rio Grande didn't want further competition from another transcontinental route. At the time, Rio Grande — controlled by Jay Gould's Missouri Pacific — saw no advantage in a shorter main line from Denver to Salt Lake, since it used a Pueblo gateway. But when Burlington appeared ready to buy the D&SL, Rio Grande realized the cutoff was inevitable, and bought majority interest in Moffat's line.

David Moffat — banker, rail baron, said to be the wealthiest man in Colorado — at age 40. Library, State Historical Society of Colorado.

Construction of the cutoff began in November 1932 and opened on June 16, 1934, finally realizing David Moffat's dream of having Denver on a transcontinental railroad.

Still, work continued. The old Moffat Road needed improvements to allow use of Rio Grande's heavier motive power, and much of that work occurred the remainder of the decade. The railroad became the route of a new passenger train, the *Exposition Flyer*, operated jointly with CB&Q and WP from Chicago to San Francisco.

Those improvements paid dividends with the advent of World War II, as the railroad was extremely busy and important to the war effort. As many as 30 trains a day shined the rails during the war, with more than 50 movements reported some days. Installation of automatic block signals began in 1941, followed by an early installation between Denver and East Portal of the new centralized traffic control system. Rio Grande's "new route" between Denver and Salt Lake City was 175 miles shorter than the old route via Pueblo, finally allowing it to compete for time-sensitive transcontinental traffic with UP to the north and Santa Fe to the south. Truly, this is when Rio Grande could finally say "Thru the Rockies, not around them," thanks to the Moffat Road.

PASSENGER BUSINESS

On April 11, 1947, the Denver & Salt Lake Railway merged with D&RGW, and passenger traffic reached a peak, with five

Rio Grande's "Railblazer" piggyback train leaves Denver behind as it begins its overnight trip to Salt Lake City, climbing out of Leyden on a clear, hot July 9, 1989. Rio Grande's black-and-gold paint gave way to Southern Pacific's gray and scarlet after a 1988 merger.

trains a day to and from Denver. Some would say the best came in March 1949 when a new Budd-built stainless steel streamliner, the *California Zephyr,* replaced the *Exposition Flyer*, operating on roughly the same schedule. As passenger trains disappeared in the late 1950s and '60s, freight traffic picked up, as more coal began shipping out of Orestod from what now was the Craig Branch.

When the U.S. nationalized passenger trains in 1971, maverick Rio Grande chose to keep Amtrak off its railroad and ran its own streamliner between Denver and Salt Lake City, albeit only three round trips per week. The *Rio Grande Zephyr* could be considered a stepchild of the *CZ*, but developed its own following and connection with the communities it served.

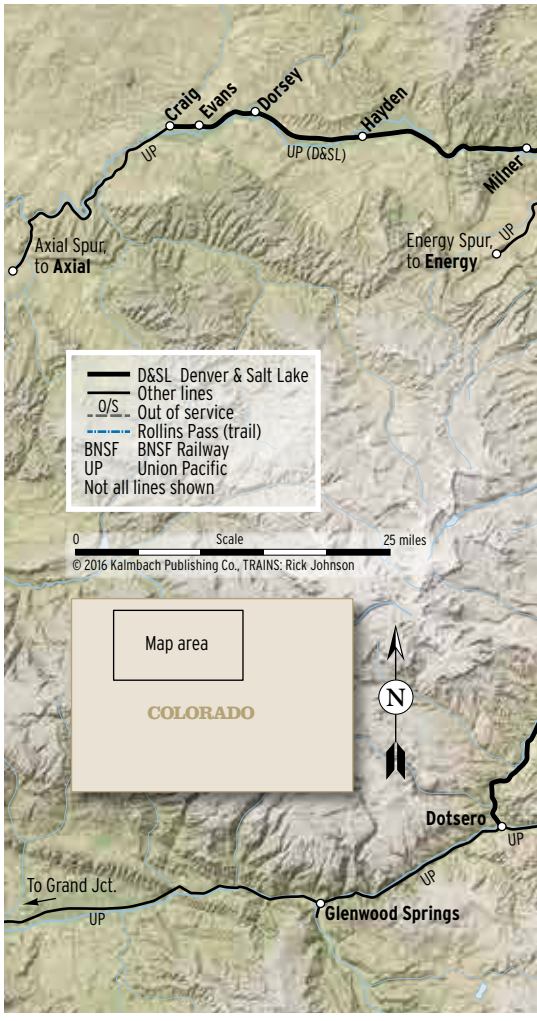
Controlling operation and dispatching of its own passenger train turned out to be a good move for the Rio Grande with the explosion of unit coal trains in the 1970s following passage of the Clean Air Act of 1970. Up to six coal trains loaded on the Craig Branch each day, with the corresponding empties adding up to 12 trains a day on the main line to Denver.

Seasonally, another special train plied the Moffat Route: the Ski Train. Its long history began with a 1936 special to the winter sports carnival in Hot Sulphur Springs, with the first Rio Grande Ski Train to Winter Park operating in 1947. The train became a fixture for avid skiers and an institution for the city-owned Winter Park Ski Area, surviving until 2009. Efforts are underway to revive the service, after two successful Amtrak excursions in March 2015 to mark Winter Park's 75th anniversary.

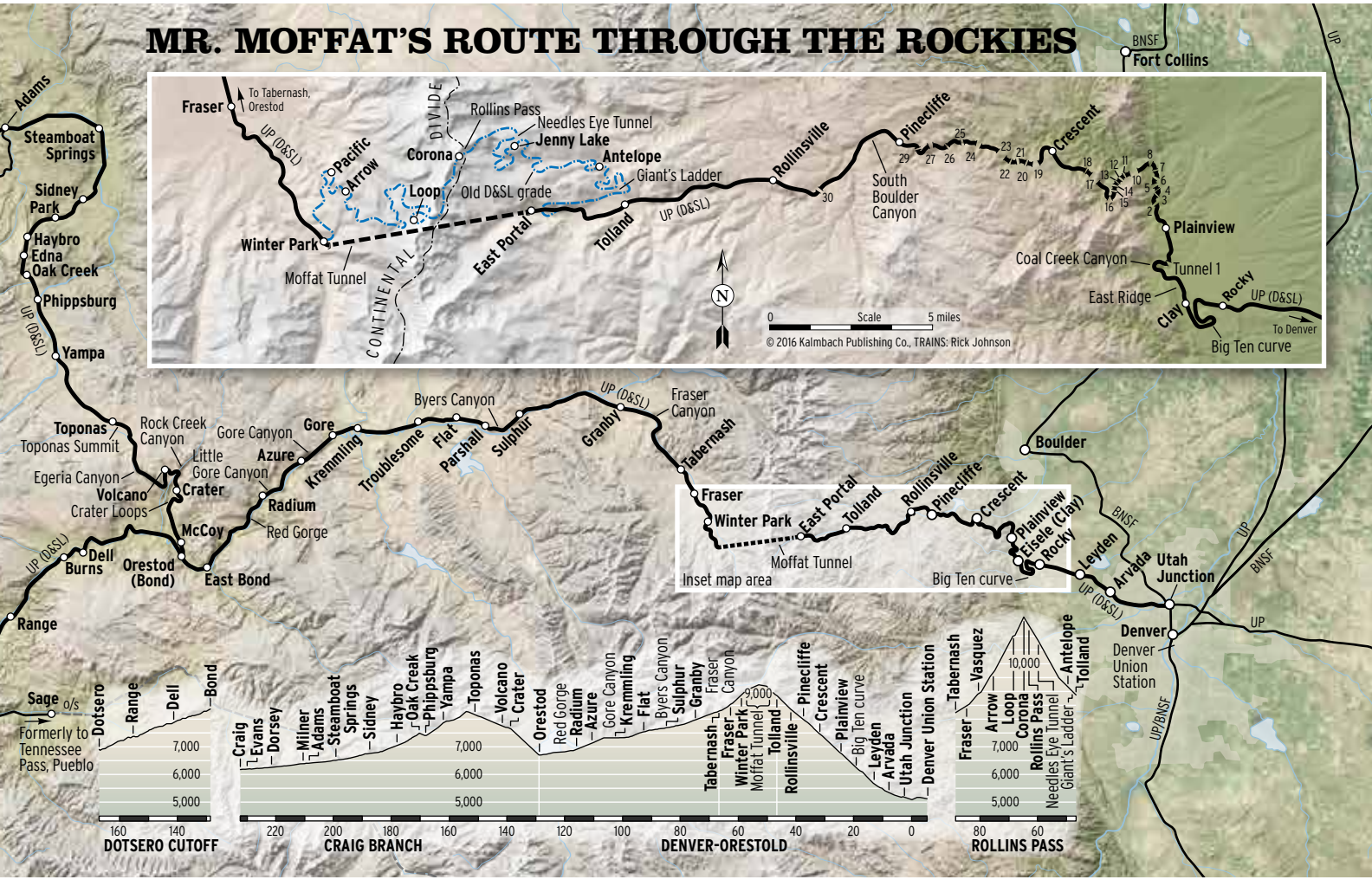
The 1980s saw a gradual decline in freight traffic. With the last run of the *Rio Grande Zephyr* in April 1983, Rio Grande finally joined Amtrak and the route once again had a daily passenger train.

Traffic patterns began shifting when Union Pacific merged with both the Missouri Pacific and Western Pacific, causing Rio Grande to lose interchange partners and shift toward interchanging with the Southern Pacific. Denver businessman Philip Anschutz purchased the Rio Grande in 1984, and four years later also purchased the SP. For a while, the Rio Grande was operated independently, but soon the carrier chose to take on the brand of the larger and perhaps better-known SP.

Southern Pacific, with its eastern Kansas City gateway, used the Tennessee Pass route extensively, but some freight besides coal still rolled on the Moffat to interchange partner Burlington Northern in Denver. In 1996, UP merged SP into its camp, and by 1997, through trains over Tennessee Pass were discontinued. Changes and shifts in freight traffic continued and BNSF gained trackage rights over the Moffat Route in the agreements signed during the SP/UP merger. I sometimes wonder what David Moffat would think of



Denver — some 16 miles distant — forms the backdrop as BNSF's M-PVODEN (Provo, Utah, to Denver manifest) curves around the hopper-car windbreak at the Big 10 Curve on Oct. 20, 2012. The Rio Grande installed the hopper cars after high winds blew trains off the track.



The westbound *California Zephyr* climbs the 2-percent grade west of Plainview, Colo., on June 8, 2013. Having passed through Tunnel No. 8, the train is passing the site of Tunnel No. 9, which was eventually daylighted, and is about to enter Tunnel No. 10.

the fact that nearly a century later, the company of his old corporate enemy E.H. Harriman owns his beloved Moffat line.

A TOUR OF THE ROUTE

Join me for a brief tour of one of David Moffat's proudest achievements. The trip starts at milepost 0, Denver Union Station. Originally, competitors kept Moffat's railroad out of the facility, so it operated its own Moffat Road station a few blocks to the west.

Leaving downtown, tracks head north through Prospect Junction toward Adams County, where North Yard was constructed in 1949 after the merger of the Rio Grande and D&SL. This allowed the Moffat facilities at Utah Junction, on the north side of the new yard, to be removed or used for other purposes. As we pass the former D&SL yard, we curve west toward Arvada and get a good look at the looming Rockies ahead. The grade is noticeable as we pass the first siding beyond town, Leyden, staying on the high side of a ridge while gaining elevation.

Rocky siding, once known as Arena, is where the fun really begins, with several levels of track visible straight ahead. Leaving Rocky we arc south on a bend nicknamed "Little 10 Curve." The tracks soon encircle a mesa where the "Big 10 Curve" brings the rails westward again. Both names reflect the degrees of curvature.

Big 10 Curve is exposed to strong winds that can careen down the Front Range mountains, and on several occasions, empty trailers on a flatcar or an auto rack blew over and derailed on a moving train. About 1972, the Rio Grande placed a string of retired open-top hoppers filled with rock and dirt on the inside of the curve, effectively creating a windbreak to protect passing trains.

The next siding along the hillside is Eisele, renamed in 2013 to honor a retiring UP official. Previously, it was known as Clay, and before that as Fireclay, for a clay-mining community. Curving toward the mountains, we cross Blue Mountain Drive, one of the area's few grade crossings and a great place to watch trains climb or descend the steep grade. Crossing the mouth of Coal Creek Canyon, it is interesting to note that instead of the current route that H.A. Sumner recommended, other surveys routed the railroad up Coal Creek Canyon and required a large tunnel through a ridge to reach South Boulder Creek.

As we climb toward Tunnel 1 — the first of many — we can look east over the great plains to see Denver in the distance. Passing through aptly named Plainview brings us to a succession of seven more tunnels through the spectacular Flatirons. Curving out of Tunnel 8, we are high above South Boulder Creek, leaving the flatlands of Colorado behind. Between here and Pinecliffe, there is only room for one siding, at Crescent, between tunnels 18 and 19. In a short canyon between Pinecliffe and Rollinsville is Tunnel 30. The next one is the big one through the divide.

The foundation of an old icehouse is visible if you look carefully near the west end of the siding. Icehouses such as this one and another located west of Pinecliffe at Pactolus cut ice on nearby ponds and were important railroad customers, shipping ice to Denver and points east.

Soon we reach Tolland, with the "Giant's Ladder" visible climbing to the west. Straight ahead is the imposing Continental Divide, which David Moffat chose to cross over Rollins Pass on a temporary line. The wye we pass at East Portal is actually a small remnant of that line, now a rough four-wheel-drive trail up to the blocked Needles Eye Tunnel.

We plunge into darkness for a 6.21-mile trip through the great divide inside the Moffat Tunnel. When the overnight *Prospector* passenger train still traveled

Spring is just days away, but in the Rockies, the scene still has a distinctly wintery tint as four Southern Pacific AC4400CWs, displaying their Rio Grande-inspired "speed lettering," lead an empty coal train at Crescent, Colo., on March 19, 1998.

The Rio Grande Ski Train waits at Fraser, Colo., on Jan. 3, 2004. Soon, the train will depart for Winter Park to pick up its load of skiers, tired and ready to return to Denver after a day on the slopes.

A Southern Pacific coal empty climbs through the loops at Crater, Colo., on July 30, 1996. A single AC4400CW, No. 298, leads the train, with two mid-train distributed power units out of sight and two more, Nos. 361 and 226, bringing up the rear.

between Salt Lake City and Denver, experienced male travelers on eastbound trips would use the straight, smooth run on welded rail through the tunnel as a good time for their morning shave.

Popping out of the west portal into bright daylight and swinging through a right-hand curve, we pass the base of Winter Park Ski Area. We then drop down the grade of Winter Park Hill to Fraser, sometimes known as the nation's icebox, where extreme winter temperatures reign. Tabernash is the location of a wye that was used to turn the Ski Train. The siding here is part of the old main line that remains after a new, more direct alignment was constructed in 1945. Tabernash was also D&SL's division point, and later housed a small engine facility for helpers used on the steep Winter Park Hill.

Leaving Tabernash, the route passes through remote Fraser Canyon to Granby and Hot Sulphur Springs. Immediately after departing Sulphur, the railroad snakes through the narrow confines of Byers Canyon. Faster running past Flat and Troublesome takes us into Kremmling, where the Rio Grande's final livestock extra loaded in autumn 1979.

Once the railroad departs Kremmling, it follows the Colorado River into the dramatic depths of Gore Canyon, once such a physical and political barrier for Moffat's advancement west. Azure siding is located between the rugged canyon and a smaller one to the west, Little Gore Canyon, which is no less scenic or sinuous. More scenic miles along the Colorado River bring the railroad to Orestod and the crew change at Bond.

Orestod connected the Moffat Road to the Rio Grande main line using the Dotsero Cutoff completed in 1934. The connection to the Rio Grande was at the station of Dotsero, and where it tied into the D&SL was named Orestod, which is Dotsero spelled backward. There's no way to experience the Moffat Road by passenger train west of here, as the *Yampa Valley Mail* was discontinued in 1968, and Amtrak uses the cutoff.

As two fishermen try their luck on the Colorado River, Amtrak's *California Zephyr* pops out of 63-foot-long Tunnel 40 in Little Gore Canyon, west of Azure, Colo., on June 3, 2013.

Climbing out of Orestod, the Moffat Road uses a pair of little-known loops at Crater to gain elevation as it enters spectacular Rock Creek Canyon. Passing a lofty siding named Volcano, the railroad burrows through more tunnels and Egeria Canyon, climbing to the Toponas Summit. Trains pass the unique geologic formation Finger Rock as the railroad passes through the fertile Yampa Valley on the way to Phippsburg. A yard at Phippsburg — P'burg in local railroad parlance — is where coal trains are staged for loading. As the track curves along Oak Creek toward Steamboat Springs, it passes former coal-loading site Edna.

From Steamboat, the track generally heads westward along the Yampa River past Adams, where the Energy Spur connects to the branch, and Evans, a junction with the Axial Spur. Tracks abruptly end in Craig, where David Moffat's dream of the railroad to Salt Lake City came to a halt. But this doesn't mean the railroad was built for naught.

Coal traffic was slow to develop, but it did indeed do so as our nation expanded and needed more energy sources. By the 1970s, new mines were opening up on the Craig Branch and more coal flowed eastward on the Moffat Road. But like so many other mining booms in our history, coal from Routt County faced challenging times. The change wasn't just on the Craig Branch. It was much more profound, as Rio Grande's "main line thru the Rockies" went from Southern Pacific into Union Pacific in less than a decade.

THE MOFFAT TODAY

The 20 trains a day that traveled the main line a decade ago have decreased due to shifting traffic patterns and energy policy. UP has moved through freight to its parallel route through Wyoming, and coal trains have declined precipitously. UP reports an 80 percent drop in Colorado coal shipments since 2005. Today, UP and BNSF each average a pair of manifest freight trains per day over the Moffat, and there is about one coal train a day. Add Amtrak and you have six to seven trains a day on average.

Experiencing today's railroading on the Moffat line can be an exercise in patience. Sometimes I'll head out to watch and photograph trains on the Moffat route by centering my trackside visit on one of the Amtrak trains, hoping to run into a freight or two in the process.

Perhaps the best way to experience the railroad is on Amtrak's *California Zephyr*. Head west into the mountains riding No. 5 on a sunny morning, its stainless steel train swinging back and forth climbing through the Big 10 Curves. Passing through 28 tunnels, the constantly climbing and curving passenger train finally plunges into the 6.2 miles of darkness that is the Moffat Tunnel. Or take No. 6 on an autumn or winter evening with dusk settling in. Slip through a curving Tunnel 8 and all of a sudden it seems like you could be on a descending airliner on final approach, looking down on the twinkling lights of a sprawling Denver. Either train will take you through the awe-inspiring canyons and Tunnel District with enough daylight to enjoy the sights.

If David Moffat could look west from Denver today, he would still see the massive mountains lining a seemingly impenetrable Continental Divide. But he would be proud that his farsighted and aggressive deeds finally made possible a mainline railroad west of Denver. Even though he might be disturbed that his arch enemy Union Pacific is running the show, he would be proud to find a tunnel and county named after him.

While almost all of the railroads he was involved in are now gone, knowing that the Moffat Road still sees trains crossing "Thru the Rockies, not around them" would surely make him smile.