






August, 2011

THE CUMBRES & TOLTEC SCENIC RAILROAD: VISITOR CENTER CONCEPT

A Major Historical Initiative of the Cumbres & Toltec Scenic Railroad Interstate Commission and Friends of the Cumbres & Toltec Scenic Railroad

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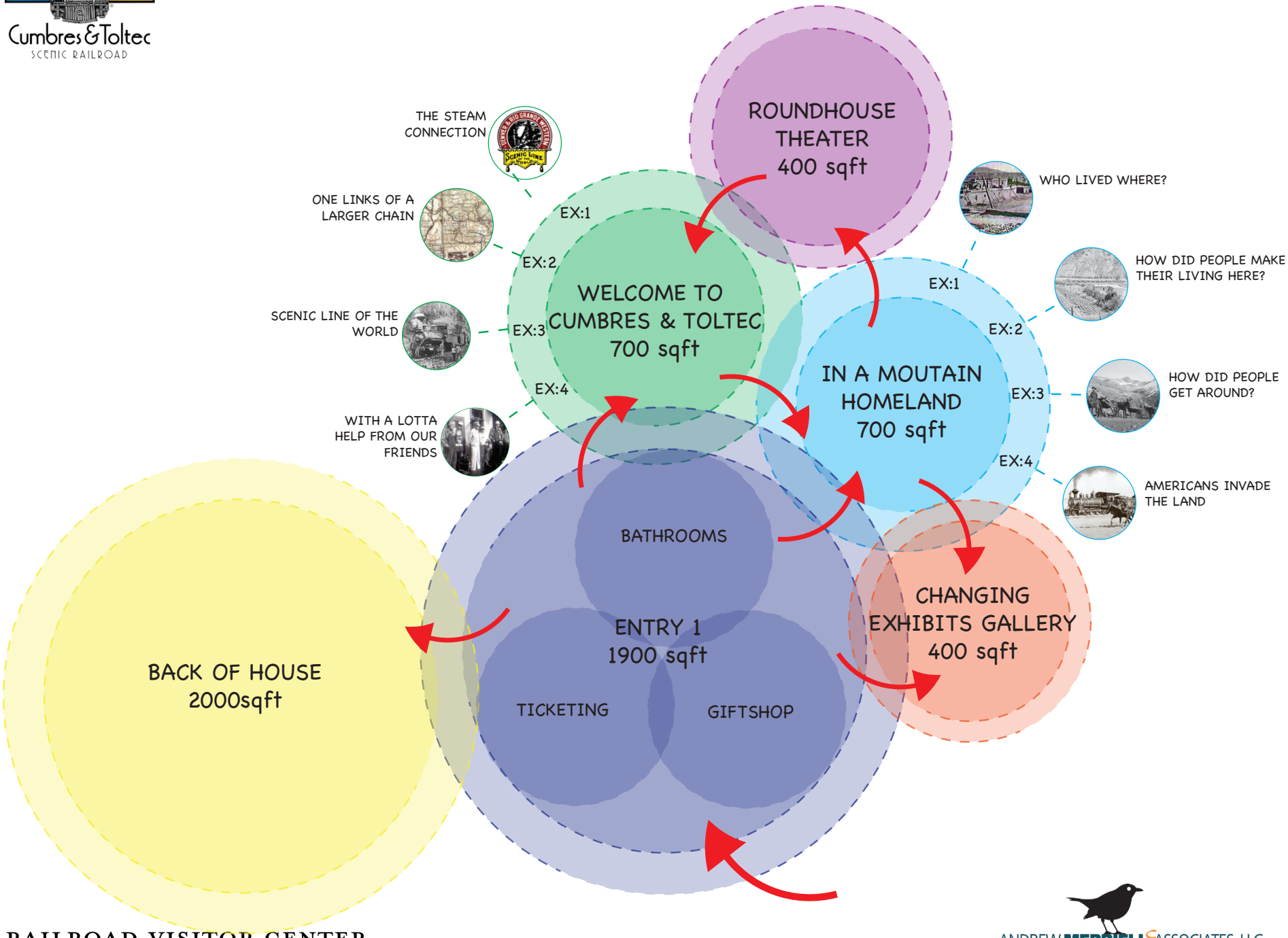
Welcome to the Cumbres & Toltec Scenic Railroad's Chama Visitor Center. Since its arrival here in 1881, the Denver & Rio Grande Railway (D&RG) (now the Cumbres & Toltec Scenic Railroad [C&TS]) has been transporting all manner of passengers and freight through the rugged mountains of southern Colorado and northern New Mexico. In all seasons, through the dog days of summer and the deep, blowing snows of winter, our "Baby Rail" has made its run up the steep, steep climbs, over canyons and mountain streams, through tunnels blasted out of solid rock, and back and forth along countless switchbacks and hairpin curves. Ride the train and you'll get a glimpse of the future as perceived by 19th century Americans, when railroads were the revolutionary technology of the age. Take in the views from Cumbres Pass, Osier, or Toltec and put yourself in the shoes of those first 1881 passengers who were awed and inspired by the majesty of nature and by the daring accomplishment of railroaders. You're in for quite a ride!

Here at the Railroad Visitor Center (RVC), we aim to introduce you to this remote region, once referred to as rio arriba or the "upper river" by early Spanish farmers who settled along the banks of the Rio Grande and Chama rivers in northern New Mexico and southern Colorado. Who were the people that lived here before the railroad? How did they make their living? How did they get from here to there? How were their lives changed by the Denver & Rio Grande Railway? Who built the line and why? How did they keep the passes open during the heavy blizzards? What does it take to run a railroad? What did it mean to the local communities?

Come in, have a look, ask questions, explore, take part. We are here for you.

Cumbres & Toltec
SCENIC RAILROAD

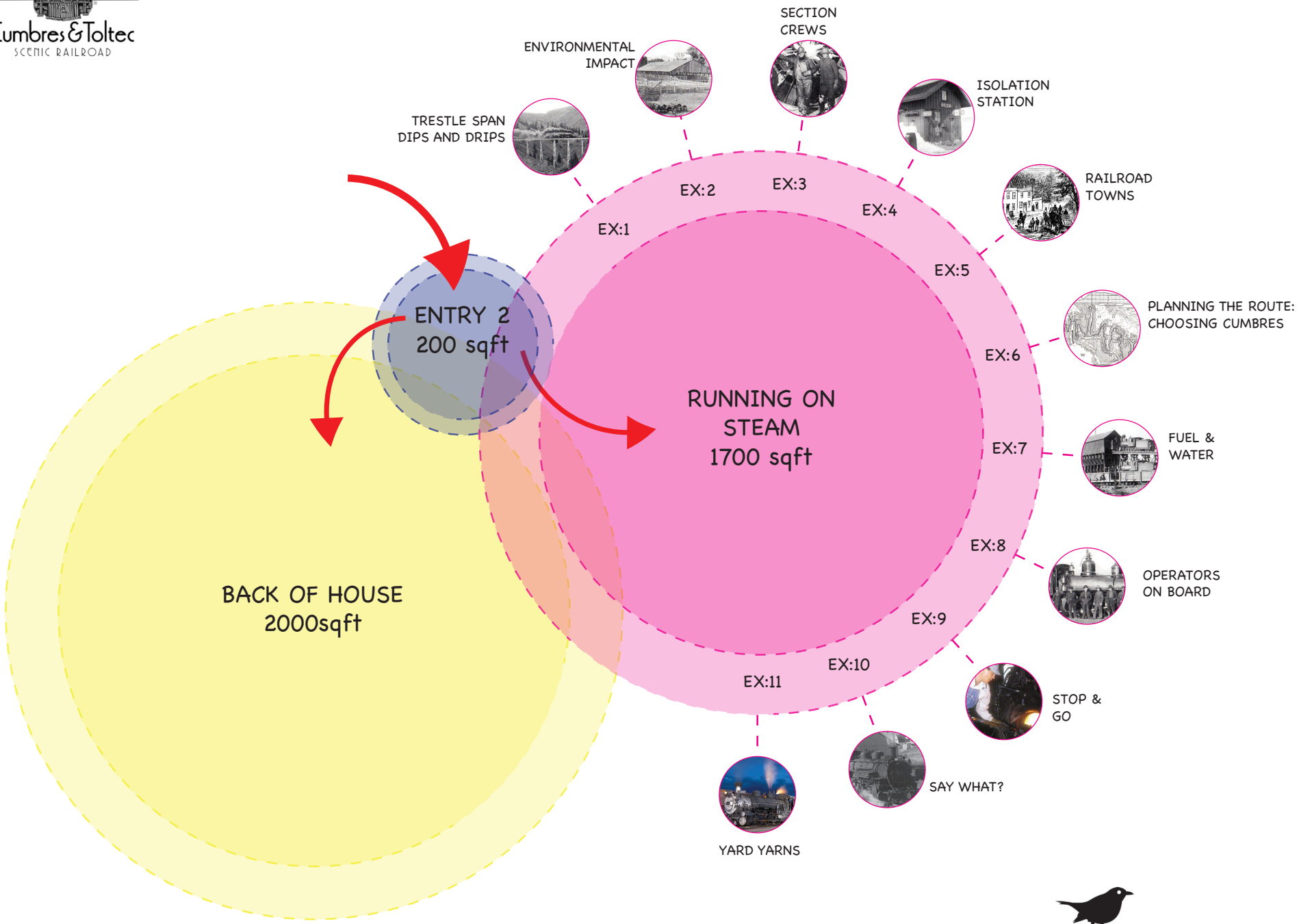
Upper Level Facilities / Exhibit Conent Diagram



RAILROAD VISITOR CENTER

Cumbres & Toltec
SCENIC RAILROAD

Lower Level Facilities / Exhibit Content Diagram

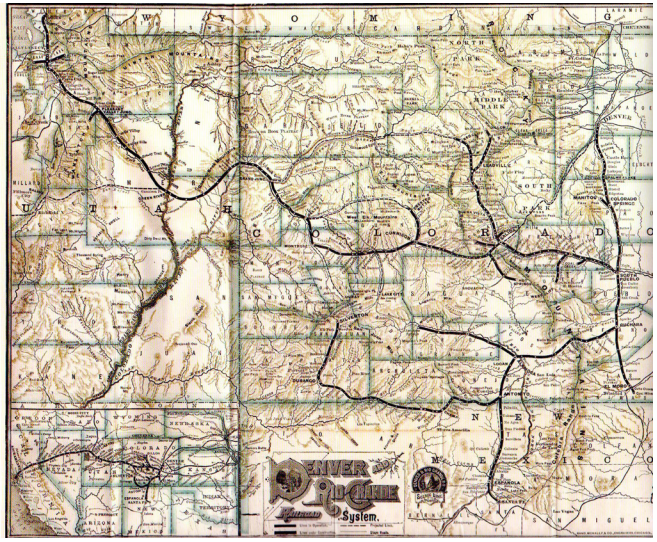


Visitors enter the spacious lobby and are physically and thematically oriented to the story of the D&RG and to the opportunities available to them here at the RVC. Here are the restrooms. Here is the welcome desk. Here is the gift shop. Here are entrances to permanent exhibits interpreting regional communities and the story of the D&RG. Here you can enter the temporary gallery and view the work of regional artists and folk artists, traveling exhibits, and special shows and programs interpreting additional D&RG events, equipment, and personalities. The layout is intuitive and graphic signage makes it easier for visitors to get a sense of the offerings and find their path. No heavy lifting here!

Scenic Line of the World
Colorful overhead banners and large historical photographs surround visitors with the imagery of the D&RG. Visitors enter below a portal arch created from the iconic D&RG logo. Lobby imagery infuses the elegance of 19th century Victorian designs with 21st century chic. Images from the 1880s to the 1960s mix passenger and freight trains, tourist excursions and even Hollywood films to offer visitors a visual overview of the breadth of the D&RG story. Visitors are invited to add their own thoughts and even upload images when they return from their journey.

The Chama Yard
Southeast facing windows offer an overlook of the Chama yard where many 19th and early 20th century structures and equipment have been preserved and are, in fact, still in use. Here is the depot, the roundhouse, the coal tipple, and there, a 1903 K-27 "Mudhen" locomotive getting steamed for its morning departure. A scale model of the Chama yard, displayed next to the window, reinforces the Yard's layout and invites visitors to discover the function of each item. Graphics also show how the yard and downtown Chama have changed with the railroad. Visitors are invited to take a walking tour of the yard to get a closer look.

Lobby



One Link in a Larger Chain

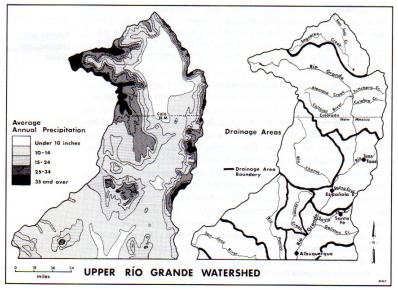
The lobby features a large 1881 map of the D&RG railway system, reproduced from the sixth edition of The Tourist's Hand Book, published by the D&RG. The map offers visitors a visual overview of the system and introduces General Palmer's dream of a north-south line connecting Denver to Mexico and the Pacific. Applied graphics also highlight the C&TS' section of the line, aka. the San Juan Extension. Historical photographs and illustrations show 19th century towns—Denver, Colorado Springs, Pueblo, Alamosa, Antonito, Chama, Durango, Silverton and others—that grew up along the D&RG. Visitors navigate a touchscreen to see how towns blossomed as the line snaked through the mountains of Colorado, New Mexico, and Utah.

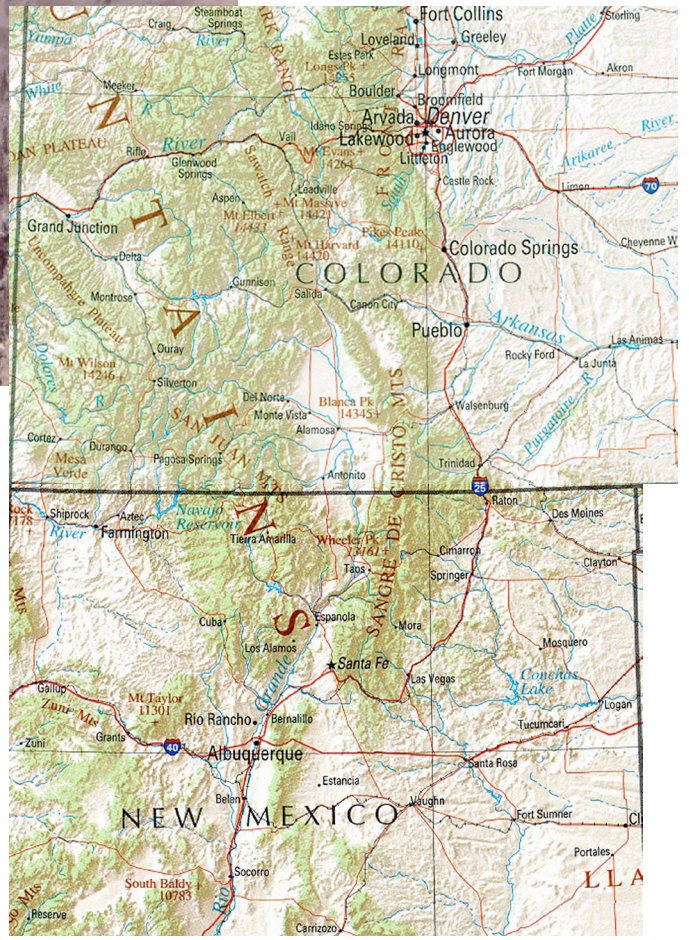
With a Lotta Help from Our Friends

A railroad handcar, once used by workers maintaining the line, serves as a useful symbol for the many Friends and volunteers who have labored long hours since the 1960s to save, preserve, and operate the C&TS. Visitors access a touchscreen to learn how the Cumbres and Toltec Scenic Railroad Commission, the states of Colorado and New Mexico, the Narrow Gauge Preservation Foundation, and the Friends of the C&TSRR came together in the 1960s when the railroad was no longer profitable to operate as a freight and passenger line. Graphics show the many ways in which Friends and volunteers get involved and invite visitors to join the team.

In a Mountainous Homeland:
Local Roads and Family Villages

Where in the world is Chama? Who lived here prior to the coming of the railroad? How did they make their living? How did they get around? Who built the railroad and why did they come here? The upper level of the permanent exhibitions introduces visitors to the environment and people of 19th century northern New Mexico and southern Colorado and highlights historical events that sent the railroad steaming in our direction. This was a rugged, mountainous place—wild, remote and often dangerous. Dimensional forms, large wall images, and thematic floor treatments define the space and immerse visitors in the San Juan and Sangre de Cristo Mountains, the land of the rio arriba. A large regional topographical map orients visitors by locating the RVC.. Topical islands introduce the diverse communities that inhabited the river valleys, highlight their material cultures and methods of travel over narrow footpaths and crude toll roads. Near the gallery's conclusion, lifecast figures and bold graphics mark the entrance to the Roundhouse Theater by chronicling the American acquisition of the region that would set the stage for the coming of the railroad.





Brigham Young University Harold B. Lee Library L. Tom Perry Special Collections; MSS 1608

Who Lived Where?

Archaeological evidence suggests that people have inhabited the river valleys of the region for more than 5,000 years, In the 19th century, Native American groups living in northern New Mexico and southern Colorado included the Pueblo peoples—Tewa (with pueblos at Ohkay Owingeh/San Juan, Santa Clara, San Ildefonso, Nambe, Tesuque, and Pojoaque), the Tiwa (Taos and Picuris), and the Towa (Jemez and formerly Pecos)—the Navajo (mainly centered to the south and west), and the Jicarilla Apache and the Ute (closely allied and inhabiting the northern Chama valley and southern Colorado). In 1598 the Spanish established a foothold in New Mexico and, by extending land grants to settlers over the next several hundred years, they (and later the Mexicans) gradually expanded their small settlements northward until by the 1850s they reached Tierra Amarilla and north into the San Luis Valley. During that time, Spanish settlers alternately warred and allied with Native communities, eventually achieving a peaceful coexistence with the Pueblos while the others continued to resist their presence by raiding remote settlements and stealing livestock. To defend themselves, the Spanish built small, adobe compounds with windowless exterior walls, flat roofs, and open courtyards for gathering livestock. The Spanish adopted adobe construction from the Pueblo peoples, but unlike them molded the mud into bricks strengthened with straw. Visitors locate each group, their communities and zones of influence, on an original map. Graphics illustrate cultural differences between each group. Visitors use helpful clues to match graphic icons to the correct community. On a touchscreen, they hear native speakers saying common words (land, food, home) in their own language. Visitors can listen to each native speaker and then record and play back their own pronunciation. An assemblage of reproduction weapons used by combatants highlights the danger of living in this remote region. Historical photos show Spanish adobe plazas. Also on the touchscreen, visitors peruse origin stories describing how each group came to live here, as well as period accounts of raids and slave captures.

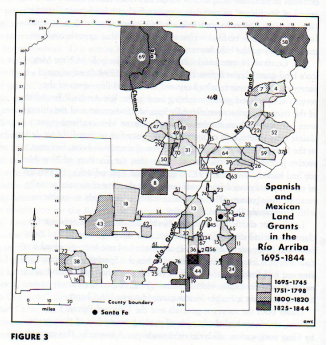


FIGURE 3

How Did People Make Their Living?

In this remote land, communities had to be self-sufficient. Families cultivated small farms (most less than ten acres), hunted wild game (rabbits, deer, bison), and gathered wild plants (pinon nut, wild roots, herbs, medicines). The Pueblos, Navajo, and Spanish communities tended to rely more heavily on farming and raising churra sheep, while the Jicarilla Apache and the Utes, aided by horses imported into North America by the Spanish, favored the hunt. The arid climate of the region required farmers to settle along river lowlands where they built acéquias—small irrigation channels—to water crops of corn, beans, squash, melons, and chilis. The capacity for irrigation tended to put a natural limit on how large each village population might become and produced a pattern of many narrow farm plots all connected to a natural water source (a technique the Spanish had borrowed from the Moors in Spain). Spanish land grants included individual lands (set aside for each family's specific use), and ejido or common lands (set aside for use by the entire community). Spanish villages used common lands to graze livestock, to cut wood for housing, furniture, and fuel, to hunt, and to harvest other natural materials. Custom forbad the sale of common land by land grantees. Assemblage of foodstuffs, tools, and other objects of materials culture are backed by historical images of pueblos, adobe ranches, and teepees. Visitor manipulate turning graphics to explore a calendar of seasonal activities or to follow the sequence of steps required to go from corn kernel to tortilla, sheep to woven blanket, or mud and straw to an adobe wall. A topographic model of Spanish land grant farms along a water source demonstrates acéquias irrigation. Visitors lift a replica sluice gate to trigger watery light effects that mimic the movement of water over a farm. Aerial images show such farms still in use today and visitors navigate a touchscreen to hear irrigation stories from local ditch bosses.

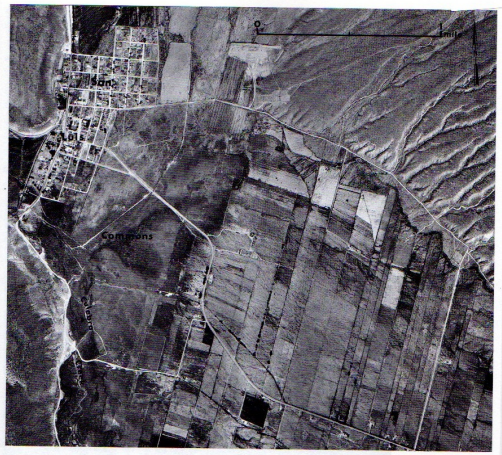


FIGURE 6

A commons, ejido, is still evident near San Luis, Colorado, on the Sangre de Cristo Grant, which is located partially in the Río Arriba. Bestowed in 1843 as a private grant, it soon became a community grant in the 1850s when the original petitioners began to sell the irrigable bottomland to additional settlers, many from the Río Arriba. Elevation: approximately 7,900 ft.

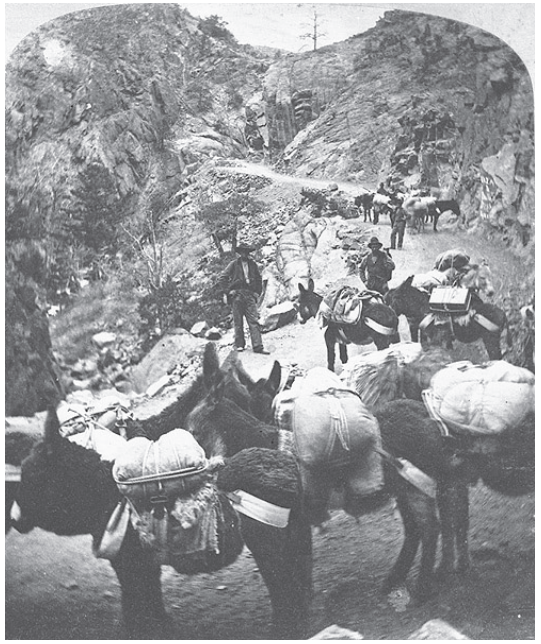
Source: USDA, ASCS, Salt Lake City, CWS-1DD-137, 28 July 1963.

How Did People Get Around?

The region's remoteness and its rugged, mountainous terrain also put limits on trade. Prior to the railroad, regional residents relied on animal power—horses, mules, burros, and oxen—to traverse narrow mountain trails. By the mid-19th century, the Chihuahuan Trail (from Abiquiú to Texas and Mexico) the Santa Fe Trail (from Santa Fe east to Missouri), and the Old Spanish Trail (from New Mexico to California) had emerged as larger trade arteries traversed by seasonal caravans. Regional residents began exporting sheep, wool, and pinon nuts on a limited scale, and in exchange bartered for needed household goods, metal utensils, leather, mules and horses.

In 1860, several traders and entrepreneurs established toll roads into the mountains of southern Colorado where surveys had earlier reported silver, gold and other mineral resources. Abiquiú and Tierra Amarilla grew as launching points and supply stations for hopeful miners. The mini-mine boom was short-lived, however, owing to inexperience on the part of the miners, hostility among the Utes, and a lack of adequate transportation.

Historical photographs show mules trains and horse caravans hauling supplies along narrow, steep mountain trails. Period maps show the results of early surveys and the locations of early toll roads. Visitors heft a typical pack of mining tools and supplies that would need to be hauled over such roads. Scale models of a horse, oxen, mule, and burro are displayed as if the year 1860's new car models. Visitors have some fun comparing the pluses and minuses of each (hauling capacity, durability, speed, sure-footedness, environmental compatibility, ease of operation, leather seats?) for mountain travel. Accounts from period residents highlight the difficulty of travel and the growing interest in regional mineral resources.



Americans Invade the Land

The arrival of American soldiers in Santa Fe in 1848 was not greeted with cheers by the Spanish population. Since winning it independence from Spain in 1821, Mexico had begun to view the rio arriba as a buffer zone between itself and the United States. The arriving Americans promised that, as per the Treaty of Guadalupe Hidalgo, they would respect the rights of Spanish land grantees and as well the right of the Pueblos who had also been given land grants. The Americans failed to properly administer the territory, however, and the differences in land surveying practices, the lack of documentation among some Spanish settlers, the language barrier, the mistrust of Americans and their legal systems, and out-an-out corruption by officials and attorneys resulted in many Spanish settlers losing title to their lands. Still others lost their lands to delinquent taxes or in payment of debts to attorneys and local mercantilists.

The Americans treated the Navajo, Jicarilla Apache, and the Utes differently than the Spanish. The American established military forts in the territory, launched military campaigns, and subsequently signed land cession treaties with each tribe that confined them to reservation lands. The expressed purpose of such a policy was to remove them as a barrier to settlement and economic development of a region, which surveys had already described held promising mineral and timber resources and lands valuable for ranching and agriculture.

At the same time that the United States was expanding westward, railroads were transforming the American economy. Railroads proved an invaluable advantage for the North over the South during the Civil War, enabling the Union Army to ship men and materials over distance with much more speed than the Confederates could match. After the war, railroads began thrusting out into the Plains, connecting the vast cattle and agricultural lands with the stockyards and meat packing plants of Chicago, St. Louis, and elsewhere. The Union and Central Pacific Railroads joined their transcontinental track at Promontory Summit on May 10, 1869. A year later, the Kansas Pacific Railroad reached Denver from Kansas City, setting the stage for Colorado's mining boom.

Two-lifecast figures—a surveyor peering into a transit and a railroad worker pounding a spike—are displayed before large graphic images of workers building the Kansas Pacific Railroad to Denver. The figures stand at the entrance to the Roundhouse Theater. Floor treatments leading visitors into the theater transition from hoof prints and wagon ruts to railroads tracks. Visitors operate a touchscreen mounted onto the surveyor's pouch to view maps and images highlighting the growth of American railroads from the 1830s to the 1870s.

Graphic images and reproduction tools flanking the figures highlight the American acquisition of the territory. Visitors peruse key aspects of the Treaty of Guadalupe Hidalgo and view maps and historical images detailing Native American reservations. Replica trade goods, mining supplies, and graphic images show American trappers, traders, and miners in Colorado and New Mexico while period survey maps, ads, and traveler accounts highlight the growing excitement about potential resources in the territories.

Theater Setting

Visitors enter a discreet space themed to suggest the Chama roundhouse. A screen wall, stretching before them in a long arc, suggests the tall doorways used to move locomotives in and out of the shops for maintenance. Floor treatments suggest multiple narrow gauge tracks converging onto a center turntable zone where visitors are invited to sit on tiered benches.

The theater's visual and material esthetic brings to mind a working steam railroad shop. Pre-show sound and light effects offer hissing engines, rolling stock being decoupled, workers conferring or moving in and out of view, steam wafting out from the doorways.

Theming on the multiple roundhouse doorways may be rounded or rectangular (Chama had both). The doorframes are dimensional but not so deep that the entire curved wall cannot be used as a projection surface. Doorway portals serve as screen surfaces for multiple projectors—at times projecting multiple simultaneous images, and at times stitched together to create stunning panoramic views.

The theater may accommodate approximately 70 people (ideally large enough to seat a school or bus group). The show's duration–approximately 12 minutes—facilitates four showings per hour. During peak ridership, train tickets might include a scheduled theater timeslot in order to ensure that all those riding the train, who wish to see the show, may do so before boarding.

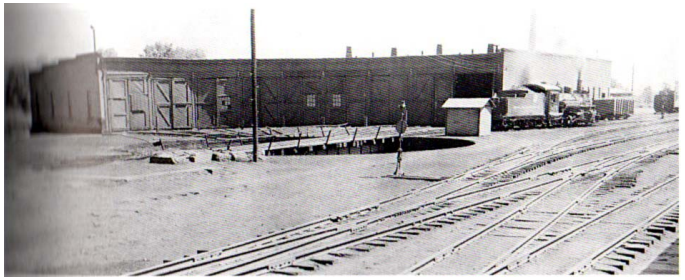
A discreet projector and audio channel is also designed into the system to enable the theater to accommodate lectures, films, and other public programs without disturbing the programming of the main show. Note: It is possible that the tiered bench seating envisioned for the theater might be replaced by stackable chairs in order to facilitate a wider range of public programs. Such uses will tend to degrade floor and wall theming elements more quickly and thereby detract from the powerful impact of the main show. The design team recommends that the Center's lobby and temporary exhibit gallery be considered for programs that cannot be accommodated by the theater.

Interpretive Approach

Park a few images in your mind—the whimsy of Butch Cassidy and the Sundance Kid's bicycle salesman selling "the future" to a reluctant posse; the elegant Victorian visual esthetic of studio portraits, cabinet cards and stereoscopic views; the simple, educational but tongue in cheek animation of Saturday morning Schoolhouse Rock … and maybe a little Monte Python.

The multiple doorways provided by the roundhouse façade offer surfaces for multiple projections. The arches can be used singly (as if separate windows – this one looking East, this one looking West; this one introducing one character, this one another). They can be seamed together to create a sense of symbolic joining, of progression or a sequence of events (the D&RG reached Pueblo, than Alamosa, then Antonito…), of overcoming obstacles or creating panoramic vistas. They can be used to create a sense of multiple parts and complexity (how many workers does it take to build a railroad?). They can be used for playful asides and whimsical modern analogs. They can be used to reveal surprises. They can be used to invite the audience through the threshold to stand at the precipice of Toltec Gorge or scan the golden vistas of aspen in early October. They can fill with the steam of a chugging locomotive, immerse the audience in the darkness of Toltec Tunnel, or emerge behind the swirling snow of a rotary plow.

The visual vocabulary of the show employs a mixture of historical black and white photography and period maps used to create a sense of time and authenticity, complemented by a mixture of contemporary photography and whimsical animation designed to communicate keys concepts and relationships. The tone is light, inquisitive, conversational, intended to engage the train enthusiasts as well as the general tourist. In telling the origin story of the Cumbres & Toltec Scenic Railroad, the show strives to put the audience back in the mindset of 19th century Americans, when railroads were the revolutionary technology of the age, connecting communities in ways that no one had previously imagined.



Story—"The Future Rides in an Iron Horse"
Once upon a time …

There was a man named Tim, a writer who lived in Athens, Ohio. And he had a friend named Andy who was an exhibit designer in Santa Fe. One day Andy called Tim up and asked him if he wanted to work with him on a new job, a visitor center in Chama, New Mexico, telling the story of the Cumbres & Toltec Scenic Railroad. It sounded like a cool job. Tim liked visiting New Mexico and working with Andy, so he said "Sure!"

Tim's job would be to learn all he could about the history of the railroad and then to work with Andy and the Friends of the C&T to figure out how to make the exhibits interesting and fun for the people who came to Chama. Andy sent Tim a stack of books to read, and Tim went on the Internet and found even more books. He ordered some from the library and he bought some from Amazon. He found pictures online at archives and libraries in Colorado and New Mexico. In a few weeks, he had a big stack of books sitting on his desk and file folders on his computer filled with photos.

But before he could really understand the story, Tim needed to ride the train. So he talked to Andy and they decided that Tim should out to Santa Fe, and from there the two of them would drive up to Chama to ride the train. It was a really long trip for Tim. He had to drive 70 miles from his house to the airport, do the airport security two-step, then take a plane from Columbus to Dallas, where he would connect with another plane to ABQ. Unfortunately, the first plane was late, so he missed the second, and had to wait in Dallas for three extra hours until another plane could take him to ABQ. Tim tried to make the most of his time. He Tweeted his daughter in Tucson. He checked his email. He texted his brother in Connecticut. He called Andy to let him know that he would be arriving late.

Once in ABQ, he had to rent a car and drive another 60 miles to Santa Fe. It was a very long, very tiring day. Things had not gone very well. It had taken Tim 14 hours to get to Santa Fe, and they still had to drive a few more hours to reach Chama. But as Tim and Andy drove up into the mountains of northern New Mexico, once called rio arriba by the early Spanish settlers, it occurred to them what the story of the railroad was about. It was about the future. A future that is not all good, and not all bad, and often doesn't turn out the way you intended. And who makes the future? Everyone. Some people have more say than others. Some people have more resources than others. Some people have more energy. Some people are smarter or braver. Some people are just plain luckier. The future is not always fair; in fact, it's not usually fair. It is, what it is, or what will be.

So what does the future have to do with the Cumbres & Toltec Scenic Railroad and Tim and Andy? Well, in 1870 when General William Jackson Palmer first organized the Denver & Rio Grande Railway Company, it would have taken Tim a lot longer than 14 hours to go from Ohio to Santa Fe. Back then the United States was still a pretty young country, not quite a hundred years old. People traveled by horse, ox team, or steamboat to make the trip out west as far as Independence, MO. From there, they hitched up covered wagons and walked. They followed the Santa Fe Trail through Missouri and Kansas, and then down into New Mexico and Santa Fe. Fourteen hours? You'd be lucky to make that trip in fourteen weeks (SF Trail =8-10 weeks avg.)? If you made it at all. That was one long, tough walk, and through deserts and rugged mountains, crossing rivers and canyons, exposed to heat and cold, sun and rain, passing not a few people who maybe weren't exactly thrilled to see you.

Rio arriba, "the upper river," had been Spanish and then Mexican territory until the United States sent its Army to Santa Fe in 1848 and forced the Mexicans to sign the Treaty of Guadalupe Hidalgo. Thereafter it was American territory, but all the Spanish settlers who lived there were promised that they could keep their land. But back then, there weren't a lot of people who wanted it. Rio arriba was the frontier of the frontier—isolated, rugged, and mountainous. The local residents lived in tiny villages of self-sufficient farms and ranches. Their adobe homes hugged the river valleys in order to draw water to irrigate enough crops to eat. They raised sheep in the mountains for meat and wool, and they bartered with their neighbors ("I'll try my eggs for your goat cheese."). And it was dangerous in those mountains. There were many different groups there before the Spanish—Tewa and other Pueblo peoples, Comanches, Utes, Navajos, Jicarilla Apaches. The coming of the Spanish and then the Americans brought changes to the lands, and sometimes that meant more people in competition for diminishing hunting grounds, or the same water rights, and fear made people lash out at each other to preserve their place in the future.

But then in the 1870s, the future came in the form of the steam-powered locomotive. Imagine instead of taking months to cross from the Atlantic to the Pacific, it only took two weeks. Fourteen days baby!!! And what else? Railroads can carry things … lots of things … lots and lots of things … heavy things. Railroads can carry things to where you're going and they can carry them from where you've been—farming equipment and the year's harvest of corn, wheat, potatoes, cauliflower, beets or whatever else you care to grow; sawmill equipment and the lumber you cut with it; mining equipment and the silver, coal and other minerals you mined with it; all the sheep and cattle you can herd; and any kind of item you might want to buy in a General Store. And they can also carry lots and lots of passengers—men, women and children—immigrants, entrepreneurs, and yes, even tourists. Woohoo!

"The most pressing need of New Mexico at this time is railroads.… With much fertile soil and immense mineral wealth, the growth of the Territory has been retarded by the lack of means of access and intercommunication."

—J. Winslow Ayer, Life in the Wilds of America and Wonder of the West, 1880 [The Thunder of Their Passing, 37]

And what else came with this railroad future? The telegraph. Wherever the tracks ran, the telegraph wire followed. When they pounded that golden spike at Promontory Summit to connect the transcontinental railroad, that last spike had a telegraph wire wrapped around it. In 1869 the telegraph was like Tweeting is today. Imagine for the first time ever being able to communicate with someone on the other side of the country just by hitting a few buttons. OMG!!!

But before you can have a railroad, you had to have a track. In the 1860s, the United States had lots of tracks, mostly east of the Mississippi River. The railroad helped the North win the Civil War. After the war, they helped to unify the country by building the Transcontinental Railroad (connected in 1869). That's where General Palmer enters our story. He had worked with the railroads during the war and afterward he was put in charge of building the Kansas Pacific Railroad from St. Louis to Denver.

In 1870 Palmer was a man with a plan. He saw the value of railroads not only connecting the East and West, but also the North and South. He saw a line connecting Denver to Santa Fe to Mexico and the Pacific Ocean. And along that line, he saw lots of new towns and industries, all benefiting from the new railroad … and all paying customers.

Now it takes money to build a railroad, lots of money, even in 1870s dollars. Palmer was not a rich man, but he knew people, so he made a plan, gathered a team, and partnered with wealthy investors in the East and in Europe. People talk today about a "global marketplace" but the world has long been a global market. The North American fur market financed European trading houses for centuries. In the 1870s the young United States, and in particular the largely undeveloped West, was still a place where wealthy Europeans looked to invest. There was talk of rich farm and grazing lands in the Rio Grande and San Luis valleys, acres of virgin timber, and rich veins of coal, iron ore, limestone, fire clay, and precious metals in the San Juan Mountains. It didn't take long for Palmer to raise the money.

"A population engaged in mining is by far the most profitable of any to a railway. A hundred miners, from their wandering habits and many wants, are better customers than four times that number otherwise employed."

—D&RG promoter William Bell to investor William Blackmore, 3 January 1871

[The Denver and Rio Grande Western Railroad, 16]

The problem was … well, actually there were three problems … at least. First, Palmer wasn't the only one who had this bright idea. "Can you hear me now?" Just like the cell phone and high speed Internet companies race today to get their share of the future as fast as they can, other railroaders could see the riches to be reaped from being the first one through the mountains. The AT&SF also had its sights on Santa Fe. And Jay Gould and the Union Pacific Railroad were no slouches either. Palmer was the first to get there and secure a right-of-way for a portion of the line south from Denver. But the race was on!

The second problem was … Palmer wasn't in Kansas anymore. Kansas is flat … flatter than a pancake. Colorado and New Mexico …er … are not! You can't just draw a straight line from Denver to Santa Fe. Palmer hired surveyors and engineers to scout potential routes through different mountain passes.

"I have seen men hang by ropes or gingerly creeping along the face of an almost vertical canon wall, painting surveyors' marks on the rocks which the dynamiters and pick-men would follow in cutting out a gallery for the tracks. The beautiful and startling canon of the Rio de Las Animas in Southern Colorado witnessed much of this acrobatic engineering."
—Ernest Ingersoll, Harper's Weekly, 11 Nov 1896

As soon as they settled on a route, they sent out land speculators and lawyers to obtain the land. Get the rights! Get the rights! If a town wanted the railroad, they would have to pay to get it. If not, Palmer and his group could put their tracks elsewhere on their own land and put up their own town. The stakes were high but the business ethical standards … not always as high.

"One thing I feel certain of—that amidst all the hot competition of this American business life there is a great temptation to be a little unscrupulous."
—William Palmer to Queen Mellen (his wife), 11 June 1869
[The Denver and Rio Grande Western Railroad, 16]

As the tracks extended south from Denver, more and more Americans started moving into the mountains. Trappers and traders had preceded Palmer. Mountain men hunted for valuable furs and traders bartered with Native American tribes or sold goods to the Army. But now miners came. They found gold here, silver there, lead, iron ore, coal.... "You're going to need a railroad to get that out." Each new discovery brought another opportunity for Palmer and his investors. To fund their big dream of the North-South line, they would build little extensions into the mountains to reach these mines, these timberlands, these farm and ranch lands. And those extensions would carry the minerals, the timber, the livestock, the farm produce, the passengers, to make the big dream come true.

But here's where they ran into problem number three. Who would build these roads? It would take thousands of men—almost exclusively men—with hundreds of horse teams. These were the days before bulldozers and backhoes. "You want that rock moved. You move it yourself!" So Palmer and his team advertised for workers as far away as Canada. They came from Kansas, St. Louis, Chicago.

"Since November 1879, there have been an average of at least 1,000 laborers a month shipped from Denver and Pueblo to the various grading camps. In addition to this our Company has advanced the fares of 200 men from Canada, 250 from St. Louis, 300 from Chicago, 1,000 from Kansas...."
—R.F. Weibrec, Manager of Construction
[The Thunder of Their Passing, 38]

Gangs of workers followed behind the surveyors clearing and leveling the route, adding rock or wood cribbing to the railroad bed where needed so the passing train would not sink into the sand. They cut millions and millions of railroad ties, many hewn by hand with broad axes, to place beneath the iron rails. Specialty companies were hired to build bridges, trestles, and tunnels to span gorges and rivers. And when they couldn't go around or over a mountain, they tunneled through with black powder and lots of drilling, digging, and hauling, stone by stone, shovel by shovel. And then finally, they laid the iron tracks and spiked them down secure. One after another, after another, after another, after another... Mile after grueling mile. In dusty summer heat and blowing snow. Month after grueling month. Work crews lived in tents, moving milepost after milepost with the tracks. Cooks fed armies of hungry men. Doctors tended to the sick or injured. Young boys worked as waterboys, ladling pails of water to thirsty workers.

The company had trouble keeping workers. They paid them higher wages than most men could earn anywhere else. They paid for their transportation to the line. But this work was physically demanding and dangerous, and every time someone yelled "Gold!" or "Silver!" in the mountains, another bunch of workers headed out to try to strike it rich. So they kept advertising. They hired local Spanish settlers, people who already knew the land. They hired westward migrating Mormons, who were promised a mild winter but suffered harshly. Those who survived established the town of Manassas in southern Colorado.

And pretty steadily throughout the 1870s and 1880s, the Denver & Rio Grande Railroad spread its iron tentacles into the mountains of Colorado, Utah, and New Mexico. Our little section of the future was a part of what they called the San Juan Extension, built to reach the silver mines farther west in Durango and Silverton. The surveyors looked at several routes, but Cumbres Pass was the lowest in elevation, there were abundant supplies of timber and coal nearby, and they could use an existing toll road to haul equipment and materials. At the time, they didn't realize why there were very few trees on Cumbres Pass, that it gets an incredible amount of windblown snow every winter. So the future came across Toltec Gorge, over Cumbres Pass, and down to Chama riding on narrow gauge rails. And why narrow gauge? Well, when you're driving through the mountains, you often encounter things in your way. Big things. Big, immovable things. When that happens, you can either go over them, around them, or through them. When Palmer was in Europe trying to raise money for his project, he had visited a narrow gauge railroad operating in Wales. Narrow gauge means that the tracks are closer together than standard gauge (3' vs. 4'8"). Riding on tracks that are closer together, narrow gauge railroads can do two things better than standard gauge. They can climb steeper slopes (called grades – 4% max) and they can make sharper turns. If you can do those two things in the mountains, then you can go places standard railroads can't go, and you can get there faster and more cheaply. Remember, this was a race!

So our section of the Denver & Rio Grande—the Cumbres and Toltec Scenic Railroad—was built from Antonito to Chama from March 1880 to January 1881. Both Antonito and Chama were invented towns. Antonito was built right next to the existing town of Conejos, but the residents of Conejos didn't want to pony up for the railroad, so Palmer built his own town right next door (on land that he and his investors owned) and within a few years most of the residents had moved over to Antonito where the business was. Chama doesn't appear as a town on any maps until the railroads crews decided to put a depot there. It was a pretty rough and wild town in those early years. Lots of railroad crews, miners, loggers, and ranchers. Not much to do for fun but drink and gamble. It was every bit as rough as Dodge City or Tombstone or other legendary towns of the old West. "The little town of Chama is holding up its end, and fast gaining a reputation for lawlessness that will rival that of Rincon, Colorado, or any of the delectable stations on the lower end of the A.T.S.F. A gentleman who arrived here from there a day or two ago say that 'hold ups' are every day, or rather, every night affairs, and that when murders occur or shooting scrapes are engaged in very little attention is paid to them and few people outside of the town ever hear of them. The town consists chiefly of tents, but does a good deal of business of a certain kind, and is lively enough."
—Daily New Mexican, 9 March 1881
[Rio Arriba: A New Mexico County, 364]

And what did the future mean for the people and the land of southern Colorado and northern New Mexico? First and foremost, it meant they were connected, no longer the frontier of the frontier. Railroads meant that now you could develop the resources of the land and use the railroads to get those resources to distant markets. So the land suddenly became much more valuable. As a result, many of those Spanish settlers lost their family lands to land speculators, mercantilists, unethical lawyers, and swindlers; others could not afford to pay the taxes levied on the land by the U.S. government. Some managed to keep their land. Most of the people who lived here ended up working for the railroad, for lumber companies who logged the vast forests of the San Juan mountains, on one of the large farms in the San Luis Valley, or on one of the large sheep ranches of northern New Mexico. In the 20th century Chama became one of the largest sheep shipping depots in the country. As promised, the Denver & Rio Grande carried those sheep, and the timber, and the silver and coal and other minerals, and later oil from the mountains to the markets far away. And in return it brought clothing, tools, appliances, furniture and other things that the people here could buy. And the people rode the trains as well. They rode them to visit friends and relatives. They rode them to get into town and back. They rode them to get to a job in another city or another state. They rode them to go off to school or to go off to war.

And what did the future mean for the land itself? Well, the future was hard on the land. The railroads enabled the people to cut down much of the forest, which was home to many different kinds of animals—elk, bighorn sheep, grizzly bears. Some species that once lived here disappeared from the forest. And the large number of sheep that the railroads could transport to distant markets, well they had to eat before they were transported. And they ate the groundcover down to the nub. Without trees or grasses, the mountain soils couldn't hold onto water like they had before. The land became hotter and drier. And when it rained, that soil eroded and washed downhill, creating deep arroyos in the land.

Not all of the land was so transformed. Some of the land was set aside, preserved by the U.S. government as national forests to be preserved and managed for future generations. But here, too, the future was not all good or all bad but mixed. Many of the Spanish settlers whose families had long lived on the land depended on the forest to hunt in, to graze their sheep in, and to harvest wood for houses, furniture, and firewood. It was land that they used in common with their neighbors for generations. Now the land was no longer available for this purpose, and that created some hardship for them. And yet, because the land was set aside, some of the harm of clear-cutting the forest and overgrazing large sheep herds were avoided or at least lessened.

And when did the railroad stop regular passenger and freight service? Well, in the 20th century, especially after World War II, many, many more Americans started driving cars and trucks. As the network of interstate highways developed, more and more goods were shipped by truck. Passengers found it more convenient to drive their own vehicles than waiting on the train schedule. The Denver & Rio Grande found it harder and harder to compete, first for passengers and later for freight, and in the 1960s it stopped regular service. Thanks to some dedicated friends of the narrow gauge, the line was saved from the scrap pile and preserved for scenic rides.

So what will you see today when you ride the future? A glimpse of the past? Not exactly how it was. The land has recovered, but many of the species of trees and plants are not those that were here in the 1880s. But the ride will give you a chance to imagine that world and the future that those people were striving for, the choices that they had to make to get from here to there. And whether you're a passenger riding that first train in 1881 or Tim and Andy riding it in 2011, one fact remains true. The ride is spectacular! Those first travelers couldn't help but marvel at the stunning mountain vistas, the views from Toltec Gorge or Cumbres Pass, the thrill of crossing the Lobato trestle, the endless serpentine turns and switchbacks, the long descent into Chama.

"To say that the vision here is grand, awe-inspiring, painfully impressive or memorable falls short of the truth in each case. It is too much to take in at once...."
—Ernest Ingersoll, The Crest of the Continent, 1885

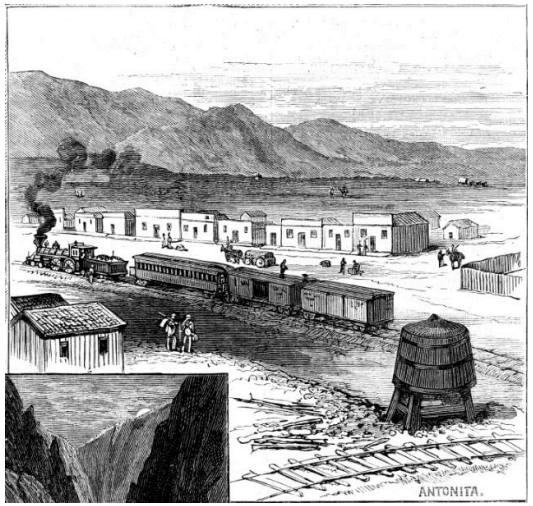
In the 1880s, William Jackson, a friend and colleague of General Palmer, was one of the first photographers to attempt to capture the majesty of the mountains. Since then, many, many photographers have followed in his footsteps. Grab your camera or your I-phone or whatever you use, and take your best shot. Good luck and enjoy the ride!

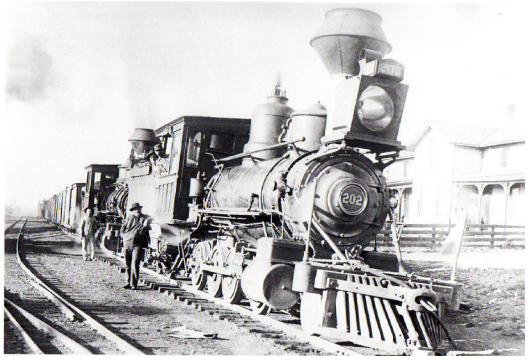
Running On Steam

What does it take to run a mountain road? Who operates the locomotive and who maintains the line? What do trains carry—from where to where? What did the railroad do for communities along the line? What was it like to be posted in one of the remote stations like Cumbres or Osier? How did the railroad impact the environment? How do they get the trains back on the track when they derail? How do they make it through the snow?

Visitors enter the lower level gallery beneath a train trestle to view the same mountainous forms they saw upstairs, but now penetrated by striking images of the D&RG hauling flat cars of timber, hopper cars of coal, stock cars of sheep, box cars and refrigerator cars of beets, cauliflower, potatoes and other farm produce, tank cars of oil, and cabooses, Pullman cars, and other passenger cars transporting local families, businessmen, workers, soldiers, school children, and yes, tourists, tourists, tourists. A dimensional rail on the floor defines the gallery's perimeter and graphic images along this rail communicate a generalized chronology of the life of the line. Along the way, topical exhibits describe the work of section crews and locomotive operators, the process of planning the route, the difference between narrow and standard gauge, the dramatic trestles spanning rivers and canyons, and the D&RG's environmental impact. In the center of the gallery, visitors peruse exhibits that interpret towns and remote stations along the line. An east-facing window wall running the length of the gallery affords visitors close encounters of the D&RG kind as they explore lower level exhibits.

Where topical exhibits highlight a structure or piece of equipment found outside in the Chama Yard, Go See It! graphics urge visitors to go out and have a look at the real deal. Recurring graphics throughout the gallery also interpret railroad signage, whistle codes, and slang. Visitors have fun using clues to guess what a "gandy dancer" or a "high ball" is, or what a conductor is communicating with two long whistles bursts followed by one short.





Cumbres & Toltec
SCENIC RAILROAD

The Permanent Gallery: Lower Level

Operators on Board

Who drives the train? What does a fireman do? What makes the train go and how does it stop? What's the difference between a K-27 and a K-36? And why do operators refer to locomotives with numbers like 2-8-2? Along the window wall, a dramatic wireframe suggests the shell of a locomotive and tender, but invites visitors to walk around and inside of it to learn more about how it functions and the people who operate it. Railroad personnel are represented by profiled cutouts, posed in their working positions on the locomotive and tender. Each profiled image includes a small touchscreen that invites visitors to hear stories from people who have performed those jobs. Visitors may also use touchscreens to compare various engines in use over time.

"Chama was like any other road. It had a heavy grade, but was brakin' and firin' on Marshall Pass before that. When I got down there, after the second trip, I done a lot of things that I hadn't done on the first. You get an education. The first thing an engineer has got to do is get acquainted with the road; you've got to know the railroad. You know you're going to get to a grade before you get to it; you make a run for it.... the main thing was this: to get the best out of that engine."

—Jess Campbell, D&RG Engineer [The Thunder of Their Passing, 72]

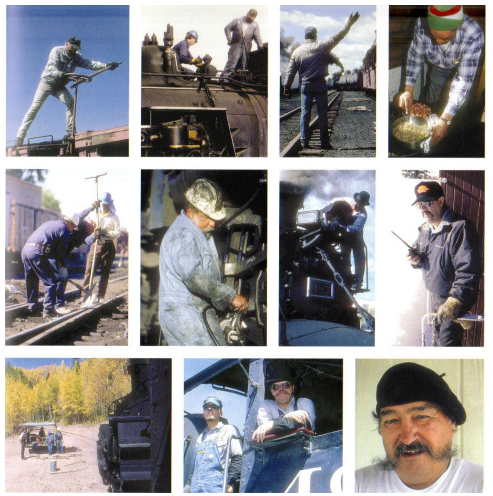
The wireframe locomotive also includes graphics and mechanical components that help visitors to discover how coal is burned to heat water to create steam that fires pistons and causes the wheels to turn. Brake lines connect the locomotive to wheels on all cars coupled together on a train. Brakemen cause those wheels to slow by reducing air pressure in the lines. Visitors operate levers to understand the relationships between steam heat, air pressure, and speed. Visitors learn why there are water tanks located at regular intervals along the line. Young visitors have fun loading faux coal from an HO scale model coal tipple (just like the much bigger one outside!) or turning a locomotive around on a model roundhouse turntable. Visitors hear stories from engineers and brakemen about riding the breaks down that long steep grade from Cumbres to Chama, about what it's like to be running a locomotive at night in January, or about what it's like when a train doesn't slow down in time.

"After we stopped near Cumbres our speed picked up and I watched Jim grasp his long reverse lever to put her in reverse, so the water brake would help to hold her. Jim tugged but nothing happened. It was solid as though part of the frame!

"I grabbed the coal pick and, using the handle for a brake club, twisted as tight as the brakes would go. Still our speed increased!...

Half a mile beyond the depot the 56 shuddered to a halt. By that time, Jim was like a dishrag. The two women were so frightened they were utterly soundless. I, too, was weak as a kitten."

—Fred Sibley, on a Christmas Day 1881 Cumbres runaway [The Thunder of Their Passing, 50]



The Permanent Gallery: Lower Level

Planning the Route

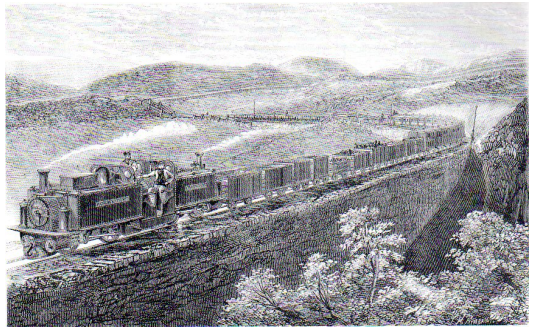
Why did the D&RG go over Cumbres Pass and not some other pass to get through the mountains? General Palmer had surveyors look at several different passes before settling on Cumbres. The line would be longer by going this way, but it was not as high. The existing Park View and Conejos Toll Road to Cumbres made it easier to get men and materials to the site and nearby timber resources and coal beds made the route attractive for sources of lumber and fuel.

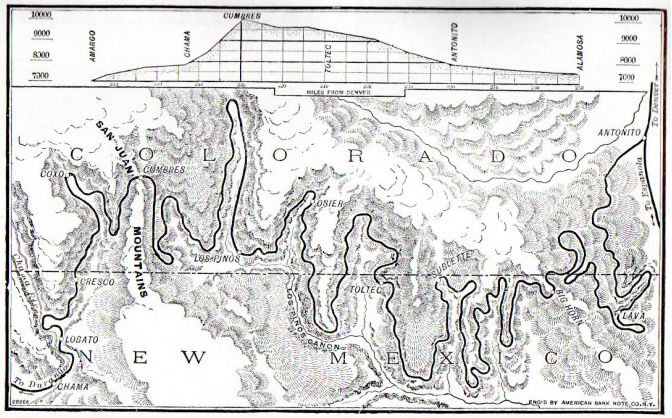
Why did they choose narrow gauge (3-ft. wide) rather than standard gauge (4 ft-8 ½ in wide) track? When he was over in Europe meeting with potential investors, General Palmer visited Wales where he saw narrow gauge railroads in action. He concluded that it would be about 37% cheaper to build the narrow gauge line, and the tighter track and smaller engines would allow his line to surmount steeper slopes (4% max.) and take tighter turns (20 deg. max.) through the mountains.

A topographical map shows visitors the route from Antonito to Chama. A section of land along that route is blown up and given dimension on a game board. Using magnetic tracks, visitors are challenged to lay track from Point A to Point B without violating the rules of grade and turning radius. A graphic reveal allows them to compare their solution of that of General Palmer's team.

Visitors are also challenged to complete this equation in order to appreciate just how many ties were needed for the route, and just how many trees were cut down: 63 miles from Cumbres to Antonito x _____ ties per mile = ___ total number of ties, each _____ inches long.

For very young visitors, a "toddler track" in the corner invites pretend play with durable, child friendly tracks, trains, and storybooks.





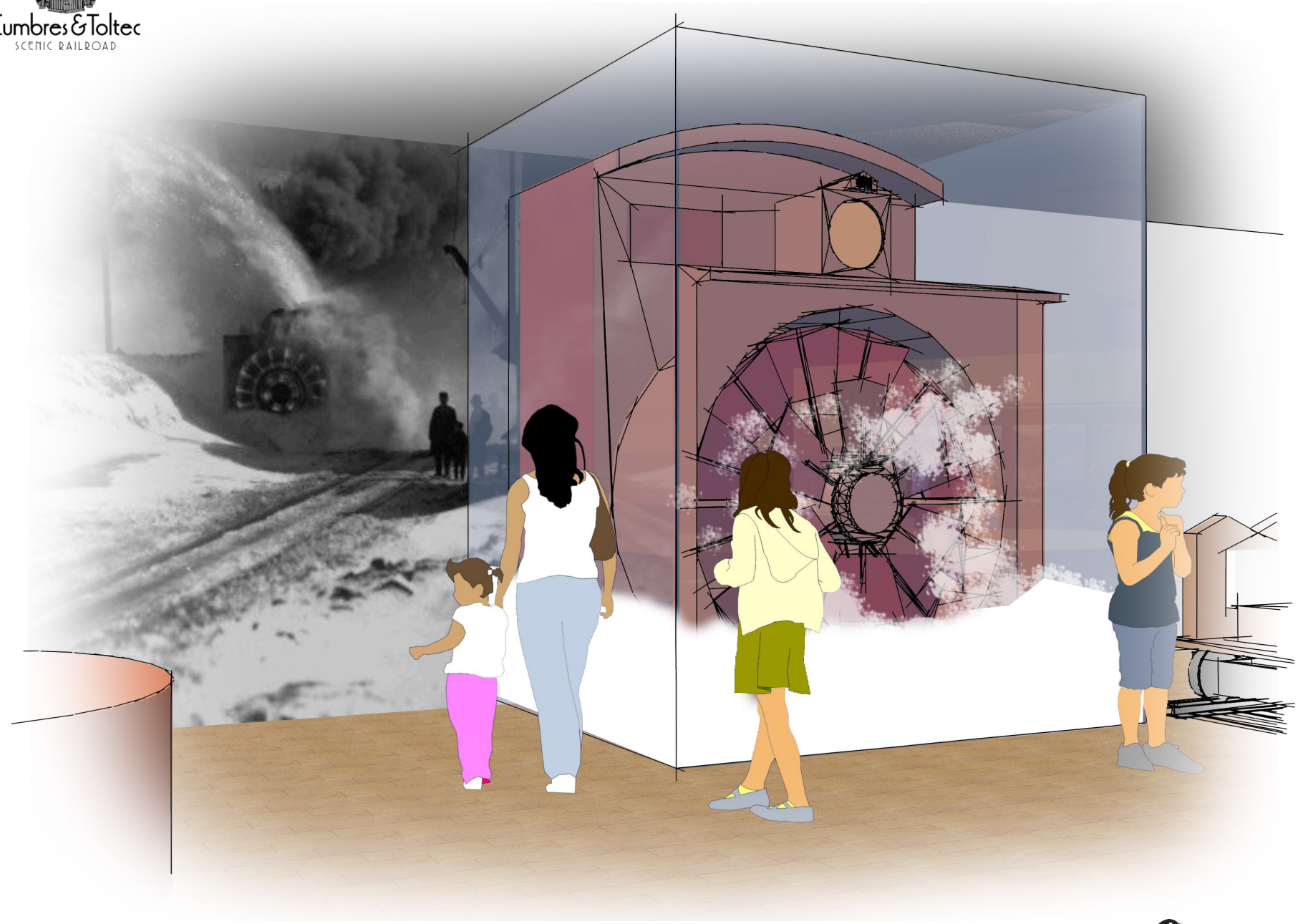
Section Crews

Maintaining a mountain road is hard work often done in harsh, even dangerous conditions. Section crews worked up and down the line year-round to repair or replace railroad ties. They replaced the entire track several times to support heavier, more powerful engines. They kept the line free of snow and debris, maintained the grade after damage done by spring meltwater or mudslides, road speeders to prevent fires along the line, and otherwise kept the track in good working order. Between 1884 and 1908, section crews built more than 13,000 feet of snowsheds on the Cumbres Pass route trying to keep blowing snow off the track and allow trains to get through. They also built and maintained depots, water tanks, coal tipples, roundhouses, bunkhouses, and other D&RG structures. In the hierarchy of railroad workers, section crews were often the entry-level positions for workers, and for many decades, due to discrimination, they were the only jobs available to local Spanish Americans, almost always men.

Dramatic historical images show section workers repairing and maintaining the line in all seasons. A striking life-size photo shows workers standing in front of the working end of a rotary plow.

In the 1880s, the D&RG switched to the newly invented rotary plows—a steam boiler jammed into a large wooden box. The wheel at the front of the plow was driven by steam from a boiler connected to flywheels inside the plow body. A chute at the top of the wheel housing directed the plowed snow to either side of the track. The Chama Yard's Rotary OM required three crew members: a pilot to coordinate forward movement of the plow and its locomotives; a wheelman to control the direction of the snow deflector, and a fireman to fuel the engine. The snow plow train could only carry enough fuel and water for three hours of continuous plowing through deep snow, so they had to keep coal at Cresco, Cumbres, Los Pinos, Osier, and Sublette in the early days. Visitors can join the crew to snap a fun take-home souvenir (and then go out to the Chama Yard and see a real rotary plow). Touchscreens invite visitors to explore stories of section workers clearing the line in winter.

The Permanent Gallery: Lower Level



"They'd generally have four or five engines and that rotary; it was steam controlled itself. Then they take a run into that snow cut.... You had to know what you were doing and everybody worked together.... You had a man who ran the rotary and a fireman and an engineer. All they did was run the rotary. The power was back here with the engines. The first thing section men would do with those cuts or slides was, they'd probe it. Well, they might miss a rock and with four or five engines back of you. going into that cut and that rotary working ... why, I never did like that. But they were very careful and they generally had a track foreman over them. It wasn't near as dangerous as some thought it was. Boy if you did hit a rock, it was bad. But everybody was alert. The engine next to the rotary had a whistle and they had to work together. The first engine had braking power on all those engines and all you done was work. The man up on the head engine had control of it. We hit the ground several times, but the minute you went on the ground you grabbed that whistle and set the air and they'd all shut off."
—Engineer Jess Campbell [The Thunder of Their Passing, 93]

Mountain roads can also be treacherous journeys and, like other railroads, the D&RG has experienced its share of derailments and wrecks over the years, some resulting in serious injury and death. Section crews were often the first on the scene to assist stranded or injured passengers and crews, and they were certainly there to put things back in order. Visitors manipulate an HO scale model of a derrick OP (like the one in the Chama yard) to learn how section crews put rolling stock back on line. A touchscreen offers historical images and period accounts of past wrecks and rescues.

"In hauling tonnage over the Pass, we had more to worry about than our pint-sized engines. The winter months were severe. Along in January [1920] a snow slide ripped down from the heights above Crested Buttes, wrapping its grip around a caboose, the snow spreader and engine tender. The equipment ended up hundreds of feet below the track, though no one was hurt. You might be plummeted down a mountain or crushed by falling rocks, but you never died of boredom on the D&RG."
—Gilbert A. Lathrop [The Thunder of Their Passing, 95]

The Permanent Gallery: Lower Level

Environmental Impacts

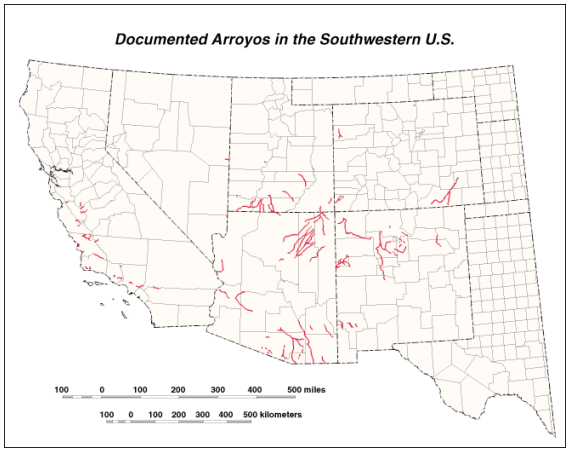
Railroads enabled regional residents to exploit the land's resources on a scale never before practical. Forest clear-cutting and livestock overgrazing led to erosion and soil depletion in the late 19th and early 20th centuries. Many native species disappeared and/or were replaced by invasives better adapted to new conditions. Railroad spurred the exploitation of the vast Chama pinery, becoming their own best customer as they purchased lumber for ties and buildings. In 1892, Chama mills shipped 20 carloads per day to the boom town of Creede CO. At the same time, better transportation spurred the growth of ranching. In 1906, regional ranchers grazed some 500,000 sheep. The 1935 fall stock season saw shippers order 1,087 stockcars, the vast majority (925) double-deck sheep cars.

Historical images show clear-cut hillsides and grazing sheep, D&RG trains hauling lumber and stockcars, and deep arroyos cut into the land as a result of erosion. Inset into some of the landscape images, two-sided turning graphics invite visitors to discover how some native species fared and which invasive species prospered as a result.

Trestles Span Dips & Drips

How do you get a multi-ton locomotive across a steep canyon or flowing stream? Between Antonito and Chama, the D&RG had to engineer numerous trestles to span the gaps. Many of the original trestles were constructed quickly and cheaply with wood and then replaced within a decade with stronger deck-plate girders. Consulting engineer C. Shaler Smith designed the Cascade and Lobato trestles, using a unique German design with no cross-bracing. Weight restrictions on some trestles required double-headed trains to decouple before crossing the bridge and then recouple after.

Visitors admire the engineering and artistry of trestles at Lobato, Toltec Creek, and elsewhere along the line and then, using model construction pieces, are challenged to build a trestle across a given span. A GO See It! graphic points visitors in the direction of the Pile Driver OB in the Chama Yard.



Cumbres & Toltec
SCENIC RAILROAD

The Permanent Gallery: Lower Level

Railroad Towns and Isolation Stations

"We handled all the billing for the lumber, coal and livestock and things of that nature. We had a merchandise car that came in once a week, and we had to peddle that. We had to notify people of the less than carload shipments. Meat and the stuff for the grocery stores; we had to notify people to come and pick it up.... And of course we had to make the consists of the trains ... the weighing of the lumber and the coal. We had to make sure the crews were called, and take the train orders. We had to make up the trains ... to figure out the tonnage on all the cars—revenue cars or empties. We had to make switch lists for the train crews, the conductors, and all that stuff.... We lived in the train station, so you get accustomed to hearing the trains going back and forth. We had two kids and raised them in the depot at Chama."

—Amos Cordova, Chama Agent in the 1950s, 24 June 2000 [The Thunder of Their Passing, 163]

In the center of the gallery, two wood-frame structures, one largely than the other, suggests the architecture of D&RG depots and section houses. Applied to the exterior of each structure, historical photographs, ads, and ephemera are displayed along with quotes from local residents to offer visitors an overview of the railroad's impact on local communities. The arrival of the D&RG did not bring with it a dramatic increase in population. The remote, rural nature of local communities remained rural while a bit less remote. Spanish Americans continued to represent the vast majority of the population. What the railroad did facilitate was an energetic, concentrated economic transformation based upon large scale agriculture and the extraction of natural resources, principally timber, minerals, and later oil. What had been a subsistence economy with neighborly bartering, annual trade fairs, and a few mercantilists, became a cash economy driven by resources and wages. In this economy, Spanish Americans found it more and more difficult to continue to be self-sufficient, especially when their common lands were no long available to them under the American system. Many earned wages working in one of the new industries. Men rode trains to find seasonal jobs in Colorado mines or farms, while their wives stayed at home to raise children and work their own small farms.

Chama and Antonito were invented towns, developed by the railroad to serve as depots and shipping centers. They started as wild, lawless towns, filled with gamblers and thieves seeking to exploit their temporary prosperity. Chama quickly emerged to become one of the largest sheep shipping centers in the country, particularly during World War I when demand was high. Antonito became a distribution point for San Luis Valley farmers growing potatoes, cauliflower, chilis, corn, wheat, beets, and other crops for distant, mostly urban markets. Town activities revolved around the railroad's schedule. Most residents either worked for the railroad or for industries like mining and timber that were serviced by the D&RG. Local business relied on the trains to deliver supplies, and more and more local residents found that they depended on goods being sold by those businesses. Towns not on the line, like Conejos and Abiquiú, found their importance diminished.

"We had the contract for supplying the meals to the train crews. They used to come in almost every night. We only had freight trains then. Most of the time it was 12 o'clock, 1 o'clock. I served them whatever they wanted. I worked there all my life at Kelly's Café, but in 1963 … I took over. I had the railroad contract. I had a husband at the time, and we used to have to get up at all hours of the night to feed them, when the freight trains would come in."
—Vera Alcon, Chama, 4 May 1998 [The Thunder of Their Passing, 162]

Theming inside the larger of the two structures suggests the interior of a café, like Kelly's in Chama, that served food to local residents and arriving railroad workers for decades. Additional historical images, ads, and ephemera offer visitors a sense of the growth and development of Chama from the 1880s to the 1960s. LCD monitors, small hidden projectors, and audio effects are cued by motion sensors; when visitors enter the café they overhear conversations among railroad workers, local patrons, and wait staff about the goings on at the D&RG and life in Chama. The conversations are based on oral history interviews with local residents and former D&RG employees. As they talk, images on LCD monitors and/or projection surfaces illustrate their stories with historical photographs. The presentation is non-linear, but rather a series of anecdotes, played randomly so that the experience will vary each time a visitor enters. More stories might be added on an ongoing basis to keep the experience fresh, highlight more diverse topics, and incorporate additional interviews.

Inside the smaller of the two structures, images and period accounts interpret the lives of families manning remote stations at Cumbres, Big Horn, Los Pinos, Toltec, Sublette, and Osier. Charles Lively worked as a telegrapher along the line for many years and was an avid photographer. His writings and images offer a unique perspective on life along the D&RG line. Visitors explore touchscreens, themed to resemble scrapbooks, highlighting the experiences of Lively and others.

Bro. Lively, of Cumbres, reports the columbine in bloom. He caught a couple of wolves and a coyote during the winter, but the foxes were too quick for him, even if he is 'Lively.'"
—The Railroad Telegrapher, April 1914

Cumbres & Toltec
SCENIC RAILROAD

The Permanent Gallery: Lower Level

Yard Yarns

The Chama Yard features a unique assemblage of late 19th and early 20-century narrow gauge steam railroading equipment and structures. The Chama coal tipple, for example, may be the only one of its kind in operation in the world. Throughout their tour of the interior exhibits, interpretation has made connections between historical events and artifacts in the yard. Views from both levels seek to strengthen that connection. At the conclusion of their tour of the lower level, visitors are once again invited to explore the Chama Yard, discover these artifactual gems for themselves, and get involved in their ongoing preservation and operation.

Statement of Probable Cost

Fabrication & Installation Budget			
Upper Level	*floor area*	*multiplier*	*extension*
Entry	1900	0*	0*
Ticketing			
Gift Shop			
Bathrooms			
Welcome to the Cumbres & Toltec	700	$500	$350,000
The Steam Connection			
One Link of a Larger Chain			
Scenic Line of the World			
With a Lotta Help from Our Friends			
In a Mountain Homeland	700	$500	$350,000
Who Lived Where?			
How Did People Make Their Living Here?			
How Did People Get Around?			
Americans Invade the Land			
Roundhouse Theater	400		$400,000
Back of House	2000		
Offices			
Lower Level	*floor area*	*multiplier*	*extension*
Entry	200	0*	0*
Running on Steam	1700	$500	$850,000
Trestle Span Dips and Drips			
Environmental Impact			
Section Crews			
Isolation Station			
Railroad Towns			
Planning the Route: Choosing Cumbres			
Fuel & Water			
Operators on Board			
Stop & Go			
Say What			
Yard Yarns			
Back of House	2000	0*	0*
Meeting Spaces			
Storage			
Total			$1,950,000

** These are not exhibit areas.*

RVC Exhibits Design	*Schematic Design*		*Design Development*		*Construction Documents*		*Fabrication / Installation*		*Debug / Remediate*		*TOTAL*
	M	Extension	M	Extension	M	Extension	M	Extension	M	Extension	
Exhibit Fabrication								$1,950,000	10%	$195,000	$2,145,000
Asset Acquisition Fees							2%	$39,000			
Subtotal, Production Costs								$1,989,000		$195,000	$2,184,000
In-House Soft Costs*											
Content Consultation Fees*											
Audience Research Costs*											
Exhibit Design Fees	4%	$87,360	5%	$109,200	7%	$152,880	6%	$131,040	1%	$21,840	$502,320
Exhibit Designer Expenses	6%	$5,241.60	6%	$6,552	6%	$9,173	6%	$7,862	6%	$1,310	$30,139
Subtotals, Design Costs		$92,601.60		$115,752		$162,053		$138,902		$23,150	$532,459
Totals		**700**									**$2,716,459**

** Optional or off-budget items. Audience research could be expected to add $100,000 to $150,000 in fees for each phase.*