

The spectacular D&R Railroad

The Chama branch of the D&RGW

by Rolfe Black | Santa Fe, New Mexico | Photos by Marc Horovitz



For my birthday in 2003, my wife Dorothy decided she was tired of planning all my entertainment and gave me a Hartford caboose kit, suggesting I build an outdoor railroad. I was more intrigued with the challenge, rather than why she gave it to me, and decided to go through with it. “After all,” I thought, “How hard could it be?” Knowing absolutely nothing about garden railroading—I don’t think we’d even seen one then—we decided to take the leap!

We started studying railroad magazines and looking for existing railroads to visit. Friends who heard me talk about replicating the Denver & Rio Grande in the Chama area as it appeared in the 1940s in my backyard, laughed and said, “For someone who has spent his life going fast, you sure thought of the slowest hobby.” However, speed was no longer a challenge for me.

I knew I wanted to use 1:20.3 scale,

narrow-gauge steam locomotives run by the Denver & Rio Grande Western Railroad. Dorothy designed the railroad and, in March 2003, we began staking out our route. We placed stakes every three feet and used a four-foot level for measuring elevation. We didn’t think of using a water level until we were nearly finished! We also didn’t think of using a laser level. As beginners, we did a lot of things the hard way! Maybe reading a railroad-building article after we had finished wasn’t the most useful thing to do, either. On the bright side, though, after 45 years of marriage we can still laugh at ourselves.

The railroad

In order to build the railroad under a 3% grade, Manuel Sedano and I brought in native stone and dirt to build up the lower area three feet. This allowed us a level space large enough for the rail yards. Even with this, the line still drops five feet from

the upper track to the lower. Manuel is a young stone mason who had helped me with other rock work and taught me how to work with cement and mortar. In the course of building, we learned a lot of unexpected lessons from each other. His participation and friendship were key throughout the railroad’s construction.

We allowed the natural drainage of the hillside to flow, showing us where to build bridges and trestles, which we would add later. We used about 50 tons of stone and 13 dump-truck loads of dirt and crusher fines. All of these materials were dropped curbside, thanks to the lack of truck access to my backyard. From there we moved everything to the backyard by wheelbarrow. That summer I lost 15-20 pounds and was the fittest I’d been in years!

I buried a 110V electrical line two feet below the future railbed, added compacted dirt and several layers of crusher fines,



1. A passenger train, hauled by a K-27, arrives at Chama, New Mexico on a hot, summer's day. The miniature landscaping blends well with the surrounding pinon pines, junipers, and other native scrub.

and finally laid my rail down. We never imagined how much work it would be to design and prepare the roadbed for the track. After the track was laid, I used two different types of crusher fines to hold the track to the bed. Under each turnout I placed a 7" x 24" piece of cut flagstone to keep it level. I started out using Aristocraft's #6 turnouts and code-332 brass flex track in eight-foot sections to minimize the connections. To make the brass look more prototypical (because I don't like the look of bright brass rail), I used a solution that turned the brass black. By doing this, when I add track and turnouts, everything looks the same.

The solution I used to blacken my rails is M-24 brush-on Antique Black for copper and brass, made by Birchwood-Casey (952-937-7931, www.birchwoodcasey.com). You can dip the track in it or brush it on. It won't peel off and it retains its permanent finish outside.



2. A warehouse at the rail yard. Most structures on the D&R are scratchbuilt to withstand the harsh New Mexico environment.



3. The C-19 2-8-0 crosses the gorge adjacent to the scratchbuilt ore bin. A Porter on a separate mine track delivers ore to the bin. Silvery sage in bloom adds to the "western" flavor.



4. The C-21 takes on water at the Chama yard. The train is by Accucraft while the double-spouted water tower is by Pacific Coast Garden Railway Supply. Dwarf conifers and small shrubs are pruned to a single trunk at the base to appear more tree-like.

The railway at a glance

Name: D & R Railroad
Size of Railroad: 60' x 150'
Scale: 1:20.3
Gauge: 45mm (N° 1)
Era: 1900s-1940s
Theme: Chama branch of the D&RGW Railroad
Age: 4 years
Motive power: Battery-powered locomotives
Length of mainline: 1,000'
Maximum Gradient: 3%
Type of track: Aristo-Craft brass, code-332 flex track; Parker Company turnouts
Minimum Radius: 10'
Structures: Mostly scratchbuilt, with a few Pola buildings
Control system: CVT Airwire 900 R/C System; Phoenix 2K2 sound system



5. After a great deal of research, Chama Depot was scratchbuilt by the author, with the help of Mac McDonald and Roger Huchton. A dwarf Atlantic cedar grows by the side of the depot.

Scenery

With the track laid, we wanted some new ideas, so decided to attend the National Garden Railway Convention in Sacramento in the summer of 2003. This made us realize how premature our railroad was and the long road we had ahead of us. We hadn't thought about landscaping!

We attended a seminar on miniature plants for railroads put on by Sharon Yankee (Miniforests by Sky). She gave us recommendations for plants that would survive in our Zone, with a lot of direct sunlight and about 12" of moisture per year. Dorothy and I liked the water features of the railways we visited and came home with a grist mill. Although happy with her determination, I couldn't help but think of the work her grist mill and the landscaping would create after I had already laid the track! Dorothy designed a water feature and, luckily, her brother Ross Wade came to visit at the right moment. He and Manuel helped me bury an 800-gallon tank with a submersible



6. SevenBar Ranch headquarters. The ranch is patterned after the one on which Rolfe grew up. The arid nature of the land is evident in this picture. Native plants, such as these yellow-flowering chamisa or rabbit brush, blend easily into the rustic setting.



7. The Chama River follows the natural lay of the land. It is powered by an electric pump and fed from an underground holding tank. Gray santolina, creeping junipers, hardy boxwoods, and miniature mugo pines grow well in this hot, sunny railroad.

Plants on the D&R Railroad

Santa Fe, New Mexico
USDA Hardiness Zone 5

CONIFERS

- Dwarf balsam fir
Abies balsamea 'Nana'
- Eric dwarf Atlantic cedar
Chamaecyparis thyoides
'Ericoides'
- Little Jamie dwarf Atlantic cedar
Chamaecyparis thyoides
'Little Jamie'
- Meth's Dwarf Atlantic cedar
Chamaecyparis thyoides
'Meth's Dwarf'
- Shimpaku juniper
Juniperus chinensis 'Shimpaku'
- Hollywood juniper
Juniperus chinensis 'Torulosa'
- Gold Cone Juniper
Juniperus communis 'Gold Cone'
- Pencil Point juniper
Juniperus communis
'Pencil Point'
- Green Mound juniper
Juniperus procumbens
'Green Mound'
- Dwarf Japanese garden juniper
Juniperus procumbens 'Nana'

- Bird's nest spruce
Picea abies 'Nidiformis'
- Jean's Dilly
Picea glauca 'Jean's Dilly'
- Dwarf mugo pine
Pinus mugo 'Valley Cushion'
- Dwarf Eastern white pine
Pinus strobus 'Nana'
- Dwarf golden arborvitae
Platycladus (Thuja) orientalis
'Aurea Nana'

SMALL TREES & SHRUBS

- Crimson Pygmy barberry
Berberis thunbergii
'Crimson Pygmy'
- Dwarf arctic birch
Betula nana
- Winter Gem boxwood
Buxus microphylla x '
Winter Gem'
- Curl-leaf mountain mahogany
Cercocarpus ledifolius
- Streib's Findling (mini apple tree)
Cotoneaster dammeri
'Streib's Findling'
- Harbor Dwarf heavenly bamboo
Nandina domestica
'Harbor Dwarf'

GROUNDCOVERS AND PERENNIALS

- Kinnikinnick
Arctostaphylos uva-ursi
- Fringed sage
Artemisia frigida
- Blue fescue grass
Festuca ovina 'Glaucua'
- Mini ferns/brass buttons
Leptinella squalida
- Platt's Black brass buttons
Leptinella squalida 'Platt's Black'
- Pine leaf penstemon
Penstemon pinifolius
- Gray santolina
Santolina chamaecyparissus
- Pink Chintz creeping thyme
Thymus 'Pink Chintz'
- Woolly thyme
Thymus pseudolanuginosus
- White creeping thyme
Thymus serpyllum 'Albus'
- Elfin miniature creeping thyme
Thymus serpyllum 'Elfin'
- Ohme Garden Carpet creeping thyme
Thymus serpyllum 'Ohme
Garden Carpet'
- Blue Reflection creeping speedwell
Veronica x 'Blue Reflection'

pump, install the electrical work, make a waterfall, create a stream, and build a pond.

I was glad, now, that I had the buried 110V line. I used it to power the pump, which is 100 feet from the waterfall, with a 12' rise. To avoid having to hand-water any plants, I put in a drip-irrigation system throughout the railroad. After all of this, Dorothy and I could start planting.

Dorothy had managed my family's ranch, SevenBar Ranch, after my father died and decided she was going to duplicate it. For her birthday in January 2004, I gave her a Hartford cattle-car kit I had built, to go along with the ranch.

Mining, sawmill operation, and the Chama Depot

With the help of Manuel and Roger Huchton, a scientist and garden railroader from Los Alamos, we built a mountain, enlarged the waterfall, and put in some mining operations (including a 1:20.3-scale ore bin that Roger and I built from

scratch). I not only put in the spur and a "Y" to service the main mine, but I also built a spur to go around the mountain. A third spur was placed at the other end of the railroad for a sawmill operation.

The slash burner at the sawmill is definitely one of the railroad's best features! It is an exact replica of a slash burner still standing in New Mexico, with an identical cyclone, slash conveyor, and sawdust collection pipe. My aviation company has always had a sheet-metal shop with one of the best sheet-metal men in the business, Loren Clayton. I asked Loren if he would help me build the slash burner. After he saw an actual slash burner his interest was piqued and he agreed to help me. The structure required a jig to hold it in place while each panel was fastened together. The burner is made of copper sheeting, silver soldered. I had thought about making several slash burners but after we discovered the amount of work and time it took to build this one we realized that one was enough!

The Chama depot had me buying every book I could get my hands on that had historical information and pictures of early Chama and the rail yard. I had already seen Randy Brie's modeling (Pacific Coast Garden Railway Supply), and bought his Chama coal tipple and sand house. I finally got a set of depot plans and got my neighbor and golfing buddy, Mac McDonald, and Roger to help me bring the plans to life. Mac is a master woodworker and has a great woodworking shop. He used 6"-wide redwood (1/2" thick) and milled the board-and-batten pattern instead of applying individual battens. To get strong joints and facilitate expansion and contraction of the depot, we used lap-joint construction to join the pieces. We built the depot in 1:20.3 scale.

I was able to make my own chimneys after Roger showed me how to mold clay and fire it. He also taught me how to cast metal windows and doors, and I used glass panes instead of plastic. The mate-



8. The eastern section of the D&R, showing the helix, the SevenBar Ranch, and the mining operation. Track was in place before much of the landscaping was done. A drip-irrigation system saves water and labor, helping to keep the plants healthy and green.



9. This scratchbuilt slash burner was built out of copper sheet by the author and Loren Clayton. The sawmill is in the background.

rials we used were chosen to hold up well in our climate. I painted the depot D&RGW yellow-gold, then put on the shake-shingle roof. This depot is the structure as originally built in 1900. It attracts more attention than any other building on the railroad.

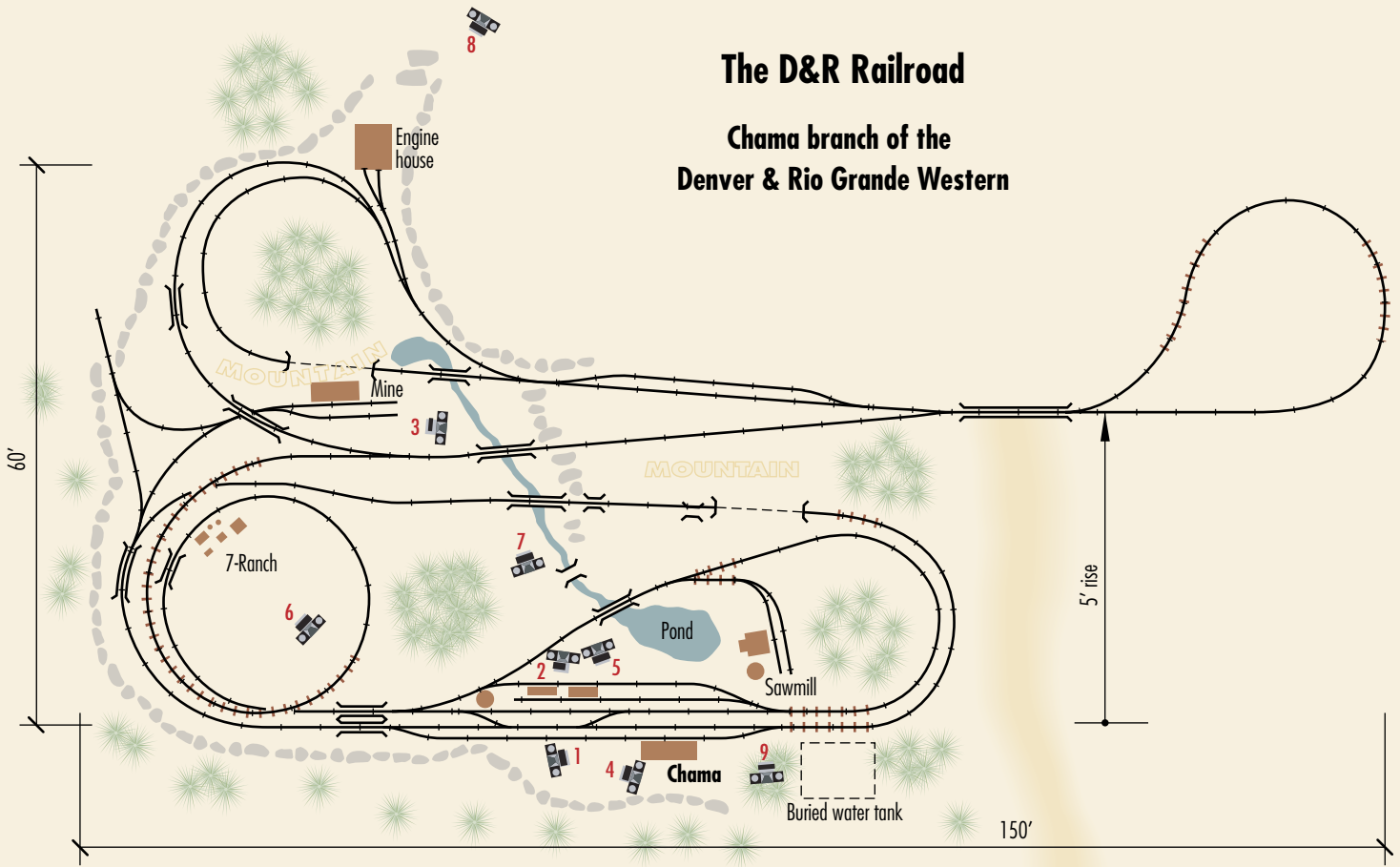
The present

As of August 2006, I have laid over 1,300' of track. Intrigued by the quality of the brass locomotives made by Accucraft and the variety of their models that were used on the Denver & Rio Grande Railroad during the steam era, I chose to purchase and run their locomotives and rolling stock. I presently operate an Accucraft C-16, C-19, C-21, and K-27. All my equipment was modified to run on battery power using NiMH batteries and an Airwire 900 remote-control system. I'm thankful I chose to go with battery power for the ease of operation and reduced maintenance it provides.

I found that the Accucraft engines and

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rolling stock derailed on the Aristo-Craft #6 turnouts. I ended up replacing all of them with Parker Company's custom-made turnouts. The mainline has #6s and #8s. Spurs have #4s. In addition, Roger and I modified the wheels to improve reliability, adding ball bearings, slightly increasing the flange depth, and adding a radius between the flange and tread of the wheels.

I can't say the railroad is the main focus of my life, but I can certainly say it is always teaching me new things. As for Manuel, I've encouraged him to go to college at night. When he comes over to help on the railroad, he can't wait to show us his grades. I want to thank Manuel, Roger, Mac, and Loren for all their help and friendship. It's funny how one small thing can lead to so many great things. As for the railroad, it has no other choice than to grow, as Dorothy and I work together on new ideas to make it more interesting. We know we need more than 3½ years to reach our goals. **II**

About the authors

Born and raised on a New Mexico cattle ranch, Rolfe Black helped his father build a dirt runway after his uncle's return from World War II with the desire to keep on flying. Later, Rolfe, with the help of his son and daughter, built the family aviation business, 7Bar, into one of the leading air medical companies in the nation. Throughout his life he's had hobbies, ranging from airplane modeling to restoring and showing classic cars. However, garden-railroad building has been different. While developing his railroad hobby, he surprisingly found his wife Dorothy to not only be a supporter, but a vital creative partner. With his engineering skills and her artistic vision, they have taken their garden railroad to another level.

