

GREAT Model Railroads **2023**

Holiday 2023

84 essential layout tips!

9 outstanding layouts in multiple scales and room sizes

HO layout is a Rocky Mountain masterpiece p.8

PLUS

Updating a great N scale museum layout p.44

Modeling the American Midwest in O p.54

The last summer of steam on the BC&G p.26

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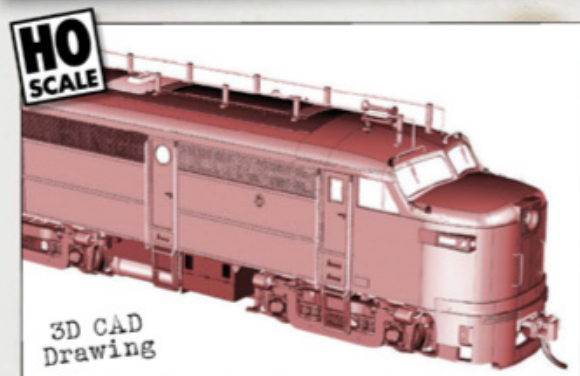
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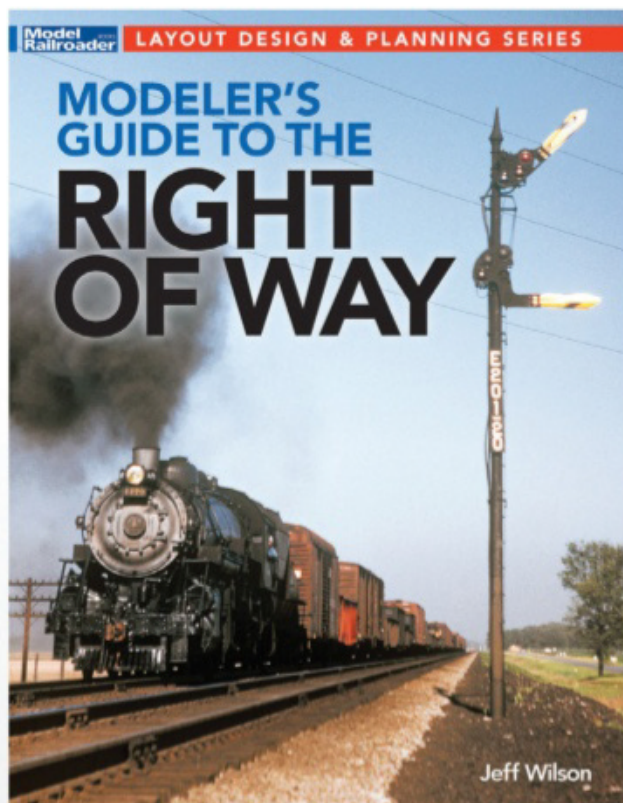


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Railroader

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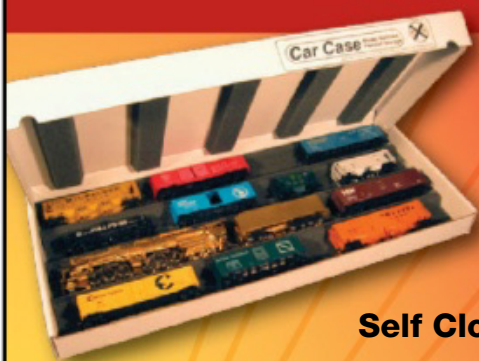
Bringing your layout to life

By Steven Otte

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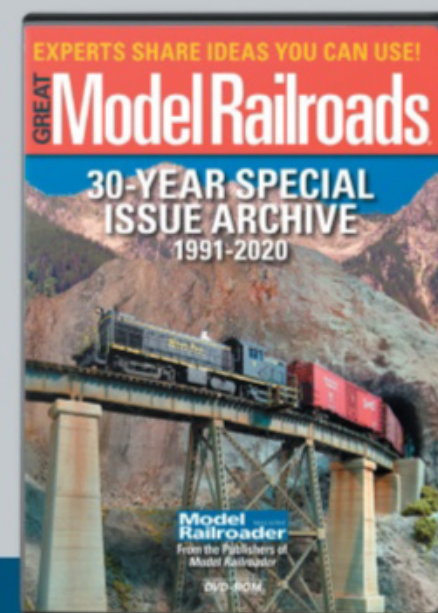
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All scales can lay claim to greatness

THIS ISSUE OF GREAT MODEL RAILROADS proves that no one modeling scale holds a monopoly on greatness.

HO scale, at a proportion of 1:87.1 to the prototype, is the most popular modeling scale, making up a little more than half the layouts out there. So it's appropriate that articles about HO scale layouts make up a little more than half of the features in this issue – five out of nine.

What makes HO so popular? No doubt a lot of it is marketing. More commercial products are available in HO scale than any of the others. But others choose it because it's not too big, not too small. It's easier to model realistic details than in smaller scales, and it's easier to fit the track and structures you want into your space than in larger scales.

But all the scales have reasons to claim that they're the ideal scale, and the layouts in this issue illustrate those arguments nicely.

Take a look at Brooks Stover's S scale Buffalo Creek & Gauley on page 28 for an example. I've always thought that S deserves to be more popular among modelers than it is. Its cars and locomotives have more heft and realism than HO. Being slightly larger than HO, it shows detail better. Yes, it occupies more space, but not by that much; it's still small enough that important structures can be modeled at scale or with minimal selective compression. And its 1:64 proportion (1 foot = $\frac{3}{16}$ ") makes math easy. I guess it's a catch-22; S would be more popular if more commercial products were

offered in that scale, and manufacturers would make more S scale products if there were more of a market for them. Maybe Brooks's modeling can convince them.

The strength of N scale is how well it does on the "3-foot test." That is, how realistic is the layout if you look at it standing 3 feet away? N scale lets modelers display their trains and structures in settings that more closely resemble the real world. N scalers don't have to squish their industries together like sardines in a tin or convince themselves that a 50-scale-foot mound of foam and plaster is a mountain. As the Bay State Model Railroad Museum's layout on page 46 demonstrates, model trains look most realistic when they're dwarfed by surrounding buildings and scenery, like they are on the prototype.

If you're the kind of modeler who thinks realism is in the details, look to the larger scales. Mike Schrier's O scale Mid-western empire, shown on page 56, is packed with realism. His lighted building interiors have enough detail to keep viewers enthralled for hours. Still not big enough for you? Check out Ken Rodig's large scale Gunnison City on page 64. Ken's basement layout demonstrates G scale doesn't just stand for "garden." It can also mean "great."

Steven W. Otte

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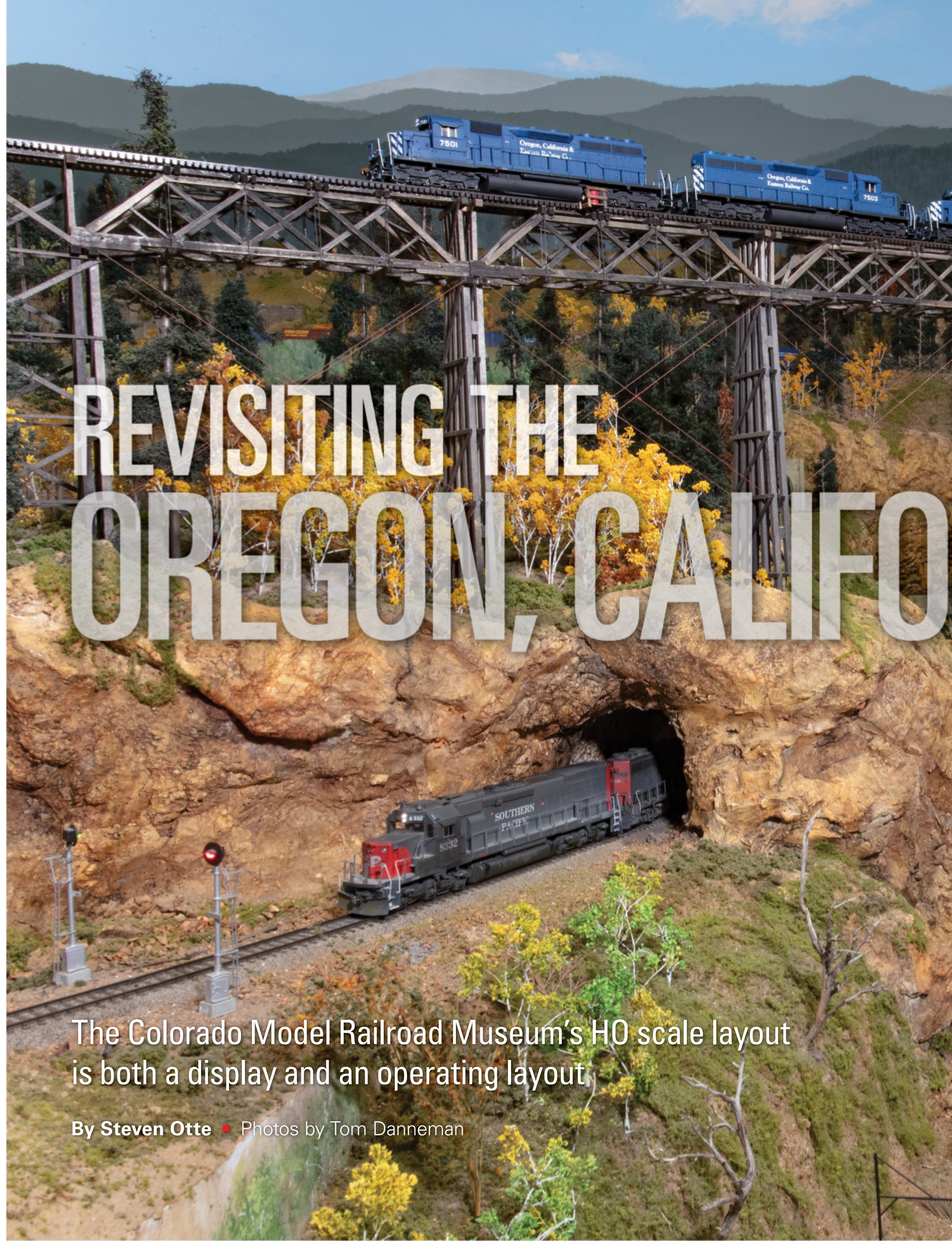
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REVISITING THE OREGON, CALIFORNI

The Colorado Model Railroad Museum's H0 scale layout is both a display and an operating layout.

By **Steven Otte** • Photos by Tom Danneman



ORNI & EASTERN

1 Westbound Oregon, California & Eastern manifest freight No. 231, the *Californian*, crosses the high bridge at Dairy on the Colorado Model Railroad Museum's HO scale layout. The 60 x 90-foot freelanced model railroad represents the Pacific Northwest in 1975.

2

Oregon, California & Eastern RR

HO scale (1:87.1)

Room size: 60 x 96 feet

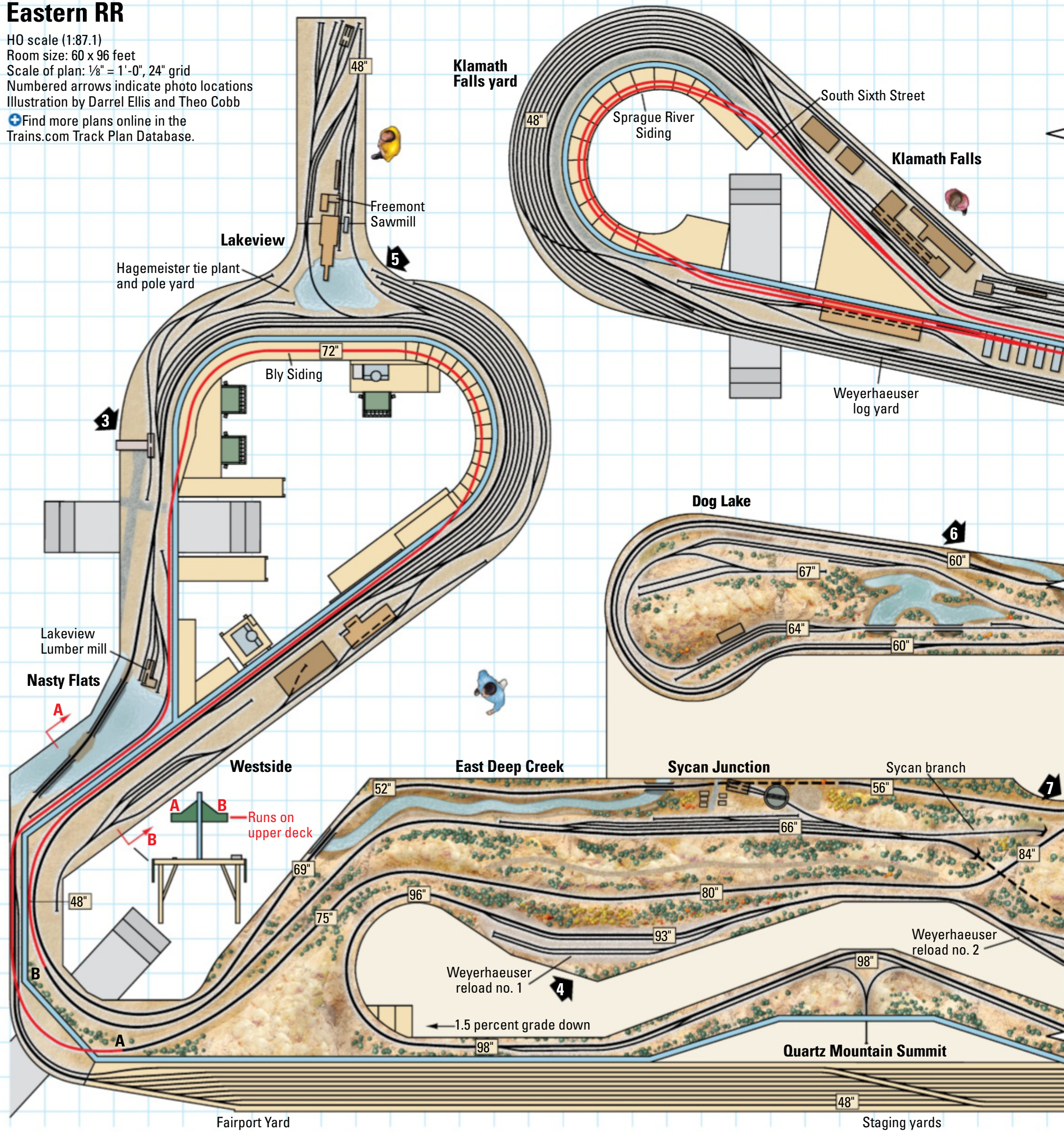
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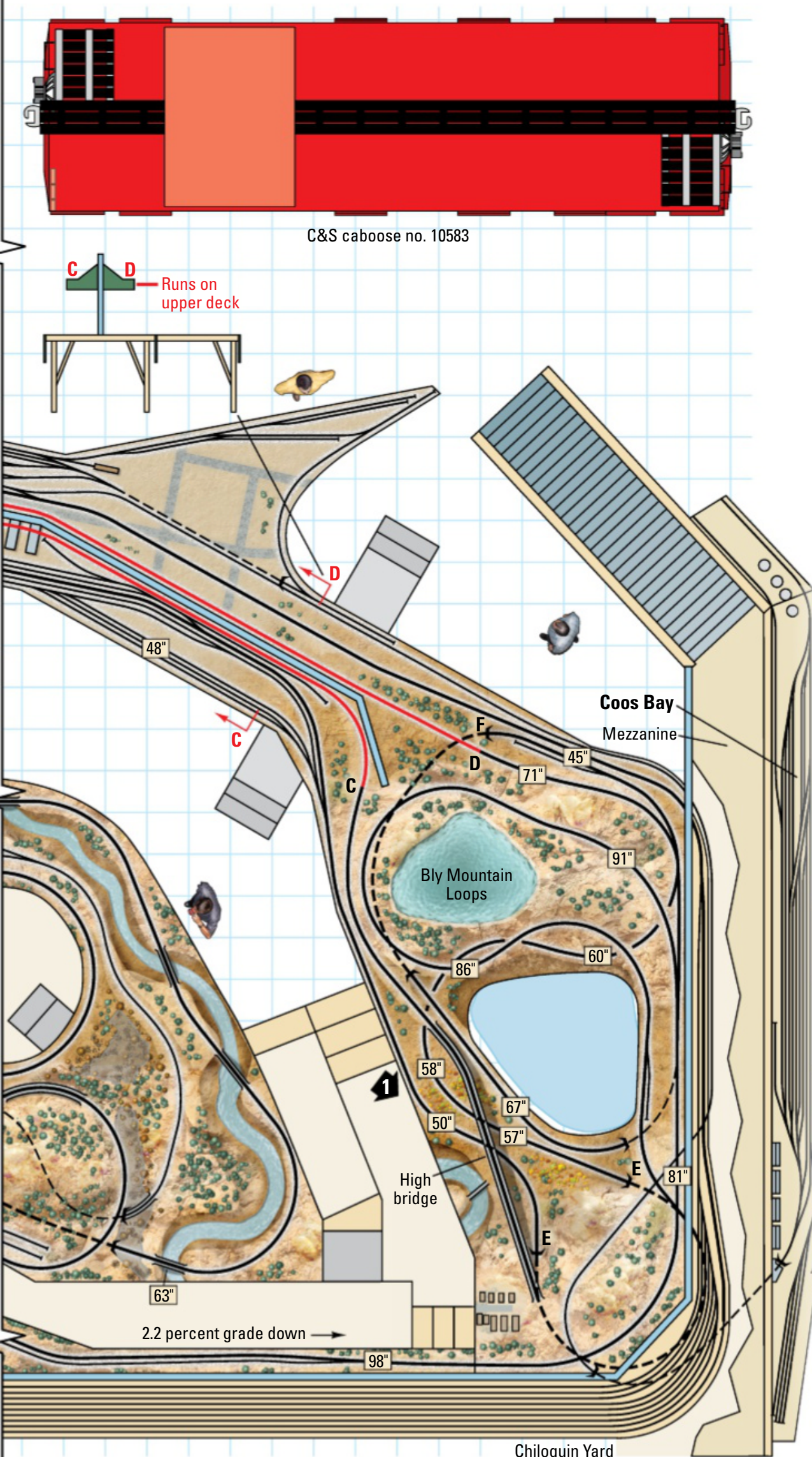
Numbered arrows indicate photo locations

Illustration by Darrel Ellis and Theo Cobb

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To dispatcher's office





THE LAYOUT AT A GLANCE

NAME: Oregon, California & Eastern Ry.

SCALE: HO scale (1:87.1)

SIZE: 60 x 96 feet

THEME: freelanced, bridge line based on the OC&E

LOCALE: Oregon

ERA: fall 1975

STYLE: double deck, point-to-point with connecting staging yards

MAINLINE RUN: 1,353 feet (main), 118 feet (Sycan Branch), 72 feet (Coos Bay branch)

MINIMUM RADIUS: 48" (main), 36" (branches)

MINIMUM TURNOUTS: no. 12 (main line passing tracks), no. 8 (mainline spurs), no. 6 (yards and industrial areas)

MAXIMUM GRADE: 2.2 percent

BENCHWORK: L-girder and open-grid

HEIGHT: 40" to 98"

ROADBED: HO scale cork on mainlines, N scale cork on secondary tracks

TRACK: code 83 flextrack (main), code 70 (secondary tracks), code 100 (staging)

SCENERY: plaster over extruded-foam insulation board

BACKDROP: photo collage and hand-painted

CONTROL: computer system for public display; NCE DCC for operation

THERE'S A REASON MODELERS use the term "museum quality" to describe the pinnacle of modeling fidelity. For a first-hand example, take a look at the HO scale layout at the Colorado Model Railroad Museum in Greeley, Colo.

Regular readers of *Model Railroader* will recognize this layout from our December 2008 issue, as well as a number of appearances in Trackside Photos. But since the museum and the layout were new when that article was written, we figured it was about time for a return visit. We weren't disappointed.

Ground was broken in 2002 for what was at the time known as the Greeley Freight Station Museum, and the 10,000-square-foot building was dedicated in February 2004. At the time, the only exhibit was full-size Colorado & Southern caboose No. 10583. While the museum's model railroad was being constructed, the fully restored caboose would sometimes serve as overnight



sleeping quarters for volunteers who had driven a long distance to work on the model railroad.

The museum opened to the public on Memorial Day weekend in 2009. Today, in addition to the 1919-vintage C&S caboose and the 5,500-square-foot HO scale display, the Colorado Model Railroad Museum also features a small N scale model railroad, a Thomas the Tank Engine display, and a Lego train layout that's maintained by a local Lego interest group. It also has a crew lounge, a gift shop, a library, workspaces, and exhibits of railroadiana. A small paid staff and an army of almost 100 volunteers keep the place humming along.

The museum is located alongside the active Union Pacific line between Denver, Colo., and Cheyenne, Wyo. The crew lounge, situated on the second floor above the work room, has windows that provide a good view of the nearby UP tracks as well as an aerial vantage point of the museum's layouts. The museum will often hold special events in conjunction with the prototype railroad. For example, during Union Pacific Heritage

Days, the crews will run exclusively locomotives from lines in the Union Pacific family. Similar events are held for BNSF Days and Rio Grande Days, a particular local favorite.

AN OBSCURE PROTOTYPE

According to museum volunteer Bob Pilk, the layout is based on the Oregon, California & Eastern RR, in 1975. The prototype dates back to the early 20th century, when Southern Pacific rails reached Klamath Falls, Ore., drawing the attention of a railroad builder named Robert E. Strahorn. Strahorn drew up a plan to link several Oregon short lines into a 400-mile system across southern Oregon but found it difficult to secure financing for the project.

The Klamath Falls Municipal Ry. contracted Strahorn to build a 20-mile stretch of track from Klamath Falls to Dairy, Ore., a job that was completed in 1917. Strahorn acquired the railroad in 1919, changing its name to the Oregon, California & Eastern to reflect his ambitions for the line. He hoped to connect it to the SP at Klamath Falls, the UP at

2 The museum's wide-open floor plan allows visitors to follow trains around the 5,500-square-foot HO scale layout on the main level as well as gain an unobstructed view from a mezzanine. Exhibits, including model and prototype artifacts from the collection of founder David Trussell, adorn both levels.

Crane, Ore., and several smaller logging and regional railroads, then sell the bridge line to one of the major railroads. The railroad reached Sprague River, Ore., a few years later, after which Strahorn sold it to the Southern Pacific in 1925. Southern Pacific sold a half-interest in the railroad to the Great Northern Ry. in 1928, after which the two railroads alternated operating the OC&E for five-year periods.

Lumbering operations in the forests of the Pacific Northwest were an important source of revenues for railroads like the OC&E. One of the largest such railroads that connected to the OC&E was the Weyerhaeuser Woods Line, which extended some 45 miles north from its



3 Westbound regional train No. 271, led by a Burlington Northern F45, eases into the town of Lakeview as it passes a static display of a preserved Union Pacific Big Boy. Some areas of the layout include log trucks and other road vehicles that drive themselves around city streets using the Faller Car System.

junction at Sycan, Ore. In the early 1970s, timber companies were changing their tactics to clear-cutting, greatly increasing the traffic on the OC&E. Uncertain of the railroad's ability to keep up with the demand, Weyerhaeuser purchased the railroad in 1975. It made huge investments in both right-of-way and rolling stock.

But by the end of the decade, traffic dropped again as the forests in the area started getting logged out. When all the local forests had been harvested, Weyerhaeuser ended rail operations entirely in 1990. The railroad's right-of-way was deeded to the state of Oregon in 1992 and later converted to the OC&E Woods Line State Trail.



OPERATING ON THE OC&E

The layout is wired to be switched between three control schemes. In "docent mode," the HO scale layout runs itself under computer control. Trains run in both directions, make station stops,

4 Working hard, pulling upgrade past the siding at Weyerhaeuser Loadout 1, four OC&E SD40s lead a westbound manifest toward Quartz Summit. Meanwhile, the loadout tracks appear to be full with log racks destined for the mill at Klamath Falls.



5 Westbound manifest freight No. 271 won't be stopping in Lakeview, as it has no work to do in town today. The same can't be said for the "pond monkeys" working the mill pond, as a train has just dropped off a new load of logs that need to be guided up the chute into the sawmill.

Dispatcher Bob Pilk has just arranged a three-way meet at Dog Lake to keep trains moving efficiently across 21 scale miles of OC&E main line. The CTC machine controls more than 120 signals and 40 dispatcher-controlled turnouts.





and stop to let other trains pass while the computer handles lining turnouts and operating more than 150 trackside signals. This frees museum staff to guide visitors and answer their questions.

But when there are enough operators on hand, the layout can be switched over to dispatcher mode. Operators wield 17 wireless NCE Digital Command Control (DCC) throttles, and a dispatcher sets turnouts and signals using a working Centralized Traffic Control (CTC) machine. Operators stay in touch with the dispatcher through a radio system.

There is also a free-play mode, in which operators can line turnouts them-



selves from trackside using switches on the fascia.

The museum's layout models the OC&E at the peak of the railroad's prosperity, in the mid-1970s. The main line has more than 20 scale miles of track, and the two branch lines add another 3 scale miles. The Weyerhaeuser Woods Line is represented on the layout as the Sycan Branch, connecting to the main at Sycan Junction. Another branch, the Coos Bay Branch, runs from Klamath Falls to its namesake port city. The visible part of the layout appears to be point-to-point, but both ends of the layout connect behind the scenes in a pair of hidden seven-track staging yards. There are also two visible yards, in Lakeview and Klamath Falls.

During typical operating sessions, seven freight trains of up to 80 cars each set out in both directions from the two staging yards. In addition, up to a dozen locals set out from Klamath Falls, Coos Bay, Lakeview, or Sycan Junction.

Some of the main line runs on narrow shelves above the main layout. Four duckunders – actually depressed walkways passing under the benchwork – let operators follow their trains where they pass through the backdrop to enter and exit these shelves. One of the duckunders

6 Weyerhaeuser Timber Co. No. 4, a venerable 2-6-6-2 articulated, is still earning its keep as it brings another load of timber down the Sycan branch to Sycan, where the OC&E will forward it to the sawmill at Lakeview. The locomotive model is a brass import. The wood trestle bridge was scratchbuilt.

gives access to an operating pit in the center of the Lakeview lobe.

SPECIAL EFFECTS

The layout has several areas that include animation, mirrors, and other visual trickery to elevate the scenery a bit above the usual. One is a forest fire scene, featuring blackened terrain and bare trees surrounded by firefighters. Pressing a button on the fascia activates the scene. The sound of crackling flames plays from hidden speakers as firelight flickers in the underbrush and gray smoke billows through the trees. Museum volunteer Darryl Ellis tried several methods to provide the right amount of smoke before hitting on low-flow aquarium air pumps. Ellis says the interactive scene is popular with visitors.

Other animated scenes include a photographer whose camera flash goes

7 The wildfire isn't completely out yet, but hotshot crews have it enough under control that they feel comfortable allowing rail traffic over Rick Inglis Memorial Trestle. Pushbuttons on the fascia let visitors trigger flickering red LEDs and smoke machines mounted under the layout.

off, flickering arc welders in an engine shop, a fireworks factory that catches fire, and chickens that peck at scattered feed at the push of a button. A talking hotbox detector occasionally notifies the dispatcher of defects on a train, adding operating interest.

The layout also includes several Faller Car Systems vehicles that move over the road under their own power. One features log trucks driving around the logging camps, and in another scene, 18-wheelers roll down the highway. In a Klamath Falls city scene, vehicles turn corners and stop at traffic signals.

The layout also makes good use of front-surface mirrors to double up the scenery in several places. In one town, a street runs straight into a mirror, making it look like it continues on into the distance. Two buses placed on the street that leads into the mirror were cut in half and spliced back together so one has two front ends and the other has two back ends. That way, when the buses are reflected in the mirror, both the actual models and their reflections appear to be facing in the right direction.

Another, larger mirror expands a piggyback intermodal yard. Modelers scanned the sides of the trailers, printed them out reversed, and applied the printouts to the sides of the trailers facing the mirror. That way, the lettering on the trailers seen in the mirror would be facing the right way, but different from that on the visible sides.

Coos Bay is home to a large port, where lumber, oil, ore, and grain are transloaded from train to cargo ships. Three of the ships, built by modeler Dick Marshall, are actually radio-control. When they're taken from the layout and put in a lake or pond, they light up, smoke, and can be piloted remotely.

One bit of modeling license is the inclusion of another ship at the port, an HO scale model of the *Edmund*



Fitzgerald. The prototype of this lake ore boat sank in Lake Superior with all hands aboard in 1975. Though the prototype never left the Great Lakes, it looks appropriate being loaded with ore at the railroad's Coos Bay freight pier.

Museum docents tell of a slightly spooky coincidence shared between the model and the doomed ship. The HO scale model was built by Dave Trussell, who mounted it on a wheeled table so he could take it to schools and libraries to



make historical presentations. One of the theories of the ship's sinking is that the hatch on cargo bay 7 gave way during rough seas, letting water in. The last time Trussell moved the model, it cracked – at hatch 7. Since then, Trussell and the

museum crew have decided not to move the ship model again.

VISITING THE MUSEUM

The Colorado Model Railroad Museum is open five days a week

between Labor Day and Memorial Day and three days a week the rest of the year. There are additional open days around the winter holidays. The museum welcomes prospective members. For more information, go to CMRM.org. **GMR**

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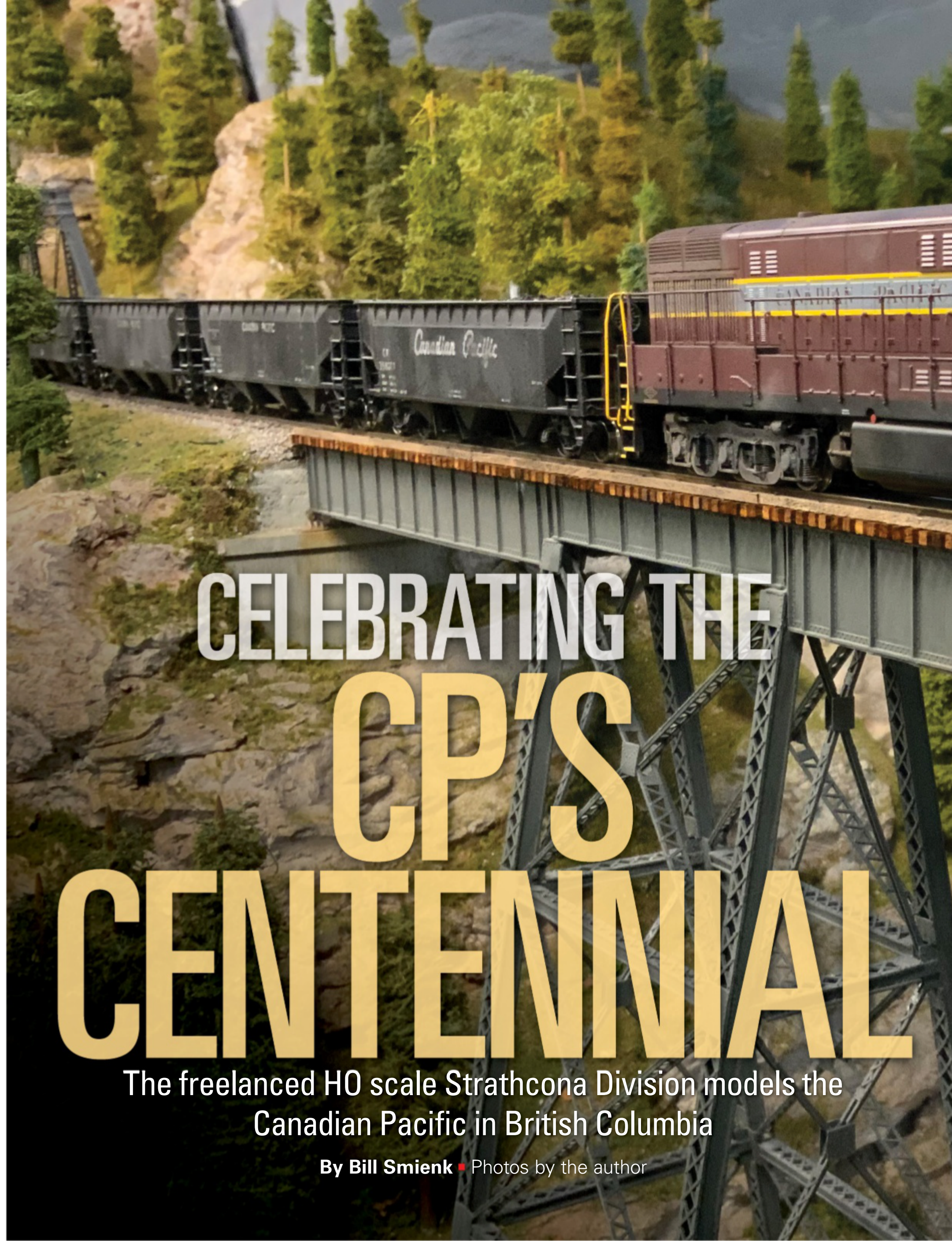
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CELEBRATING THE CP'S CENTENNIAL

The freelanced H0 scale Strathcona Division models the
Canadian Pacific in British Columbia

By **Bill Smienk** ■ Photos by the author



1 Engineer Bruce Sawyer carefully manages the throttle on No. 8920 as it works upgrade with a coal load on the steel trestle above Lee Creek Valley on Bill Smienk's HO scale Canadian National Strathcona Division. The Fairbanks-Morse Train Master locomotive is an Atlas Gold Series model. The bridge was built from Micro Engineering parts.



THE CANADIAN PACIFIC RY. STRATHCONA DIVISION is an HO scale model railroad set in a fictional location. But the locomotives, rolling stock, and scenery all resemble those of southeastern British Columbia in 1967, Canada's centennial year.

Work on the model railroad began in the late 1980s and is now virtually complete. It includes a mix of large cities, smaller towns, rural scenes, and rugged mountains. Construction began in the Horseshoe Bay area and then progressed to other sections, but the main line was completed before I moved on to a lot of the scenery.

Scenery was completed in stages and didn't always stay focused in one location. If one part became frustrating or boring, then I would switch to another area to continue progress on the major project. The last unfinished area was completed late in 2020.

My priority for the layout is to represent the real world with as much realistic detail as possible. I've been inspired by the work of a variety of respected modelers, such as John Allen, George Sellios, Chuck Hitchcock, Eric Brooman, and Dave Frary.

LAYOUT DESIGN

The railroad room has a suspended tile ceiling and fluorescent LED lighting. There are also LED track lights to spotlight specific scenes.

The overall track plan is a continuous loop with an option for point-to-loop or point-to-point operation. It's a walk-in style with no duckunders. This provides a comfortable space for four to six operators or two operators and six spectators.

Another priority was to have as much of the main line to be in arm's reach, which for me is about 30". Most of this was accomplished, although there are two small access openings.

The design also includes a staging yard which is accessed via a wye at one end of the plan. This yard is stub-ended and shares space with my small workshop. In retrospect, I should have included a staging yard at the Horseshoe Bay end, as well, but the layout nonetheless works well for operations.

The passing sidings only allow for fairly short train lengths of about fourteen 40-foot cars. The main yard has limited capacity but includes a substantial yard lead, which I see as a must-have for an effective yard.

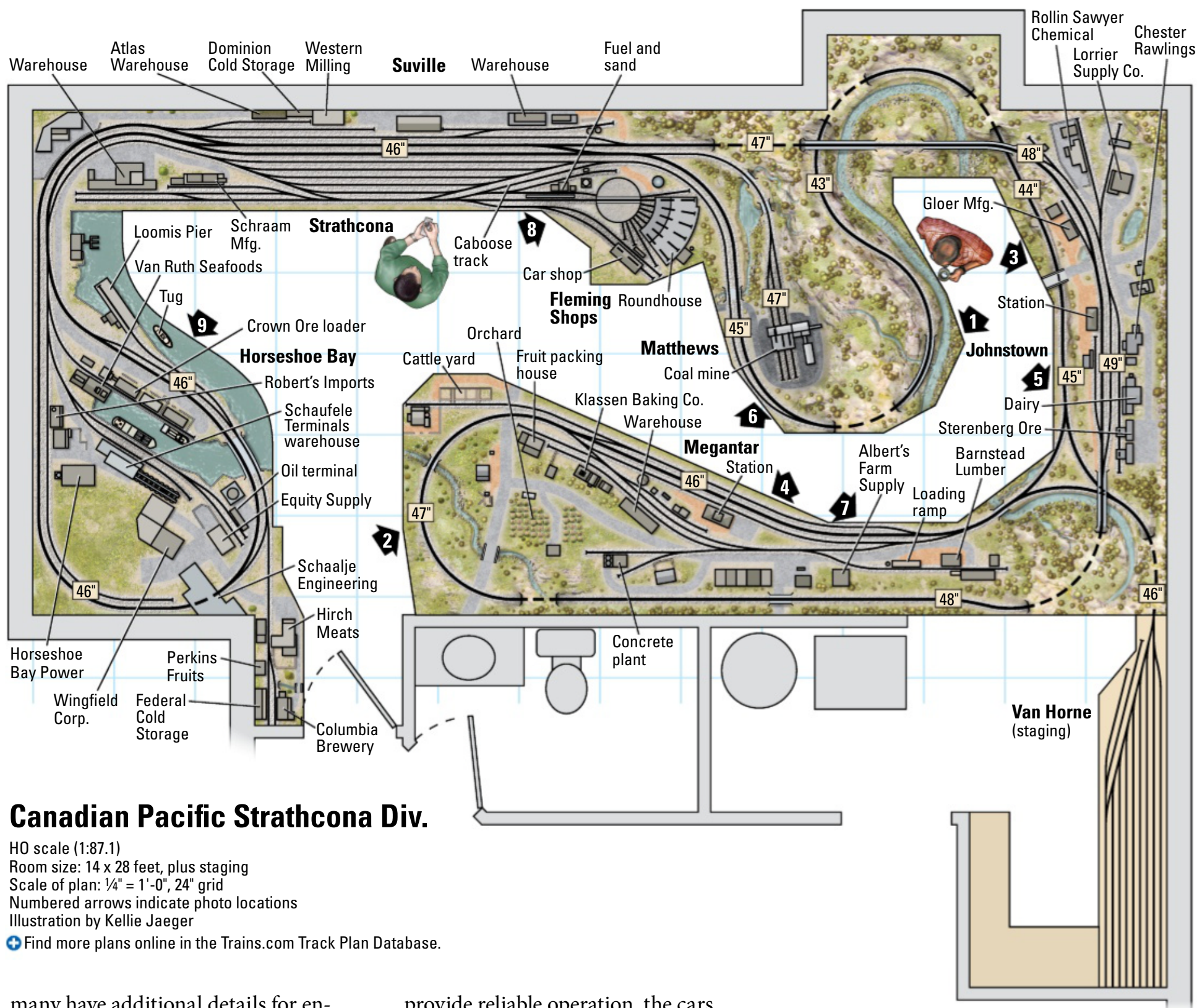
2 This view from near the entrance of the train room shows most of Bill Smienk's HO scale Canadian Pacific Ry., Strathcona Division. The town of Megantar is in the foreground. The coal mine at Matthews is in the top center of the photo, and Johnstown is in the distance. The roundhouse at Strathcona is at left.

Strathcona and Suville visually appear to be one single location, but are two separate destinations for trains in operating sessions.

The benchwork consists of an open grid of 1 x 4 lumber with 1 x 4 risers for the roadbed. The roadbed is 1/2" plywood, and cork or poster board is installed on top before the track is installed. The elevation changes are minor, with a maximum grade of 2.5 percent.

LOCOMOTIVES AND CARS

The locomotives include manufacturers such as Kato, Atlas, Rapido, Bowser, Proto by Life-Like, and a few brass models. All are equipped with Digital Command Control decoders and almost all of them include sound. They all have Kadee-compatible knuckle couplers and



Canadian Pacific Strathcona Div.

HO scale (1:87.1)

Room size: 14 x 28 feet, plus staging

Scale of plan: 1/4" = 1'-0", 24" grid

Numbered arrows indicate photo locations

Illustration by Kellie Jaeger

➔ Find more plans online in the Trains.com Track Plan Database.

many have additional details for enhanced realism to match the prototype.

Since I consider this to be an operating layout, I have little tolerance for poor running equipment. Locomotives that have running issues are removed until they can be fixed.

The rolling stock is a mix from manufacturers including InterMountain Railway Co., Kadee, ExactRail, Rapido, Atlas, Accurail, Athearn, Tichy Train Group, Proto by Life-Like, and Walthers, plus a few brass models for unique cars. Only a few of my original Athearn cars remain, as most have been replaced with more detailed models.

The roster has cars with a high level of detail, such as see-through running boards and individually applied grab irons. Some have been weathered, but there are a number yet to be done.

All the cars have been fitted with non-magnetic metal wheels. In order to

provide reliable operation, the cars are all weighted correctly and have the couplers adjusted to match the recommended Kadee height specifications.

SCENERY

Many of the scenic elements are highly detailed and were inspired by George Sellios' amazing Franklin & South Manchester model railroad.

The base for the scenery is poultry wire overlaid with paper towels soaked in Hydrocal or plaster cloth. The rocks are a combination of real rock, small stones, and rock molds (commercial and my own).

Much of the scenery material is from Woodland Scenics, such as the ground foam, bushes, and Realistic Water. Other materials are natural, such as real sifted dirt, coal, twigs, and small stones.

Virtually all of the trees have been custom-made, and I've recruited many

THE LAYOUT AT A GLANCE

NAME: Canadian Pacific, Strathcona Div.

SCALE: HO (1:87.1)

SIZE: 14 x 28 feet, plus staging

PROTOTYPE: Canadian Pacific

LOCALE: Southeastern British Columbia

ERA: 1967

MAINLINE RUN: 160 feet

MINIMUM RADIUS: 30"

MINIMUM TURNOUT: no. 4

MAXIMUM GRADE: 2.5 percent

BENCHWORK: open grid

HEIGHT: 46" to 51"

ROADBED: cork on plywood

TRACK: Peco code 100

SCENERY: Hydrocal over wire mesh

BACKDROP: photo prints and painted clouds on tempered hardboard

CONTROL: Digitrax DCC



3 General Motors Diesel Division FP9s No. 1409 and 1408 (both Rapido models) pull away from Johnstown Station and roll across the grade crossing with *The Canadian* in tow. Looks like Jack and Diane just made it across in their convertible before the gates lowered.

friends and family to help in this process. Thanks to everyone for their contributions. The conifers are made from furnace filter materials, while the deciduous trees are made from candytuft, a dried flower material. A similar process is used to make the fruit and aspen trees, which have hand-painted trunks.

Most of the roads are made with spackling compound. I painted them with Polly Scale Reefer Gray as a base, then mixed in other shades of gray while the paint was still wet to blend the colors.

4 Railfans collect their belongings as Royal Hudson 2861, having just filled with water, slowly approaches Megantar Station to pick up passengers for a steam excursion trip. The wedding photographer in front of the church at left is equipped with a nano LED camera flash from Ngineering, activated by a push button on the fascia. The locomotive and coaches are all from Rapido.



[Polly Scale paints have been discontinued by the manufacturer. – Ed.] After the paint is dry, tire marks were added using pastel chalks and then blended. Road markings were also hand-painted.

There are a large number of period-appropriate vehicles on the layout from different manufacturers. The layout also includes hundreds of figures from Preiser, Woodland Scenics, Weston, Noch, and others.

The backdrop is painted blue with hand-painted clouds and commercial photos of mountainscapes.

STRUCTURES

Scenery and structures are my favorite part of the hobby. The bridges on the layout are from a variety of manufacturers including Central Valley, Micro Engineering, and Atlas. Others are kit-bashed or scratchbuilt.



5 Engineer Rogers guides a pair of Electro-Motive Division GP35s as they pull a mixed freight into Johnstown. Sterenberg Ore Products is served by rail on one side and trucks on the other side. The wye tracks below and the tunnel entrance lead to the Van Horne staging yard. The locomotives are Kato with added details, and the building is a Fine Scale Miniatures kit.



6 Electro-Motive Division GP7 No. 8424 and Fairbanks-Morse C Liner No. 4065 coast downgrade past Matthews Mining Corp. The workers are wondering when the railway will send a locomotive to pick up the loaded hopper cars waiting at the mine.

The buildings are also from a wide range of manufacturers that include Fine Scale Miniatures, South River Model Works, Campbell, Sierra West, Monashree Laser Engineering, Walthers, Kibri, Design Preservation Models, Sequoia Scale Models, and Walthers. A number

of them have been kitbashed and some were built from scratch. The buildings are made from wood, plastic, styrene, and Hydrocal, although wood is my preferred building material.

Many of the buildings feature complete or partial interiors with lighting.



7 The Megantar switcher slowly backs empty Great Northern boxcar No. 10452 out of Barnstead Lumber Co. in Megantar. Alco S2 No. 7061 is an Atlas model. Barnstead Lumber Co. is a Fine Scale Miniatures kit with added interior detailing. Switching the industry is part of the Megantar operator's job.



trolled by push buttons on the control panels. Turnout direction is indicated by light-emitting diodes (LEDs) on the control panels. I have added numerous illuminated details featuring electronics from Ngineering, including welders, campfires, billboards, photographers, flashing beacons, Walthers operating traffic lights, and many building lights. Most of the more recent structures include LED lighting to showcase the detailed interiors.

The railroad also has sound effects in a variety of scenes, such as the rural area, the waterfront, the church, and urban areas. Most grade crossings also have working crossing lights with sound. The sound is from a Pricom Dream Player (<https://pricom.com/audio/players.shtml>) and Ngineering circuits.

OPERATIONS

We try to operate the layout at least once a month. A typical operating session takes about three to four hours, during which we run 10-12 trains.

8 Turntable operator Paul Smith turns EMD GP7 No. 8421, which has just been released by the roundhouse crew after some light repairs. In the foreground, Fairbanks-Morse C-Liner no. 4053 has just been refueled and is being sanded after a long run from Van Horne. The uniquely Canadian 10-hatch, slab-sided covered hopper to the left is delivering bulk sand to the sand house.

Most have been accentuated with additional details, figures, and vehicles. I made signs on the computer for custom industry names, often to honor someone who has contributed to the project.

ELECTRICAL

The layout was originally designed for direct-current block control. I had

experimented with PSI Dynatrol but returned to DC control until Digital Command Control technology improved and changed the hobby. Wiring isn't my favorite part of the hobby, but I wired the entire layout (learning a lot from friends in the process), and all of it still works.

My turnouts are powered by twin-coil or Peco switch machines that are con-

I make up a train list for each session in advance. Each car has its own four-cycle car card with waybill. Trains originate from either main yard, Strathcona or Van Horne (hidden staging).

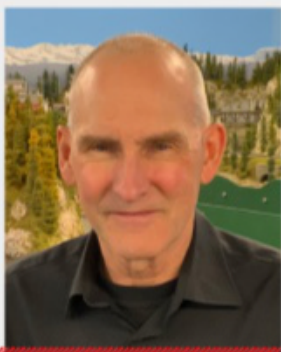
In a typical operating session, there will be an operator stationed at one or both of the yards, plus one person at Megantar and another at Horseshoe Bay. One or two engineers will run mainline trains from a yard to one of the on-line locations like Megantar, Horseshoe Bay, Suville, Johnstown, or Matthews. The distance between towns is relatively short, so most of the mainline trains are required to travel around the entire layout once before stopping at their required destination. This adds interest and gives the operators at the local destinations more time to assemble their cars for pickup.

Most trains are run by one person who acts as both engineer and brakeman, but we find it useful to pair people together on difficult jobs or when someone new is introduced. Mainline operators who take cars to Matthews, Johnstown, or Suville pick up and set off cars as a part of their assignment. Trains destined for Megantar or Horseshoe Bay simply terminate there, and a new set of cars is picked up.

To help the yard operator simplify the sorting process, all cars must be blocked for their final destinations. Cars sorted

MEET BILL SMIENK

BILL'S CAREER AS owner of a residential design business and a college instructor of architecture and CADD (Computer-Assisted Design and Drafting) gave him skills that proved useful in designing and building his model railroad. Bill is a member of the National Model Railroad Association, the Southern Alberta Model Railway Club, and the Gideons. In addition to model railroading, he enjoys tennis, fishing, hunting, jazz music, and intercultural ministries.



9 C-Liner No. 4052 and GP7 No. 8424 slowly make their way through the Horseshoe Bay industrial area. The crane at Crown Ore is a European model. The Schaufele Terminals grain elevator is a scratchbuilt structure based on a *Model Railroader* article.

at Strathcona Yard are separated into blocks destined for Canadian or U.S. destinations. Trains arriving at Van Horne (staging yard) use the wye to back into the classification tracks, as there's no way to turn the locomotives in the stub-ended yard.

Operations include an interchange with Great Northern. A GN train will originate in the staging yard and terminate at Strathcona, where cars will be routed to local on-line destinations.

Mainline clearance is controlled by word of mouth, and each local area operator has priority over their jurisdiction. Mainline engineers must receive clearance before entering a specific area.

Passenger trains are also operated by mainline engineers under the same conditions. Passenger trains include revenue service by Budd Rail Diesel Cars (RDCs) and an occasional steam excursion train.

All setout locations and yard tracks have uncoupling magnets under the tracks, so in theory, operators shouldn't have to touch the cars or locomotives. Mainline tracks don't have magnets to avoid unwanted uncoupling.

All tracks and locomotive wheels are cleaned before operating sessions to ensure reliable electrical performance.

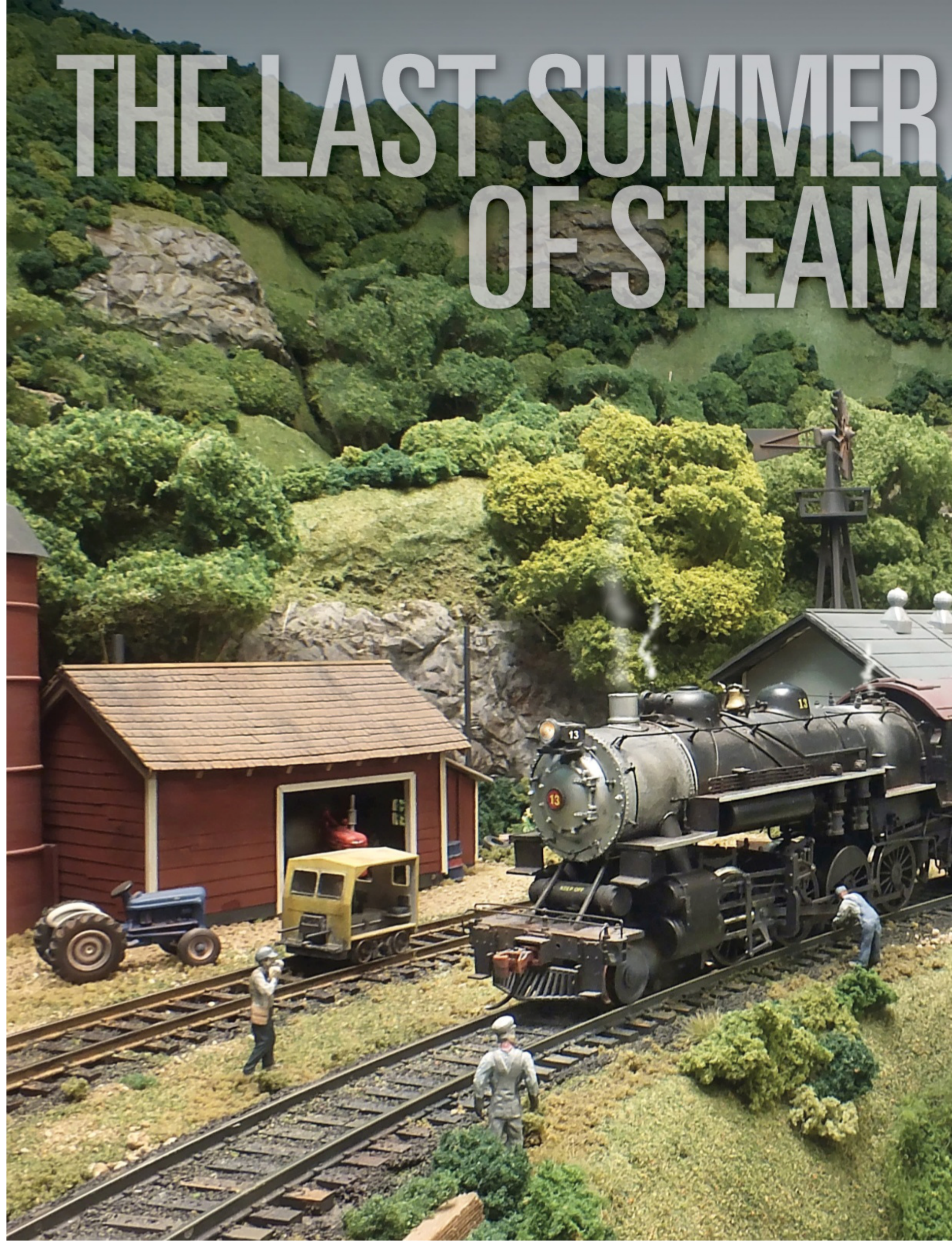
Notes of items to be addressed are taken by the participants during the operation and discussed when the session ends. A list of improvements is created and then enacted before the next session.

THANK YOU

Even though this has been a major effort spanning several decades, I'd encourage others thinking about the hobby to jump in and get started, as it will provide you with many years of rewarding experiences. There are many aspects of the hobby, and even if you may not be good at all of them, others are available to help you. This hobby has so much to teach us about nature, engineering, science, and art.

First, I'd like to thank God for providing me with the ability and health to complete this project and my wife and three children for their support. I also want to acknowledge the efforts of the local modelers who have made significant contributions to the layout, including Dale Gloer, Doug Wingfield, Tom Sterenberg, and Tony Lee. The invaluable interaction with other model railroaders and the friendships I've gained over the years have been another rewarding part of this journey. **GMR**

THE LAST SUMMER OF STEAM



ON THE BC&G

Modeling a 1964 short line in S scale

By Brooks Stover

Photos by the author unless noted



1 It's the summer of 1964, and Buffalo Creek & Gauley 2-8-0 Consolidation No. 13 has paused at Cressmont and is getting some attention from the crew on Brooks Stover's S scale layout. By this time, the last summer of steam operations on the BC&G, consists were short, usually six cars or fewer. Ex-B&O caboose C-1 brings up the rear.



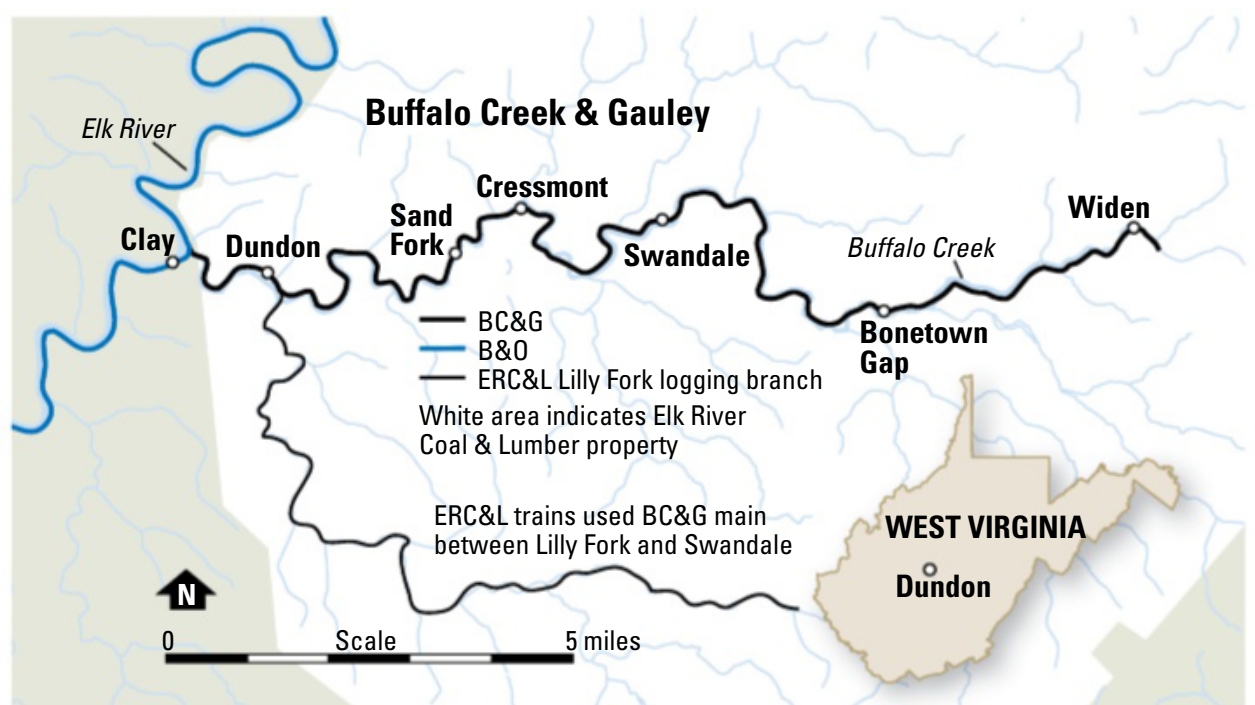
FOR MORE THAN FOUR DECADES I've been modeling the Buffalo Creek & Gauley RR (BC&G), a standard gauge West Virginia short line, in S scale. I started my first rather primitive representation of the railroad in 1978. An improved version was started in 1986. Work commenced on my third and largest BC&G layout in 1997 and was basically complete when it was dismantled for a move in 2016 (see *Great Model Railroads* 2011).

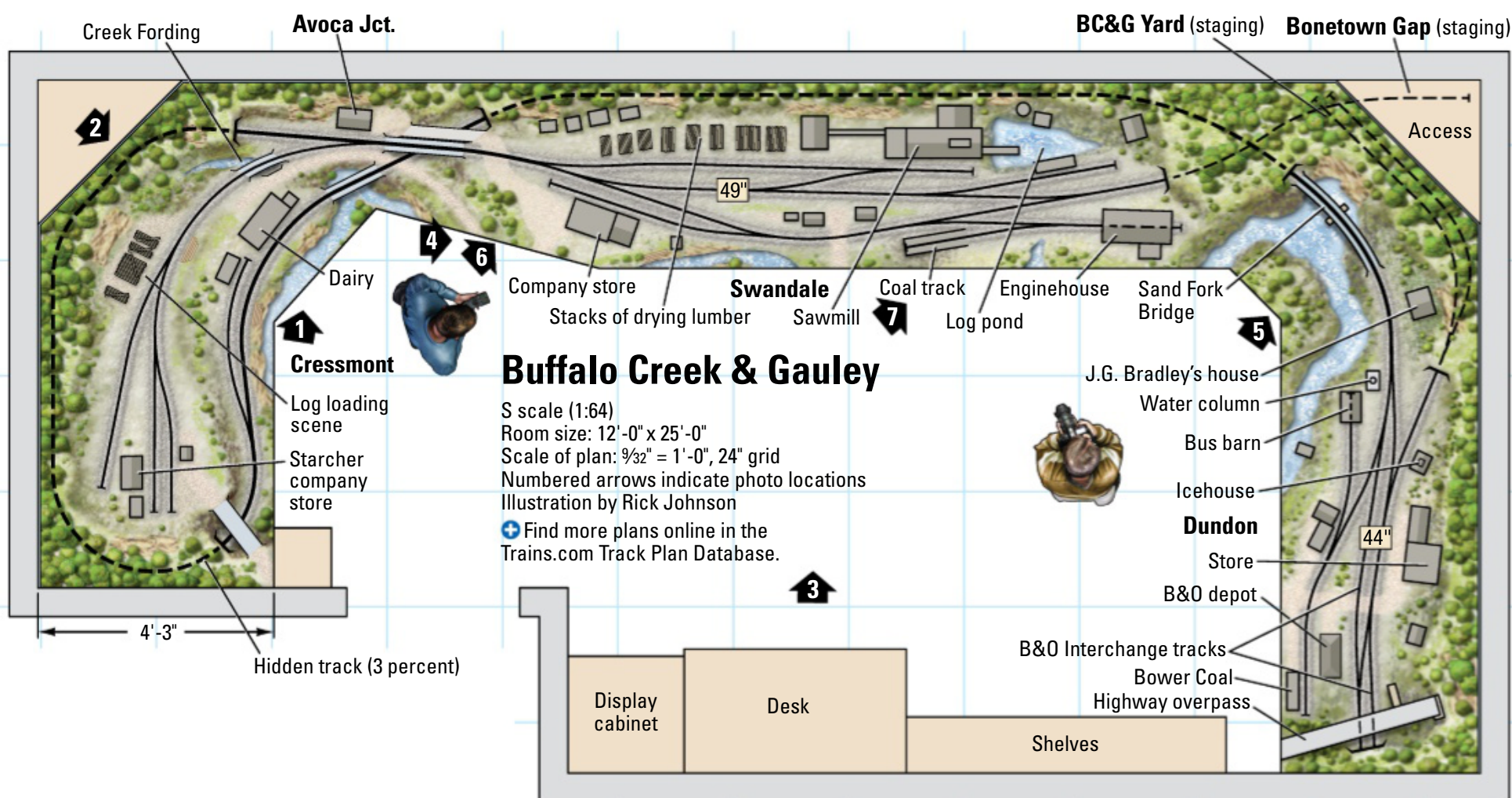
What you see on these pages is the fourth version of the BC&G, now five years in the making (see *Model Railroad Planning* 2019).

Anyone who has gone through the process of dismantling a large layout in preparation for a move to a smaller residence knows it can be traumatic. We modelers put countless hours into our layouts, and undoing all that work can be distressing. Tearing down my 25 x 44-foot layout was certainly not something I looked forward to, but I'm pleased to

report I'm thoroughly enjoying my new, smaller model railroad. In some ways, it's more satisfying than the larger one. The bottom line is that if you are facing downsizing, you can still enjoy our hobby in a smaller setting if you plan carefully and set reasonable expectations.

2 Brooks located his layout in a fully finished room to provide a pleasant space for visitors and operators. The layout runs along three walls. Along the fourth is a desk and display cabinets. Five 4-tube ceiling-mounted fluorescent light fixtures brightly light the carpeted room.





The prototype BC&G went through a downsizing of its own in 1963. Just after Christmas that year, the large coal mine at the end of the 18-mile railroad closed. For the final 14 months it operated, the BC&G ran just 9 miles to Swandale, a decent-sized community situated exactly at the midpoint of the line, where there was a large sawmill. This shortened railroad is the subject of my new layout, a perfect prototype for an S scale layout in a smaller room. The time frame is the summer of 1964, the last summer of steam on the BC&G.

LAYOUT DESIGN

When contemplating building a smaller layout, my first consideration was what scale to model in. I have modeled exclusively in S scale (1:64, or $\frac{3}{16}$ " to the foot) since childhood. While there's a somewhat more limited selection of ready-to-run equipment in S scale than in either HO or N scale, the larger S scale offers several important advantages. These include greatly improved electrical reliability and the potential for exceptional levels of detail. Improved performance from larger motors and speakers, better traction, and less susceptibility to dirty track all make S scale perfect for smaller layouts where slow speed performance is critical.

But for me the most important attribute is the physical presence the larger models have, both when viewed from up close and from a distance. The models just command your attention. For these reasons (and the fact that I had a lifetime of modeling invested in the models I built for the prior layout), I decided to stay with S scale for the new layout.

The layout occupies three sides of a 12 x 25-foot purpose-built train room. The room is accessed through a glass-paneled door leading from the family room/crew lounge. Flanking the door are display cabinets, file drawers, and a desk. The room is fully carpeted and brightly lit with five four-tube fluorescent light fixtures.

Benchwork is conventional open-grid framework supporting 1½" extruded-foam insulation board, which has been covered with Homasote, selected for its sound-deadening properties. Cork roadbed was mounted on top of the Homasote. I selected Fox Valley Models' excellent new code 138 track system and NCE Digital Command Control with wireless radio throttles.

TRAINS, STRUCTURES, SCENERY

Locomotives and rolling stock are a combination of ready-to-run, modified, and scratchbuilt. Many S scale

THE LAYOUT AT A GLANCE

NAME: Buffalo Creek & Gauley

SCALE: S (1:64)

SIZE: 12 x 25 feet

PROTOTYPE: Buffalo Creek & Gauley

LOCALE: West Virginia

ERA: 1964

STYLE: shelf

MAINLINE RUN: 50 feet

MINIMUM RADIUS: 21" (hidden), 36" (visible)

MINIMUM TURNOUT: no. 5

MAXIMUM GRADE: 3 percent

BENCHWORK: Open grid supporting ½" Homasote over 1½" foam subroadbed

HEIGHT: 44" to 49"

ROADBED: cork

TRACK: code 138

SCENERY: paint on screen over foam profiles

BACKDROP: sky painted on walls

CONTROL: NCE Digital Command Control



3 This panoramic photo, taken with a cell phone camera, shows the entire layout. Dundon is on the right, Swandale in the center, and the logging camp on the left. Brooks enclosed the area under the layout with sliding doors made from tempered hardboard and painted to match the fascia, creating a finished appearance for the layout room.

manufacturers are represented, and all the equipment is fitted with Kadee No. 802 couplers. All the locomotives are equipped with SoundTraxx DCC sound decoders.

Structures are scratchbuilt from prototype photos using old-school techniques – mat board, cardstock, and

basswood. Most of the structures were transplanted from the prior layout, but the Swandale scene on this layout is larger than on the prior one. This let me include the planing mill and a more accurate model of the enginehouse that served the logging locomotives. With less layout to build, I've had time to add





interiors and otherwise enhance some of the older structures, as well.

Scenery is hardshell made with plastic screen and texture paint (see the Nov. 2020 *Model Railroader*). Woodland Scenics products are used almost exclusively for trees and ground cover to ensure color harmony. Barren areas are modeled using sifted real dirt with larger clumps used as rocks.

The fascia and sliding doors enclosing the area below the layout are painted dark brown, giving the entire room a finished appearance and creating a pleasant place to enjoy trains and the company of friends, as well as do research and writing. The beverage cooler is just outside the glass door in the family room/crew lounge. It's the ultimate "man cave," as far as I'm concerned!

RUNNING TRAINS

Even though it has a rather simple track plan, the layout is designed to support prototypical operations. Cars come onto the layout via two manually staged

4 The scenic and operational focus of Brooks' layout is Swandale, seen in this view from the roof of the company store. Including the positions on the log pond track, there are 12 locations for spotting cars in town. The buildings along the left are the planing mill, the main sawmill, and in the distance, the boarding house.



5 After steam ended on the BC&G in February 1965, lumber and wood chips were hauled to the interchange behind Plymouth No. 20, shown here crossing Sand Fork Bridge in the summer of 1965. Brooks scratchbuilt the body of the little switcher from styrene and placed it on a General Electric 44-ton switcher chassis. Buffalo Creek was modeled using Enviro-Tex over a painted tempered hardboard creek bed.

B&O interchange tracks at Dundon, W.Va. The Buffalo Creek & Gauley had three Consolidations in 1964, and one of these arrives from the Dundon shop (represented by two hidden staging tracks) with a car or two and caboose C-1. The crew picks up cars from the interchange, switches the station track, then proceeds to Swandale, switching Cressmont en route.

At Swandale, there's a runaround track and three sidings serving the sawmill and the large company store. After setting out empties and picking up loads of finished lumber and wood chips there, the engine returns to Dundon running tender first, just as the prototype did.

The logging operation of the BC&G's parent company, the Elk River Coal & Lumber Co., is also represented. Along



6 On a sunny afternoon, BC&G No. 14 is departing Swandale on its way to Dundon. The company houses provided for the workers at the sawmill lined the hills on either side of the valley. The sawmill complex is visible above the boxcars. The large company store, on the right, provided for all the needs of residents, including food, dry goods, a doctor's office, and, at one time, the post office. Engine No. 14, a Consolidation, started life as an 0-8-0 switcher, hence the two sand domes.

the left wall is Starcher logging camp. Climax locomotives deliver empty log flats from Swandale, swap them for the loaded flats, then bring the loads to the log pond at Swandale.

Car forwarding is accomplished by drawing cards, one for each car, from small boxes located on the fascia at each town. Instructions for where the first, second, third, etc. cars that are drawn are to go is described on printed "Conductor's Orders." A hand-written switch list is prepared based on the cards drawn. The unprototypical cards are then returned to the box and switching is executed the using the prototypical switch list.

This has proven to be a terrific system in that it creates great variety in the moves required. There are 10 different trains that can be run, including the log

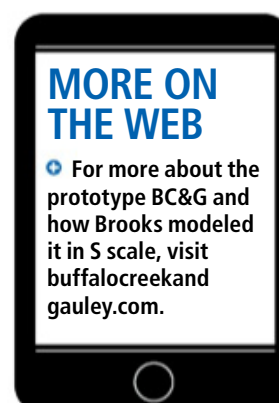
trains, railbus, and fan trips. Even though the layout is small, it has already provided many hours of operating fun.

A FOCUSED TIME PERIOD

A tight focus is always an asset when it comes to modeling. The more specific one can be about the railroad, location, and era one is modeling, the easier and less expensive it is to build a convincing layout. Having established a narrow

summer of 1964 time frame for my model railroad, I aggressively searched for photos from that time for modeling ideas.

Because the railroad was in its final months and





there was very little railfan activity in the summer of 1964, photos are hard to find. I was fortunate when a railfan, Mark Metz, contacted me and shared several images he took that summer. Mark's photos led me to build models of three specific freight cars that appeared in his pictures, two of which I hadn't seen in any other photos.

Chip hoppers were used to haul wood chips from the sawmill to customers after 1958. Prior to then, the chips were simply burned. One of Mark's photos showed a B&O class W-11a chip hopper, which I modeled from an American Flyer body shell. I even matched the car number from the photo. In the same photo was an interesting Union Pacific 50-foot double-door boxcar, the only UP boxcar I've ever seen on the BC&G. I modeled the car from a Pacific Rail Shops kit with a scratchbuilt plug door and custom decals. Finally, a B&O class M-26 40-foot boxcar appeared in another of Mark's photos. I built an accurate model of it from the excellent S Scale America X-29 boxcar kit.

All in all, I've enjoyed researching and building this, my fourth BC&G layout. While compact in size, it's providing hours of operating fun, great photo opportunities, and plenty of challenging modeling projects. And all this from a prototypical railroad that was only 9 miles long! **GMR**

MEET BROOKS STOVER

BROOKS STOVER RETIRED AS

an engineering executive from General Motors. His love of trains started with a childhood American Flyer layout, and he has modeled exclusively in S scale ever since. Brooks earned the NMRA's Master Model Railroad-er certificate, one of the relative few S gaugers to do so, and co-authored *Buffalo Creek & Gauley in Color* (Morning Sun).



7 BC&G No. 13 is pulling Union Pacific boxcar No. 163764 and B&O hopper No. 829117 from the Swandale sawmill. Brooks built the two cars based on prototype photographs taken by Mark Metz in September 1964, showing these two cars at Swandale. Brooks finds duplicating details from photos of the period he models to be a fun part of the hobby.



MODELING C&O'S



KANAWHA SUB

Coal is king on this H0 scale Appalachian layout

By Brian Kelly ■ Photos by Paul Dolkos



1 Extra 8104 East passes LW Cabin and the Pearsall Coal Co. tipple at Leewood, W.Va., on Brian Kelly's H0 scale Chesapeake & Ohio Kanawha Subdivision. Coal is the main source of traffic on the 19 x 26-foot layout. LW Cabin is a B.T.S. structure kit with a State Line Tool & Die outhouse alongside.



WHEN I WAS 9 YEARS OLD, my parents gave my oldest brother a train set for Christmas. I was fascinated, and in an instant began a lifelong love of trains. I begged my father for my own train set, and on my birthday the following year I received one – a Tyco Amtrak passenger train with lighted cars.

I was hooked, and every Christmas and birthday after that, I asked for more trains. I set them up on a 3 x 6-foot table, as this was all the space I could get in a house with five children. I would run the trains around and around this simple oval of track, past many Plasticville buildings, for hours.

In my early teens, I progressed to modeling an industrial area with some buildings and a few snaking spurs on this same 3 x 6 tabletop. That was also when I learned to airbrush and decal locomotives and cars, a skill that would prove valuable many years later. I made frequent visits to the Baltimore & Ohio's Metropolitan Subdivision, which was just a couple of miles from my home. On

one visit, the crew of the B&O local invited me up to view the cab of their EMD GP9 – what a treat! In high school and college, the trains took a back seat to school, work, and girls. They were boxed up and were an afterthought.

It's said that men often begin a large project when their spouse is expecting for the first time. In 1992, after marrying and buying our first house together, my wife, Suzanne, and I were expecting our first child. It was then that I met a neighbor, Don Roberts, who told me about the informal club he belonged to, the Burke Short Line. The members met every month for an informal work session on the rotating host's layout, followed by refreshments and a train video or two.

One evening after dinner, I unpacked some of my trains and showed them to Suzanne. She was surprised, as I had never talked about model trains before, but she encouraged me to pursue my hobby again.

There was a 15 x 18-foot unfinished space in the basement that I could use.

2 A passenger excursion pulled by C&O 1469 rounds the curve past the abandoned coke ovens at Red Warrior, W.Va. Locomotive No. 1469 is a Walthers Electro-Motive Division E8 with a LokSound decoder, painted and decaled in the last economy paint scheme the railroad used for its passenger locomotives.

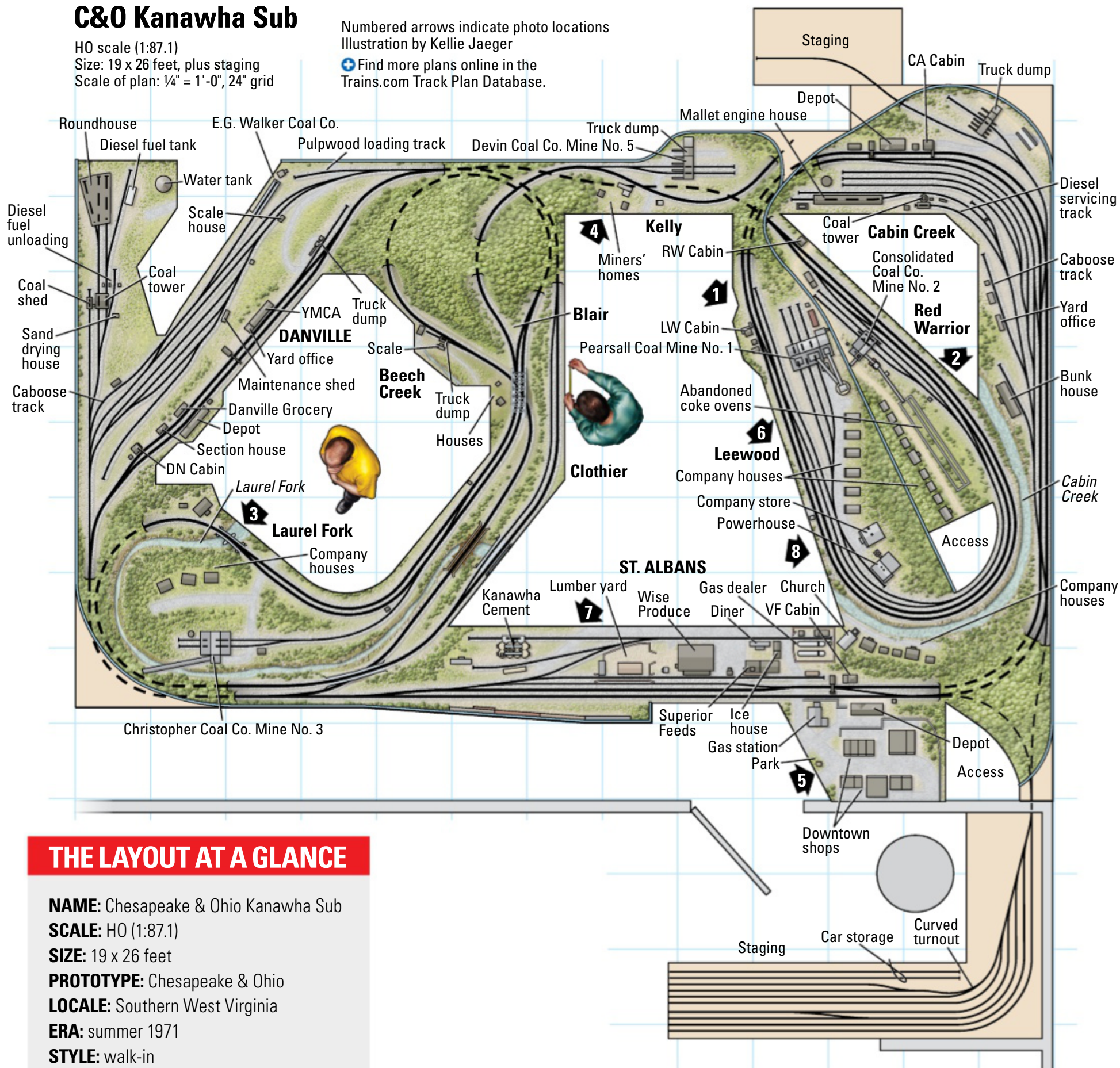
Having never built a real layout, I reviewed plans in track planning books and selected a track plan that interested me – a folded dogbone with a yard. Of course, I would model the B&O, but the concept of modeling prototype locations never entered my mind. I began building the layout and got as far as having the benchwork and some subroadbed completed before the move to our current house halted my construction.

In our new house, I had almost twice the space for a layout, choosing an unfinished 19 x 26-foot space in the basement. At the time, I couldn't afford to finish the room, so I did some

C&O Kanawha Sub

HO scale (1:87.1)
Size: 19 x 26 feet, plus staging
Scale of plan: 1/4" = 1'-0", 24" grid

Numbered arrows indicate photo locations
Illustration by Kellie Jaeger
Find more plans online in the
Trains.com Track Plan Database.



THE LAYOUT AT A GLANCE

NAME: Chesapeake & Ohio Kanawha Sub

SCALE: HO (1:87.1)

SIZE: 19 x 26 feet

PROTOTYPE: Chesapeake & Ohio

LOCALE: Southern West Virginia

ERA: summer 1971

STYLE: walk-in

MAINLINE RUN: 87 feet

MINIMUM RADIUS: 26" (main and branches), 15" (one staging track)

MINIMUM TURNOUT: no. 8 (main), no. 4 (yards and spurs)

MAXIMUM GRADE: 2.75 percent (main), 3.5 percent (branch)

BENCHWORK: open grid and L-girder

HEIGHT: 52 to 59 inches

ROADBED: Homasote and cork

TRACK: Atlas code 100 with Peco turnouts (main), Peco code 75 and 83 (other)

SCENERY: hardshell over cardboard strips

BACKDROP: painted .060" styrene

CONTROL: Digitrax DCC

minimal preparation of the unfinished space by covering the ceiling joists with a sheet of plastic and painting the concrete floor to seal it. I also hung fluorescent shop lights and had an electrician install gang outlets and an outlet switch.

BENCHWORK

I'd never built benchwork before and lacked any real carpentry skills, so I chose to speed up the process by using Sievers benchwork. I designed the benchwork around the track plan using Sievers standard sizes. The Sievers benchwork is open grid and made of nicely dried pine.

I also used Sievers legs. The benchwork is at a height of 47 1/4". I built additional legs using the Sievers legs as a guide.

I used this benchwork for the first half of the layout, which was designed for our previous house. After we moved to the new house, I had almost twice the space. Starting with my original plan, with the help of the late Bob Warren, I designed the second half of the layout.

For the second half of the layout, a friend gave me some L-girder benchwork he was disposing of, which sped up the process. I built the rest of the benchwork on these L-girder sections. Later, I built



3 The Danville Shifter job rolls across the bridge over Laurel Fork. The train is returning from exchanging empties for loads at Clothier, W.Va., with the Eastern Associates Wharton Mines switcher. In the background, the scratchbuilt Christopher Coal Co. tipple at Laurel Fork, W.Va., still keeps the local miners busy after more than 40 years.

the benchwork for the town of St. Albans and the staging yard.

All the benchwork and legs are fastened with lag bolts. The subroadbed is plywood with 1 x 2 risers. St. Albans and the area under Kelly is supported by foam sheets and risers. The Cabin Creek yard and the staging yard are built on sheets of Homasote board. Most of the mainline tracks use Homasote roadbed, but some tracks are laid on cork. Danville Yard is laid on sheet cork.

TRACKWORK

Not having a large budget in the beginning, I chose to use Atlas code 100

track and Peco code 100 turnouts. Later, I used Peco code 75 track and turnouts for the yards, tipple tracks, and the industrial area of St. Albans. I like Peco turnouts because they're spring loaded and hold up well against the pounding of twin-coil switch machines.

I cut off the ears on the Peco turnouts and added headblocks for the switch motors or switch stands to make them look more realistic.

I also used some Atlas code 83 track on the branch line to Kelly. One rookie mistake that I made was not to wire the turnout frogs. Relying on the turnout points to make good electrical contact



requires periodic cleaning of the points, especially if the turnouts haven't been lined in a while.

The track was painted with Floquil Rail Brown and Floquil Railroad Tie Brown. The ties were drybrushed with Floquil Railroad Tie Brown. [Floquil paints have been discontinued by the manufacturer. – *Ed.*] The track was ballasted with a mixture of Highball and Woodland Scenics ballast and cinders.

WIRING

I knew nothing about wiring a model railroad, but I read some books on wiring a layout for DC control and dove in.



Don Roberts volunteered to help and showed me how to wire each block's control along with LEDs for indication. Don also showed me how to build the power for the LEDs and the power for the Circuitron Snapper machine that powers the Peco twin-coil switch machines.

Soon after I completed the wiring, I switched to Digitrax Digital Command Control. This was a very simple conversion as far as the track wiring was concerned. Adding a decoder to every locomotive took more time, but was also completed quickly.

CHOOSING A SETTING

I had always dreamed of modeling the B&O, but the more I read about the Chesapeake & Ohio's control of the B&O (the B&O merged with the C&O in 1963), the more I became interested in modeling the C&O. The C&O was one of the big coal hauling railroads in the eastern half of the U.S., so choosing to model the coal industry in West Virginia was an easy decision.

I joined the C&O Historical Society and studied the locomotives, rolling stock, structures, track, and operations of the C&O. But what era should I model? I grew up in the diesel era, so steam locomotives never appealed to me. Many fans of the Chessie System love the colorful paint scheme that was used on its

4 The laundry is hung out to dry in the small mining community of Kelly, but it won't be clean for long because of the nearby tippie loading empty coal hoppers. The miners' housing is modest, but close to work.

diesels, but I've never been a fan, as I found it a little garish.

Chessie System was formed in 1972, so I choose to model the summer of 1971. The C&O, B&O, and Western Maryland began to share some of their rolling stock prior to 1972, so this gave me the luxury of running some B&O and WM equipment. The C&O sent many of its older locomotives to the cash strapped B&O, so I don't run any B&O locomotives. For the most part, I only run equipment that was on the railroad in 1971, with a couple of exceptions (modeler's license).

Rather than model prototype locations and trackage, I chose to model a freelanced version of the C&O coal branches in southern West Virginia. I selected the names for the different areas from a map of the Kanawha Subdivision coal branches.

SCENERY

The landforms were built using Styrofoam supports and a web of cardboard strips covered by a layer of plaster gauze.



5 In a view from behind Miners Memorial Park, we get a street-level view of the town of St. Albans, W.Va. The local sheriff is directing the United Mine Workers protester to move across the street or risk being arrested. The buildings along Main Street are from Walthers and Design Preservation Models. The Kanawha Market features a detailed interior.

The plaster gauze was covered by a layer of Structo-Lite plaster compound, troweled on and smoothed out. For the first half of the layout, I simply painted the Structo-Lite a dirt color and added puff-ball or lichen trees covered in Woodland Scenics coarse turf.

I also tried my hand at tree making with different floral materials, painted, dipped in diluted white glue, and then covered in coarse turf, but I was never satisfied with the results. Later, I discovered Scenic Express SuperTrees. I sprayed the SuperTrees with gray and brown spray paint, let them dry, then dipped them in diluted white glue followed by a layer of coarse turf. On the second half of the layout, I only used SuperTrees.

For rock work, I used plaster in rubber rock molds. A member of the Burke Short Line group, Frank Pearsall, showed me how to carve fresh plaster to make unique rock faces. I also made

some rock molds by brushing a large chunk of coal with layers of liquid latex rubber. I similarly made rock molds from cast foam rocks.

The plaster rocks were first stained with a wash of India ink, followed by washes of tan, brown, and red-brown water-based craft paint. The rocks were then drybrushed with light gray and white craft paint.

On the second half of the layout, I covered the painted plaster with real dirt from West Virginia. Bernie Kempinski provided me many bags of dirt he gathered on his frequent trips to that state. I either sprinkled the dirt on full strength white glue, or on steeper hillsides, I mixed the dirt with diluted white glue and troweled on the mixture with a painter's knife.

After the dirt dried, I added Woodland Scenics foliage that I pulled apart to allow the dirt to show through. I then sprinkled on coarse turf and finely chopped real dried leaves. Finally I sprayed on isopropyl alcohol, followed by diluted white glue to affix everything.

Small shrubs and brush were made from pieces of SuperTrees made using the method described above. I also used Martin Welberg Scenic Studios shrubs at the base of the hillsides.

Finally, I added hundreds of SuperTrees. For foreground trees, I used floral tape to group several together to form a



trunk. I then used contour putty to shape the trunk, carving in bark lines with a hobby knife. Foliage was added to these armatures using the method I previously described.

Various shades of grass tufts and weeds were used throughout the layout. Static grass was applied in an assortment of shades and lengths in many areas.

STRUCTURES, LOCOMOTIVES, AND ROLLING STOCK

Many of the structures on the layout were built from kits by Walthers, American Model Builders, Blair Line, Better Than Scratch, Gloor Craft Models, Industrial Heritage, Keystone Locomotive Works, Mountaineer Precision Products,



Alkem Scale Models, Tichy, Design Preservation Models, and Rix Products.

I also scratchbuilt some structures, like the enginehouse at Cabin Creek, the Christopher Coal Co. tipple, some of the miner's houses, and the truck dump loaders at Danville and Cabin Creek. Some of the other tipples and truck dump loaders are kitbashed from Walther's kits.

All 40 of my locomotives are detailed to match their C&O or WM prototypes, and 16 of them have sound. After running locomotives with sound for many years now, it's hard to run a locomotive without sound; it's just not the same.

All the locomotives are weathered unless they were brand new in 1971.

Based on photos, the C&O washed their locomotives infrequently, so I tended to weather them heavily.

Since the focus of the layout is coal hauling, I have more than 150 hopper cars, half of them loaded and the other half empty. A third of the hoppers feature separately applied details.

To serve the industries at St. Albans, there are almost 100 general merchandise freight cars, with 95 percent of them featuring separately applied details.

I'm a sucker for cabooses, so I have 18, many of which are brass models that I painted and decaled. All the cars on the layout have painted wheel faces, wheel backs, and axles, and are weathered appropriately for their age in 1971.

6 Extra 8104 East drags a loaded coal train from Danville, W.Va., past a row of company houses at Leewood. Chesapeake & Ohio No. 8104, a General Electric U25B, is a Bowser model with an ESU LokSound DCC sound decoder and added details. The C&O renumbered its U25Bs from the 2500 series to the 8100 series of road numbers in 1970.

OPERATIONS

Operations are focused on serving the coal tipples, moving the loaded hoppers to the coal marshalling yard, and bringing empty hoppers back to be used again. Five to six operators can be kept busy running the Danville Yard,



7 The Charleston Local switches the Kanawha Cement facility along Railroad Street in St. Albans. The crew has left the rest of their train in the siding and will reassemble it for the trip back to Charleston. The power for the local is a pair of Athearn EMD GP9s. The 6258 is custom painted and decaled. Both have sound decoders.

8 Extra 8104 East grinds upgrade past the Pearsall Coal Co.'s company store at Leewood. The Pearsall Coal Co. is named for Brian's friend Frank Pearsall. The power house is a Keystone Locomotive Works kit built by Steven Heath.





Danville Shifter, Cabin Creek Yard, Cabin Creek Shifter, eastbound or westbound loaded coal extras, eastbound or westbound empty hopper extras, St. Albans local, and eastbound or westbound passenger excursion jobs. The shifters switch each tipple, swapping loaded hoppers for empty hoppers before returning to the yard. Once the yard is full of loaded hoppers, a coal extra is assembled.

Given the size restrictions of the yards and yards leads, the extra trains are limited to 20 or 21 cars. Once assembled, the trains run either east or west to staging. Eastbound trains run from Danville and westbound ones from

Cabin Creek to lengthen the run to staging. An empty hopper extra train runs from staging to Cabin Creek or Danville.

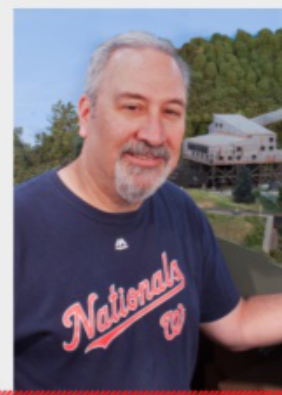
The St. Albans Local runs westbound from staging (Charleston, W.Va.) to St. Albans. I use both car cards and switch lists, which helps the operator organize the switching moves.

LESSONS LEARNED

I've learned so many things about what to do and what not to do when building a layout. If I could have a do-over, I'd install light-emitting-diode lighting with a lighting valance. Second, I'd design a double-deck around-the-walls layout with a helix to connect the

MEET BRIAN KELLY

BRIAN KELLY OF CENTREVILLE, VA., is a Deputy Program Executive with SAIC and has worked in the I.T. industry for more than 36 years. Brian and his wife, Suzanne, have been married for 31 years and have three adult children and a rescue dog. Brian's other interests include spending time with family, Washington Nationals baseball, and cycling with Suzanne.



two levels. I'd install the backdrop prior to building any subroadbed or laying any track. Third, I'd wire all the turnout frogs for better electrical conductivity.

I'd use spline roadbed instead of plywood subroadbed and thicker plywood for flat areas. I'd also use code 83 and code 75 track – no code 100. I'd either use manual turnout controls or Tortoise by Circuitron switch motors. I'd also install the signals once the track is laid.

None of these lessons learned are rocket science and would seem to be common sense or obvious, but having never built a layout before, they were lessons I learned the hard way.

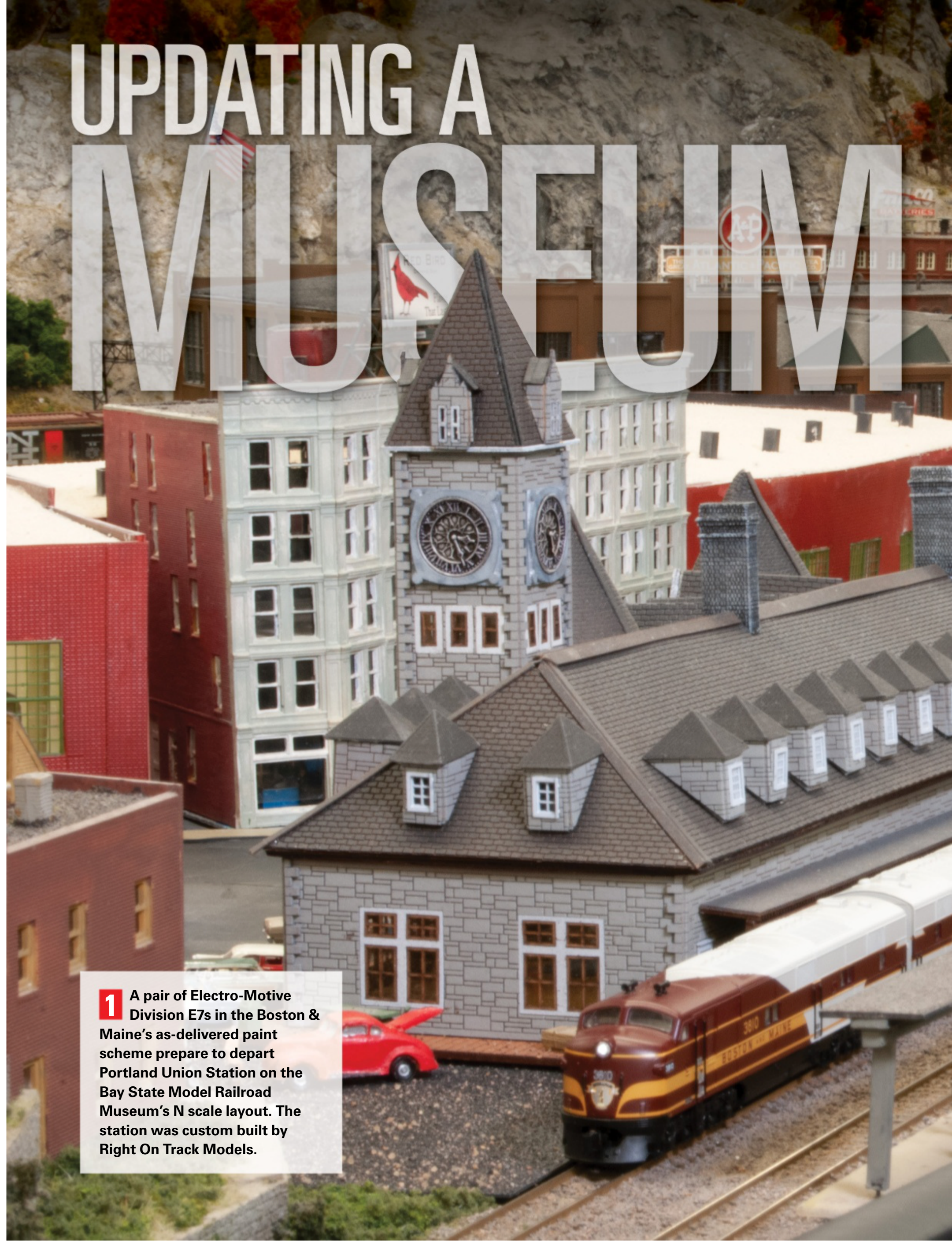
I'd also like to redo some of the original trees in the area of Kelly and use SuperTrees this time around. It's been 28 years since I began building the layout and I've learned so much about how to build a better layout, lessons that I'll use on the next one someday.

The model railroad is basically complete. I still need to add a curtain to the bottom of the benchwork to create a more finished look and to hide the junk and building materials stored under the layout. Some static signals have been installed, but many more signals need to be added. My wife is itching to move to a new house and the layout's completion is standing in the way, so I may never get to the rest of the signals.

In the meantime, I'm enjoying running trains and adding additional details to the finished scenes. **GMR**

UPDATING A MUSEUM

1 A pair of Electro-Motive Division E7s in the Boston & Maine's as-delivered paint scheme prepare to depart Portland Union Station on the Bay State Model Railroad Museum's N scale layout. The station was custom built by Right On Track Models.



The Bay State Model Railroad Museum's N scale railroad
is always advancing

Story by Steve Shaw ■ Photos by Lou Sassi

LAYOUT





THE N SCALE LAYOUT at the Bay State Model Railroad Museum in Roslindale, Mass. (bsmrm.org), was last featured in the pages of *Model Railroader* in June 2009. The members of the club that built the museum's four layouts (in O, HO, HOn3, and N scales) have not been idle in the 13 years since that appearance, making many changes and improvements to the model railroad.

I've been a member of this club for more than 40 years and focused on N scale through all of it. The advances in this hobby over these years, especially in N scale, are truly amazing.

In the previous article we stated that the layout scenery was 95 percent complete. It will likely never be greater than 95 percent, as our layouts are always in a process of continuous improvement, many of which result from new technologies and products that come to market. Other improvements simply come from the creativity of our members and new

2 This overall view shows the N scale layout looking north across Portland, Maine, with the Maine Central's Mountain Subdivision in the background. Most of the buildings are kitbashed, the majority being kits from Design Preservation Models.

ideas from members who have joined us more recently.

THE RAILROAD

The N scale railroad represents railroading in Northern New England, specifically on the Mountain Subdivision of the Maine Central RR and a portion of the Boston & Maine RR. The original concept being the familiar steam to diesel transition era. But more than ever, a variety of freight and passenger trains visiting from other roads and eras can be seen in operation. Therefore, we refer to it as the "New England & Pacific."

THE LAYOUT AT A GLANCE

NAME: New England & Pacific

SCALE: N (1:160)

SIZE: 17 x 26 feet

PROTOTYPE: Maine Central RR Mountain Division

LOCALE: Portland, Maine, to Saint Johnsbury, Vermont

ERA: steam-to-diesel transition to today

MAINLINE RUN: 200 feet

MINIMUM RADIUS: 24"

MINIMUM TURNOUT: no. 8

MAXIMUM GRADE: 3 percent

BENCHWORK: L-girder on vertical door panels

HEIGHT: 48" to 66"

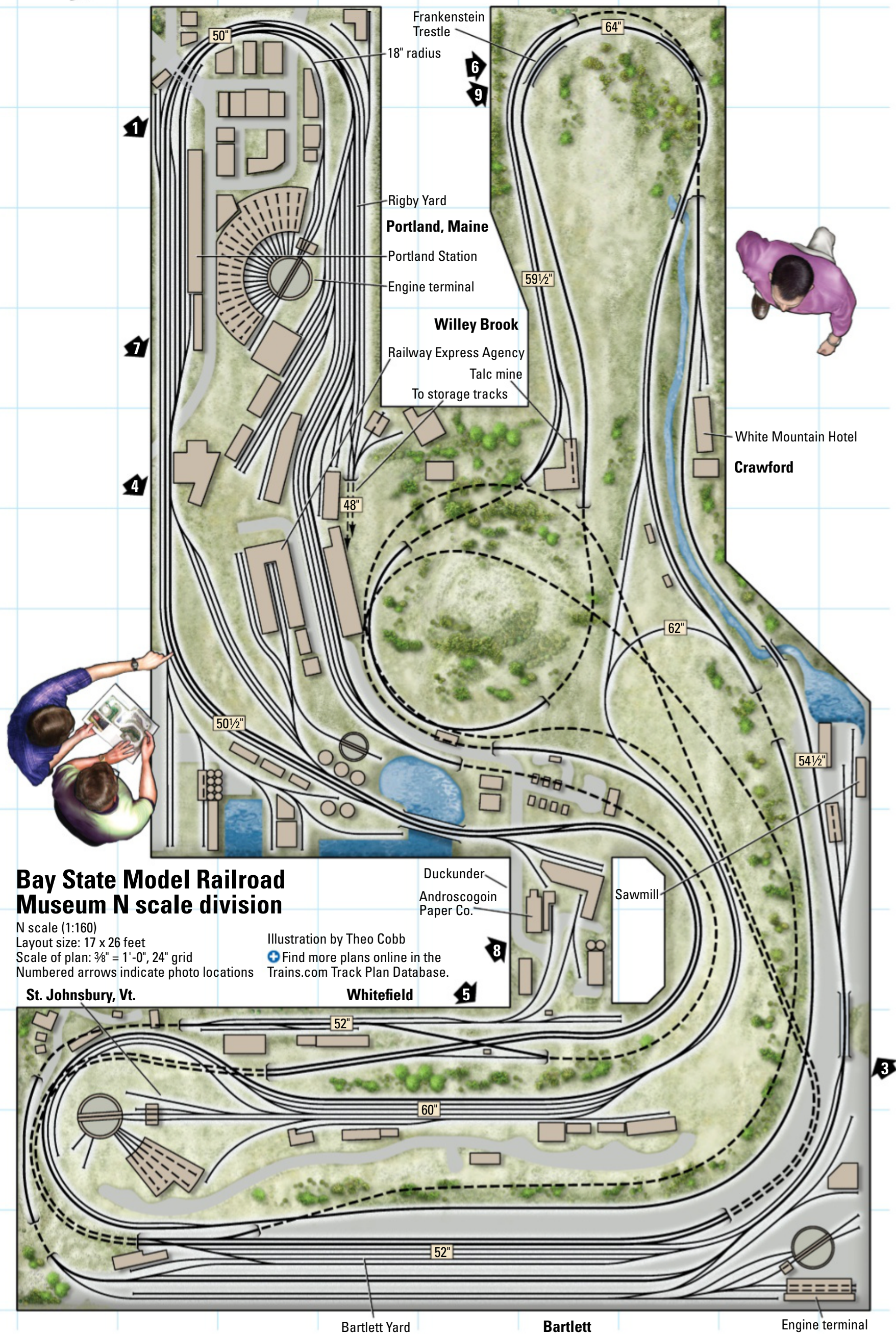
ROADBED: ½" Homasote on ½" plywood

TRACK: Peco code 70 flextrack

SCENERY: Hardshell with zip texturing, ground foam, and static grass

CONTROL: Digitrax Digital Command Control

2





3 New Haven Alco PAs lead a summer camp train from Crawford Notch through Bartlett, N.H., on the way back to Boston. The locomotives are from Broadway Limited Imports.

The main line leaves Rigby Yard in South Portland, Maine, and proceeds north through downtown Portland, which includes a scale replica of Portland Union Station custom built by Right on Track Models. The Portland seaport area is on the east side.

Heavy incoming coal and oil traffic is generated from the pier, bound for northern paper mills. Grain traffic from Canada, potatoes from Aroostook County, and paper and lumber products provide outgoing traffic. The double-tracked main line parallels the Androscoggin River, with its pulp and paper mills. Just beyond the mills, the tracks cross the Boston & Maine at grade at Whitefield.

At Bartlett, N.H., the double track continues past the modern intermodal terminal into the Waterville/Bangor secondary. The single-track line proceeds north on a long, steady 3 percent grade, taking the track up over Frankenstein Trestle and through Crawford Notch into Bretton Woods, N.H. Most freights on this stretch of track require helpers, which are added at Bartlett.

4 A Boston & Maine 2-6-0 Mogul works the coach yard while a pair of Pennsylvania RR Centipedes pull a mixed freight on the Portland bypass. The 2-6-0 is a Bachmann model, while the Centipedes are from Broadway Limited Imports.



A display on the fascia on the Mountain Division shows the speed and length of trains that pass over two photo sensors embedded in the track.

Scale speedometer

THE SCALE SPEEDOMETER uses a pair of photoresistors placed between the rails of the track. When the front of a train passes over one of sensors, its shadow causes the resistance in the sensor to drop. When this happens, an Arduino Nano microprocessor senses the voltage drop and starts a clock. When the front of the train passes over the second sensor, it stops the clock and calculates the speed of the train (the length between the sensors divided by travel time). The speed is then multiplied by 160 (for N scale) to convert it to scale mph.

The device also measures the length of the train in scale feet by finding the average time spent over the two sensors and multiplying that by the speed. – Doug Wood



5 Although the layout models New England, it hosts club members' rolling stock from all over. An A-B-A lash-up of Atchison, Topeka & Santa Fe Alco PAs in the warbonnet scheme leads the *Fast Mail* through Whitefield, N.H. The six-axle locomotives are Broadway Limited Imports models.



The resort hotels of Bretton Woods are serviced by plush varnish from as far away as Washington D.C., Philadelphia, and New York. The line continues past granite and marble quarries and talc mines in Vermont and subsequently into Saint Johnsbury, Vt., for interchange with the Boston & Maine.

The yards in the major terminals are capable of holding 400 freight cars. Three roundhouses hold 30 locomotives. Total trackage, excluding yards and passing sidings, exceeds 7 scale miles.

IMPROVING OPERATION

The most significant operational improvement has been adapting the railroad to the Digitrax Digital Command Control (DCC) system. The flexibility of layout operations has improved significantly. The layout was originally designed for direct-current block control with Aristo-Craft walkaround radio throttles and local control panels. The existing two-wire system allowed us to reconfigure the railroad for DCC while keeping the ability to go back to the original DC system with the flip of a switch.

A major hidden track configuration change was undertaken to simplify train movements during our operating sessions and public open houses. The North Loop, a five-track hidden storage yard that's part of the Waterville/Bangor Secondary, now has direct connections to both Saint Johnsbury and Bartlett yards. The South Loop, a five-track hidden storage yard that's part of the Portland-to-Boston main line, now has direct connections to Whitefield (N.H.) and Rigby yards. This has improved our ability to maneuver through the crowd during our public open houses.

One of our electrical wizards designed and built a track occupancy system for both of these hidden storage yards. He also created a digital speedometer and train length measurement system for the single-track mountain division line. [See "Scale speedometer" on page 51. – *Ed.*]

FACILITIES AND STRUCTURES

The engine facility at Saint Johnsbury has been updated with a kitbashed Atlas roundhouse and backshop. The Rigby roundhouse has been replaced with a new scratchbuilt structure with many



6 Telegraph wires from Berkshire Junction have been strung from the line poles along the main line. The elastic material remains taut and rebounds from bumping.

Telegraph wires

BEING IN THE HOBBY for a long time usually leads one into a quest for more and more realism. Modeling prototypically in N scale can be a most challenging activity. Such projects as stringing telegraph wires really stretches prototypical standards and patience to the limit.

The line poles on our N scale layout are by Osborne Models, and the wire is a product of Berkshire Junction Inc. The wire is very elastic, which provides a no-sag look for the railroad telegraph wires, as opposed to telephone wire. However, care must be exercised during installation to not over-stretch the material, which can pull on the poles and cause them to bend. As always, a bit of careful experimentation soon reveals the proper amount of stretch as you apply a little dab of cyanoacrylate adhesive (CA) on the insulator and wind the wire once around it. – *Steve Shaw*

3-D printed details added. New Walthers programmable turntables have been installed at both the Bartlett and Rigby engine terminals.

The Androscoggin Paper Co. complex, off the main line north of Portland, has been rebuilt to incorporate new paper mill, kraft pulp mill, and stone groundwood mill facilities. Kitbashed Walthers paper mill structures were used for the paper mill and kraft pulp mill. The groundwood mill is a modified Heljan Brewery kit.

Improved wood chip and pulpwood unloading facilities have been added to better support the mills. The chip conveyor is modified from the Walthers Western coal flood loader (no. 933-3247). The wood-chip bunker, pulpwood pond,

and pulpwood gantry crane were all scratchbuilt.

A paper mill is a terrific industry on a model railroad to generate a variety of loads in and out. Incoming loads include wood chips, pulpwood, clay slurry, chlorine, sodium hydroxide, and sulfuric acid. Outgoing loads include boxcar loads of market pulp, jumbo paper rolls, and finished paper products.

The town of Saint Johnsbury now has a new station built from a Micron Art kit. That part of Saint Johnsbury was reconfigured to accommodate the station and add some new businesses.

TRACKSIDE IMPROVEMENTS

Woodland Scenic lighting has been added to many of the streets and



8 The wood-chip bunker at Androscoggin Paper was scratchbuilt. It's filled with a carved foam insert coated with real oak sawdust.

Wood-chip bunker

ANDROSCOGGIN PAPER receives locally sourced wood chips to feed the pulp digesters. The freelanced chip bunker was scratchbuilt to fit the available space. The wood chips are made from red oak sawdust that was recovered from my table saw. They coat an extruded-foam insulation board insert that was cut and carved to fit the space.

The chip conveyors and structures are kitbashed from the Walthers coal flood loader kit. A layer of wood chips is adhered to the conveyor decks with diluted white glue.

The wood chips are delivered in open-top hoppers that drop their loads through a wooden trestle. The conveyor under the trestle moves the chips to the top of the pile. Meanwhile, transport screws under the pile feed the long conveyor, which loads the chips into the top of the continuous digesters. – *Steve Shaw*

MEET THE CLUB



From left to right: Steve Shaw, Bob McLaughlin, Jeremy Hartwell, Doug Wood, Arthur Siegel, and Ian Kempf. N scale club members not pictured include Bill Rynders, Charlie Stoddard, Jeff Zesch, Bob Brassard, Jonathan Palazzo, Ben Kempf, Andrew Plummer, and Max Mazzaresse.

THE BAY STATE SOCIETY of Model Engineers, founded in 1968, changed its name to the Bay State Model Railroad Museum when it lost its rented location and bought a new 4,000-square-foot home in Roslindale, Mass., in 1979. The club has four layouts in O, HO, HOn3, and N scales. The club welcomes visitors during its open houses in March and December. Prospective members are encouraged to make a reservation for a visit during a Wednesday night operating session. For more info about the club, visit bsmrm.org.

7 An early Amtrak train arrives at Portland behind a pair of Rapido FL9s. The visiting Union Pacific Northern awaits to depart for points north. It's a somber day as a fireman's funeral procession proceeds along Commercial Street.

structures of the N scale railroad. We've installed a drop ceiling in the building with dimmable overhead LED lighting. Operating with the lights turned down and the buildings and streets illuminated is even more realistic.

We continue to tweak the railroad overall with the addition of fall foliage to the scenery and wired telegraph poles along the main line. The railroad is built with Peco code 70 flextrack, and all turnouts have now been replaced with Peco Electrofrogs.

Ballast upgrades continue around the railroad. We also continue to add more details around structures, more vehicles, and of course more people.

AS MAINE GOES...

The railroad concept focuses on Northern New England and its Boston & Maine and Maine Central heritage. However, many of our members have interest in other railroads, such as the New Haven, Pennsylvania, Conrail, Union Pacific, Santa Fe, New York Central, Frisco, and Milwaukee Road. Equipment from any and all railroads and eras are welcome and are frequently seen operating on the system. Member interest has also included more modern equipment, such as intermodal trains, unit auto rack trains, and Amtrak.

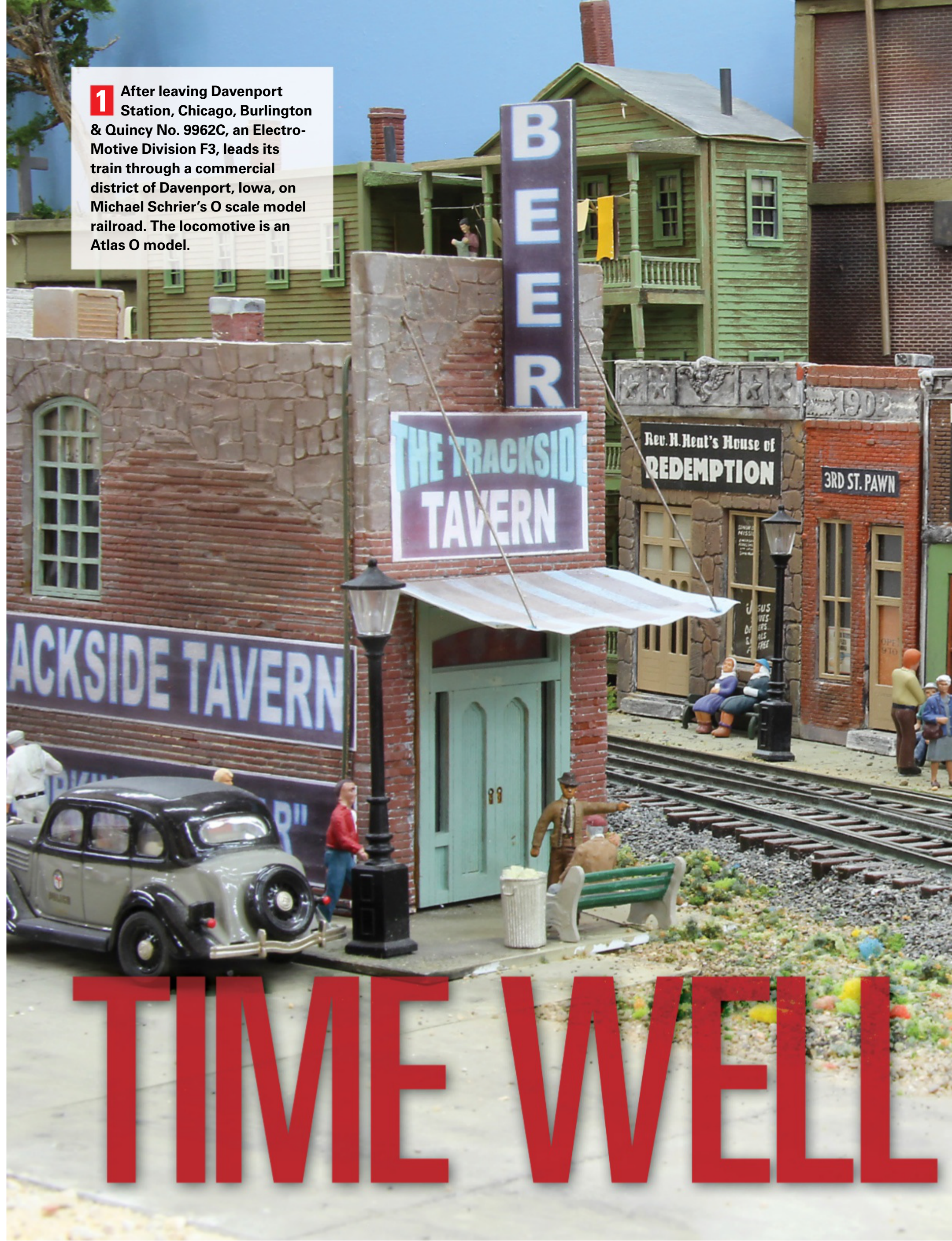
We'd like to dedicate this article to Bill Rynders, a major contributor, collector, and great friend. A big fan of The Milwaukee Road, Bill chose the New York, New Haven & Hartford as his local favorite after moving from Wisconsin to Boston. His favorite billboard beer reefer train and *Hiawatha* keep on rolling in his memory. **GMR**

Steve Shaw is a 40-year member of the Bay State Model Railroad Museum. This is his first article about the club. He is a retired mechanical engineer with many years of experience in the pulp-and-paper and steel manufacturing industries.

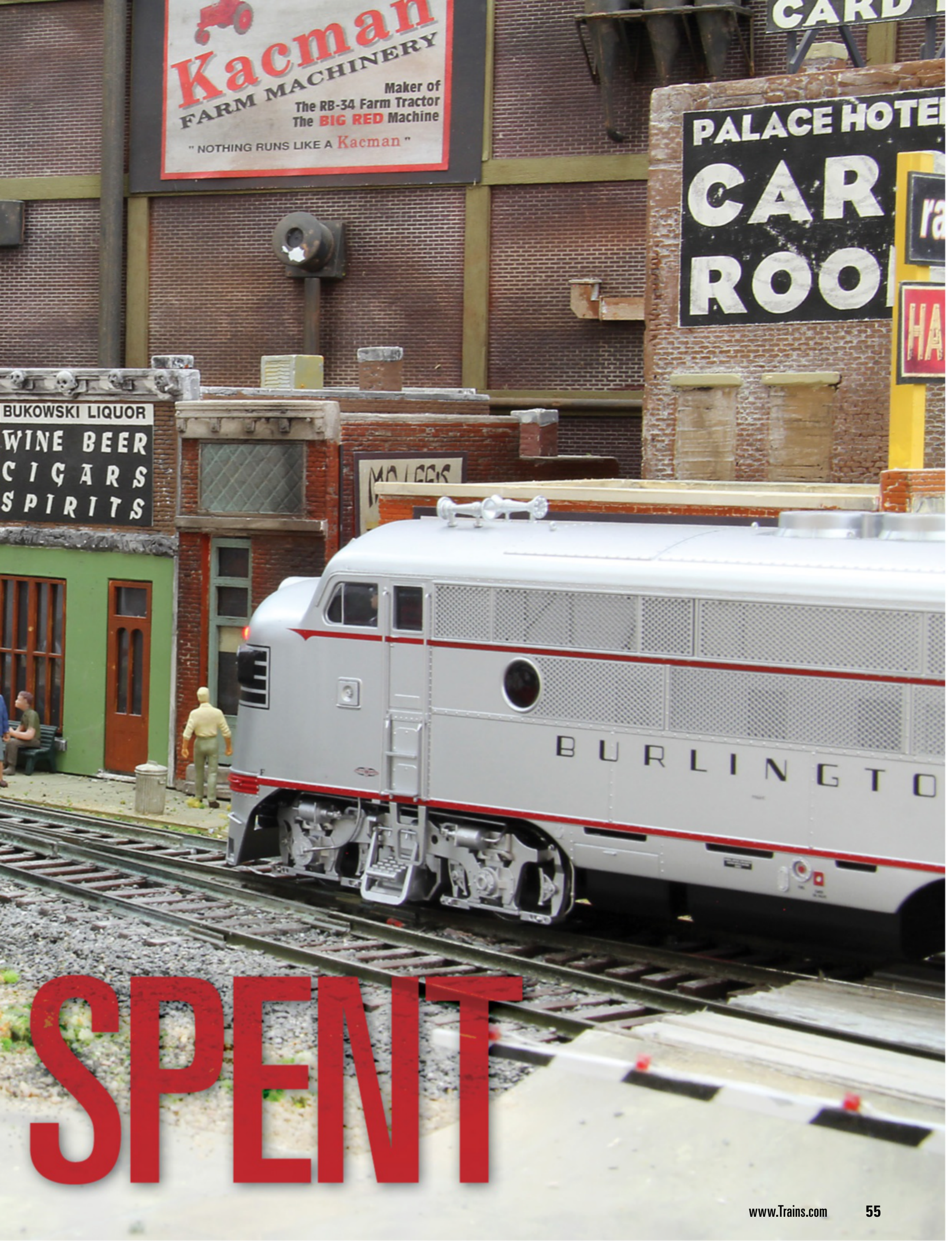


9 A local freight crosses Frankenstein Trestle pulled by a pair of Maine Central GP9s, both Atlas models. Another Maine Central freight pulled by EMD F3 No. 671, an InterMountain model, has just left Willey Brook bound for Bartlett, N.H. Note the telegraph lines that now run along the main line.

1 After leaving Davenport Station, Chicago, Burlington & Quincy No. 9962C, an Electro-Motive Division F3, leads its train through a commercial district of Davenport, Iowa, on Michael Schrier's O scale model railroad. The locomotive is an Atlas O model.



TIME WELL



SPENT



An O gauge modeler replaces his three-rail layout with a 1:48 scale granger road

By Michael Schrier ■ Photos by the author

IT ALL BEGAN WITH a lack of space and too much spare time.

At some point in 2018, my model railroading adventures reached a crisis. I had built two On30 layouts and a large three-rail O scale layout, and despite having 2,800 square feet at my disposal, I'd exhausted my modeling space. Given that working six hours a day on the railroad was the key ingredient to maintaining my sanity during retirement and pandemic isolation, a solution was urgently required.

The narrow-gauge railroads were sacrosanct. They represented my best modeling efforts, and I drew great satisfaction from watching those mighty engines conquer the Rockies. But even though the three-rail layout had been

worthy enough to grace the pages of *Classic Toy Trains* (May 2018), I was ready for something different.

Because I'm approaching super-senior status, any smaller scale was a non-starter. I briefly flirted with Gn3, but my large inventory of O scale equipment made O scale two-rail the obvious choice.

This decision led to several more choices. First, because I have a large collection of die-cast automobiles from the 1930s and early '40s, I selected that as my time period. Second, the layout would be freelance with a Midwestern feel.

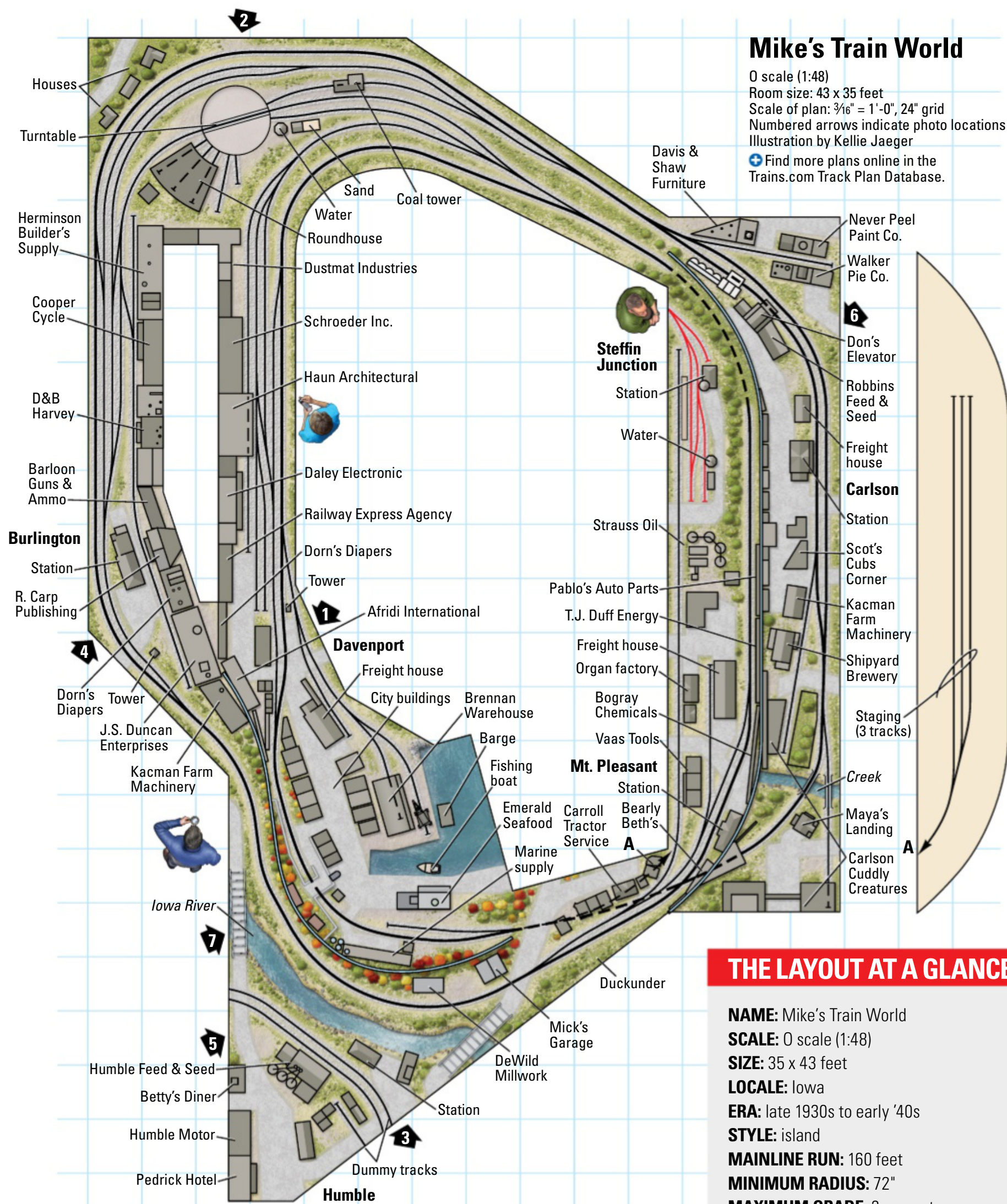
To avoid my urge to collect trains, it would focus on one railroad. But which one? Initial research revealed how limited the selection of locomotives was for any railroad not named Pennsylvania,

2 Since the interiors of O scale structures are highly visible, Michael details many of his interiors with figures, furnishings, and lights. The roundhouse, a Korber model, is positioned between the main lines to serve both sides of the layout.

New York Central, or Santa Fe. I chose the Chicago, Burlington & Quincy because I could create a reasonable engine roster from Sunset Models and Atlas.

TRACK PLANNING

The most important decision was the track plan. My ideal plan was a single-track main line through granger country without going through the same scene twice. I didn't want large yards, but I did desire a roundhouse and turntable. All track would be easily reached from the aisles, and switches would be hand-lined. All the structures I'd lovingly built had to find homes on this new layout, but I also wanted dramatic scenery. I had 1,600 square feet that was surely enough to encompass all my desires.



THE LAYOUT AT A GLANCE

NAME: Mike's Train World
SCALE: 0 scale (1:48)
SIZE: 35 x 43 feet
LOCALE: Iowa
ERA: late 1930s to early '40s
STYLE: island
MAINLINE RUN: 160 feet
MINIMUM RADIUS: 72"
MAXIMUM GRADE: 3 percent
BENCHWORK: tabletop
HEIGHT: 48" to 56"
ROADBED: Homasote and cork
TRACK: Micro Engineering code 148
SCENERY: plaster gauze and Sculptamold
BACKDROP: painted tempered hardboard
CONTROL: NCE Digital Command Control with wireless throttles



3 Electro-Motive Division F3 No. 9962C glides into Mount Pleasant while the crew of Dick's Garage works on a 1953 Chevy Corvette convertible. It's just a little out of the layout's time frame of the early 1940s.

4 Chicago, Burlington & Quincy No. 9915A, an EMD E5, pauses with its passenger train at Burlington Station. Mike scratchbuilt the station.





Reality, however, can be very harsh. In this case, it took the form of window and door locations and a bathroom in the middle of the designated area. The 72"-radius curves that I considered essential provided a further complication.

As the track plan on page 57 shows, the answer was a large island positioned around the bathroom and away from the outer walls of the train room. This did mean an unfortunate duckunder to get to the bathroom, but I consider this a trifling nuisance.

Of course, defining the layout boundaries didn't automatically produce a

track plan, but *Model Railroader* would come to the rescue. (This isn't surprising, since my first issue of MR was published in April 1952, which gives me 70 years of modeling inspiration.)

The inspiration for my track design came from the Rock Point & Coast RR, published in the October 1978 issue. It featured one town serving two railroads that shared a common locomotive terminal. Although I was only using one railroad, the town would serve as a scenic divider and give me two engine service areas for the price of one. Moreover, this would be an excellent location for the many tall factories I'd built.

Excited by this initial design breakthrough, I saw a possible expansion of this concept. When MR publishes track plans for 4 x 8-foot sheets of plywood, it's common to split the space in half with a scenic divider providing two separate scenes. My island was approximately equivalent to 20 6 x 8 sheets. Forty feet of sky-blue Masonite later, I'd divided the island into halves. The main line could make two circuits of the island without going through the same scene twice.

CONSTRUCTION

The actual construction of the layout was surprisingly rapid. The extensive space devoted to structures made table-top construction using 1/2" plywood and 1/2" Homasote an easy choice.

The height of the layout rises from 48" to 56", facilitating working under the benchwork on a shop stool in comfort.

5 Michael has created a 20-foot-long autumn scene along the banks of the Iowa River. He uses lichen dyed in autumn colors for his foliage, no puffballs.

I used Micro Engineering code 148 weathered flextrack and Atlas switches. Buying pre-weathered track is very convenient, but Micro Engineering's definition of "flex" and mine are worlds apart.

I dropped feeders every 6 feet to 12-gauge bus lines connected to a 10A NCE power source. I didn't use blocks, and I consider DCC pure magic. I did get my turntable, a fully indexed 28" Mill-house Studio beauty, the most expensive toy I've ever bought.

STRUCTURES AND SCENERY

The heart of my layout is the structures, and it's instructive to compare those in the current layout with those in my first layout (featured in the Sept. 2012 CTT). The continuity is striking, and I only scratchbuilt two new buildings for this layout – the CB&Q stations at Davenport and Mount Pleasant, Iowa.

Almost every building manufacturer is represented, plus various kitbashed and scratchbuilt structures. Many of the structures have detailed and lighted interiors. For example, the Burlington station has more than 100 figures in it. However, I've learned the hard way that unless a structure has large windows and is close to the viewer, interior detail is difficult to appreciate.



My other passion is scenery. The preponderance of structures meant more concrete than grass, and considerable time and effort was spent pouring concrete streets and parking lots.

Although I use some scribed and weathered styrene, my favorite material for road building is joint compound. I make forms from plastic or wood and trowel the compound in with a taping knife. It's easy to carve expansion joints, and the drying process usually produces natural cracks in the pavement.

I finish the pavement with Floquil Aged Concrete paint and weather it with PanPastel products. [Floquil paints have been discontinued by the manufacturer. – Ed.] One of my wisest moves was taking samples of frequently used Floquil paints to my local Ace Hardware store and having them run through the spectrograph. Now I can get quarts of Aged Concrete paint mixed up for me at any time.

A SIGNATURE SCENE

Creating urban scenery is interesting, but I did want one dramatic scene. John Armstrong said every railroad should have a grand scenic curve, and I incorporated one into the layout plan. The grand scenic curve was a 20-foot stretch of track along the Iowa River with fall foliage as the backdrop. For the riverbed, a foot-wide trench was cut in the plywood, plaster cloth was used to form the bed, and Floquil Dirt was used as the basic color. Having past experiences with resin leakage, I coated the bed with a commercial sealant and then poured Woodlands Scenic Realistic Water. I added some Woodlands Scenic Water Effects, but I still don't think I've mastered this technique.

Initially, the prospect of creating fall foliage was daunting. I'd never done a fall scene and was afraid that the colors wouldn't look natural. Extensive examination of nature's realm convinced me

6 **Chicago, Burlington & Quincy 2-8-2 Mikado No. 4960 pulls into the town of Carlson. This section of the layout was transplanted from Michael's previous 3-rail layout.**

that there was a prototype for everything, and the article by Brooks Stover (MR, Dec. 2016) gave me the impetus to tackle the task.

I lined the front edge of the forest with trees using Scenic Express armatures and foliage that were firmly anchored in the plaster shell. Behind the trees, I literally piled Woodland Scenic fall lichen up to the tempered hardboard divider, trying to create a color palette similar to pictures I had collected.

I sprinkled Scenic Express CelluLeaf over the lichen to blend and mute the colors. The process went quickly because I avoided the well-known "puffball" technique of poly fiber balls covered in hairspray and dipped in leaf material.



Although poly fiber is much cheaper than lichen, I'm pleased with the result.

ASSEMBLING A FLEET

Regarding locomotives and rolling stock, I quickly learned that the average hobby shop doesn't present one with many choices in O scale two-rail. I have the utmost admiration for those who can scratchbuild an engine or a freight car, but that skill is way above my patience level. I demand an immediate transfer from shipping box to track, and any obstacle in that process is referred to my friends at Des Plaines Hobbies in Chicago, who are well supplied with magic wands.

O scale model train conventions are excellent shopping opportunities, and Sunset and Atlas are major producers of O scale equipment at acceptable prices. These companies have supplied me with CB&Q class O-1 2-8-2 and O-5 4-8-4 steam locomotives, Zephyrs, Electro-



Motive Division (EMD) E5s, and some EMD F3s. These engines cover my basic requirements. For rolling stock, I converted my Atlas three rail to two rail, but I'm not a fan of Atlas couplers.

MANY POSSIBILITIES

Although I'm the only operator, the potential for complex switching operations is substantial. There are 29 industries that need to be served, and grades from Burlington and Davenport can require helper service. There's a three-track staging yard under Mt. Pleasant, and regular passenger runs could add to the excitement. The NCE Digital Command Control system is wireless and can easily support multiple engineers. There's no block system to complicate train movements. All engines are equipped with stay-alive capacitors that make negotiating the long, unpowered Atlas frogs reliable. In short, this has been a marvelous layout to operate.

In retrospect, given the baggage I brought to this project, I'm very satisfied with the result. I never tire of watching these beautiful pieces of machinery chug down the track. If, however, I had started with a blank slate, I would have sought a more equitable balance between urban and rural settings. My current layout is largely a display for my buildings, and given my love of construction, this is probably appropriate.

7 A refrigerator hotshot runs along the Iowa River. The 3-foot-long road bridge in the foreground was kitbashed from Kibri HO scale rail bridge kits.

The only negative is that I'm back to where I started. I still need to model, I've exhausted my space, and I don't want to redo any of my three layouts. What will be the answer? **GMR**

MEET MICHAEL SCHRIER

MICHAEL WAS BORN IN SCOTLAND but spent most of his life in Iowa. He has been a model railroader since age 10, including his college years at the University of Iowa. He is retired after 45 years of teaching history and coaching tennis, mainly at Central College in Pella, Iowa. He lives in Iowa City, Iowa, with his wife, Leslie. Michael enjoys chatting with his tennis buddies, traveling with his wife, and sometimes watching the Iowa Hawkeyes, providing he can handle the frustration.





NEW SCALE, SAME SPACE



This 22 x 36-foot Gn3 layout was built on the benchwork of an H0 scale model railroad

By **Cody Grivno** ■ Photos by the author

1 It's a full house at the Gunnison engine terminal on Ken Rodig's large scale Gunnison City model railroad. Peeking out of the engine shed is Forney No. 23, an LGB model that Ken modified. To the left is another modified Forney, and in the background is a Mogul. Ken built the engine shed from a Pola kit.



FOR MORE THAN TWO DECADES, Ken Rodig enjoyed hosting regular operating sessions on his HO scale Ironwood System. Though the freelanced layout was never scenicked, it provided hours of enjoyment for Ken and his operating crew.

In the early 2000s, Ken contemplated replacing the aging CTC-80 control system with Digital Command Control (DCC). Then he considered backdating the layout to the steam era to enjoy the many new sound-equipped HO scale locomotives on the market.

Before long, Ken was reflecting on his father's LGB equipment stored under the model railroad. He quickly realized that he could enjoy the benefits of DCC and have robust sound in large scale. Shortly thereafter, Ken began planning the 22 x 36-foot Colorado & Southern (C&S) Gunnison City Old Town Line in Gn3.

"More changes on the HO layout to put off doing scenery,' everyone said," Ken recalled. "But I had this G scale stuff of my dad's laying around. It sounded pretty good years ago, and the big cars looked pretty cool."

Ken originally considered a mountain railroad, but quickly cooled on the idea. "A mountain layout meant there wouldn't be a lot of switching," Ken said. "And it would've taken a ton of plaster."

But when Ken started removing the track on his HO scale layout, he realized that it would be possible to operate LGB trains in the same space. "With LGB, I could get down to a 4½-foot radius," Ken said. "The engines and cars would work with any track in the LGB line. Long story short, I decided that it was going to be LGB all the way."

A LIFELONG HOBBY

Ken has been a modeler for more than 45 years. "I always had a Lionel layout as a kid," Ken said. "My dad built it and added onto it over the years. After I got home from the service, he had it all in boxes and had built an HO layout in the room."

When his dad made the switch to HO scale, young Ken got to meet several of his dad's modeling friends and visit their layouts. "I knew that when I got my first house I was going to start an HO layout as well," Ken said. "I guess I can thank my dad for getting me started."

The Gunnison City layout is Ken's third model railroad. In the 1970s Ken had a standard and narrow gauge HO scale logging layout. All of the locomotives were brass imports, primarily from Pacific Fast Mail. "It was a good learning experience," Ken said.

2 This overall view of the layout, looking east from Gunnison Avenue Yard, shows how Ken uses structures and scenery to frame individual scenes. Turnout control buttons for hard-to-reach locations are mounted on the fascia.

The second layout was inspired by Leonard Blumenschine's Racquette River RR track plan, published in the October 1977 issue of *Model Railroader*. "The 11 x 16-foot layout grew into a 22 x 28-foot model railroad by the time I was done," Ken said. "The layout ran well, and run we did. I had six to eight operators a month for years. I had so much fun running and changing the layout to improve operations that I never did get around to adding scenery."

What the layout lacked in scenery it made up for with solid trackwork and prototypical track arrangements. "All my operators remarked how the trains ran so well with no derailments," Ken added. "I always tried to take my time laying track so it was perfect. It's no fun running if the trains keep derailing."

MAKING THE SWITCH

When Ken committed to making the switch from HO to large scale, he had a

THE LAYOUT AT A GLANCE

NAME: Gunnison City – Old Town

SCALE: Gn3 (1:22.5)

SIZE: 26'-4" x 36'-0"

PROTOTYPE: Colorado & Southern

LOCALE: southwestern Colorado

ERA: 1950

STYLE: walk-in

MAINLINE RUN: 101 feet

MINIMUM RADIUS: 25"

MINIMUM TURNOUT: no. 4

MAXIMUM GRADE: .5 percent

BENCHMARK: L-girder

HEIGHT: 46"

ROADBED: plywood

TRACK: LGB sectional

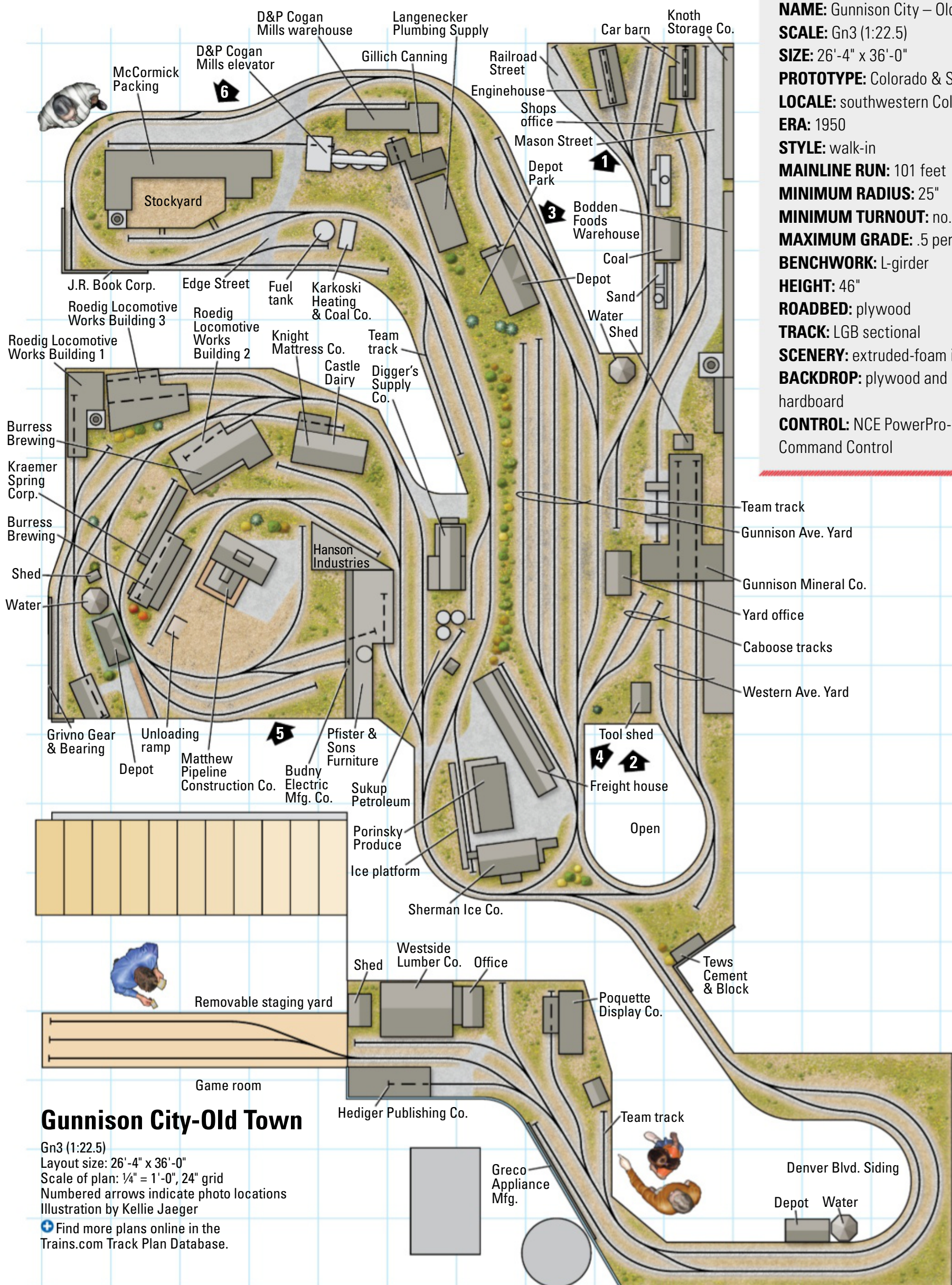
SCENERY: extruded-foam insulation board

BACKDROP: plywood and 1/8" tempered

hardboard

CONTROL: NCE PowerPro-10R Digital

Command Control



Gunnison City-Old Town

Gn3 (1:22.5)

Layout size: 26'-4" x 36'-0"

Scale of plan: $\frac{1}{4}" = 1'-0"$, 24" grid

Numbered arrows indicate photo locations

Illustration by Kellie Jaeger

Find more plans online in the
Trains.com Track Plan Database.



3 Colorado & Southern no. 6 brings its four-car train up to the Gunnison Avenue depot platform. Ken enhanced the LGB locomotive by adding a “bear trap” stack, repainting the window frames, and darkening the smokebox.



4 Two postal workers prepare to load sacks of mail into a Denver, South Park & Pacific Railway Post Office car. Ken kitbashed two LGB combines to make this double-door RPO. The figures are by Just Plain Folk.

head start. The layout room already had a finished ceiling, carpeted floor, and crew lounge. Except for a few minor modifications, the sturdy benchwork with 2 x 4 legs and ½" - to 1" -thick plywood table tops, was in place. But before Ken started laying track, he made a list of design considerations.

First, the new model railroad had to fit on the benchwork that the HO scale layout was built on. Second, it needed a

continuous-run loop for open houses and demonstrations. Third, the layout needed a way to turn trains or at least an engine. “Because of space considerations I ruled out a turntable,” Ken said. “I used a wye instead.”

The fourth consideration was having at least one siding that would allow two eight-car trains to pass. Having plenty of switching was the final consideration. “That’s the one thing that holds attention

for a longer period,” Ken commented. “Running around in a circle doesn’t keep my attention for very long.”

Ken’s track plan is an original design, set in southwest Colorado during 1950. The track plan combines his interest in Rocky Mountain narrow gauge railroads with his memories of watching trains during his childhood in Milwaukee. “I love narrow gauge locomotives,” Ken said. “So I have Colorado & Southern Moguls operating through Milwaukee-like industrial buildings.”

IN-YOUR-FACE SCENERY

Ken considers scenery the most interesting aspect of his large scale layout. “Scenery is number one now because it’s literally in your face,” Ken said. “The 3-foot-tall, four-story buildings reach the ceiling and make nice view blocks. The tall structures make the engines and rolling stock look smaller.”

He also noted that the tabletop-to-ceiling structures give viewers a unique perspective. “It puts you into the scene and makes you feel like you’re in the layout, not looking over it from a hot air balloon or plane,” Ken said.

The tall scenery and structures allowed Ken to divide the layout into 14 scenes, each one designed with a different operation in mind. “River Street is one of the best scenes, with an easy grade coming up to the yard, a grade crossing, and a reverse curve that leads to the curved trestle,” Ken said. “It has a switchback running into the packing company and two tracks running the opposite direction to the elevator and warehouse. It’s just as much fun to switch out cars there as it is to watch trains heading into the yard or leaving on the mainline.”

The tall structures had an effect Ken didn’t anticipate. “The lighting was fine for the HO scale layout,” Ken noted. “However, the buildings that go up to or near the ceiling block a lot of the lighting. I’m not going to do anything about it now. Besides, it’s a neat effect, with dark and light spots and long shadows.”

RELAXED OPERATIONS

Throughout his decades in the hobby, Ken has always enjoyed operation. He finds operators often run large scale trains at more prototypical speeds.

“Smaller scales tend to make you run faster than the prototype,” Ken said. “The larger engines and cars really slow down the operations. With the sound and prototype-style control of the TCS WOWSound decoders, you hear the speed and feel more like you’re running a real train.”

Ken also changed his operating scheme when he switched from HO to large scale. “It’s not trying to get a long train from here to there or switching all these cars in a night,” Ken said. “The operating scheme is track warrant and switch list. I like the switch list idea because I use a three-day rotation. This gives variety to the same jobs one session to the next.

“Most of the trains are patrols out of a local yard to the industries,” Ken continued. “We also have transfer runs that go to and from staging, a unit ore train to Gunnison Mineral Co., and passenger trains.”

Ken used a fast clock on his HO scale model railroad, but he’s not sure about using one on his Gn3 layout. Though the equipment is still in place, Ken finds that fast clocks tend to speed operators up. “They’re trying to make time, and then they mess up,” Ken said. “I understand that watching a clock is part of running a real railroad, and some like that part of running their layouts. But for some it isn’t relaxation.

“If I use a fast clock, it might be for nothing more than to alert crews when a passenger train is due to come through so that they know to clear the main line,” Ken added.

Ken said a typical operating session requires four to six members. The West End Gunnison Avenue Yard switcher builds and breaks up trains. The East End Gunnison Avenue Yard switcher helps the West End switcher, switches the warehouse district, helps build passenger trains, and switches supply cars at the Gunnison Avenue Yard engine terminal. The East End switcher may also work River Street, switching the D&P Cogan Mills elevator and McCormick Packing warehouse.

Two patrols roam the rest of the Old Town Main, switching industries. The locals also take turns running the transfer between the main and local yards on the layout, as well as transfer jobs to the



Ken Rodig published a regular newsletter to keep interested people updated on the progress of his layout.

The *Gunnison City Gazette*

I STARTED THE GUNNISON CITY GAZETTE to give operators (“subscribers”) periodic progress reports on my Gn3 Colorado & Southern layout. Since my model railroad is set in 1950, when more people read newspapers and magazines, I made the *Gazette* a printed newsletter instead of an electronic publication. I send it out via the United States Postal Service.

I publish the *Gazette* two or three times a year. I treat it like a newspaper, writing about what’s going on in Gunnison City. The stories are a mix of practical and fictional. On the practical end of the spectrum, I write about new locomotives and structures, changes in the operating scheme, and highlights of operating sessions. I also feature a rail-served industry in each issue, giving operators a better idea what that business ships and/or receives.

The fictional articles occasionally have implications on the model railroad. For example, I wrote about a new depot being built in Grandview, which is the hidden staging yard. The off-stage changes will cause the Gunnison Avenue depot, which is on the layout, to either close or be downgraded to locals only. The depot changes also mean that the *Alpine Express Limited* passenger train will no longer come into the Gunnison Avenue Yard.

To further help subscribers get to know the layout, I run advertisements for businesses in Gunnison City, such as Ann’s Cafe, Nick’s Hardware Store, and Burrell Brewing Co. There’s even a help-wanted ad for Roedig Locomotive Works. I wrap up each newsletter with a note from the General Manager’s desk.

The *Gunnison City Gazette* is designed to entertain and inform the members of my operating crew. My hope is that the newsletter provides a bigger, more rounded experience for crew members when they’re running trains through the industrial section of Gunnison City. – Ken Rodig

Reed Street Branch Yard from staging.

The final position is the Reed Street Branch Yard Job, which serves all the industries on that stretch of the railroad.

“There’s no dispatcher per se,” Ken said. “There’s a list of jobs and a signal system

operated by engineers using a simple claim-and-release system. When a train approaches a green signal, the block is empty, so the engineer can claim and enter it. The block is his until he releases it and the signal clears.”



Ken said the operating scheme has received favorable reviews. “It works because I don’t run that many trains in an evening, and not many through trains,” Ken said. “My operators like it because they don’t have to take turns dispatching. We all would much rather be running trains.”

Typical operating sessions last two to three hours, but more often the sessions continue “as long as we’re still having fun.” Currently, Ken plans on hosting operating sessions twice a month, once on a weekday for retirees and on a Friday or Saturday evening for those still working. “The operating sessions are really going to pick up now that the layout is 95% scenicked,” Ken said.

SCENERY AND STRUCTURES

The landforms are 1½" extruded-foam insulation board. Ken shaped the foam with a knife. In an unusual move, he painted the foam with solvent-based paint. “The paint attacks the foam and it dries rough,” Ken said. “It looks nice when covered with some ground foam.”

To simulate dirt, Ken used ground coconut substrate sold for pet reptile enclosures. He turned to tried-and-true ground foam for weeds. The trees are a mixture of handmade and store-bought. His son, Nick, and daughter-in-law, Katie, made trees for him as a Christmas present. “It was the first scenery on the layout and got me going,” Ken recalls.

The gravel roads are unscented cat litter. “I had to find stuff in larger quantities because I used a lot of it,” Ken said. “The texture needed to be coarser than the usual hobby ground covers.”

There are 33 rail-served buildings on the layout, as well as sheds, garages, an enginehouse, car barn, a couple of small stations, and water tanks for the steam locomotives. Several of the structures were built using Piko kits. Ken worked on the buildings in assembly-line fashion, constructing one floor at a time. Most of the structures have positionable doors and windows.

It took up to six kits to complete some of the larger industries. “Some of the buildings were too heavy, long, or wide

5 Matthew’s Pipeline Construction Co. is a major industry in Gunnison. The sprawling scene allows Ken to showcase several die-cast metal models of heavy equipment, many of which were weathered by his friend Ron Hansen.

to move by myself,” Ken said. “Occasionally I needed help moving them from the workbench to the layout.”

The bridges, coal trestle, and unloading ramp are all scratchbuilt. Ken used leftover parts from kits to build other items, such as the icing platform and retaining walls. Another friend, Curtis Ellwood, contributed a couple of wooden buildings to the layout. “There are so many other things to do on a layout. It’s nice to get help sometimes,” Ken said. “I’m not getting any younger, and I’d like to get the layout done so I can enjoy it.”

TRACK, TRAINS, AND CONTROLS

Ken used LGB track, turnouts, and accessories exclusively on the layout. “No compatibility problems means no

running problems,” Ken noted. “However, I don’t use any of its make-up tracks. I cut standard pieces to fit the location, including curved track sections.”

There are more than 70 turnouts on the layout. How each is controlled depends on the location. “Most turnouts are manually lined,” Ken said. “Ones that are in hard-to-reach areas are operated with electric remote units using LGB turnout drives. Homemade push-button control panels with indicator lights are mounted on the fascia.”

The trains are controlled with NCE’s 10A Digital Command Control (DCC) system. Ken has five NCE cabs, one for programming and four 06PR units, which have small lighted displays. The steam locomotives all have TCS WOW-Sound decoders. Ken worked hard to select the right whistle for each engine, which can easily be undone with a push of the wrong button.

In one layout familiarization session, one operator wasn’t informed that he shouldn’t press the 9 key, Ken recalls. “He’s running the biggest locomotive on the layout, a 2-6-6-2 articulated, that I set up with a deep, throaty-sounding whistle. As he’s approaching the station and yard, he’s sounding the whistle as he

MEET KEN RODIG

KEN RODIG RETIRED after a 42-year career with the United States Postal Service and still works more than 30 hours a week. He and his wife, Ann, have three adult children and four grandchildren. In addition to his basement layout, Ken enjoys building 1½" scale locomotives and freight cars. He was the last secretary of the Midwest Region of the International Brotherhood of Live Steamers. The Army veteran’s non-modeling interests include playing music on the organ, piano, and keyboard; photography; and reading.



6 As a survey crew works nearby, Colorado & Southern 2-6-0 No. 8 spots a refrigerator car at McCormick Packing Co. Ken repainted the window frames and weathered the LGB locomotive.

should, and it has this little ‘toot-toot’ sounding thing. I asked him what happened to the whistle, and he shrugged his shoulders and said, ‘I don’t know.’ At that, the rest of the operators sang out ‘Never Ever Use the Nine Key,’ and we all had a good laugh. Then I had to scroll through 40 different whistles to get the right one again.”

For the most part, Ken’s freight car fleet is stock LGB cars he weathered before putting on the layout. He also has a four-truck articulated flatcar for hauling industrial locomotives from the Roedig Locomotive Works. Ken notes that the LGB car “is about as close to a Schnabel car as I can get in narrow gauge.”

Ken wanted to give his passenger car fleet a look more appropriate for 1950. “I kitbashed all of my passenger equipment to modernize them,” Ken said. “I enclosed the open platform on most of the coaches. I also kitbashed a Railway Post Office car using two combines.”

Ken’s locomotive fleet mostly follows what the full-size Colorado & Southern operated. He plans on building a model of C&S 2-8-0 No. 74, using an LGB 0-8-0 drive as a starting point. Ken said that the 2-6-6-2 Mallet, an engine not on the roster of the full-size C&S, catches some operators and visitors by surprise. “When people see the articulated running on the layout, they ask, ‘What is that?’” Ken said. “I justify it on the Old Town Line to Gunnison Avenue Yard because it brings in a solid train of ore cars to the Gunnison Mineral Co. plant.”

THE TRADITION CONTINUES

Switching scales may sound daunting, but Ken is glad he made the jump to large scale. “Don’t be afraid of starting over and trying a different scale,” Ken said. “I’m enjoying my new layout. The trains work in a small part of a big city. I’ve found that I like modeling shorter distances. It’s more realistic in just about any scale.”

Ken said he wouldn’t do much differently if he were starting over. “I’ve been messing around with model trains and hosting operating sessions for more than 40 years,” Ken explained. “I had a list of do’s and don’ts and worked hard to adhere to them while coming up with a layout that looked good and would be enjoyable to operate.

“I struggled with the track plan and building locations for quite a while and changed the plan a number of times. I think I got it nailed, but still think I might have done better, but I’m not going to change it anymore.”

In addition to his operating crews, Ken enjoys sharing his Gn3 layout with his son and grandson. “Nick is in the process of building an HO scale Rock Island layout in the basement of his home,” Ken proudly notes. “My grandson, Matthew, is showing a great deal of interest in trains as well. They both enjoy coming over and running the layout.

“The first thing Matthew asks when he comes over is ‘Can we run the trains?’” Ken added. “I think he’s hooked!” **GMR**

NEW ENGLAND MEMORIES

A new version of the H0 scale East Berkshire Branch builds on the previous layout

By Lou Sassi ■ Photos by the author





1 Boston & Maine 2-6-0 Mogul No. 1478 leads a freight past the Windsor Junction freight house on John Callahan's HO scale East Berkshire Branch. Meanwhile, above, B&M switcher No. 1170 pulls an empty hopper from Buesing Coal Co., an industry scratchbuilt for John by author Lou Sassi.



2 This overall view from near the train room's entrance shows the curve leading to Cabot Falls at right and the Windsor Junction roundhouse to the left. Both sections were salvaged from John's previous layout.



3 Boston & Maine No. 4227, an Electro-Motive Division F3, leads its passenger train north toward Cabot Falls after leaving Dorset Mills. salvaged from John's previous layout.

JOHN CALLAHAN'S INTRODUCTION to model railroading began in 1951, when he received a Lionel toy train set for Christmas. He eventually outgrew toy trains and built a succession of HO scale layouts, including one with handlaid track that unfortunately had to be abandoned when he moved. When he purchased his first home years later, he built another HO scale layout based on the Boston & Maine and the Rutland RR in New England. That railroad, named the East Berkshire Branch, was featured in the March 2013 *Model Railroader*.

John moved again in 2010, necessitating the dismantling of the previous

model railroad. However, with the help of some model railroading friends, he was able to save most of it and incorporate those sections into a new one, more than half again larger than the original East Berkshire Branch. The result is the layout you see here.

It's no surprise that John would stick with modeling New England. He grew up in Massachusetts, not far from the Boston & Maine's Connecticut River Line and its branch through Chicopee, Mass., which served the large Fisk Tire Co. plant there. As a young man, John often took long walks in the evening to watch the B&M freights heading north out of Springfield, Mass.

These experiences influenced his choice to model the B&M and Rutland in the 1950s, a time period when he could realistically run both steam and diesel power.

THE NEW LAYOUT

The railroad is between 44" and 47" high and occupies a 16 x 35-foot area of his basement. John prepared the room by covering the concrete walls with wall-board that he painted sky blue. Fluorescent lighting was installed prior to layout construction beginning.

THE LAYOUT AT A GLANCE

NAME: East Berkshire Branch

SCALE: H0 (1:87.1)

SIZE: 16 x 35 feet

PROTOTYPE: freelanced, based on Boston & Maine and Rutland

LOCALE: Massachusetts

ERA: 1950s

STYLE: walk-in

MAINLINE RUN: 204 feet

MINIMUM RADIUS: 30"

MINIMUM TURNOUT: no. 4

MAXIMUM GRADE: 1½ percent

BENCHMARK: L-girder

HEIGHT: 44" to 47"

ROADBED: Homabed

TRACK: Shinohara code 70 and 55 flextrack

SCENERY: hardshell and extruded-foam insulation board

BACKDROP: Berkshire Junction commercial photo backdrops on wallboard

CONTROL: NCE Digital Command Control

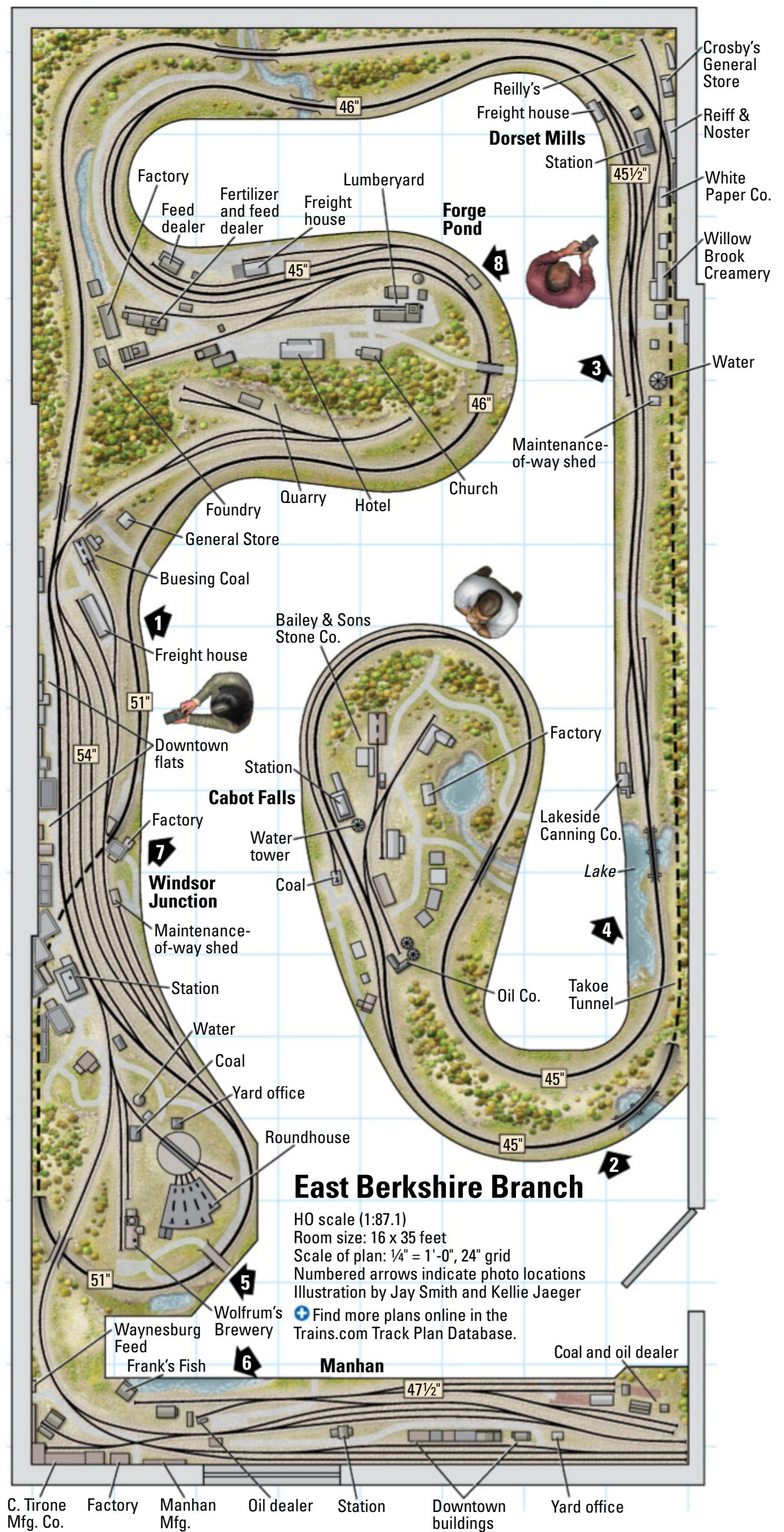
The areas of Cabot Falls, Windsor Junction, and Dorset Mills, salvaged from the previous layout, were installed and affixed to the walls. John then linked those sections with L-girder benchwork that would support the new areas of Manhan and Forge Pond, among others. Once the benchwork was up, John applied commercial self-adhesive backdrops from Berkshire Junction to the painted walls.

On most of the layout, window screening covered with plaster gauze formed the basic ground contours. As construction progressed, John switched to extruded-foam insulation board, also covered in gauze, as his scenery base.

In both cases, the gauze was painted earth brown and covered with real dirt, followed by a mixture of ground foam in a variety of colors and textures. He also used an assortment of natural ground covers. Many larger trees were hand made using peppergrass.

All the water effects on the layout were created using two-part Enviro-Tex resin, with gloss medium waves on the larger lakes and ponds.

The tracks are laid on sheet Homasote or Homabed over $\frac{3}{4}$ " plywood subroadbed. The track is a combination of code





MEET JOHN CALLAHAN

JOHN CALLAHAN HAS LIVED in west Massachusetts all his life, growing up along the Boston & Maine; Boston & Albany; and New York, New Haven & Hartford. He now lives in Southamptn, Mass. His first model train was a wind-up Marx toy he received as a present when he was a young boy, leading to a lifelong love of trains.



70 flextrack on the main lines and code 55 on the secondary tracks, yards, and sidings. Minimum track radius is 30" with no. 6 turnouts on the main line and no. 4 elsewhere.

STRUCTURES AND TRAINS

The structures on the railroad are a mix of kits, kitbashed, and scratchbuilt. John is particularly pleased with the roundhouse at Windsor Junction. All buildings are detailed and weathered with paints, India ink wash, and powders. The bridges were built by modifying commercial plastic models.

John takes the same approach when it comes to rolling stock. Each car, whether built from a kit or from scratch, is repre-

4 Boston & Maine Mogul No. 2406 hauls a northbound freight over the lake on its way to Cabot Falls. John poured the lake with two-part Enviro-Tex resin.

sentative of the area and era modeled. All are weathered to reflect use. As on the prototype, passenger equipment reflects better maintenance.

Motive power, all custom-painted, sound-equipped, and weathered appropriately, consists of three steam locomotives and 14 first-generation diesels.

CONTROL AND OPERATION

Trains are controlled by NCE Digital Command Control, with six walkaround

5 A meeting of the Alcos: Double-headed Boston & Maine phase 1 RS3s No. 1519 and No. 1507 pull a load under the bridge while RS3 No. 1536, a phase 3, crosses on the upper track.





6 Boston & Maine No. 1170, an Alco S1 switcher, spots two iced reefers at Frank's Fish House in Manahan, one of the new sections of the layout.

throttles. Turnouts are lined by either Torquemaster can-type remote controls on the main line or Caboose Industries ground throws on the sidings. There are NJ International routing control signals, similar to those commonly used in New England, in the main yard area.

Operations feature bridge traffic, local freight, and some passenger trains. Car routing follows a sequence and is governed by switch lists.

Up to 12 operators in two-man crews can operate at once, and a typical session can last from four to five hours.

John's ultimate goal when building his freelanced railroad was to replicate the beautiful scenery of the Northeast where he lives, while also creating a miniature empire that operates prototypically. He also wanted a layout that could be enjoyed by him, his family, and the many model railroad friends he has made over the years. Besides John's regular operating crew, his oldest son, Ryan, and grandson, Caden, stop by often to operate the railroad. In that sense, he has succeeded. **GMR**



7 John built small fascia-mounted shelves to hold pencils, uncoupling picks, and other small tools at locations where switching happens.

Tool shelf for a yard

JOHN HAS INSTALLED unobtrusive shelves at several places on the layout where switching takes place. This shelf doesn't stick out very far from the fascia, but it provides a handy place to put pencils, uncoupling picks, and other small tools.

John used a chop saw to cut beveled ends on a piece of 1 x 2 pine. After rounding the edges with sandpaper, he sanded the entire piece smooth, then stained the wood and sealed it with polyurethane finish. He attached it to the fascia with screws inserted from the back. A removable stick-on hook next to the shelf provides a place to hang train sheets. – *Lou Sassi*

8 A pair of Boston & Maine
Electro-Motive Division F3s leads
a passenger train on its morning run
past Forge Pond depot, heading
toward Windsor Junction.





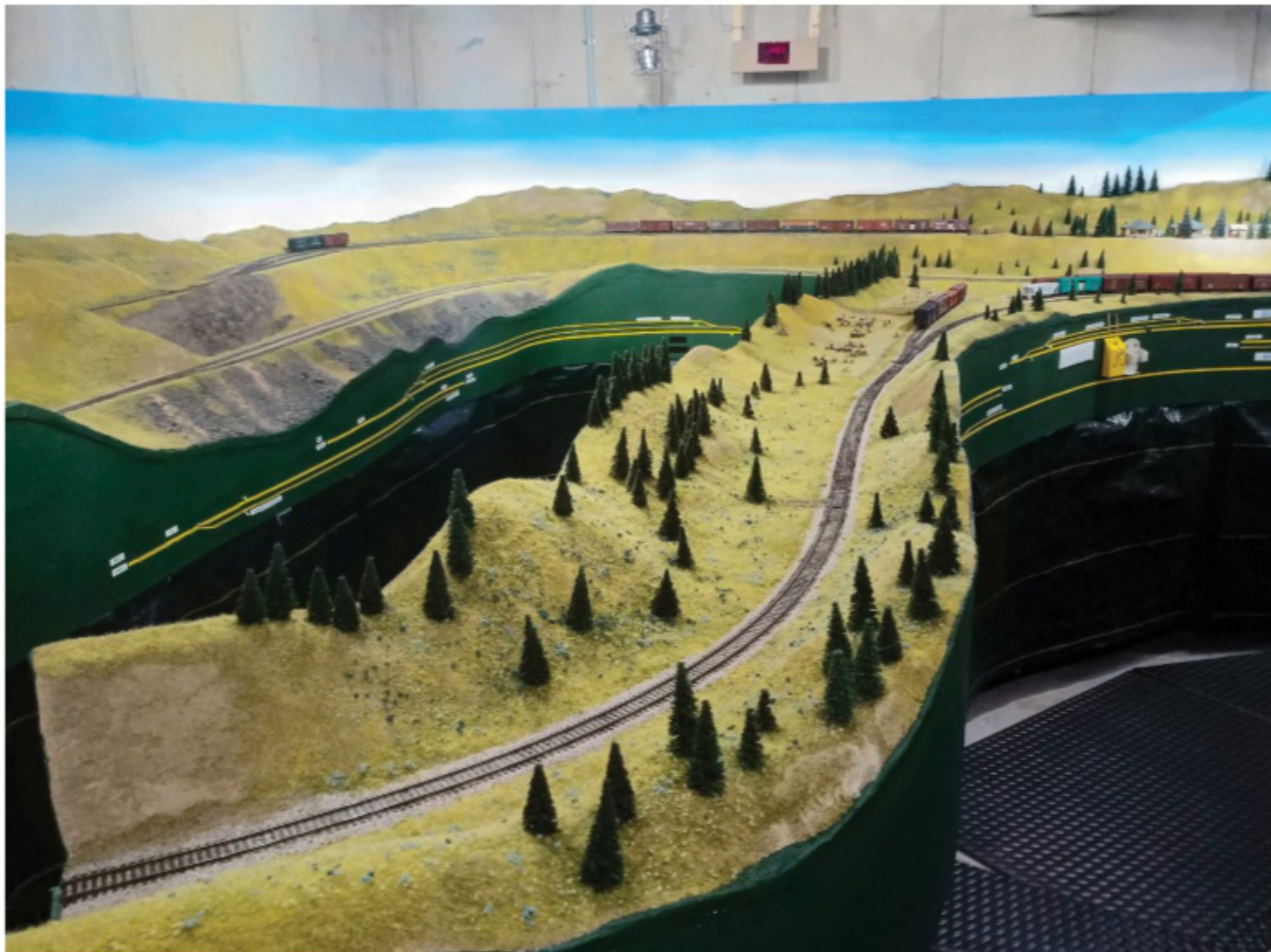
MARSHALL CANYON EPIC



Modeling the Spokane,
Portland & Seattle's
Third Sub in HO scale

By Dave Rickaby
Photos by the author

1 Northern Pacific no. 7004D and 7004C, a pair of Electro-Motive Division F9As, await their assignment at NP's Parkwater engine terminal in Spokane, Wash., on Skip Caswell's HO scale Spokane, Portland & Seattle Third Subdivision. Skip was modeling the Great Northern when he discovered the SP&S, which was owned 50-50 by GN and NP.



JAMES J. HILL, THE "EMPIRE BUILDER"

and founder of the Great Northern, built the Spokane, Portland & Seattle Ry. because he wanted a water-level route for his Oregon traffic. He didn't quite achieve that, but by use of several high viaducts over the box canyons along the Snake River, the SP&S kept the ruling eastbound grade between Portland, Ore., and Spokane, Wash., to about .8%. This was quite an improvement over the 2.2% grades over the Cascade Mountains on the GN and the SP&S's other parent company, the Northern Pacific Ry.

Skip Caswell has made it his modeling goal to faithfully model the operations and scenic grandeur of the SP&S's Third Subdivision.

Skip credits his father for getting him started in the hobby. His father, a TT scale modeler, introduced Skip to HO scale trains around the age of 10, helping him build a layout. Skip's interest in the hobby waned as a teenager, and then he spent 22 years in the Navy.

He built a few small layouts during these years, but never explored realistic operations. One day a friend invited him over to an operating session, which Skip found he really enjoyed.

At this time, Skip was modeling the Great Northern. He discovered the SP&S via the GN, which owned 50% of the

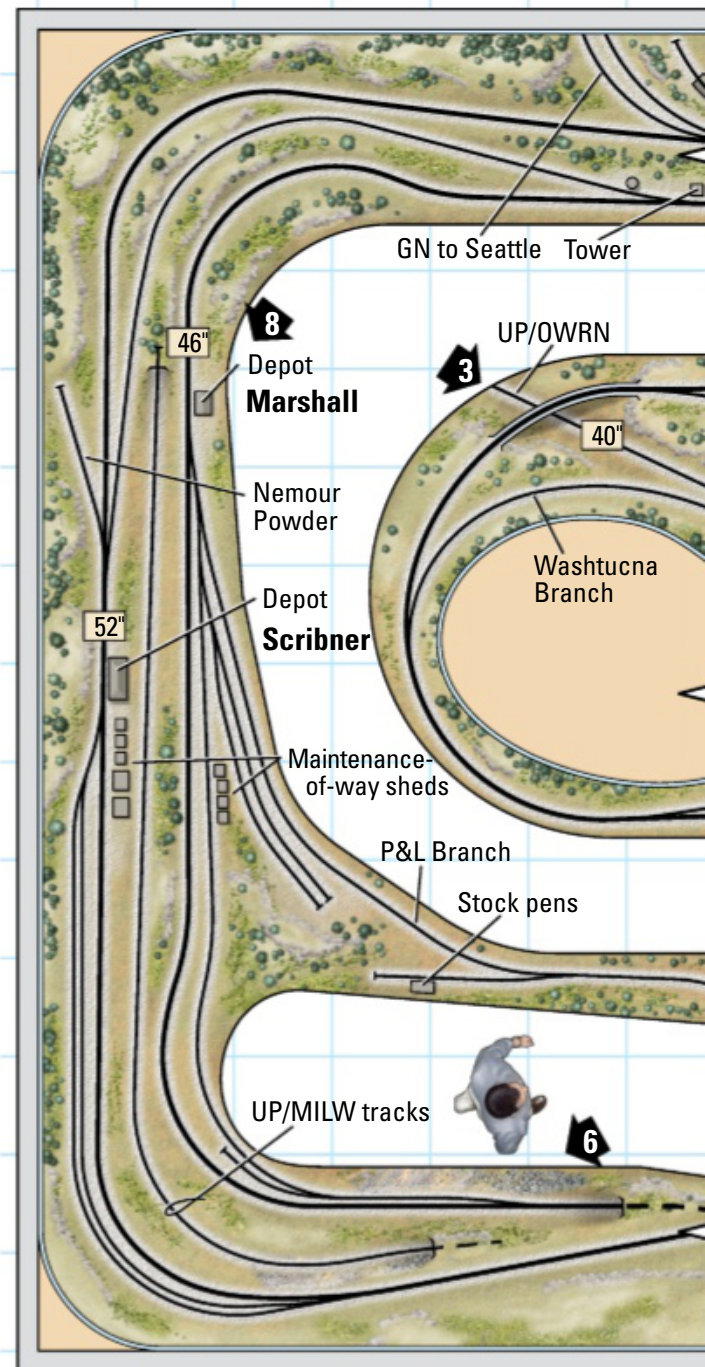
2 This view from the aisle shows the Northern Pacific's Palouse & Lewiston Branch in the middle, leading to Scribner at back right. At left are the Spokane, Portland & Seattle Scribner interchange yard on the upper level and the Union Pacific/Milwaukee Road track.

line, and bought a book about the railroad. He became enamored with the SP&S and started to seek out more information about it.

This was during the early years of the Burlington Northern merger, but at the time the Spokane, Portland & Seattle physical plant was still intact, making his research easier.

Since he lived in Idaho, he was also able to meet people who had worked on the SP&S. Skip's dad had a friend in Spokane who has been a steam engineer on the line, Gil Abney. Skip met Gil, and having read an article in the SP&S Historical Society magazine about Marshall Canyon and the Scribner Turn, spent the day railfanning those locations with him. Gil regaled Skip with many stories of running steam on the old railroad. This convinced Skip that the SP&S Third Subdivision was the right subject for him.

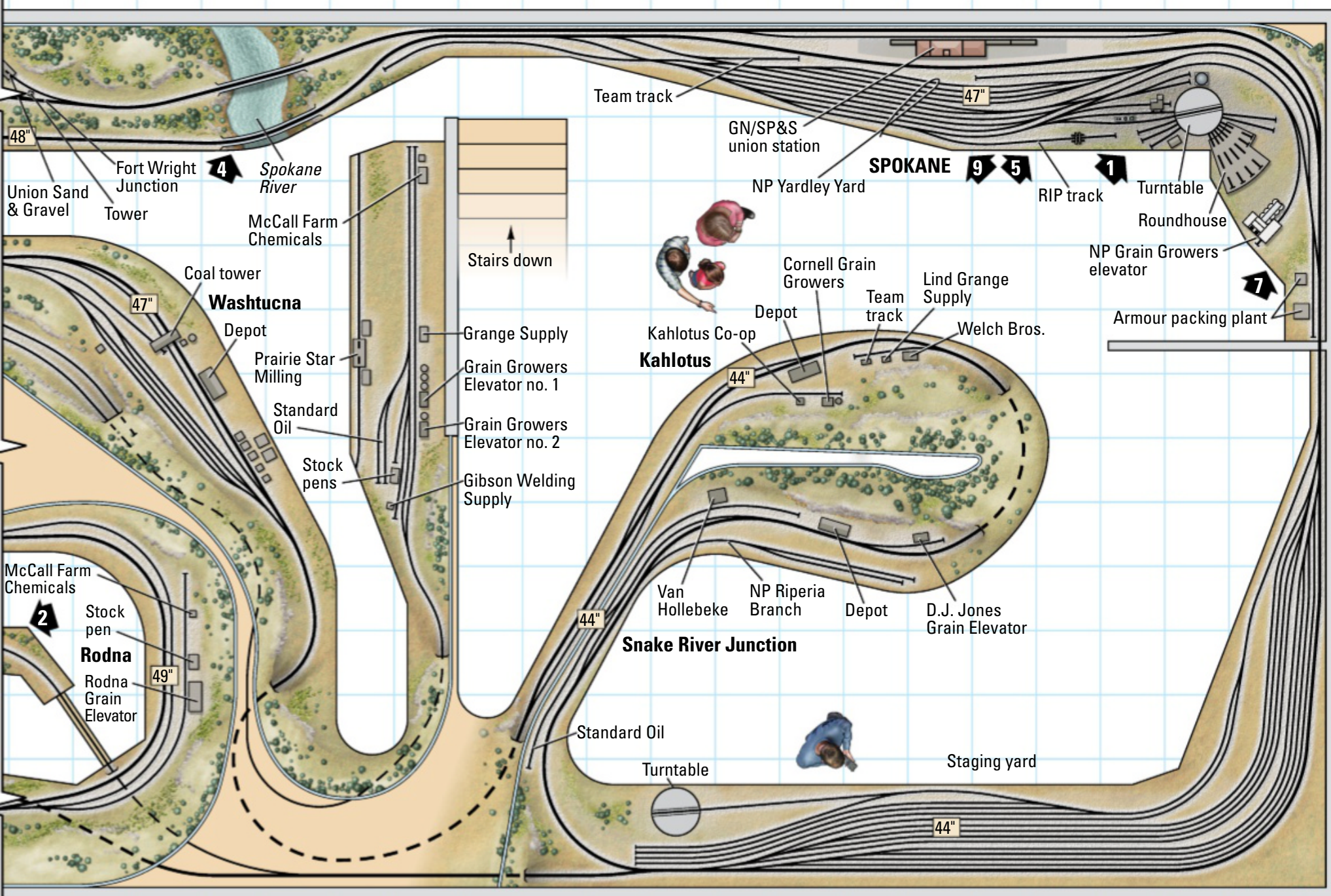
He had a collection of brass GN



steam locomotives that he thought he could modify to SP&S prototypes. It also helped his decision that four Class 1 railroads ran parallel to each other within a 100-yard stretch at one point. Those railroads were the SP&S, NP, Union Pacific, and the Milwaukee Road, which operated by trackage rights over the UP. The SP&S left Spokane on GN track and entered its own trackage at Fort Wright, where the GN turned north toward Seattle. The Spokane, Portland & Seattle continued on to Pasco, Wash.

THE LAYOUT

Construction on the layout began shortly after he and his wife, Sheila, moved into their new home in 2006. The layout is built as a single deck, around-the-walls design with peninsulas and a 15-track hidden staging yard. This consists of 11 double-ended tracks and 4 stub-ended tracks. The layout can be a continuous run for visitors or point-to-



Spokane, Portland & Seattle Third Sub

HO scale (1:87.1)
Room size: 27 x 55 feet
Scale of plan: $\frac{3}{16}$ " = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger
Find more plans online in the
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between these two cities.

Skip built the layout on 1 x 4 L-girders. The parts of the layout against the wall are cantilevered, which eliminates the need for legs and provides for easy and accessible storage below. The peninsulas are supported with legs of 2 x 2 lumber.

The track is all Atlas Code 83 flex-track, with no. 8 turnouts on the main line and no. 6 everywhere else. The turnouts are controlled electrically with Hanksraft torque motors and Micro-Mark Switch Tender switch machines mounted under the layout and controlled by toggle switches on the fascia.

point during operating sessions.

Marshall and Scribner, two important stops in Marshall Canyon, are modeled, along with Rodna, Washtucna, Kalohtus, Fort Wright, Spokane, and Snake River Junction.

At Washtucna, the engine-servicing area, depot, and yard are at an elevation above the town proper. The Washtucna Branch travels down on a 1.5% grade to the town and its industries. This town is served by both the UP (via the Oregon-Washington RR & Navigation Co., which was the first to reach the town) and the SP&S.

Also included on the layout is the Palouse & Lewiston Branch from Marshall to Lewiston, Idaho. The NP and UP had joint trackage over this branch line. At Snake River Junction, there are setout tracks for the NP branch to Riparia. The railroad runs east and west between Spokane and Pasco. The Northern Pacific mainline also runs across the layout

THE LAYOUT AT A GLANCE

NAME: Spokane, Portland & Seattle Third Subdivision
SCALE: HO (1:87.1)
SIZE: 27 x 55 feet
PROTOTYPE: SP&S, Great Northern, and Northern Pacific
LOCALE: Pasco, Wash., to Spokane, Wash.
ERA: 1940s through 1955
STYLE: walkaround
MAINLINE RUN: SP&S: 215 feet, NP: 100 feet
MINIMUM RADIUS: 36"
MINIMUM TURNOUT: no. 6
MAXIMUM GRADE: 2%
BENCHWORK: 1 x 4 L-girder
HEIGHT: 44" to 56"
ROADBED: Homasote on $\frac{3}{4}$ " plywood
TRACK: Atlas code 83
SCENERY: plaster gauze over cardboard strips
BACKDROP: hand-painted $\frac{1}{8}$ " tempered hardboard
CONTROL: CTC-80 command control



3 Alco RS3s No. 81 and 84 ease out of Washtucna Yard over the UP track from Washtucna with Extra X81 East in tow. On the SP&S, only passenger trains were scheduled; all freights ran as extras. The RS3s are Atlas models.

4 Steam and diesel share the rails on Skip's SP&S. Here, NP 4-6-6-4 articulated No. 5104 leads train X5104 West over the Spokane River. The bridge was built using Micro Engineering kits. The river is Unreal Details Magic Water two-part resin topped with clear silicone caulk waves.



Running the Scribner Turn



5 At the Northern Pacific's Parkwater engine terminal, Spokane, Portland & Seattle class Z-6 No. 901 departs to run the Scribner Turn. Because Scribner has no locomotive turning facilities, the 4-6-6-4 articulated locomotive will run tender-first to Scribner, then return engine-forward with interchange cars for the NP.

THE SCRIBNER TURN IS one of the things that Skip found most interesting about the Spokane, Portland & Seattle's Third Sub. Scribner is an interchange yard between the SP&S and Northern Pacific, both of which also had yards in Spokane. The reason they didn't interchange in Spokane was the joint ownership of the SP&S.

Since the Great Northern and the NP each had a 50% interest in the SP&S, they would swap management of the SP&S every 10 years. When the GN was in charge, the SP&S's Spokane yard would get overwhelmed with over-

flow traffic from the GN's Spokane Hillyard, leaving not enough room for NP cars. The answer was the Scribner Turn, which would run out of the SP&S yard to Scribner and return with NP traffic.

Just like on the prototype, Skip's Scribner Turn runs down the line tender first, as there was no turning facility at Scribner, and run back to Spokane engine first. The prototype train could haul as many as 100 cars twice a day. On Skip's layout, the turn handles as many as 16 cars per trip twice a session. — Dave Rickaby

ROLLING ALONG

Agriculture was one of the mainstays of industry in the region, with wheat and other grains as the main commodity. Fruit, such as cherries and apples, was also shipped by rail. Cattle and sheep were fattened on the grasslands and shipped to the meat packing plants. Lumber was another staple. All of these commodities are reflected in the Bills of Lading on the switch lists.

Skip has a stable of well over 80 steam and diesel locomotives. The steam

locomotives are brass offerings from Tenshodo, Key Imports, and NorthWest Short Line. All but one of his diesels are plastic models from Athearn, Atlas, Pro-2000 by Walthers, and Stewart.

The layout is controlled with the CTC-80 analog direct-current system. The wireless throttles are simple, employing forward, reverse, and speed control. The only electrical blocks are in the roundhouse at Spokane and in staging. The layout is wired similarly to DCC, with bus wires and power boosters.

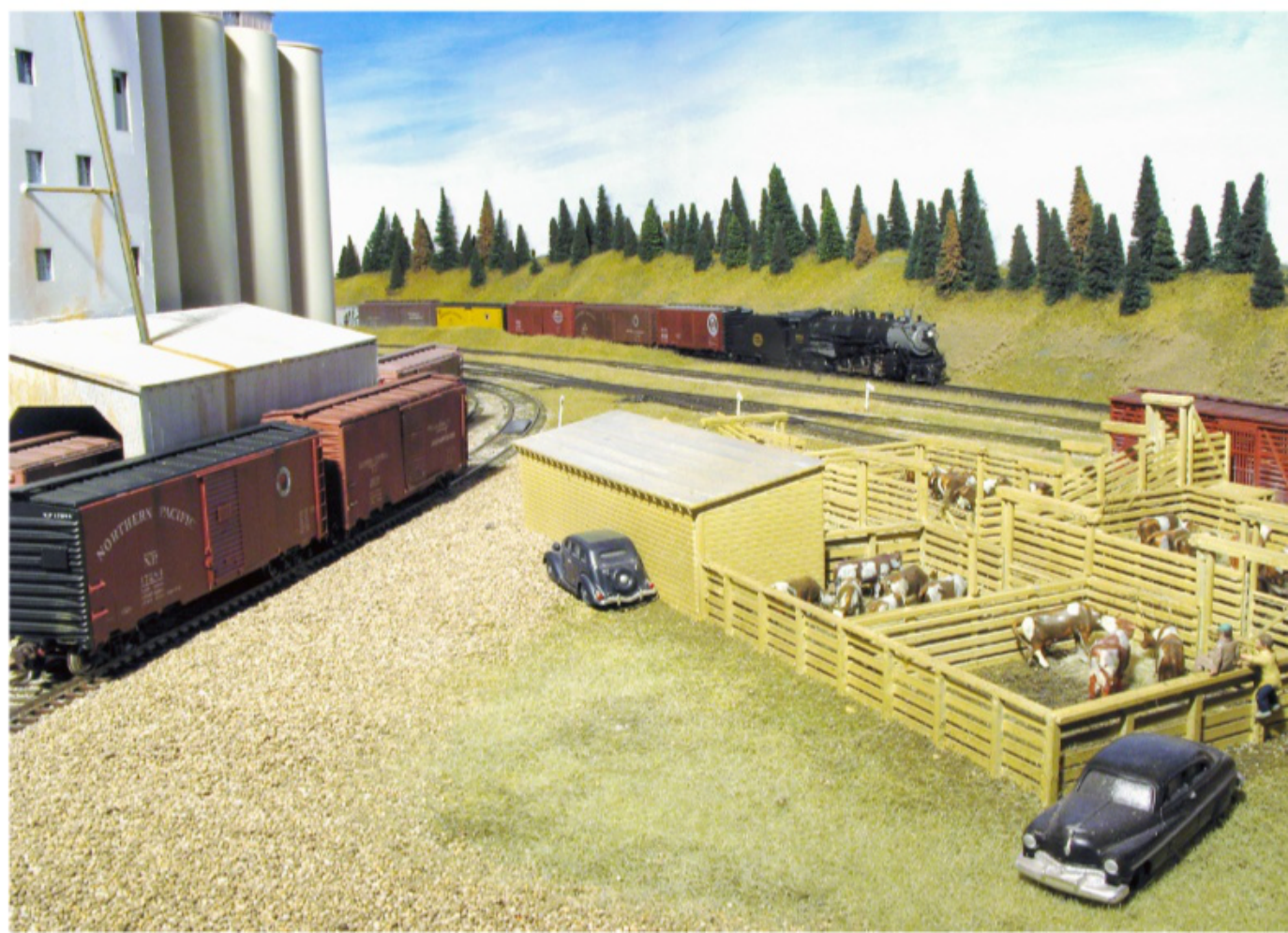
Skip models the SP&S Third Subdivision circa 1940 through 1955. His fleet of 420 pieces of rolling stock are all correct for the era and include offerings from Accurail, Athearn, Atlas, Bowser, Branchline Trains, Rapido, Red Caboose, and Walthers.

As for passenger cars, Branchline, MTH, Rapido, Walthers, and some of the brass manufacturers are represented. There are 180 spots to set out cars at the various industries and interchanges around the layout.



6 Scenery on the SP&S transitions from pine forest to rolling grassland to high desert, and volcanic basalt outcroppings are everywhere. Northern Pacific F9 diesels No. 7004D and 7004C lead Extra X7004 West on a basalt fill just west of Marshall.

7 Eastbound SP&S manifest freight No. 276, pulled by class O-3 Mikado No. 531, passes the Armour meat packing plant's stock pens and Grain Growers grain elevator in Spokane on its way to GN's Hillyard Yard.





SCENERY

Skip created his landforms using a web of cardboard strips attached between the fascia, subroadbed, and backdrop. Wood supports were used underneath where necessary. Plaster gauze was laid over the top of the web. Once it hardened, Skip applied a layer of ready-mixed joint compound, smoothing it with a wet paintbrush. Once the top coat was painted, he added ground foam from Woodland Scenics and Scenic Express. Skip also used static grass from both manufacturers.

The scenery west of Spokane starts out as a pine forest that transitions to rolling grasslands and eventually to High Plains desert. In this part of the country one can see for miles.



Basalt rock outcroppings are everywhere. There are two different types of basalt in the region Skip models. Along the Columbia River is columnar basalt, which is roughly square columns of lava rock that jut up from the ground. Between Spokane and Pasco, most of the hills are more of a solid, rolling type of basaltic lava flow.

To represent these rock outcroppings, Skip used foam rubber basalt castings from Cripplebush Valley Models. Though they come already colored, Skip noted that basalt should include some highlights of oranges, whites, and grays, so he added these with a drybrush.

To represent the pine forests west of Spokane, Skip used offerings from Noch, Busch, and Heki. He sprayed them with hair spray and shook them in a bag of ground foam to add texture.

Skip poured the water in both the Spokane River and the small lake at Kalohtus using Magic Water two-part resin from Unreal Details. On the Spokane River, he also applied a clear caulk and smeared it about with his fingers to represent flowing water.

The backdrop is made out of 1/8" tempered hardboard and painted with a blend of blue and white, getting lighter toward the horizon. Downtown Spokane

8 Northern Pacific No. 501 is the power for Palouse & Lewiston Branch passenger train No. 314, seen here making a stop at Marshall depot. The passenger cars are made by Athearn and the Baldwin AS-16 is a Bowser model. The Marshall depot is a kit from the Northern Pacific Ry. Historical Association.

is depicted as a 20-foot-long photograph, with building flats in front.

The fascia is also made of 1/8" tempered hardboard, painted green. Each town has the track schematic on the fascia showing the industry names, switch locations, and other information. Skip has learned from operating other modeler's layouts is that one of the most critical things on a layout is signage. It's vital that operators not familiar with the layout know at a glance where they are, what's in front of them, and what's next down the line.

The structures on the layout are mostly plastic kits from Walther's Cornerstone, Design Preservation Models (DPM), and other, older brands. The coaling tower at Washtucna is a brass and cast white metal kit that he assembled. Scattered about are some wood craftsman kits, as well.



9 Eastbound SP&S passenger train No. 4 pulls up to the GN-SP&S union terminal in this view of the west end of Yardley Yard in Spokane. The city is represented by building flats along the photo backdrop.

The SP&S depots along the main line were laser-cut by a friend of Skip's, to whom he gave scale plans and photos. The SP&S/GN union station at Spokane is a compressed version of the prototype Skip built primarily with DPM modular pieces. The clock tower is a piggy bank that was purchased at the World's Fair when it was in Spokane.

The layout is illuminated with 5,000K daylight light-emitting diode bulbs.

RUNNING TRAINS

Skip loves to host operating sessions, averaging six a year. The layout can operate with a crew as few as four or as many as 12. However, his comfort zone is eight or fewer. More people will require two-man crews.

An experienced crew can run as many as 30 trains during an operating session. If the crew is up to it, the session can go longer. A session can also stop at



any time and start from that position at the next session.

Normally, an operating session will last about four hours. However, if he's hosting a large group from out of town, they will plan to run all day, starting in the morning, breaking for lunch, and resuming in the afternoon.

Skip uses Java Model Railroad Interface (JMRI) software for car forwarding on a 24-hour clock. The system keeps

track of where the cars are at all times, whether spotted on a spur or in a train. Between sessions, Skip will walk around the layout to double-check the list. If an operator forgot to pick up or set out a car, Skip can make that adjustment before the next session.

Skip uses a color-coding system on his switch lists. Each car has a separate color for either setouts or pickups. Cars with hazardous cargos have their own color code. He also uses Manifest Creator for Java Model Railroad Interface (MC4JMRI, an add-on program) to generate foldable switchlists.

Recently Skip added fast clocks and a timetable. The only trains on the SP&S that ran on timetables were the passenger trains; everything else was run as an extra. Skip operates his railroad as a sequence of events. His switch lists are in an order-of-event stack. The train on top is the first train out. When a crew finishes their run, they get the next train in the stack, and so on until the stack is gone.

The layout operates without a dedicated dispatcher. The timetable the crews carry tell them when and where they will be meeting the passenger trains. Skip acts as a roving dispatcher, telling crews when and where to take a siding to hold for a train. He's willing to implement dispatcher control if he can find someone who can dispatch using a train sheet and train orders in his local group.

In his 15-track staging yard, Skip usually parks two trains per track. As the first train leaves its track, the second is moved up. The original train will complete its trip and return to the back of the same track, in the space vacated by the second train.

The yardmaster at Spokane doesn't have a lot of trains to make up and break up. His primary job is to serve the local industries, which include a large grain elevator and a packing plant, as well as a team track, stock clean-out track, and RIP track. He also hosts power in and out of the engine facility. This yard is also the center of operations for the Scribner Turn (see "Running the Scribner Turn" on page 83).

MEETING GOALS

Skip's goal for now is just to host operating sessions, have fun, and help people learn how to operate a railroad. He

MEET SKIP CASWELL

SKIP WAS BORN AND RAISED in Mankato, Minn. Now retired from We Energies as a maintenance and construction supervisor, he and his wife, Sheila, live north of Iron Mountain, Mich.

In addition to model railroading, Skip also enjoys hunting, fishing, skiing, shooting sports, ham radios, and bicycling.



tries to emulate the prototypical operations of the railroads that existed then in this region.

As a modeler, Skip thinks people need things to do with their hands, their minds, and their time. The hobby has taught him a lot, such as how to work with small things and develop the patience to accomplish his projects.

Skip is happy to offer help to anyone who needs it, especially beginning modelers. He enjoys when people come over to see the layout and perhaps realize what they could also accomplish. He warns them that the hobby can be expensive, but also shares ways to keep the expenses down.

His motto is never give up. In the beginning, he didn't enjoy doing scenery, but found that he had some artistic talent he could put to use on his layout.

Skip says he has met a lot of wonderful people in the hobby. He enjoys visiting other people's layouts to see what they've done and learn how they did it. This way, he can adapt those techniques to his own layout. Sharing skills and knowledge with others is one of the best parts of the hobby, Skip says. He's always willing to show the layout and hopes to meet new people, make new friends, and find new operators.

It also helps to have a supportive spouse. Skip's wife, Sheila, has been more than just supportive, even building some of the structures on the layout.

Skip believes that model railroading forces you to learn, and that one should never stop learning. **GMR**



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Bringing your layout to life

By Steven Otte
Photo by Tom Danneman



MODEL RAILROADS HAVE BEEN DESCRIBED as stages, with the trains as the stars of the production. But have you ever seen a play where only the lead actors move?

The realism we strive for in building, scenicking, and operating our layouts shines through in the photos in these pages. But when you view a layout in a video or in person, you might notice something. Isn't it strange for the trains to be the only things on the layout that move? What other aspects could we bring to life?

Lighting is one of the easiest ways to bring motion to a layout. I'm not just talking about working streetlamps and illuminated structure windows. Grade crossing flashers that blink when a train approaches, sometimes paired with working gates, are a must. Animated advertising signs and flashing marquees are also commercially available, as are traffic lights that switch from green to yellow to red. Other circuits simulate campfires or welding torches. On Bill Smienk's HO scale layout, a photographer captures a wedding in front of a church (page 22). A pushbutton on the fascia sets off the flash on his camera. Now that's a fun detail!

Vehicles need not be static, either. German manufacturer Faller offers a system that lets trucks and buses circulate city streets under their own power. You can see it in action on the Colorado Model Railroad Museum's HO scale layout (page 8), along with a lot of other animated and interactive features, like the smoky fire scene shown at the top of this page.

With a little ingenuity, it's even possible to add motion to figures, from lantern-waving yard crews to shovel-wielding road workers to skaters twirling on an ice rink. The Colorado museum has a scene where, at the push of a button, chickens peck at feed a farmer scatters for them. Look around your layout. Are there places you could add more life? **GMR**

A pushbutton on the fascia of the Colorado Model Railroad Museum's HO scale layout activates flickering lights and plumes of smoke from a building fire. Animated scenes like this increase viewer interest in our layouts.



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