Model Railroader SPECIAL ISSUE

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GREAT Model Railroads 2026

Incredible modeling

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Holiday 2026

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- Adding narrow gauge enhances layout
- N scale model railroad in 7.5 square feet

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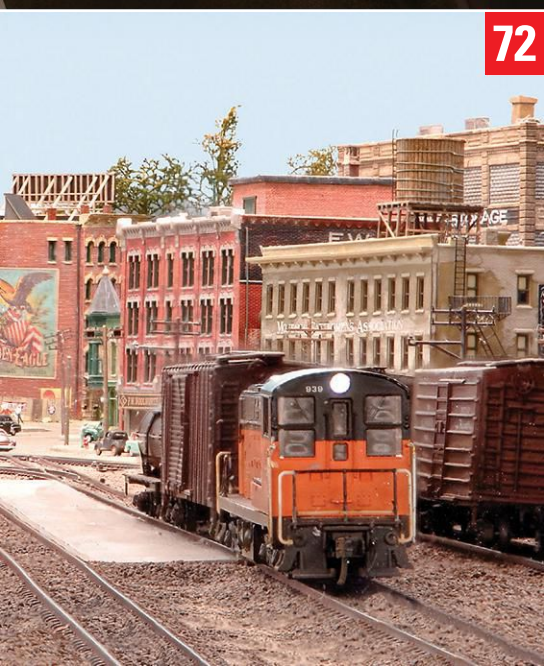

Model Railroader SPECIAL ISSUE

GREAT Model Railroads 2026

COVER: A couple watch the action below on Marc Pitanza's Staten Island Rapid Transit North Shore Sub. Marc Pitanza photo

GREAT Model Railroads 2026

Finding the best of the best

WHAT MAKES A MODEL RAILROAD GREAT? A question you might well ask as we present nine more model railroads in this year's edition of *Great Model Railroads*. This started as a project edited by Andy Sperandeo in 1991, which he continued until his passing in 2015. Steve Otte took over for about a decade after Andy, and now it's my turn.

We've each put our stamp on the issues, but what makes a model railroad a candidate for this special issue seems to be something we just understand. It's easier to say what isn't a criteria. It's not size. Just because a model railroad is really large doesn't mean it's great. We're looking at the definition of great as being really good, not really large.

It doesn't have to be built by a well-known modeler to be great. It doesn't matter what the prototype is, whether it's operations-oriented, whether is freelanced, proto-freelanced, or an exact scale replica of a full-sized, prototype railroad.

In a way, it's like Allen McClelland's concept of "good enough" model railroading, except that the modeler's level of "good enough" is pushed to the extreme. But Allen wasn't necessarily advocating for mediocre modeling. He was suggesting that everything needs to be built to a similar level of completeness and detail.

That's one of the things great model railroads have. There aren't exceptions that need to be given, no handicaps awarded, no free kicks or ghost runners. Everything works together well. There's no one spot that takes you out of the illusion that you could be looking at a photograph of a real railroad rather than a model.

That all starts with the layout's concept. All of these model railroads have a purpose behind them. The builder had a vision, a goal in mind before the first line was drawn on paper, or the first bit of lumber was cut.

And it progressed from there. Each additional part adds to the story these layouts' builders want to tell. The choices of railroads to model, the scale the layouts are built in, the eras they represent.

Great model railroads present scenes that we look at and either say, "Yes, that's the way that looks," or "I've seen scenes that look like that." Nothing needs to be explained away. As we look more carefully at the photos of the railroads, we see more things that we know must be there, and that the modeler has included.

And finally, these perfect elements aren't just in one scene on the model railroad, but they're repeated over and over. The towns look like they've grown up out of the layout surface, the spaces between can almost be smelled and heard. Everything is just exactly right.

That's what makes a great model railroad. Enjoy!

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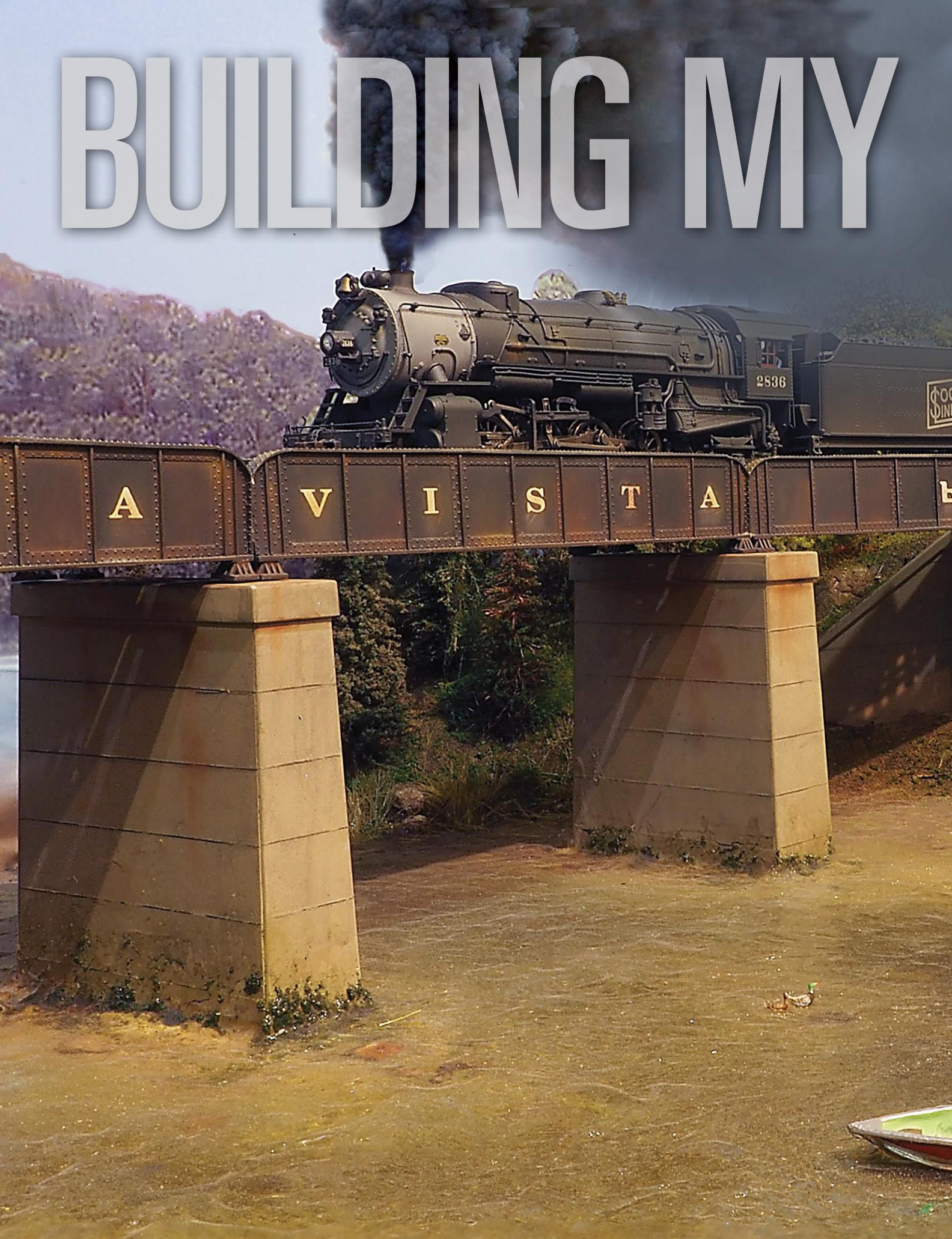


FAVORITE RR ...AGAIN

The fifth time is the charm for this HO scale freelanced Midwestern layout

By Gerry Leone ▪ Photos by the author

1 The peaceful summer day's solitude is shattered as Soo Line 2-8-2 Mikado 2836 thunders across the Eagle Lake bridge on its way to home rails. Building a new house allowed Gerry Leone to design and construct his double-deck dream layout, the fifth and best incarnation yet of the freelanced HO scale Bona Vista RR.

2 **After a busy day's work, the three Bona Vista 2-8-0 Consolidations (Bachmann Spectrum models) rest in front of The Bicktul Co. This scene was shot on the layout's lower staging yard, which has full scenery.**

3 **The Bona Vista 5 resides in a 20 x 30-foot purpose-built room and is a double-deck, free-standing layout with aisles on all sides. Good lighting, black fascia, a valance, and leg curtains make the layout room an inviting place to visit and run trains.**

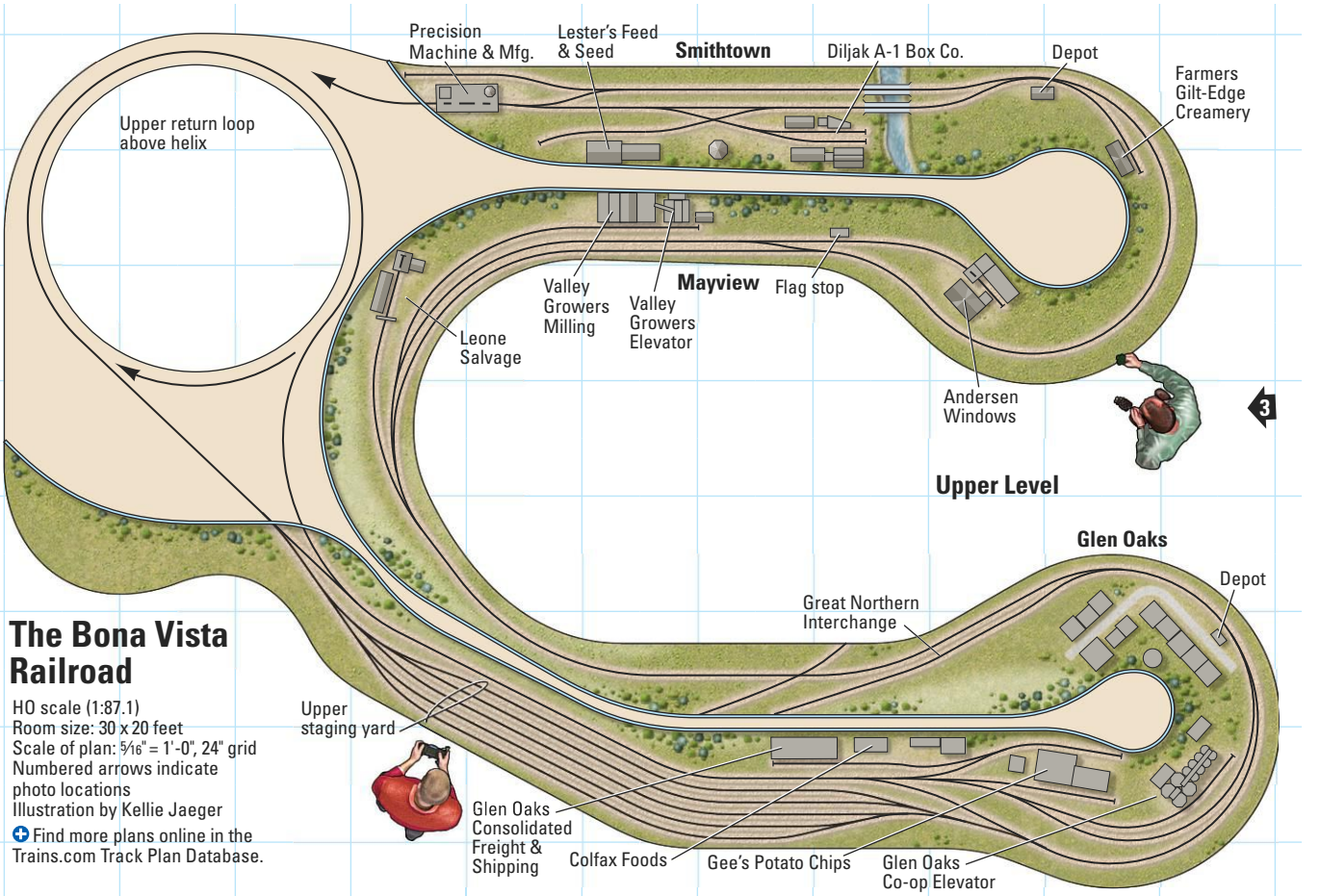
IN 2020, when my wife, Renay, and I decided to build a new house on 87 acres of former pasture land that was her childhood home, I dismantled my HO scale Bona Vista Mark 4 in short order. I then faced a decision for a new layout: do I model something completely different — say, a narrow gauge logging railroad or a modern Class I hauler? Or do I stick with the same mid-'50s Upper Midwest short line that I'd modeled for four previous layouts?

Knowing that this would most likely be the last layout I'd build, and knowing that I didn't want to say, "I wish I would have…" I opted to stick with my tried and true theme. And thus, the Bona Vista RR Mark 5 was born.

Yes, it's a freelanced railroad, which seems to be out of vogue these days. But that's what I like. And I've never been one to follow trends anyway.

THE LAYOUT AT A GLANCE

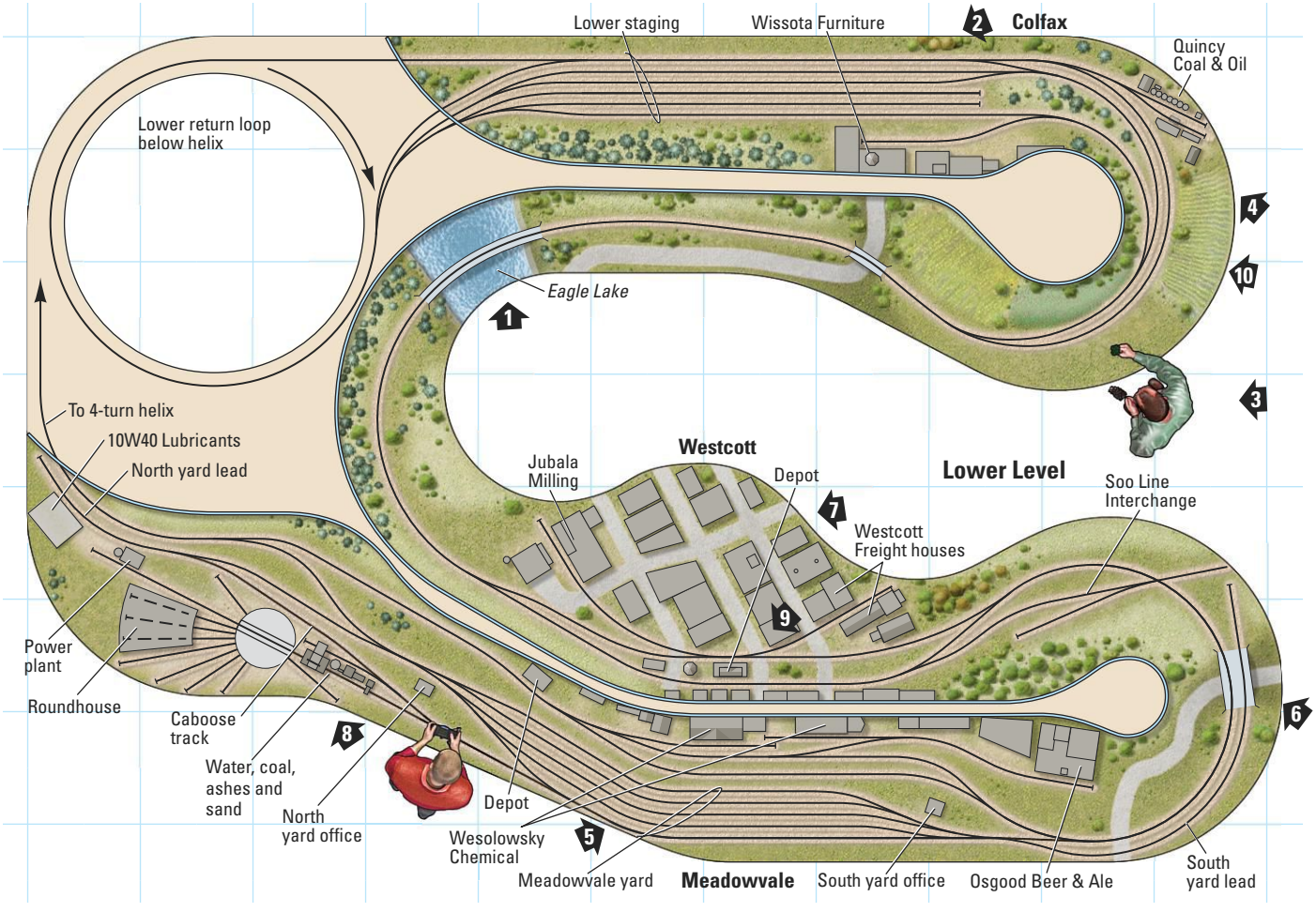
NAME: The Bona Vista RR
SCALE: HO (1:87.1)
SIZE: 20 x 30 feet
PROTOTYPE: freelanced
LOCAL: central and northern Midwest
ERA: summer 1954
STYLE: multideck walk-in
MAINLINE RUN: 268 feet
MINIMUM RADIUS: 24"
MINIMUM TURNOUT: No. 5
MAXIMUM GRADE: 0.46% (mainline) 1.47% (helix)
BENCHWORK: L-girder (lower deck), shelf brackets (upper deck)
HEIGHT: 34⅜" to 38" (lower deck), 52⅜" to 55½" (upper deck)
ROADBED: cork
TRACK: Micro Engineering Code 83 and 70 flextrack
SCENERY: extruded-foam insulation board, plaster cloth, and Sculptmold
BACKDROP: photo
CONTROL: Digitrax Super Chief DCC



The Bona Vista Railroad

HO scale (1:87.1)
Room size: 30 x 20 feet
Scale of plan: 5/16" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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



4 **The afternoon sun reflects off the boiler of Consolidation 22 as it rounds the corner behind Quincy Coal & Oil in the town of Colfax. This small-town industry is a combination of two Walthers Cornerstone kits: Trackside Oil Dealer and the Goldenflame Fuel Co.**

A HOUSE AND ITS RAILROAD

Because of soil problems, the new house would have no basement but be built on a concrete slab instead. Although disappointing at the time, that change of plans worked out for the better, giving me a dedicated 20 x 30-foot train room (Renay calls it "the Train Wing"). It also has three sets of double windows that look out on the gorgeous rolling hills of the pasture. In-floor heat for the room was icing on the cake.

As the new house was being built, I quickly got busy designing the new layout with 3rd PlanIt software by Eldorado Software. I knew the windows would keep the train room from feeling like a dungeon, so I planned the layout to be free-standing in the center of the room. The 30" aisles on all sides ensure the sunlight and summer breezes are part of the environment, which also includes my

5 **The skies are heavy with rain as the 2-6-0 Mogul wades its way through a sea of freight cars to build the next train leaving Meadowvale Yard. The engine, on permanent loan to the Bona Vista from the Winona & Southwestern RR, was from Gerry's friend, Art Van de Water.**

Gerry makes easy-to-read turnout ID flags from the handles of GUM Soft-Picks, an inexpensive oral hygiene tool.

Labeling the turnouts

TO MAKE THE LAYOUT less confusing for visiting operators, I try to position the Touch Toggle that controls a turnout's Tortoise by Circuitron switch motor on the fascia in line with the turnout's points. Unfortunately, there are places where three or four turnouts are adjacent to one another, as well as other places where under-benchwork framing gets in the way of the Touch Toggle.

To work around those problems, I came up with an unobtrusive way to label the turnouts and their controlling Touch Toggles using GUM Soft-Picks — small, plastic devices designed to remove plaque from between teeth. I paint them black, cut off the rubber "brush," and print a label for each pick. The pick gets mounted in a hole near the turnout points; the corresponding Touch Toggle on the fascia gets labeled with the same letter. — *Gerry Leone*

office. I'll admit, though, I sacrificed a few aisle inches here and there for more layout. Since it's usually only me in the room, that hasn't proven to be a problem. Four in-floor outlets eliminated the need for power cords across the aisles.

If you're a Trains.com subscriber, you already know the whole story. Because David Popp and crew were never able to build a "basement-size" layout in their workshop, they suggested I roll some video while starting from the ground up. That series, "Back on Track," consisted of 25 episodes that began with a totally empty room and ended with the first layout scenery. My current video series, "Spaces to Places" takes a deeper dive into scenery building techniques.

THE BONA VISTA LAYOUT

The Bona Vista 5 is an HO scale multideck layout with a four-turn helix connecting the decks. I liked the long mainline runs of my last railroad, but that layout, without a helix, had a 1.5% grade over the entire length of track. The back end of trains broken apart for local switching would tend to roll away on their own. (A friend jokingly called it "self-staging.") Not wanting to go through that again, I built a helix.

Although the layout is basically a point-to-point railroad, each end includes a return loop that allows for continuous running of a through freight (I call it a "drone") while I'm busy switching locals. It makes the layout feel more alive and keeps me on my toes. To best utilize the room space, I built the two return loops above and below the helix.

TURN, TURN, TURN, TURN

To save space for the return loops, I had to compromise and have a grade on each of the two decks. I spent a great deal of time letting 3rd PlanIt do the

6 Bona Vista No. 23 crosses the Soo Line tracks and heads over Highway 33 on the double-track concrete bridge. The steam engine, a Walthers Proto 0-8-0, has been put to work on this day carrying out road duties. In this rural area, reliability is more important than speed.

"grade math" for me. The lower deck's grade starts at its return loop and ends at the first turn of the helix. The 0.46% grade on the lower deck buys me the clearance needed to place the return loop under the first turn of the helix.

The upper deck's 0.46% grade starts at Smithtown, and allows for the clearance needed to place the return loop above the helix. The half-percent is barely noticeable and I honestly forget that both decks are on a grade. Visually, it's nearly impossible to detect.

But that was just the beginning of the math. Fortunately, 3rd PlanIt was really helpful in designing the helix too. I wanted a minimum of 18" railhead-to-railhead between the decks. Of the options 3rd PlanIt generated for the helix, I chose one with four-turns and a 34" radius, creating a workable 1.47% grade.

I braced the turns of the helix every 12" to avoid sagging. At prototypical speeds, the train spends about three minutes in the helix, which gives me time to study my switch lists, grab a soft drink or snack, or check email. A great side benefit is that it makes the train feel like it's traveled some distance.

The lowest trackage on the layout, the lower return loop, is 34⅜" off the floor; the upper return loop is the highest track at 55½". The layout's subroadbed is built of stable ¾" birch plywood. It was pricey, but it was worth it.

STAGING AND THE MAINLINE

As mentioned, the layout is a point-to-point design, with a classification yard in the dead center. Both of my end point staging yards are fiddle yards. I use JMRI Operations Pro to determine train consists, and the fiddle yards allow me to change the make up of trains between runs during an operating session.

Visually, the staging yards look the same as the rest of the layout: Wide-open with full scenery. If I'd used hidden staging, I'd have had to mount it under the layout. With no basement, storage space under the layout is precious, so open staging was my best option.

All told, the BV5 main line has far more straight runs than any of my previous layouts, and thus looks more like a granger railroad. Each deck has just three towns, which keeps my beloved "spaces between places" philosophy in-

7 **Unlike many small towns its size, Westcott doesn't roll up its sidewalks at night, but instead is a busy place late into the evening. Gerry lights many of his structures, using Arduinos to animate some of the lighting effects.**

tact. The farm-field-lined tracks really give the impression that the train has traveled some distance. Even the towns themselves have only a few locations to drop cars, making the BV5 feel like a true short line. In some cases, those switching locations are spaced far enough apart to further create the illusion of distance. Each town has a passing siding that will accommodate a 12-car train — the longest I ever run — plus an engine and caboose.

In many ways, the BV5 has become a tribute to the layouts and places that preceded it. Four of its six towns are named for the streets where our homes and previous layouts were located. And I named the scenic focal point of Eagle Lake after the lake built on the Bona Vista 4.

Having so many structures built for previous layouts meant that progress on the BV5 has been rapid. Several of the structures have been on three previous Bona Vista layouts. Many are named for longtime friends or clients I worked with in my advertising career. As the layout nears completion and I get more time, I'll replace some of the well-worn or dated structures with new ones. Scratchbuilding and kitbashing structure models is a part of the hobby I really enjoy.

While I used 3rd PlanIt to design the main line, I designed the towns' sidings and spurs 1:1 on the floor by using flextrack and actual buildings. That gave me a good feel for how things would fit and look. When I was satisfied, I made a paper template of the tracks, which I then transferred to the actual layout.

CAMERAS AND CONSTRUCTION

Shooting video while working on a layout multiplies the time it takes to build anything by a factor of four. However, it's also handy to have the process documented in video, and I've often referred back it to answer my "now how did I do that again?" questions.

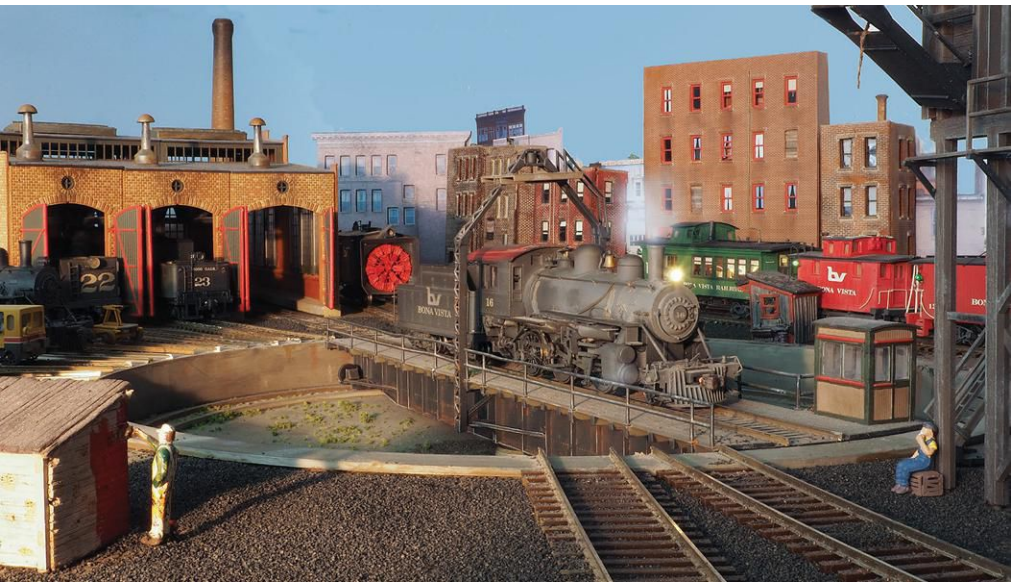
In spite of filming it all, I had the 268-foot main line, sidings, spurs, and backdrop in place and wired in only nine months. As I laid the track, I also added easements where I could.

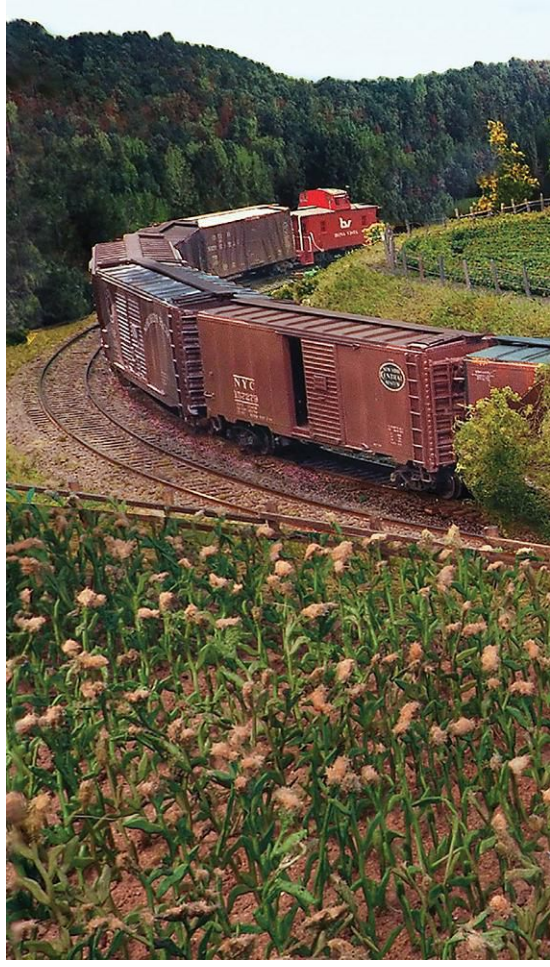
The lower deck is built on a framework of six L-girder tables. The towns and yards are supported on flat plywood, but the areas between them have only the track subroadbed supported by risers. This construction technique allows me to add streams, valleys, cuts, and fills, all of which help keep the lower deck from looking too billiard-table-flat. The Upper Midwest isn't as flat as most people think. By the end of year four, I'd filled the entire lower deck with scenery.

The upper deck is mostly flat plywood supported by Rubbermaid shelf brackets, a technique I used on my last layout. The brackets attach to twin-track steel uprights that I cut into one-foot lengths. I screwed the uprights to 2 x 4s spaced 16" apart. The 2 x 4s also support both decks' ⅛" hardboard backdrops. The advantage of this system over stamped steel L-shaped brackets is that, should I want to lower the upper deck plywood for a river cutout, I can easily adjust the brackets a notch or two without having to remove the lower deck's backdrop.

Both decks are lit by a series of 10-watt, high power, warm white LED light arrays that I bought years ago on eBay. The arrays are the size of a postage stamp, wired in parallel, and are spaced about 12" apart. They're attached to the underside of the upper deck and the valance. I power them with four 12-volt, 40-watt power supplies. I also installed track lights in the ceiling to brighten things up while working on the layout.

Just as with pervious model railroads, I utilized Arduinos for special lighting





8 The day begins bright and early at Meadowvale Yard. Mogul 16, the Bona Vista's smallest engine, rides the turntable before the crew begins sorting cars in the classification yard. A worker paints the old storage shack in "Bona Vista Red" as another watches while finishing his breakfast.

effects on this layout. Eagle Lake has an Arduino and sound shield that plays subtle bird noises (including eagles), emphasizing the remote nature of the place. The sounds of chirping birds in the middle of winter is a welcome addition when I'm working on the layout.

Another Arduino controls 16 room lights in the building flats behind the city of Westcott. Various lights go on and off randomly and with enough time between to keep the animation from being distracting or circus-like.

SWITCH TO OPERATION

I enjoy operating the layout, and because the Bona Vista is a short line with smaller customers, sessions are relaxed. I tend to operate when the spirit moves me, so 90% of my operating sessions are solo affairs, although I've had friends in for more formal sessions. Feasibly the layout could comfortably handle seven operators at once, with an engineer and fireman on each local train.

During my solo sessions I run one train at a time, but don't hesitate to stop the session to investigate the source of a derailment or fix something like a broken coupler. This tends to spread out layout maintenance so it's not such an onerous chore to do it all at once.

I use JMRI Operations Pro to generate switch lists. A full session involves eight trains: two through freights, which traverse the layout from staging to staging; an upper deck and lower deck turn to switch industries; and two locals that bookend the session and handle industries behind the yard. A yard goat — usually a 2-6-0 — puts the trains together based on the switch lists and handles the yard industry switching. The BV's two doodlebugs also run on occasion.

Unlike many model railroaders, I'm not a locomotive collector and only buy equipment on an as-needed basis. Thus, the BV5 has only 100 freight cars and 11 locomotives. Three engines are Bachmann Spectrum 2-8-0s; two are Walthers (formerly Life-Like) Proto 0-8-0s; two are Bachmann 2-6-0s; and one, decorated for the Soo Line, is a Broadway Limited 2-8-2. Two of the diesels are Broadway Limited SW7s and one is an Atlas RS1. I also have two gas electrics.

Because the 0-8-0s are my favorites, I use them as slow moving road switchers. The BV is a laid-back, cash-strapped railroad, so the heavy switchers fit the operations perfectly.

The layout has two interchanges. One is with the Soo Line on the lower deck, and the other is with the Great Northern on the upper deck. Short, unpowered tracks represent each of those railroads' main lines.

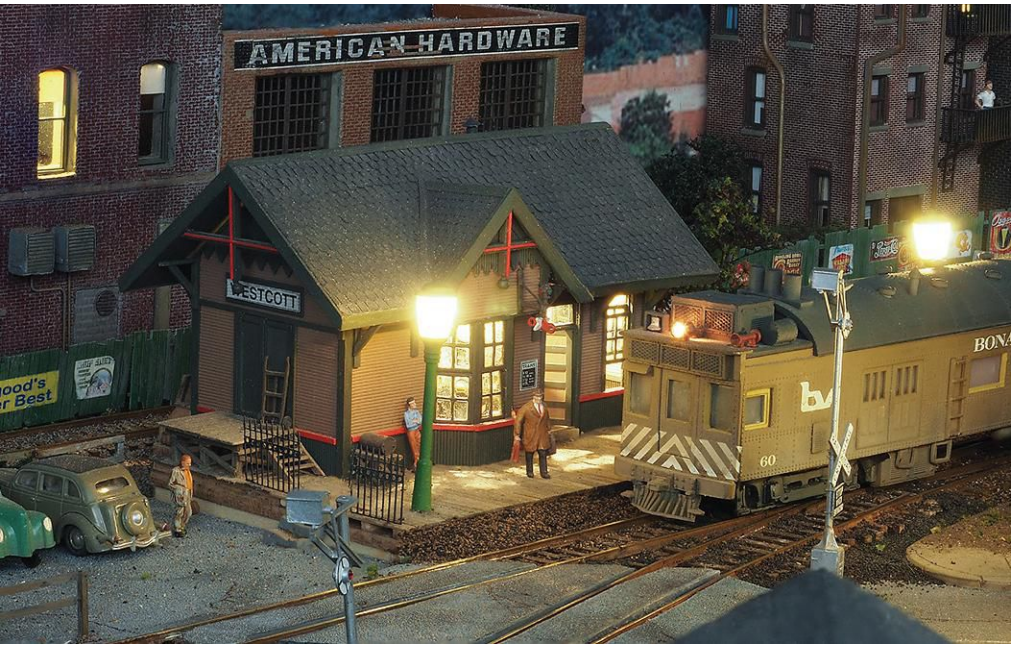
To operate the interchanges, I created a virtual town with five virtual industries and a virtual yard (which is, in reality, the physical interchange track) in Operations Pro for each interchange track. The virtual trains get "run" at the start of each session. According to the switch list, the real freight cars that were dropped at the interchanges in the previous session are removed from the layout by hand and placed on storage shelves. Cars returning from "Virtual Land" are then pulled from storage and placed on the interchange track for the next local to pick up. The system works well.

5TH TIME AROUND

So, after five years of construction, was building the Bona Vista for a fifth time worth it? Absolutely!

Using the same geography, the same time frame, and the same operating scheme meant I could quickly fix my previous mistakes and refine each of those aspects. It also meant I didn't have to spend months or years making adjustments or changes. And I didn't have to spend a bunch of time and money repainting or re-decaling freight cars, en-

10 **Bona Vista Alco RS1 No. 402 rounds the big curve just outside of the town of Colfax on the lower deck. Scenery is one of Gerry's specialties, and he is fond of modeling the "spaces between places" with a lot of rich detail, such as the two farm fields shown here.**



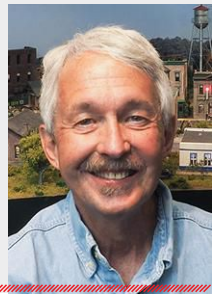
gines, and structures to reflect a different era or road name either.

In short, what I've done is evolve and perfect the original dream of the Bona Vista RR I had when I started the BV Mark 1 back in the late 1970s. And I'm pretty tickled about that. GMR

9 **The Bona Vista has limited passenger service, but it does run a gas-electric twice a day for the townsfolk who work in places other than Westcott. This kitbashed doodlebug was built following an Art Curren article in the February 1979 issue of *Model Railroader* magazine.**

MEET GERRY LEONE

GERRY LEONE was a creative director and writer at several Minneapolis advertising agencies for 38 years. He's produced almost 150 videos for Trains.com and has written more than 80 articles for the model railroad press. Gerry is an Honorary Life Member of the National Model Railroad Association and lives with his wife, Renay, dog Sammy, and cats Irene and Loretta in Elk River, Minn.



SWITCHING STATEN

Modeling B&Os little-known New York City branch line in N scale

1 The float bridge at St. George was active through the early 1980s. Marc Pitanza modeled a selectively compressed version of the prototype using two Bachmann plastic bridge and trestle sets. He scratchbuilt the pier wall and pilings from basswood.

By Marc Pitanza ■ Photos by the author

ISLAND ON A BOOKCASE

2 **Richmond Terrace, above St. George Yard, is a busy business and residential district. Most of the model structures needed to be modified to fit the street scene, which is only 5" deep.**

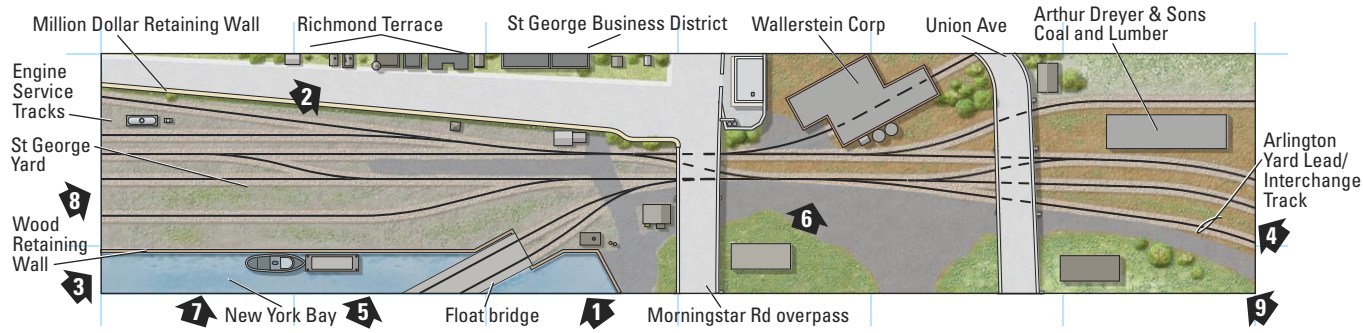
IN THE MONTHS BEFORE I WAS BORN, my father began building a 4 x 8-foot layout based on Linn Westcott's popular HO Railroad that Grows. So you can say I was fated to be a model railroader.

In my early teen years I began reading *Model Railroader* and discovered the work of Mike Tylick. His F&S Junction series, which ran in 1989, made an impression on me and opened my eyes to the possibilities of modular layouts. I worked on several HO scale modules, all based on scenes from New York Central's line north of New York City.

In 1999 I moved into a one-bedroom apartment in Brooklyn, N.Y., and I decided to start fresh with N scale. I stuck with N scale through two moves and having two children. I began construction on the layout you see here in 2007.

My first railfanning experiences took place in the New York City metro area. Though the tracks in my hometown of Staten Island were mostly dormant by the late 1980s, I knew they had a rich and storied history that included longtime ownership by the Baltimore & Ohio. I built several dioramas representing scenes based on Staten Island, and some of my efforts were published in MR's Trackside Photos. The layout in this article is a culmination of those efforts.

3 **Late afternoon sun captures Alco No. 488 switching tank cars in St. George.**



Staten Island Rapid Transit North Shore Sub.

N scale (1:160)
Size: 6 feet x 15 inches, Scale of plan: 1" = 1'-0", 12" 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: Staten Island Rapid Transit North Shore Sub.
SCALE: N (1:160)
SIZE: 1'-3" x 6'-0"
PROTOTYPE: Baltimore & Ohio/Staten Island Rapid Transit Ry.
LOCALE: New York City
ERA: summer 1953
STYLE: bookcase switching layout
MAINLINE RUN: none
MINIMUM RADIUS: none
MINIMUM TURNOUT: No. 4
BENCHWORK: box grid
HEIGHT: variable, depending on bookcase
ROADBED: hand-carved extruded-foam insulation board
TRACK: Peco code 55 flextrack
SCENERY: extruded-foam insulation board
BACKDROP: hand-painted tempered hardboard
CONTROL: DC, Spectrum power pack

4 Alco No. 488 slowly rolls through Mariners Harbor. The Arthur Dreyer & Sons coal and lumber dealership features a coal silo modeled from a Wm. K. Walthers Goldenflame Coal Dealership kit.

A BRIEF HISTORY

In 1860, local businessmen began building a railroad connecting the small towns along Staten Island's eastern shore with a terminal at Vanderbilt's Landing, where passengers could transfer to a ferryboat and continue on to Manhattan. In the late 19th century, real estate along the New York waterfront was at a premium and the Baltimore & Ohio found it was quickly being shut out of the lucrative New York market. The B&O saw an opportunity with the fledgling Staten Island Ry. and the cheap land it occupied, so it purchased the small passenger line in 1885, and expanded the island's single main line into three busy branches.

The B&O also constructed a swing bridge over the Arthur Kill tidal strait and expanded its tracks to connect with the Central Railroad of New Jersey main in Cranford, N.J. The B&O had a busy carfloat operation out of St. George Yard on the island's north shore.

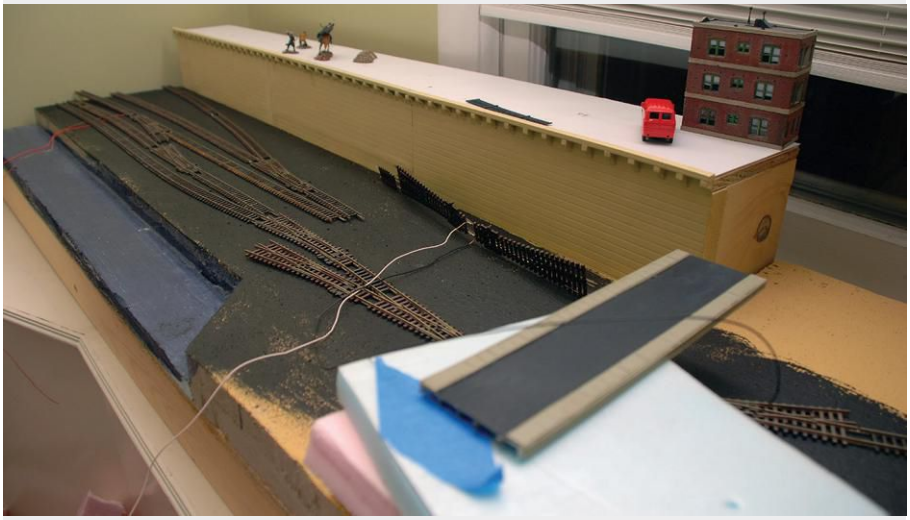
In its heyday, the Staten Island Rapid Transit Ry. had more than 40 passenger stations and two major freight yards. In 1971, the passenger portion of the line was sold to the New York City Transit Authority. After the creation of Conrail in 1976, freight traffic dwindled as large industries moved off Staten Island. The B&O remained in control of freight operations until 1985.

CONCEPT AND CONSTRUCTION

The layout focuses on the heavily industrialized North Shore Subdivision of the Staten Island Rapid Transit Ry. I placed the time-period of the layout in summer 1953 to avoid modeling SIRT commuter operations. Passenger service on the prototype North Shore ended on March 31, 1953. I felt adding third-rail detail in N scale would be challenging and decided that the post 1953, freight-only period of the line would be easiest and most satisfying to model.

I drew inspiration for the layout from the bookcase railroads featured in the

The Million Dollar Wall, the cost for which it was built in 1890, is still a Staten Island landmark today. Tom Griffiths photo



The wall and elevated section of the scene is recessed into the foam base.

Building a million dollar wall

A SIGNATURE STRUCTURE on my layout is the large retaining wall that holds up Richmond Terrace right behind the St. George Freight Yard. My model is based on the prototype Million Dollar Wall, which was the actual cost of the structure when built in 1890. It still stands today. The wall can be seen from the Staten Island Ferry, and it's the first thing people noticed on my layout.

I started by building a wedge-shaped box out of 1 x 4s. I removed a layer of the layout's extruded foam base to recess the elevated section into the scene. Once it fit perfectly, I removed the box and laminated sheet styrene to its face using DAP contact cement. I used Plastruct No. 91533 .250" Wood Planking on the front of the wall because it faithfully replicated the groove pattern of the prototype. I covered the gaps in the styrene sheet with downspouts modeled from square styrene strip.

I built the street using .030" styrene sheets lined with Evergreen sidewalk material. I snipped each square from the sidewalk sheet and glued them one at a time to the street. I made the finials using basswood doll house molding and capped the wall with square styrene stock

I primed all the parts and used Model Master FS 33722 Modern Desert Sand spray paint to give it a sandy, aged concrete appearance [Model Master paints have been discontinued. — *Ed.*] The ornate fence on top of the wall is made with photo-etched Z scale garden fencing from Miller Engineering. I'm very happy with the finished model, and it cost a whole lot less than the real thing. — *Marc Pitanza*

2003 issue of *Model Railroad Planning*. I had the magazine close by when I was drawing up my track plan, and the issue remains one of my favorites to this day.

The benchwork is made with an open grid built up from 1 x 4 pine. The grid is topped with medium density fiberboard (MDF), and measures 6 feet long and 15 inches deep. I chose this size so when not in use, I could easily store the layout on the top of an Ikea Expedit bookcase. I laminated extruded-foam insulation board to the top of the MDF to use as a scenery base.

I wanted to feature three of my favorite scenes from the SIRT's North Shore Subdivision on the layout. Each included a unique industry that would support interesting operation.

The first scene, which takes up half of the layout, is the St. George waterfront terminal. I built it to represent B&O's busy yard on the northeastern shore of Staten Island. I modeled a small engine terminal, a float bridge, and a yard. The second scene depicts the neighborhood of Elm Park and includes the largest industry on the layout; the Wallerstein Syrup factory. The third scene represents the area of the island known as Mariners Harbor. In this area the Arthur Dreyer coal and lumber dealership is the biggest rail customer. I also modeled an interchange track to represent cars moving to the sprawling Arlington Yard on the western end of the island.

In 1934, the B&O began an island-wide grade crossing elimination project. The North Shore line was dropped into a cut from Arlington yard to Elm Park, so I wanted to replicate the look of track laid below grade for my layout. After the track was installed, I began test-fitting rectangular pieces of 2" foam in front of and behind the right-of-way. Once the foam base pieces were fitted and carved, I glued them down to the MDF with PL300 adhesive.

After painting the foam, I glued the track down using Liquid Nails' foam-safe adhesive. I used Woodland Scenics fine track ballast throughout the layout. I also used piles of ground up off-white artist's pastel to represent sand dropped from locomotives. I cemented this detail to the scenery with matte medium.

The ballast in Elm Park and Mariners Harbor is a custom mix of dark gray and

5 **Alco No. 488 idles at the water's edge in St. George Yard. The small wooden barge in the foreground is an out-of-production kit from Micro-Trains.**

6 **A North Shore local freight working out of Arlington Yard passes a troop sleeper train in front of the Wallerstein Syrup factory in Elm Park. The lightly weathered sleeping cars are from Micro-Trains Line Co.**

brown gravel. This color is a close match for the ballast used on the prototype North Shore Sub.

I modeled a small section of New York Bay in the foreground of the St. George scene by painting the base dark green and pouring two coats of high gloss acrylic varnish from FolkArt over it.

For the rest of the layout, I applied scenery materials until I felt I had the look of the Eastern United States. I used a variety of foliage, including Woodland Scenics clusters, Scenic Express Super-Trees, and Silflor static grass tufts.

BUILDINGS AND BRIDGES

In St. George Yard I employ a number of smaller wood and styrene structures to tell the story of a compact, but busy, yard. The yard office is a wood kit from JL Innovative Design. I also included various sheds and shacks from GCLaser and Mountaineer Precision Products.

7 The Baltimore & Ohio employed a fleet of tugboats to move carfloats across New York Harbor. The tug is a Sylvan Scale Models resin kit, modified and detailed to represent B&O boats.

8 St. George Yard has a small engine terminal with a fuel tank and sand house. Fuel tank car X417, shown here in model form, was the prototype B&O car regularly assigned to Staten Island engine service.

I painted the yard structures a combination of white and green or a solid dark evergreen. These are the colors the SIRT used in the yard and throughout the island in the 1950s.

The small engine facility features various structures from Walthers, including the sanding tower and drying house. I kitbashed the fuel tank using a Micro-Trains tank car and styrene strip.

The building on Richmond Terrace at the top of the wall includes houses and small businesses. These are mostly modified from the old Model Power line of structure kits. The hotel and office buildings are kitbashed DPM buildings. To fit the space, some of the structures just 1" deep. I also included sidewalks and details, such as fire hydrants and mailboxes, to finish the tiny city scene.

I scratchbuilt the two overpasses on the layout following the prototypes. They make very effective scene breaks, and

separate the layout into three distinct areas. When running trains, this makes the layout seem larger than it really is.

LOCOMOTIVE FLEET

Until the late 1960s, the SIRT was almost an all Alco road. I have two Alco S2 locomotives on my roster. No. 488, which is seen in the photos, is an older Arnold/ Rivarossi model with a die-cast metal hood. I painted this engine to match the prototype. I used Microscale decals, applied one letter at a time, to the long hood. My second Alco, also an S2, is a sound-equipped model from Atlas and is numbered for No. 9031. I have a General Electric 44-tonner from Bachmann, which is perfect for handling the cars in St. George.

My power lineup also includes smooth running EMD Geeps from Atlas and NW2 and SW9 models from Kato and Life-Like, respectively. I operate these locomotives when I run a 1970s session on the layout.

CONTROL AND OPERATIONS

Switching cars and running trains can be very relaxing. When I operate the layout I take it off the bookcase and place it carefully on two sawhorses. I find it more comfortable to sit while operating and working on the layout. I run the railroad with a Bachmann Spectrum analog power pack. The layout is also wired for Digital Command Control, but most of my locomotives are analog, so this works for me.

There are two jobs during an operating session. In the first, the crew starts by picking up a short string of cars from the Arlington Yard interchange track on the western end of the layout. They then switch the cars at the appropriate industries. Outbound cars are picked up along the way and returned to the interchange track at the end of the run.

The second job involves switching St. George Yard. This includes blocking cars in the yard and loading and unloading the a carfloat. I use a simple car forwarding system to determine car movement in and out of the yard. The yard crew also delivers fuel and sand cars to the locomotive servicing facility.

This system works well for me, although I may include switch lists in future sessions.

9 **By periodically shifting eras from the 1950s to the mid '70s, Marc gives his railroad a new look, thanks to the Chessie System merger.**

Switching eras

I LIKE RUNNING EQUIPMENT from two distinct eras on my layout. My primary era, as seen in the accompanying article, is summer 1953. However, my second favorite time period, as seen in the photo above, is 1976, after the Chessie System merger brought a colorful array of locomotives and cars to the island. Many of the original SIRT Alco S2 units were rotated off the island in the early '70s and Chessie sent EMD NW2, SW9, and GP9 locomotives from C&O, Western Maryland, Pere Marquette, and the B&O, to work the line. The period's modeling variety was too good to pass up!

My friend and fellow SIRT modeler, Tom Griffiths, let me browse through his collection of slides from this era for inspiration. I simply switch out the trains and vehicles and then hit fast-forward to run in 1976. — *Marc Pitanza*

FUTURE PLANS AND PROJECTS

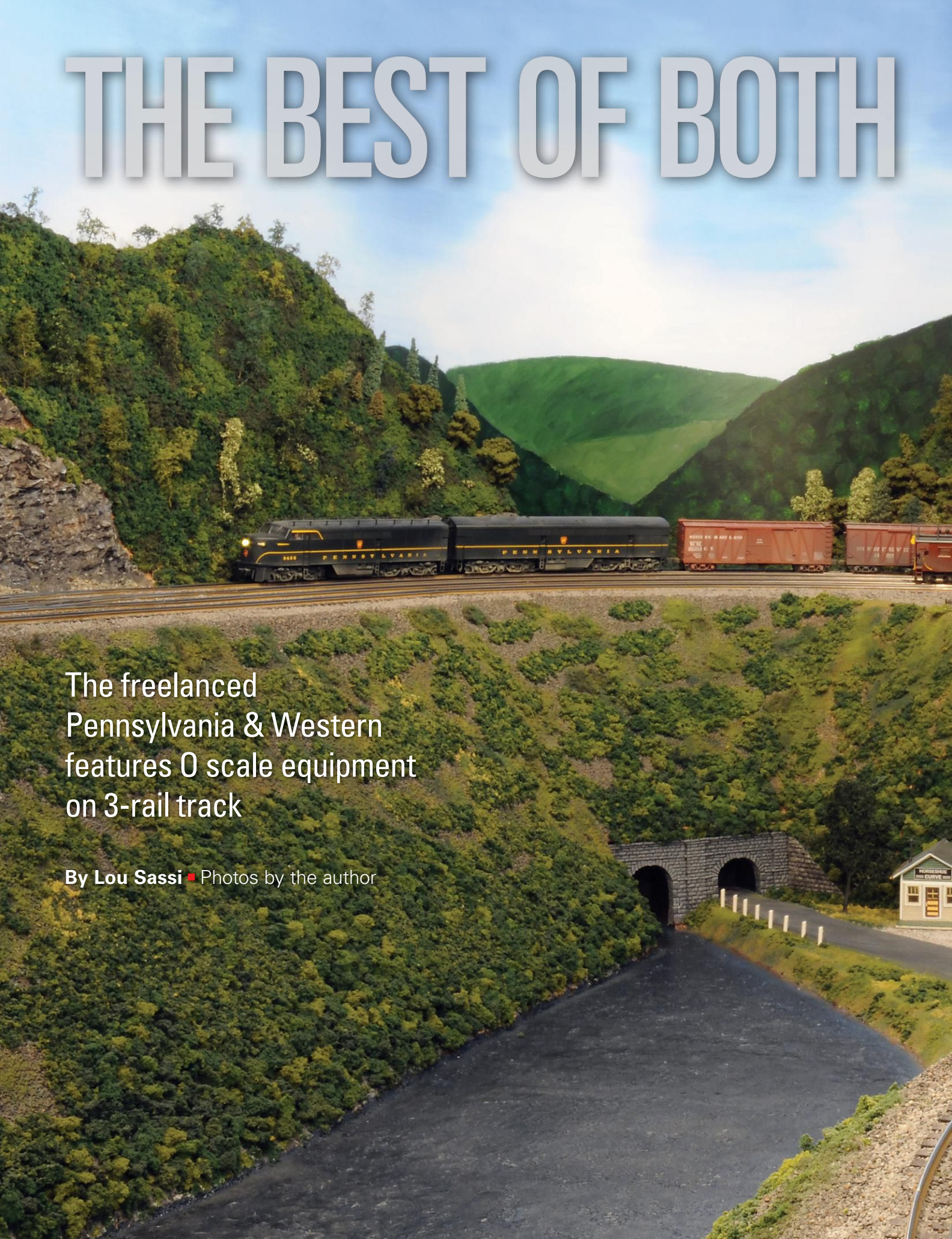
Building small layouts, such as my Staten Island Rapid Transit North Shore Sub, has allowed me to experiment with different eras and even different scales and provides a lot of variety. Besides N scale, I'm an avid HO scale modeler as well. I recently completed an HO scale micro-layout that represents the small two-stall enginehouse at Arlington Yard, and I'm currently working on an HO scale terminal layout set on Staten Island's East Shore. In the future I plan on designing and building a small N scale layout that will replicate the small yard that once served Staten Island's Procter & Gamble plant.

Regardless of scale, I still have much to model on the "ride along the Rapid!" GMR

MEET MARC PITANZA

MARC IS A BOOK BUYER for a major art museum in Manhattan. He is the author of *Images of Rail: Staten Island Rapid Transit* (Arcadia 2015). He's also a member of the National Model Railroad Association and Rail-Marine Information Group. Marc lives in central New Jersey with his wife, son, daughter, and Cockalier, Mylo. His other interests are photography and travel.

THE BEST OF BOTH



The freelanced Pennsylvania & Western features O scale equipment on 3-rail track

By Lou Sassi ■ Photos by the author

WORLDS

1 A pair of Electro-Motive Division F3 diesels lead eastbound train VC-6 downgrade at Horseshoe Curve while Fairbanks-Morse Erie-Built diesels climb westbound. The scene takes place on Bob Bartizek's 40 x 70-foot O gauge Pennsylvania & Western.

2 **The roundhouse and turntable at Annville and the impressive trestle at Summit are among the first thing visitors see when they enter the layout room. The black fascia and layout skirts keep the focus on the model railroad.**

3 **Train BC-25 rolls into Lebanon on its way to Conway Yard in Pittsburgh. Bob customized the Atlas Alco RS1 diesels with trainphone antennas, 3D printed trainphone receiver coils, and scratchbuilt equipment boxes.**

BOB BARTIZEK'S HOBBY JOURNEY keeps coming back to 3-rail. His current model railroad, the Pennsylvania & Western, represents a fictional subdivision of the Pennsylvania RR in the western part of the commonwealth between 1949 and 1953. Though 3-rail, the locomotives and rolling stock are scale. The layout uses GarGraves Phantom-line track with a black center rail.

Bob's roots in 3-rail go back to the 1950s. As a youngster, Bob paged through stacks of Lionel catalogs, often wearing them out. This led his parents to get him a train set for Christmas in 1957. Bob enjoyed that equipment, along with additional trains and accessories he received each Christmas thereafter, until he completed high school and left home for college.

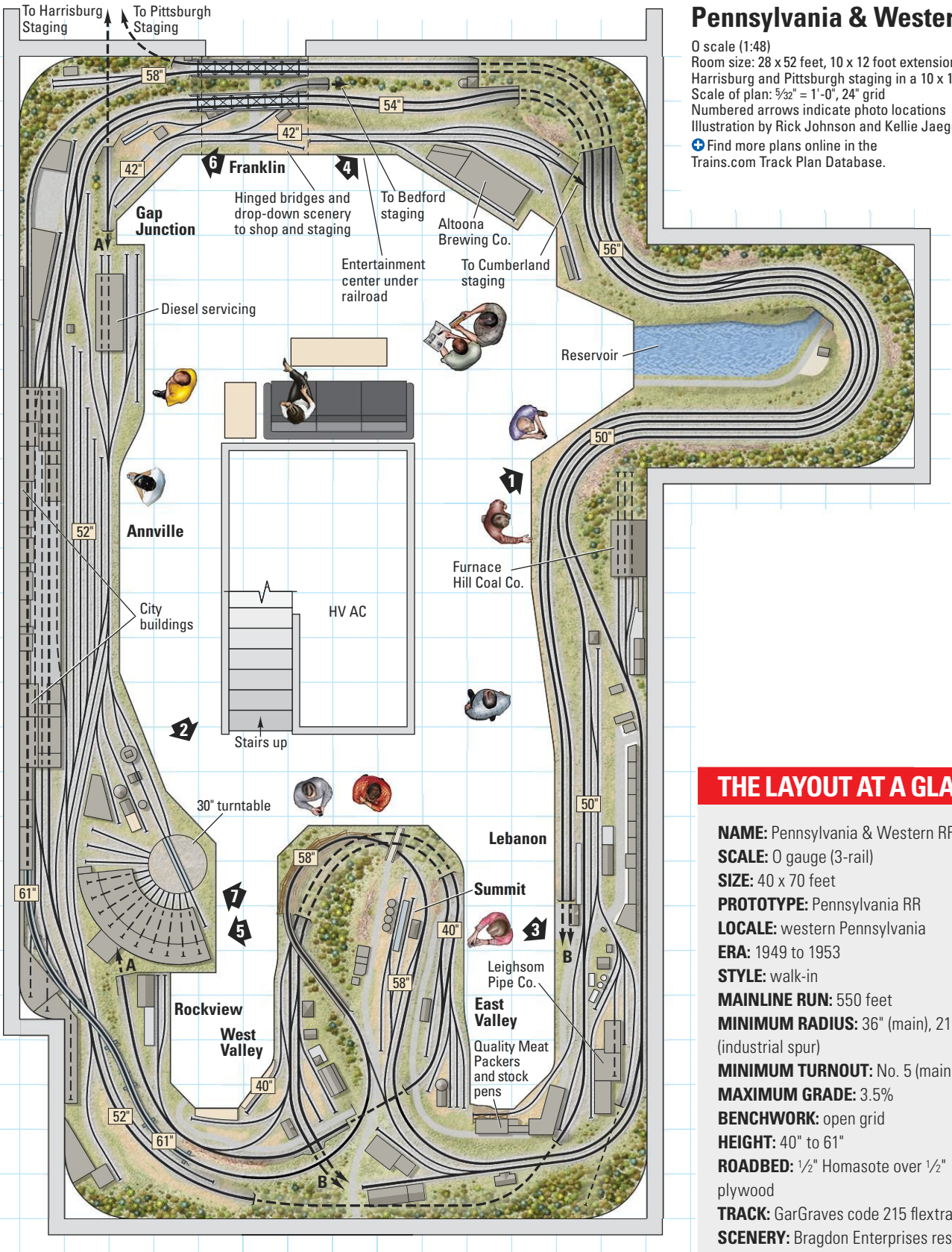
During the 1970s and '80s Bob switched to N scale. He received a train set from his wife, Ann, in 1973. Bob constructed three layouts in 1:160.

He returned to 3-rail after his son was born. When Bob's son was a toddler, he

Pennsylvania & Western RR

O scale (1:48)
Room size: 28 x 52 feet, 10 x 12 foot extension
Harrisburg and Pittsburgh staging in a 10 x 18-foot room
Scale of plan: 5⁄32" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Rick Johnson and Kellie Jaeger

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



THE LAYOUT AT A GLANCE

NAME: Pennsylvania & Western RR
SCALE: O gauge (3-rail)
SIZE: 40 x 70 feet
PROTOTYPE: Pennsylvania RR
LOCALE: western Pennsylvania
ERA: 1949 to 1953
STYLE: walk-in
MAINLINE RUN: 550 feet
MINIMUM RADIUS: 36" (main), 21" (industrial spur)
MINIMUM TURNOUT: No. 5 (main)
MAXIMUM GRADE: 3.5%
BENCHWORK: open grid
HEIGHT: 40" to 61"
ROADBED: ½" Homasote over ½" plywood
TRACK: GarGraves code 215 flextrack
SCENERY: Bragdon Enterprises resin foam hardshell
BACKDROP: hand-painted on drywall and wallpaper-covered tempered hardboard
CONTROL: Lionel wireless Train Master Command Control

constructed a 5 x 14-foot model railroad for them to share. That layout was dismantled and replaced by a 14 x 16-foot model railroad when his son turned 12. Both used postwar Lionel locomotives, equipment, and accessories.

DESIGN AND ROOM PREP

When Bob started planning the Pennsylvania & Western, he took a different approach. Rather than trying to re-create a specific portion of the full-size Pennsylvania RR, he decided to build a model railroad that would be fun to operate, then make it look like the PRR.

4 Double-headed class H10s 2-8-0 steam locomotives lead a string of Western Maryland hoppers from Cumberland, Md. The hoppers are destined for the export docks in Philadelphia. In the background, a Pennsylvania RR cabin car carries the markers on a freight train.

Bob spent a year designing the mainline, staging areas, and working out elevations and grades. Initially, space was reserved for the freight yard and passenger station. He designed both areas after joining the National Model Railroad Association's Layout Design Special Interest Group in 1992. Using the knowledge gained from the group's publications and email discussions, Bob designed the yard to support freight and passenger arrivals and departures, locomotive changes, and car classification.

In addition to layout planning, Bob spent two years preparing the unfinished basement. This included sealing the concrete floor; applying anti-rust epoxy to the steel support beams; and wiring the space for layout power, a television, refrigerator, and lamps.

Once those tasks were finished, overhead track lighting and wallboard was installed. All of the inside room corners were coved with tempered hardboard. The overhead wires, ducts, and joists were painted flat black.

Bob painted a hazy sky backdrop on the drywall and tempered hardboard using flat blue and white house paints. He blended the colors using a method outlined in a scenery book by Dave Frary. He also hand-painted the backdrop mountains at Horseshoe Curve.

BENCHWORK AND SCENERY

With the design and room preparation wrapped up, Bob shifted his attention to the benchwork. He used 1 x 4 pine and 2 x 4 legs with adjustable leveling feet. The open-grid tabletop benchwork has cross members every 16". The subroadbed is a laminate of ½" plywood and ½" Homasote supported by risers.

For the scenery base, Bob first installed a cardboard strip web and ribs made from 1" and 1½" extruded-foam insulation board. To that he added Bragdon Enterprises Geodesic Foam scenery.

After covering his work surface with a plastic trash bag, Bob placed two pieces of 18 x 18-inch nylon window screen on the bench. Next, he mixed Bragdon's two-part foam resin, poured it onto the screens, and spread it evenly using cardboard as a screed. Then he covered the hardshell panels with plastic cling film and smoothed it with his hands.

Bob's friend, Bob Chapman, helped with the installation of the hardshell landforms. They attached the panels to the foam ribs and cardboard web with hot glue, removing the cling film after approximately 10 to 15 minutes. The hardshell panels remained workable for 20 to 30 minutes.

For rock outcroppings, Bob switched to a different Bragdon resin. He poured it into Bragdon, Scenic Express, and homemade latex rubber molds. Similarly, the castings came out of the molds flexible. Bob cut them with scissors and applied them with hot glue. Bob Chapman's wife, Sharlain, taught Bob how to paint rocks.

The tunnel portals and retaining walls are plaster castings. Bob used washes of Slate Gray, Stone Gray, and Raw Umber tube acrylics, along with Woodland Scenics liquid pigments, to color the castings.

The ground cover is an assortment of products from Woodland Scenics. Scenic Express SuperTrees, coated with leaves from Noch and Woodland Scenics, were installed throughout the layout.

To model the reservoir at Horseshoe Curve, Bob first added Enviro-Tex lite two-part resin. After that dried, he added ripples using gloss gel medium applied with a ½"-wide paintbrush.

TAKING A CLOSER LOOK

The track plan includes a room-sized three-turn helix from east staging to west staging. The mainline is 550 feet long (five miles in O scale) with many of the towns more than 100 feet apart.

The levels of single-track mainline and passing sidings are separated from one another by scenic elements and elevation. The one exception is a 100-foot long segment of double track between West Valley and Annville. This arrangement allowed Bob to have four tracks at Horseshoe Curve. Since this was *the* signature location on the full-size PRR, having it was an absolute must.

Bob's layout features GarGraves 215 flextrack and Curtis Hi-Rail and Ross Custom Switches turnouts. He used a motor tool with a cutoff wheel to modify track pieces to fit certain locations.

STRUCTURE SHOWCASE

Buildings are a mix of kit, kitbashed, and scratchbuilt. Some examples of Bob's

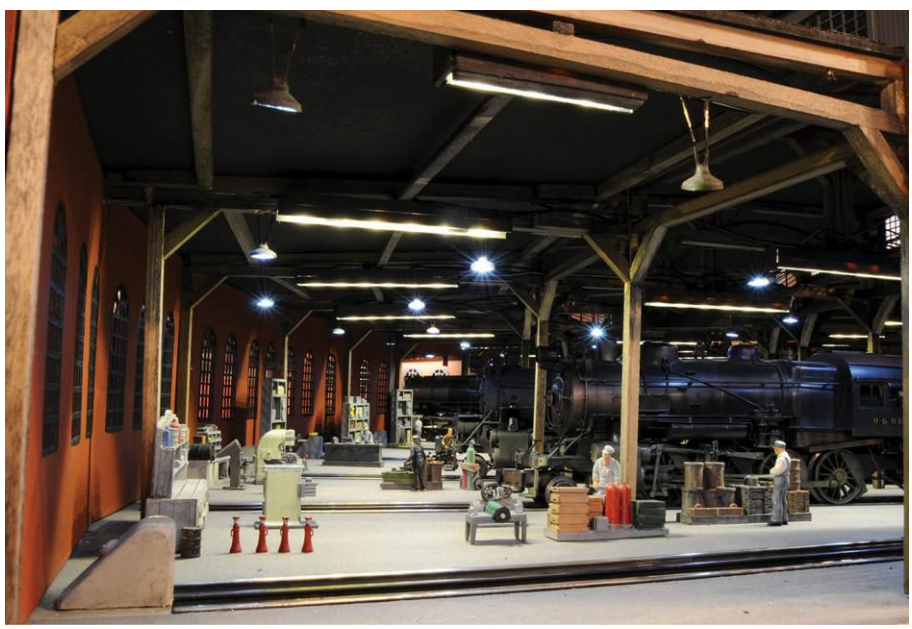
When compared to most modeling scales, everything in O is big. The Pennsylvania House furniture factory measures 90" wide. The distance from the layout room floor to the tops of the water tanks is 79".

Industry size in O gauge

THE BEST THING ABOUT O GAUGE is that it's big. Large, heavy trains represent the mass of the real thing in ways that smaller scales can't. The sound is impressive when a 10 pound locomotive and a string of 18 ounce freight cars pass over diamonds, frogs, and even some rail joints. Structures and mountain tops can imposingly rise well above eye level.

Though I've built a few large, complete structures, most of the industries are either low-relief buildings along the backdrop or in the aisle space. The Pennsylvania House furniture factory is a large structure with two doors leading to interior receiving docks. A shipping dock is tucked under the building.

The building, which wraps around a corner, is a backdrop-hugging low-relief structure to help minimize its footprint. Even with space-saving considerations, the factory measures 90" wide and the tops of the water tanks are 79" off the floor. With the cleanout track, Pennsylvania House has a capacity of seven cars. — *Bob Bartizek*



5 The Annville roundhouse crew is busy servicing assorted steam locomotives, including (front to rear) a class H10s 2-8-0, I1sa 2-10-0, and Q1 4-6-4-4. The models are from Weaver and Sunset/3rd Rail.

6 **As a solid coal train passes above, class H10s 2-8-0 No. 8421 switches J. Smith Coal in Franklin. The boxcar is being used as a handle to keep the heavy locomotive, a Weaver brass model, off the coal trestle.**

scratchbuilding efforts include the Pennsylvania House furniture factory [See "Industry size in O gauge" on previous page. — *Ed.*] and Furnace Hill coal mine and supply buildings. Mike Havron built the block station in Gap Junction, along with a two-story yard office and tower in Annville. Bob Chapman constructed the freight and passenger station in East Valley using Design Preservation Models wall sections.

Bob also scratchbuilt two trestles just east of Summit. He made the tall, curved wooden structure from scale lumber that he cut using a neighbor's table saw with a blade designed to cut veneer wood. The bridge was built following PRR plans from 1925.

Adjoining the trestle are a pair of wood truss bridges based on kits from Black Bear Construction. It took Bob six weeks to build the main trestle and another two weeks to build the trusses.

RUNNING TRAINS

Bob's layout features Lionel Train Master Command Control and nine wireless, handheld throttles. There are five train crews, a yard switcher, hostler, and staging operator. Bob, who serves as

7 **Pennsylvania RR class Q1 steam locomotive No. 6130, the only 4-6-4-4 on the railroad's roster, takes a spin on the turntable at Annville. The model, a brass import from Sunset/3rd Rail, is based on a prototype built by the Pennsy in 1942.**

superintendent, keeps an extra throttle in his pocket in case of emergencies. The train crews have plenty to do, servicing the 50 industries on the model railroad.

Turnouts in the passenger station and classification yard are controlled with Tortoise by Circuitron switch motors. Caboose Industries No. 208S manual ground throws are used on turnouts that can be reached from the aisle. A few of the turnouts first installed on the layout still have twin-coil machines.

In 2018, Bob installed an Absolute Permissive Block (APB) signal system from Custom Signals. It has 25 occupancy detection blocks and 52 position light (32 single-head, 15 multi-head) and five dwarf signals. There are six signal bridges spanning multiple tracks and two cantilevered signal masts.

The system also features 17 interlocked switch machines. GarGraves 3-rail track made occupancy detection easy. The wood ties isolate the three rails from each other, with AC hot going to the center rail and AC common to one outside rail. The other outside rail is available for signal detection.

None of the locomotives or rolling stock have insulated wheelsets, so any piece of equipment in a block connects AC common to the signal rail. No current detection or resistor wheelsets are necessary as with a typical 2-rail system.

Eighty-seven integrated circuit boards, along with several relay boards of Bob's own design, control approach signals to each town. This allows switch crews to set approach signals to "stop" while working a town. They can coordinate with the dispatcher to pass trains through town when necessary.

When their work is complete, crews can release the approach signals. The system also utilizes tumble down controllers to allow trains to follow more closely under APB control.

Car forwarding is governed by switch lists generated by the RailOp computer program. The train schedule is sequential, involving 44 trains. Operating sessions last around three hours; it takes three sessions to run an entire schedule.

MISSION ACCOMPLISHED

Bob's goal when building the Pennsylvania & Western was to see if a prototypically operated model railroad could be built using 3-rail equipment. He feels the outcome has been highly successful. The trains run at realistic scale speeds, the couplers work flawlessly, and the deep 3-rail wheel flanges keep equipment on the rails.

Most of Bob's operating crew are HO scale modelers, and they've always commented on how well trains run. Visiting operators have also enjoyed running the railroad, and their remarks regarding the layout have been complimentary.

The quality of the scenery, structures, and trains is so good that the layout has appeared in the hobby press several times. Even visiting fine-scale modelers who have Proto:48 home layouts have commented to Bob that "After the first 5 to 10 minutes, they don't even notice the center rail." Well done, Bob. GMR

The couplers on Bob's locomotives can be operated remotely using the Lionel Train Master Command Control throttle. The F and R buttons open the front and rear couplers, respectively.

What about couplers?

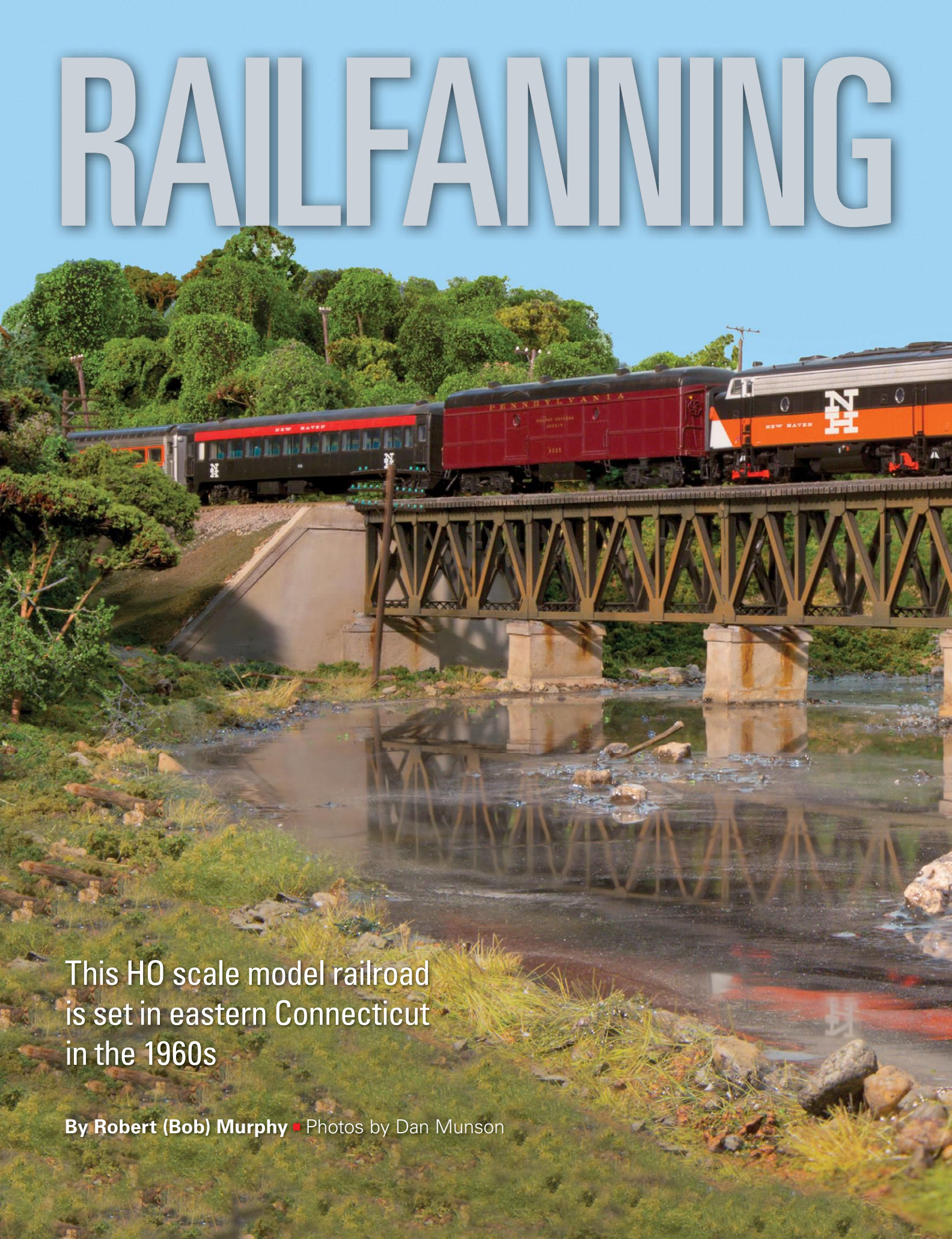
THOUGH THE EQUIPMENT on my layout is weathered and detailed to look more like 2-rail, you may have noticed the couplers are still 3-rail style. Why? Because they work well. I've reworked most of the couplers so that they operate nearly as well as those produced by Kadee. Like most of the operators I know, I will trade exact scale appearance for reliable function every time.

I've installed couplers on all of my locomotives that can be opened remotely using the Lionel Train Master Command Control handheld throttle. This has proven beneficial, especially for trains on the arrival and departure tracks in my freight yard. Those tracks are a long reach from the aisle, but that's not an issue because locomotives can be cut off of arriving trains using remote couplers. The couplers are also handy for local switching. — *Bob Bartizek*

MEET BOB BARTIZEK

BOB BARTIZEK AND HIS WIFE, ANN, live in the Cincinnati area. He is retired from a career as a biostatistician. Bob enjoys prototypical operating sessions and usually hosts them a couple of times a month. He also likes weathering locomotives and rolling stock for his Pennsylvania & Western. Bob is currently working on adding small details to scenes and installing interiors and lighting to structures.

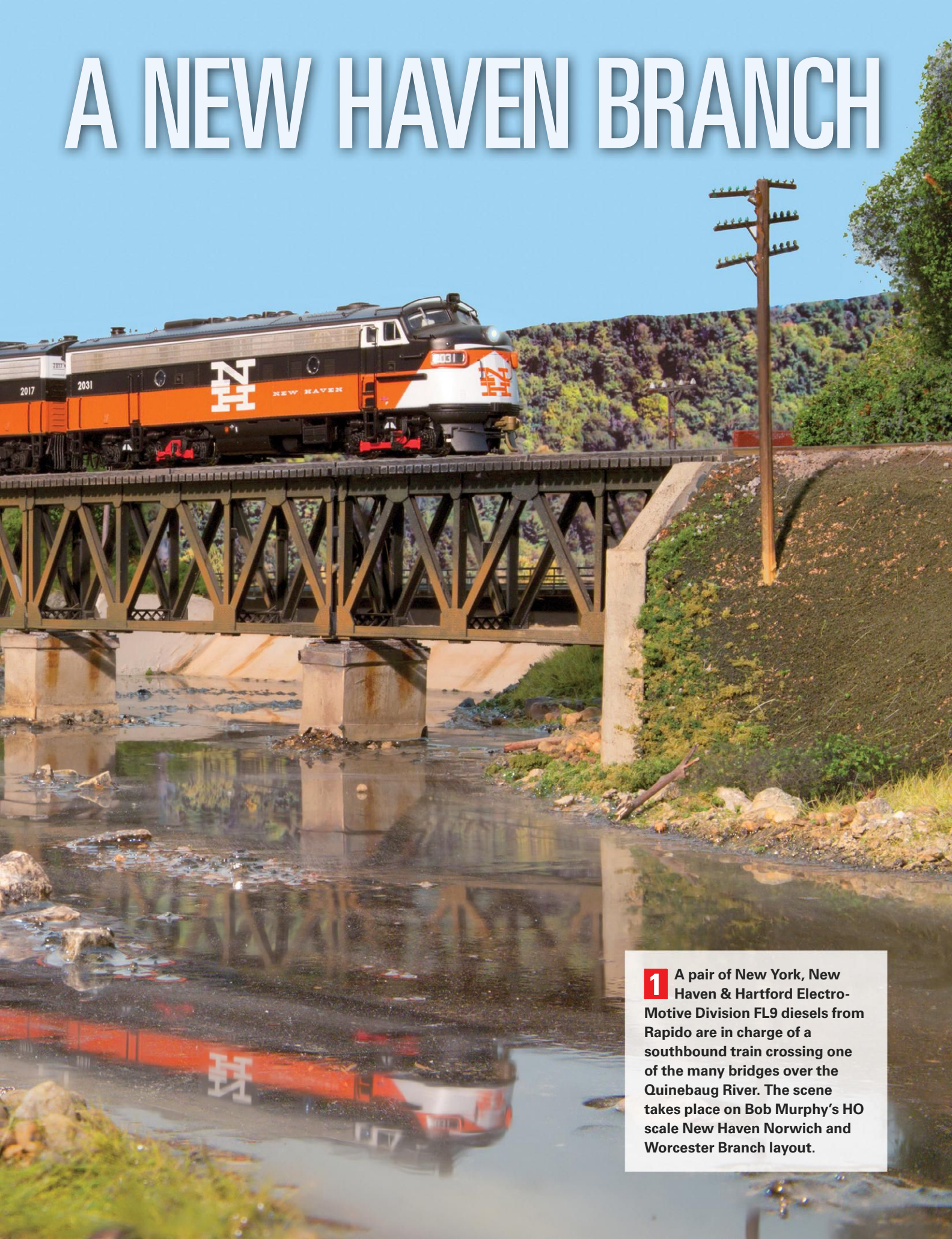
RAILFANNING



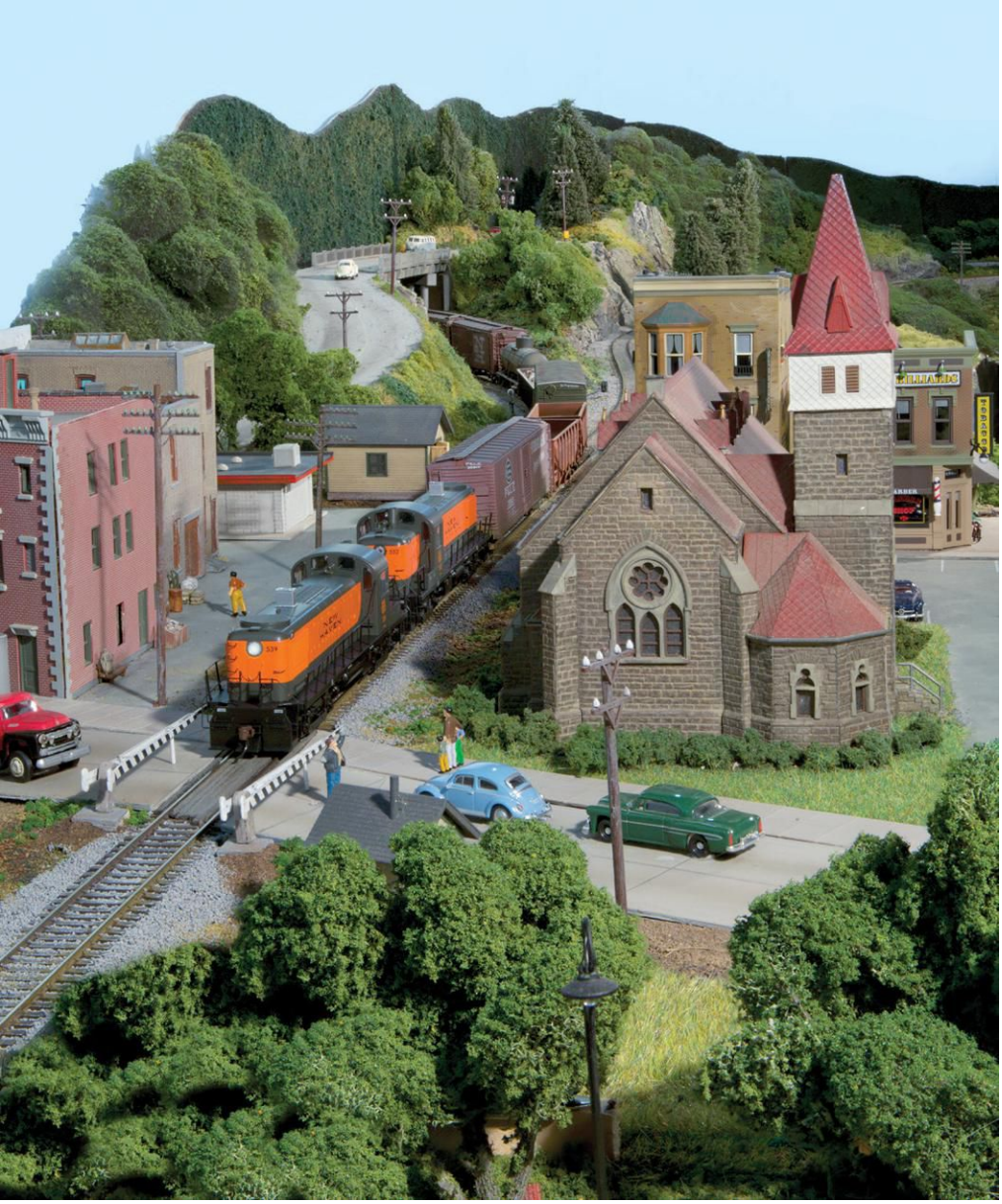
This HO scale model railroad is set in eastern Connecticut in the 1960s

By Robert (Bob) Murphy ■ Photos by Dan Munson

A NEW HAVEN BRANCH



1 A pair of New York, New Haven & Hartford Electro-Motive Division FL9 diesels from Rapido are in charge of a southbound train crossing one of the many bridges over the Quinebaug River. The scene takes place on Bob Murphy's HO scale New Haven Norwich and Worcester Branch layout.



THE LAYOUT AT A GLANCE

NAME: New York, New Haven & Hartford Norwich and Worcester Branch
SCALE: HO (1:87.1)
SIZE: 24 x 32 feet plus 3 x 16 feet
PROTOTYPE: New York, New Haven & Hartford
LOCALE: eastern Connecticut
ERA: 1960s
STYLE: walk-in
MAINLINE RUN: 220 feet
MINIMUM RADIUS: 48" (main)
MINIMUM TURNOUT: No. 6
MAXIMUM GRADE: none
BENCHWORK: open grid
HEIGHT: 46"
ROADBED: Homasote and cork on plywood
TRACK: Atlas code 83
SCENERY: hardshell and extruded-foam insulation board
BACKDROP: painted tempered hardboard
CONTROL: NCE DCC with radio throttles

2 Traffic in Putnam, Conn., is at a standstill as a New Haven local weaves its way north with two Alco RS3 diesel locomotives on the point. The four-axle road switchers are Athearn models.

RAILROADING HAS BEEN PART of my life since I was born. My father was a conductor and later an assistant trainmaster on the New York, New Haven & Hartford RR. One of my earliest memories was at 5-years-old when he took me to work with him on the Airline Local. He dropped me off in a remote section of the Cedar Hill Yard, left me there, and then swooped me up onto the engine when the train passed by. Perhaps not the best judgment on his part, but something that I remember to this day [Learn more about Bob's father in "Stories from the New Haven" on page 39. — *Ed.*]

My summer job while I was in college was working on track gangs for the Penn Central, Conrail, and Amtrak. When I started building my HO scale model railroad, there was no question it would be based on the New Haven.

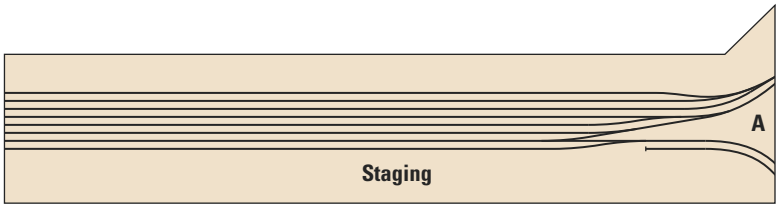
DESIGN AND CONSTRUCTION

My wife and I built a new house in 1998, and I started to build the layout the same year. Time and money were both limited, and I didn't have good modeling skills and even less patience. Ignoring well-established expert advice, I charged ahead without a detailed track plan — or any plan for that matter. Using surplus lumber from the house construction, I started building the benchwork. I used the good lumber first, then the questionable pieces, and finally boards used as concrete forms. It certainly wasn't pretty, but has proved to be sturdy!

There were certain design elements that were important to me. I wanted to run longer trains of 25 to 30 cars on a single-track main line with long passing sidings. Because I struggled with operational problems due to steep grades and sharp curves on an earlier, smaller layout, I wanted large radius curves and no grades. Consequently, the smallest mainline radius is 48"; most are 60" or larger. In many locations, the benchwork is lower than track level to accommodate rivers, bridges, and embankments. Finally, I wanted a large yard where trains could begin and end assignments.

Within a year or so I had trains running on the main line. Yards, industrial areas, and basic scenery followed in the subsequent years. Scenery was completed about six years later using basic techniques, including puff-ball trees and landforms made with brown grocery bags coated with drywall compound.

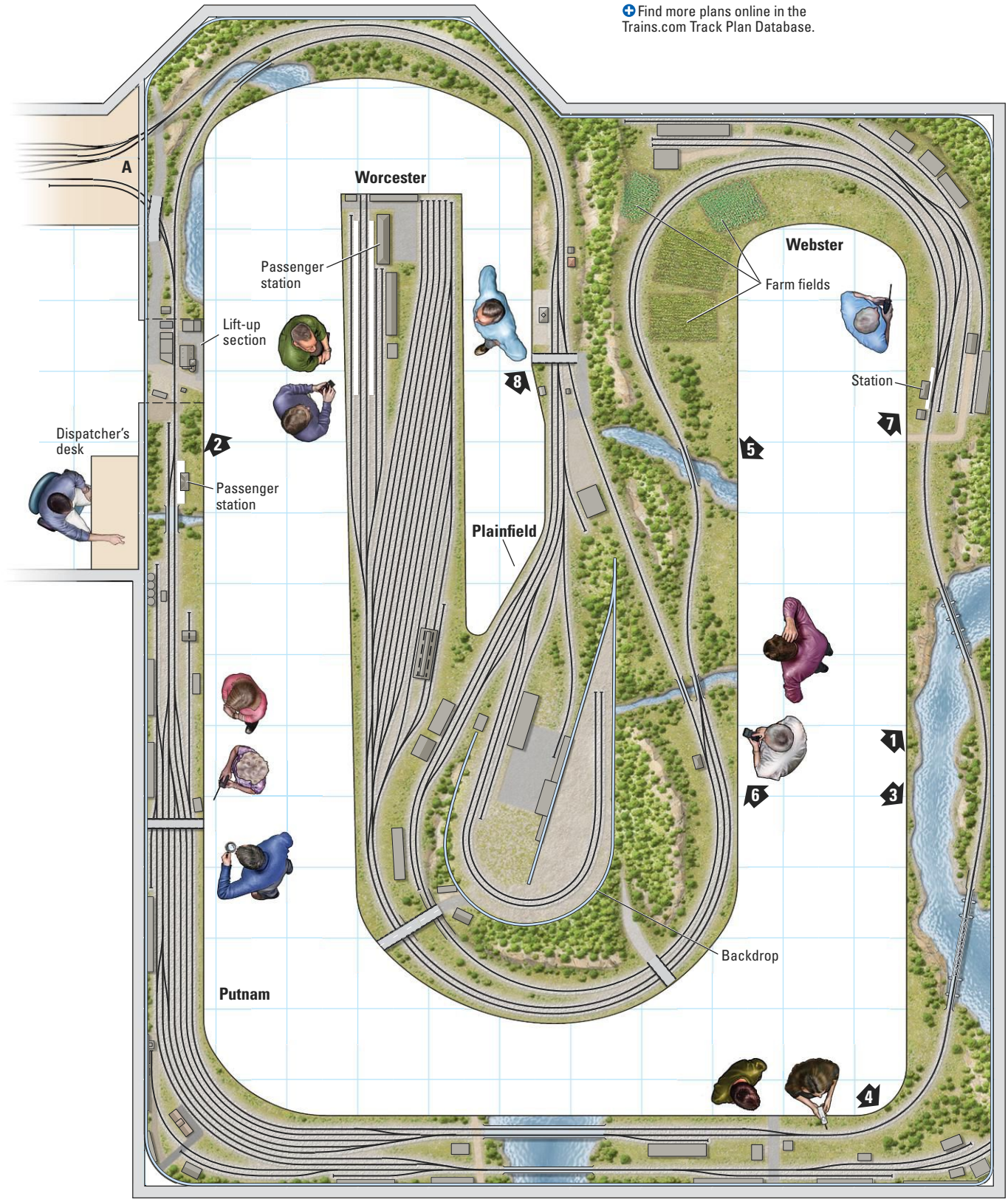
Due to lack of planning and patience, yards, quarries, and branch lines needed to be rebuilt, relocated, or eliminated. The railroad ran well, but it wasn't modeled after any particular part of the New Haven, so it lacked a theme or purpose.



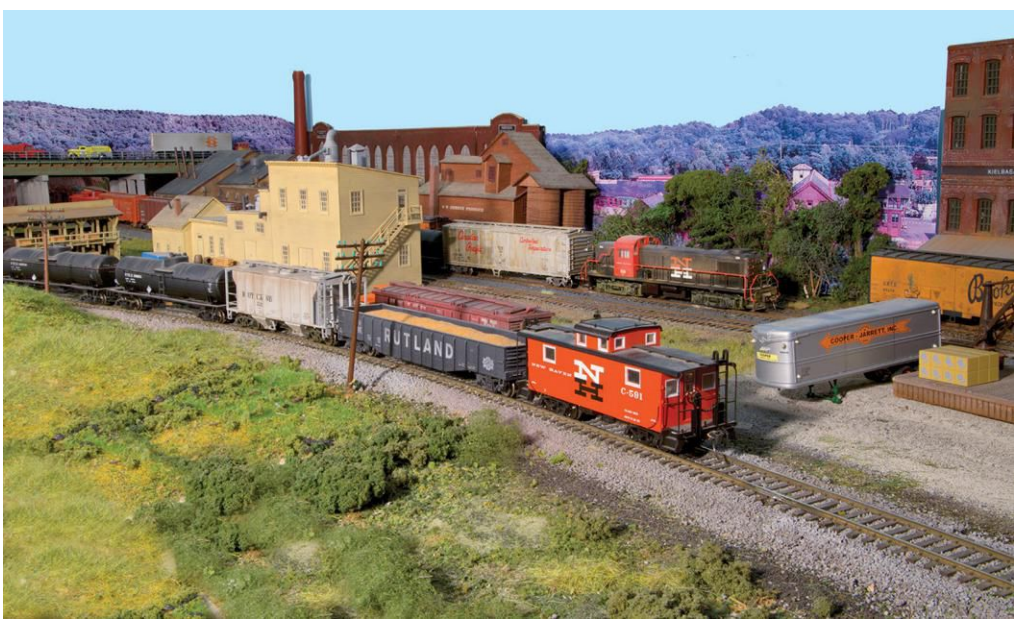
New York, New Haven & Hartford Norwich and Worcester Branch

HO scale (1:87.1)
Room size: 24 x 32 feet, plus 3 x 16 feet
Scale of plan: ¼" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Rick Johnson and Kellie Jaeger

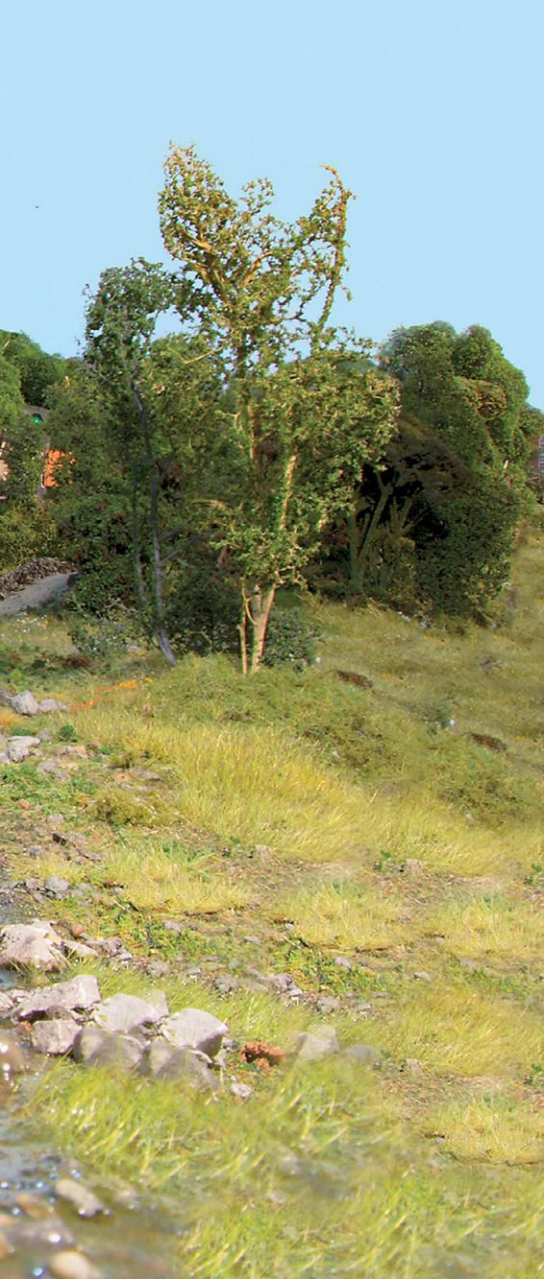
Find more plans online in the Trains.com Track Plan Database.



3 As a local fisherman tries to reel in the big one in the Quinebaug River, northbound freight M6 passes overhead on its way to Worcester. Bob used Famowood Glaze Coat, a two-part epoxy used for bar counters and craft projects, to model the water.



4 Caboose C-591 marks the end of northbound train M6 bound for Worcester. In the background, Alco RS3 No. 556, an Atlas model, switches the industrial section of North Putnam, Conn.



FINDING FOCUS

In 2010, I started a major renovation by adding a staging yard which facilitated point-to-point train movements between the staging yard and a large existing yard. Only then did I start thinking about what trains ran on different portions of the New Haven.

The NYNH&H had varied operations, including heavy passenger traffic on its Shore Line route, heavy freight on its Maybrook Line, and light traffic branch lines. But the single-track Norwich and Worcester Branch seemed to fit well with what I wanted. The New Haven ran two daily pairs of heavy symbol freights (N1, P2, M6, and M7) between its Shore Line speedway in New London, Conn., and Worcester, Mass.

Stories from the New Haven

I HAVE GREAT MEMORIES of my father taking me to work with him and telling me stories at the dinner table about the day's events on the New York, New Haven & Hartford. One memorable story took place on Aug. 17, 1964.

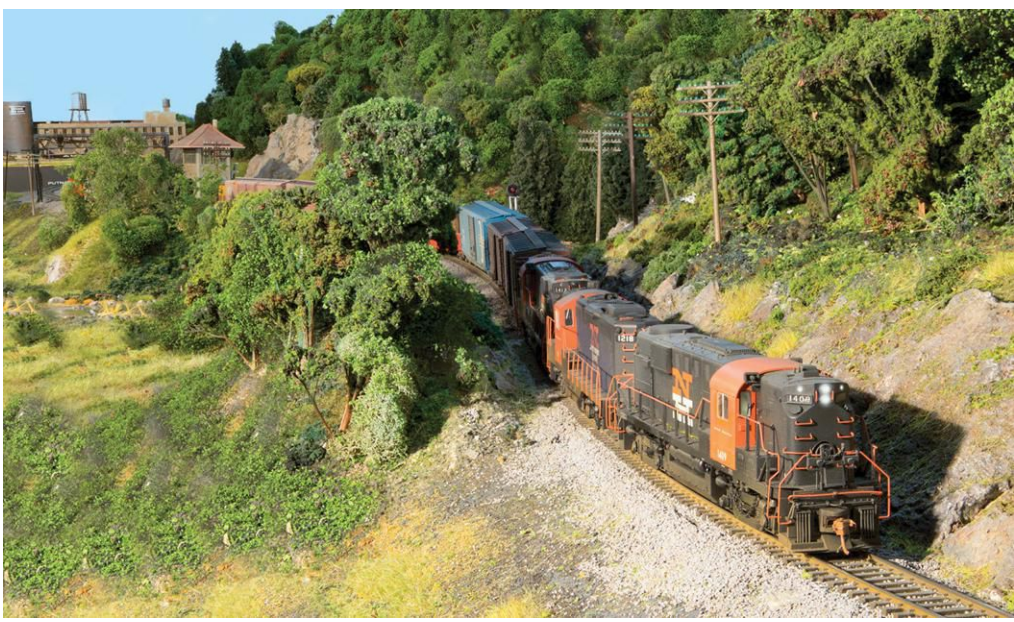
Train NX-26, the Airline Local, was southbound at 30 mph when the crew spotted a man walking on the track. The engineer immediately put the train in emergency and continuously blew the whistle, but the man didn't respond.

Knowing that the train wouldn't stop in time my father, conductor Leo H. Murphy, exited the cab and descended the front steps on the side of the engine, which was jerking due to the braking. Holding onto the handrail, Leo stepped forward onto the locomotive's footboard.

As the slowing train reached the man, Leo grasped the man by the shoulder and thrust him from the track. My dad let go of his grip on the handrail, falling on top of him.

Through the efforts of the Brotherhood of Railroad Trainmen, Leo was awarded the Carnegie Hero Fund Bronze Medal. — *Bob Murphy*

Bob's father, Leo H. Murphy, is shown at far right in this image from 1957. He worked for the New York, New Haven & Hartford as a conductor and later an assistant trainmaster. Photo courtesy Bob Murphy



5 Symbol freight N1 is at track speed south of Worcester, Mass. Bob upgraded the scenery on his layout with static grass and trees made from sedum and Scenic Express products. The train is powered by two Alco RS11 diesels (Rapido Trains) and an Electro-Motive Division GP9 (Proto 2000).

6 **Veteran Alco units have been pressed into service during potato season to power a "Yellow Dog" extra. This was the nickname given to solid trains of refrigerator cars used to ship potatoes from Maine to points south.**

The Norwich and Worcester Branch provided a direct route to Maine via the Boston & Maine. The symbol freights were even assigned B&M train numbers, reflecting the tight coordination between the two railroads.

Several local freights also plied the route, along with two round-trip passenger trains called *Shoreliners* utilizing Budd Rail Diesel Cars (RDCs). There were also extras including solid trains of refrigerator cars hauling potatoes (nicknamed "Yellow Dogs") and camp extras bringing children from large cities to summer camps in northern New England. The "Camps" typically consisted of all-heavyweight Pullmans from various lines and often reached 20 cars in length.

Finally, I had an interesting theme and purpose for the layout. The large yard became Worcester and the staging yard represented the connection with the Shore Line. Towns and sidings were renamed for locations along the branch, although they don't bear any resemblance to the prototype.

THE ONE CONSTANT: CHANGE

About eight years ago, I converted the layout to an NCE Digital Command Control (DCC) system with radio throttles. Once I understood that DCC required higher voltages, and surveyed the shabby wiring I installed earlier, there was a concern of fire. I removed the original layout wiring and replaced it.

I converted the existing engine fleet to DCC with either motor (silent) or sound decoders. Most of the trains have three units for power. I found it sufficient for only one or two of the units to be sound equipped.

Recently, I've been converting the middle engines to non-powered units, which makes consisting and control of light functions easier. I had been a stead-

fast opponent of DCC, but now I'm a true believer.

For many years I was OK with the basic scenery I'd installed. But now that time is more plentiful, I've refreshed about 90% of the scenery. Trees from Scenic Express and those made with sedum replaced my old puff-ball trees.

I used better grades of ground foam and static grass to replace (I'm embarrassed to say) dyed sawdust. I also replaced all of the rock castings and bridge abutments. For the rivers and streams, I used Famowood Glaze Coat. It's a two-part epoxy coating used for tables and bar tops.

My model railroad also benefited from the dismantling of several other modeler's layouts. Bill Maguire generously gave me buildings from his superbly crafted Essex & Eastern. This was a win for all involved, as it allows visitors to continue to see Bill's work. Many of the buildings in the accompanying photographs are from his model railroad. When the day comes to dismantle the Norwich and Worcester Branch, I plan on passing much of it on to other modelers.

EQUIPMENT AND ROLLING STOCK

There are approximately 30 locomotives and 275 cars on the layout. When I started work on the model railroad, the only way to create a fleet of New Haven locomotives was to custom paint and detail them. I don't need all the rivets to be in the proper location, but the locomotives must have signature New Haven features. Recently, model manufacturers — most notably Rapido Trains — have been producing high-quality, accurate New Haven models. My older, custom-painted locomotives are slowly being replaced and sold off.

Most of the rolling stock and engines are weathered. I find basic weathering is plenty sufficient for me. First, I airbrush the equipment with a diluted "fade" mix of Pledge Revive It Floor Gloss, Tamiya Flat White (XF-2) and Flat Base (X-21), and isopropyl alcohol.

Then I use an airbrush to apply various diluted filters of Weathered Black, Grime, and/or Rail Brown. I switch to powders to weather the details. If I weather five to 10 cars at a time, the process goes quickly.

RUNNING TRAINS

I enjoy watching the 24 x 32-foot model railroad come to life during an operating session. A typical session consists of the four symbol freights (N1, P2, M6, and M7), two Yellow Dogs, two *Shoreliners*, and a camp extra, all running between staging and Worcester. Though not prototypical, I also run a medium-sized passenger train. Six local freights and two yard switchers round out the session.

Homemade turnout controls

I LIKE TO LINE TURNOUTS without reaching into the layout. Over the years there have been many articles in the hobby press on ways to use slide switches as turnout controls. Here's how I made mine.

I came across a slide switch on eBay with the plastic slider on the side instead of on the top. I drilled a hole in the slider for a length of .032" piano wire, used to move the points. I made the pivot plate from scrap styrene. The spacers are plastic beads that I found at a big box store. I attached the assembly to the bottom of the layout with two drywall screws.

I drilled a second hole in the plastic slider to accept a length of coat hanger wire. I attached the wire to a ¾" wood knob, which allows the turnout to be easily activated from the fascia.

I admit it's not pretty, but it works. If you buy the components in batches, the cost is less than $3.
— *Bob Murphy*

Bob made the turnout controls for his layout using a slide switch with the plastic lever on the side. He used scrap styrene for the pivot plate, .032" piano wire to move the points, and inexpensive plastic beads for spacers.

7 Railroading can be a game of hurry up and wait, as seen at Webster, Mass. Symbol freight M7 waits as a south-bound passenger train makes station stop. The locomotives in the scene are from Atlas (Alco C425) and Rapido Trains (EMD FL9s and GE U25Bs).

Trains run in a sequence with a train order authorizing departure. Unlike the prototype, the passing siding turnouts are signaled and controlled by a central dispatcher located in an adjacent room. Setouts and pickups are controlled by switch lists, and most freights perform some switching work during their runs.

Operating sessions last about three hours. A typical crew consists of 10 to 13 operators. The sessions can get quite busy with meets, locals occupying the passing sidings, and freights making drops. There's plenty of aisle room so operators can move around easily.

LESSONS LEARNED

At times I've bragged that I didn't follow expert advice or have a plan when I was building the layout. There are pluses and minuses to this approach. It's satisfying and motivating to get a train running quickly. Keeping that momentum is an important aspect of building a model railroad, especially a large one.

But it's a lot more difficult and takes a lot longer to complete a layout without a plan. My do-overs were extensive and time consuming. As an example, imagine how difficult it is to cover painted concrete walls with a tempered hardboard backdrop on a layout that is largely complete.

My best advice to those starting a model railroad is to focus on what you want the end use of the layout to be. There's no right answer, but understanding what you want for a final product will guide you during the building process and will let you focus your energy on what you need to do to achieve your goal.

Finally, reach out to model railroaders in your area. Join the National Model Railroad Association or other local hobby groups. There are many excellent modelers in my area, and I've benefited greatly from the advice and camaraderie they have provided. I should have made these relationships earlier. GMR

8 Camp extras brought children from large cities to summer camps in northern New England. At Plainfield, Conn., steam-generator equipped Electro-Motive Division GP9 diesels (Athearn Genesis) power an all-heavyweight train full of campers on their way to summer fun in Maine.

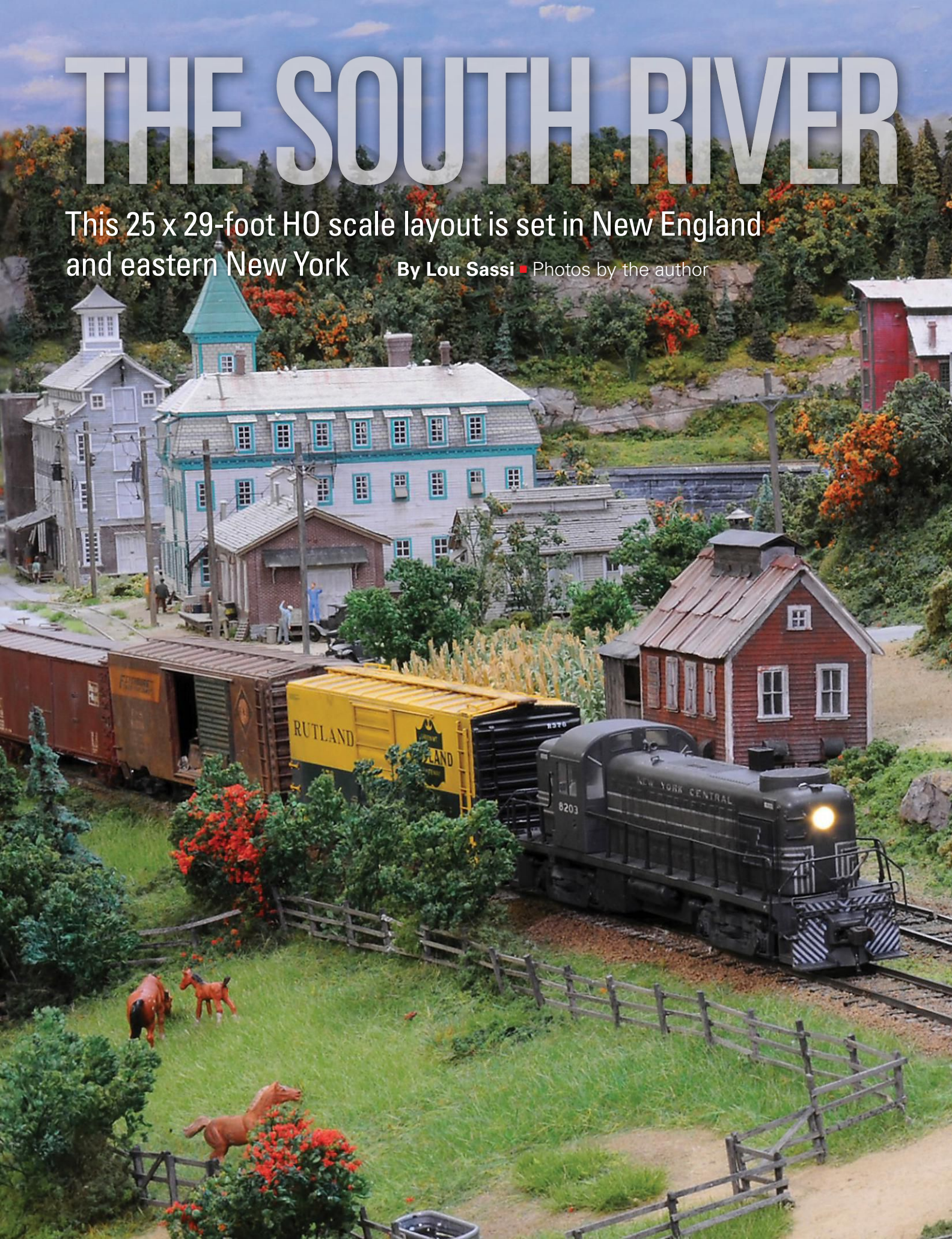
MEET BOB MURPHY

BOB MURPHY, A SEMI-RETIRED construction consultant, lives in Old Saybrook, Conn. He's been married to his wife, Cathy, for 42 years. Together, they have two children and three grandchildren. When he's not working on the layout, Bob enjoys sailing, traveling, and hiking.

THE SOUTH RIVER

This 25 x 29-foot HO scale layout is set in New England and eastern New York

By Lou Sassi ■ Photos by the author



& MILLVILLE

1 New York Central Alco RS2 No. 8203, a Kato model, is on the point of a freight leaving Conway on Bob Van Gelder's HO scale South River & Millville. The freelanced model railroad is set in New England and eastern New York between the 1940s and 1960s.

2 **This overall view shows about two-thirds of the South River & Millville. The Town of Blackstone is visible in the foreground. Behind that is the City of Millville, which is still under construction.**

BOB VAN GELDER'S HO scale South River & Millville is a freelanced model railroad set between the 1940s and 1960s. The 25 x 29-foot walk-in layout was inspired by the operations of several eastern lines, including the Boston & Albany; Boston & Maine; Central Vermont; Delaware & Hudson; New York, New Haven & Hartford; and Rutland RR. The model railroad has a single-track main line running through and serving towns in western Massachusetts, southern and eastern Vermont, and eastern New York.

Bob is a talented, multi-faceted modeler, and the layout reflects that. He hand-laid the curved turnouts and about two-thirds of the track, scratchbuilt trees, and installed photo backdrops made from his own images. The model railroad is also a showcase for the kits he built and sold between 1991 and 2016 under the South River Modelworks banner.

A LIFELONG HOBBY

From a young age, Bob had an interest in model making. In addition to trains, he built scale automobiles, boats, and planes. His parents gave him an American Flyer train set when he was around 8 years old. Two years later, he decided to try his hand at building a permanent layout on a 4 x 8-foot sheet of plywood in their basement. Though he didn't have much success with electronics, he immediately recognized his ability to scratchbuild structures.

During Bob's college years, where he earned a Bachelor of Arts degree, he picked up several other creative interests, including drawing, painting, pottery, and printmaking. Following graduation, he ran a pottery studio for two years.

In late 1973, Bob moved to Colorado where he became interested in narrow gauge modeling. While working at various jobs and picking up skills, he

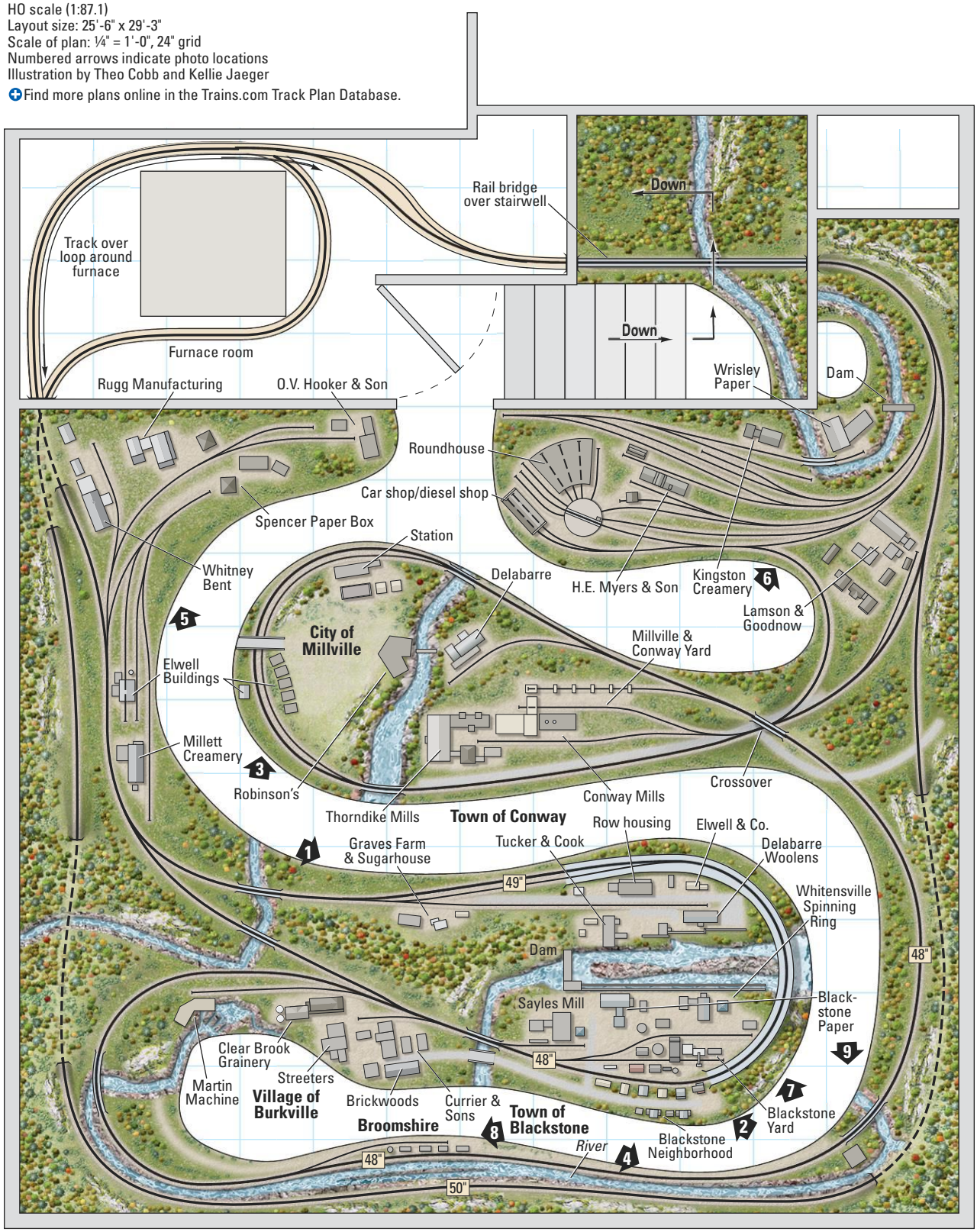
THE LAYOUT AT A GLANCE

NAME: South River & Millville
SCALE: 1:87.1 (HO scale)
SIZE: 25'-6" x 29'-3"
PROTOTYPE: various New England and eastern New York railroads
LOCALE: New England and eastern New York
ERA: 1940s to early 1960s
STYLE: walk-in
MAINLINE RUN: approximately 240 feet
MINIMUM RADIUS: 18"
MINIMUM TURNOUT: No. 6 (main), No. 4 (small yards)
MAXIMUM GRADE: 1%
BENCHWORK: L girder
HEIGHT: 48" to 50"
ROADBED: ¼" pine trim over ⅝" plywood
TRACK: code 70 (handlaid and flextrack)
SCENERY: extruded-foam insulation board and Sculptamold
BACKDROP: hand-painted and photos
CONTROL: NCE with radio throttles; TCS UWT-100 and WiFiTrax WFD-31 bundle

South River & Millville

HO scale (1:87.1)
Layout size: 25'-6" x 29'-3"
Scale of plan: ¼" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Theo Cobb and Kellie Jaeger

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



3 Hopefully all of that laundry will still be clean after Boston & Maine 2-6-0 Mogul No. 1431 passes through Millville. The neighborhood at right was scratchbuilt by the late Dick Elwell for his Hoosac Valley RR.

became enthralled with the scenery and relics of the state's railroading past. Bob spent many hours driving around tracing the right of way of old railroads.

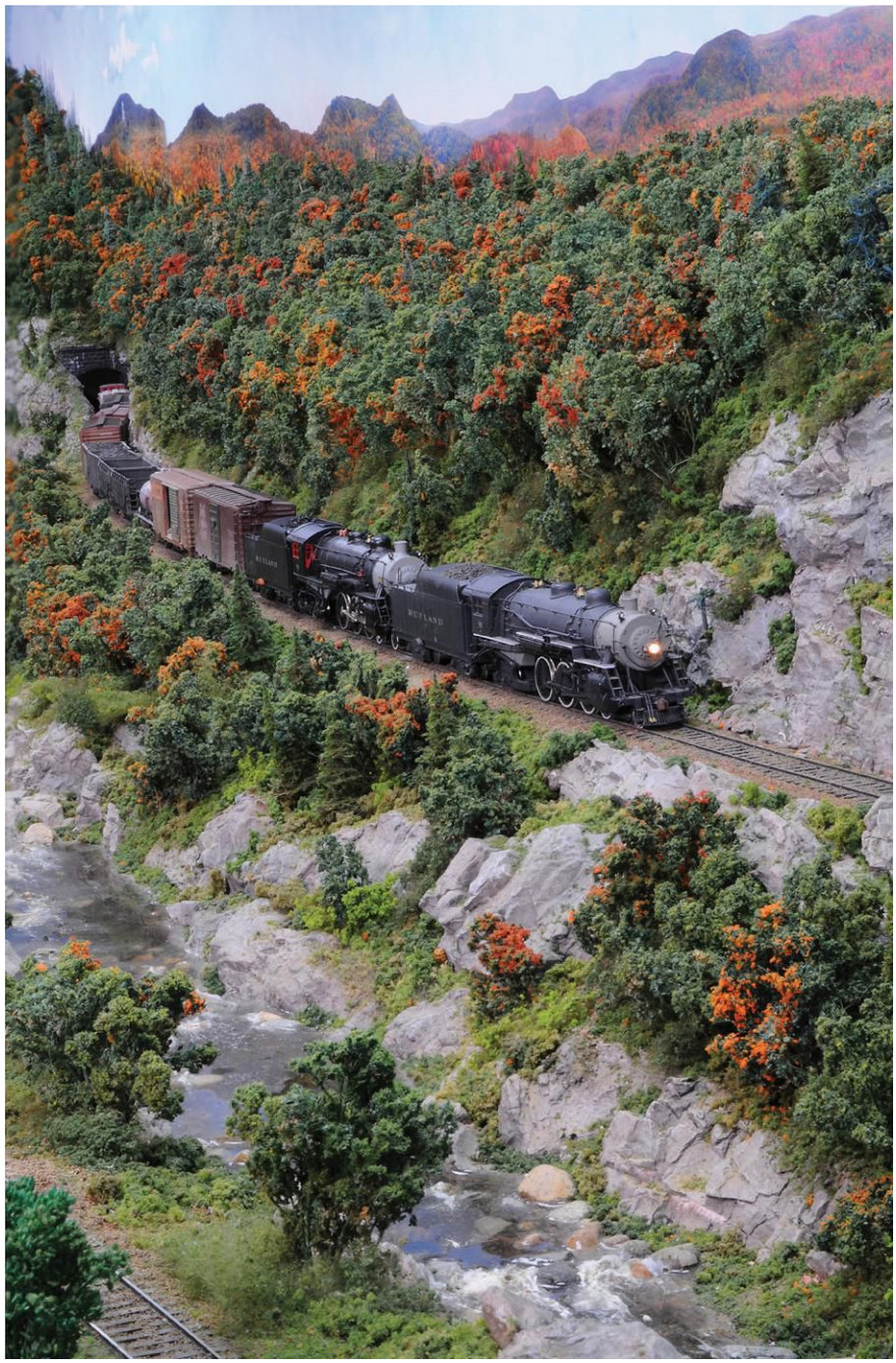
During his time in Boulder, Colo., he worked at a hobby shop. There he met a master scenery builder who gave classes at night and taught museum-quality modeling in a studio at the local college campus. The man's name has been lost to time, but Bob considers him one of the best scenery builders he's ever met.

Bob moved back to Massachusetts in 1977 and graduated from the University of Massachusetts with a master's degree in landscape architecture and regional planning. This background game him a better appreciation of the landscapes he lived in.

A HOME AND A PLAN

Bob started work on the South River & Millville in 1999. The model railroad is located on the second floor of an 1800s-era barn on his property. The first floor, which used to be home to South River Modelworks, Bob's former model railroad structure business, now houses his workshop.

He revised the space on the second floor by re-engineering the original roof, removing the collar ties and bringing in a crane to install a 5 x 19-inch laminated



4 Rutland RR 4-6-2 steam locomotives Nos. 81 and 82 are in charge of a Mountain Division freight hugging the banks of the South River. The Pacifics are brass imports from New England Rail Services. Don Janes custom painted the lead engine.

beam to support one 24-foot section. This eliminated any posts that might have intruded into the layout space.

Though Bob designed the track plan, it was strongly influenced by his good friend Dick Elwell. Bob recalls the first time he visited Dick's Hoosac Valley RR. He instantly noticed Dick's finely detailed northeastern landscape, not just the trains. The first impression stuck with him and connected him, not only with Dick, but with his philosophy of creating a place one could relate to.

Bob regularly shares his design ideas with his wife, Elaine. She is also very artistic and creative and provides helpful feedback that continues to improve his modeling.

FITS AND STARTS

After some false starts with the installation of lights and valances, Bob's friend, Carl Laskey, stepped in. He installed an Armstrong ceiling into which he embedded more than a dozen double u-bend fluorescent light fixtures. These were later converted to light-emitting-diode u-bend lights.

Carl supplemented the u-bend lights with incandescent spotlights scattered around the layout. He then added four separate lighting circuits.

5 **New York Central 0-8-0 No. 7741 spots a car at Spencer Paper Box, a kit by South River Modelworks. The Proto 2000 switcher was weathered by Blue Dot Hobbies.**

Only two valances have been constructed. They're located along the two walls where the roof slope intrudes into the room.

Next, Bob turned his attention to the backdrops. Every fall, around Columbus Day, he took landscape photos of the local area. Bob stitched the files together using Adobe Photoshop. Then he printed the images on archival matte paper.

After mounting the printouts on the walls, he hand-painted the clouds. The base color for the sky is white near the horizon, gradually shifting to dark blue at the top.

BENCHWORK AND TRACK

Dick Elwell was also instrumental in helping with the L-girder benchwork. The roadbed is ⅝" plywood topped with ¼" x 1¼" pine trim. There's a 1% grade on much of the layout.

Bob handlaid most of the main line using Micro Engineering code 70 rail.

Because the main line primarily consists of flowing curves, he opted to make his own turnouts or modify Micro Engineering products when necessary.

Though some changes were made as he went along, most of the track follows Bob's original plan. In the beginning, Dick suggested they revise the approach

6 **An A-B set of Hoosac Valley Electro-Motive Division F units bring a passenger train past Wrisley Papers. The cab units were painted by George Micklus.**

to the main yard by changing the direction of the incoming tracks, but not the overall curved design. His suggestion made immediate sense, and Bob has never regretted taking the advice.

NORTHEASTERN SCENERY

Bob used extruded-foam insulation board to construct the landforms. After he made the rough cuts to form the contours of a hill or valley, he smoothed the foam and gave it a more refined shape using a small, curved Surform plane. Then he covered the foam with a thin layer of Sculptamold.

Bob left about a 3/16" relief indentation in the foam for paved roads, which he modeled using Durham's Water Putty. The finished road edge matches that of the surrounding scenery. Bob painted all hills, valleys, dirt roads, and fields with earth-toned latex paint.

Next, Bob installed rock castings to represent exposed bedrock in valleys and areas that have been excavated, like roadbeds that follow rivers, along with cuts from rivers into the hillsides. He colored the rocks with various acrylic paint mixes. Some of Bob's go-to colors included light and dark browns, reds, tans, and grays. He applied the colors randomly with assorted brushes. He occasionally used a pump sprayer to apply water and India ink and alcohol washes. For final touch-up, Bob lightly scrubbed or drybrushed white or tan acrylics to bring out the highlights.

For water features, Bob tried a number of different materials. Enviro-Tex, a two-part resin, was his choice for deep standing water. Before applying it, he painted the depression with dark paints feathered to a light color along the edges.

Bob applied the resin in multiple pours. The first was black or black/green. He used acrylic modeling paste to simulate ripples on the surface.

For water in motion, such as waterfalls, Bob first spread clear silicone with a putty knife on a smooth, flat surface like polypropylene. He then added a few streaks of white acrylic. Before the silicone fully set, he gently scraped the surface with a saw blade.

When dry, Bob peeled it off, cut the silicone into strips, and attached it to the top and bottom of the falls. He used clear and/or white silicone for touch-ups.

The barn in the Grave's Farm scene near Conway on Bob's South River & Millville was inspired by a prototype structure located near his house.

Finding inspiration

ALL 28 OF THE FACTORY KITS Bob released under the South River Modelworks banner were based on prototype structures. As he was looking for buildings for his HO scale South River & Millville layout, Bob again turned to full-size buildings for inspiration.

The Grave's Farm scene, shown on pages 44 and 45, features a barn next to the house and sugar house adjacent to the tracks. The full-size structures that inspired these builds are located less than a half mile from Bob's residence. The sugar house is to the north, and the barn is to the east.

Sometimes the inspiration for a modeling project may be closer than you think. The next time you're out for a drive or a bike ride, keep your eyes open and bring you cell phone or digital camera. — *Lou Sassi*

TREES FOR ALL OCCASIONS

For deciduous trees, Bob used natural materials, primarily those sold by wholesalers from the nursery trade, along with flower shops and decorators. He treated many of these materials with glycerin to prevent them from drying out and deteriorating. When Bob did large plantings of deciduous trees, he made sure they blended with the backdrop both in texture and color.

Bob's layout is set in early fall in the northeast, a time when not all trees are turning color or losing their leaves. With this in mind, along with the fact that elevation change has an effect on color change, he only added red or orange to about a third of the hardwoods.

For individual and more detailed trees, Bob selected taller specimens to use along the edge of the wooded areas. The size difference enabled him to create the illusion that the deciduous trees beyond those in the foreground are taller than they actually are.

Bob made his own evergreen trees. He started with 1/16" to 1/8" dowels sharpened to a point. After painting them a bark-like color, he attached four to six clumps of furnace filter, trimmed the material with scissors, applied fine turf, and secured it with hair spray.

7 Rutland 4-6-2 Pacific No. 81 crosses the Westfield River via a stone arch bridge that connects Blackstone and Conway. Bob scratchbuilt the bridge, which measures 68" long.

Building bridges

WITH THE EXCEPTION of the Bardswell Ferry bridge, an etched-metal kit, and a modified Central Valley truss bridge, Bob designed and built all the bridges from scratch, primarily in masonry. The hallmark of his South River Modelworks structures was their masonry stone and brick construction, so it was natural for him to use the same materials and methods on his layout.

Bob drew his inspiration from Russ Green, owner of New England Brownstone, along with prototype bridges. One example was the Rockville Bridge just south of Marysville, Pa. At 3,820 feet, it was the longest stone arch bridge ever built. Another was the Middlefield-Becket stone arch railroad bridge near Chester, Mass.

Bob scratchbuilt the 68" long curved stone arch bridge over the Westfield River on his South River & Millville. The straight course stone is based on a carving by New England Brownstone. Bob handled the overall design and mold work. He also constructed the arches, stone by stone. — *Lou Sassi*

Once the trees were planted, Bob added other layers of tall, medium, and small shrubs using commercial scenery products he acquired from suppliers in the United States and overseas. He installed shrubs along the forest edge and in fields and meadows.

Recently, Bob added static grass to his scenery repertoire. The fibers, when combined with various turfs and bushes, result in a great combination of textures. He compared this multi-step process to the creation of a fine painting.

BUILDINGS GALORE

There are more than 100 structures on the railroad. Most, especially Bob's kits, are based on actual prototypes. He acquired around a half-dozen buildings from Dick Elwell's Hoosac Valley, which was dismantled in 2023. The majority of the other buildings are from the 20-plus dioramas he constructed to showcase his South River Modelworks kits.

Regardless the origin, all of the structures are a mix of masonry and wood. When building structures, Bob utilized all of the techniques he learned over the years to create the styles and effects he desired. He readily admitted that problem solving has always been a fun part of accomplishing his goals as a model maker and manufacturer.

RUNNING TRAINS

Size and space constraints, along with the period being modeled, means the freight cars on Bob's layout are 40-feet and shorter. Most are from northeastern lines, such as the Boston & Maine; Delaware & Hudson; New York Central; Maine Central; New York, New Haven & Hartford; and Rutland.

Though most of the cars are factory assembled, Bob recently started adding resin and wood kit-built cars to his fleet. He's also become interested in wood rolling stock that made it into the post

8 Bob's layout is set during the steam-to-diesel transition era, as is evident here. At left, a Boston & Maine 2-6-0 Mogul pulls a short freight train up the highlands. On the opposite side of the river, Rutland Alco RS3 No. 205 leads a Millville-bound train through Broomshire.

MEET BOB VAN GELDER

BOB VAN GELDER OWNED South River Model Works from 1991 to 2016. During that time he designed, manufactured, and sold premium quality HO scale building kits. He and his wife, Elaine, have been married for 43 years and live in Massachusetts. Bob's other interests are pottery, custom knife making, pen-and-ink and charcoal painting, and wild bird photography.

World War II era, including many passenger cars that survived into the 1950s and early 1960s.

Bob lightly weathered the trucks and lower sides of his freight and passenger cars. His preferred weathering materials are chalks and PanPastel products.

The locomotives are a mix of steam and first-generation diesel. All engines are equipped with SoundTraxx or ESU sound decoders.

Bob installed an NCE Digital Command Control system on his model railroad. Dick Elwell helped Bob with the wiring, installing a DCC bus line with power districts. They installed two NCE remote-control cabs and one TCS UWT-100 and WiFiTrax WFD-31 bundle. Bob has an NCE Power Pro on his test track.

The turnouts are controlled with Tortoise by Circuitron switch motors. They are operated via toggle switches that are located on the fascia adjacent to each turnout.

Currently, Bob and another friend run the model railroad. The operating scheme features peddler freights and an occasional local passenger consist to add interest. Bob is considering adding a dispatcher's panel to take operations to the next level.

It has been more than 25 years since Bob started work on the South River & Millville. What lessons has he learned from the model railroad? "Do not labor over a track plan for too long," Bob said. "You will inevitably change things. Get going and start building something."

"Don't worry about making mistakes," Bob continued. "You will learn from them. Dick Elwell told me he spent the first 20 years laying track and the next 20 years ripping up half of it. Set realistic goals and just have fun reaching them." I couldn't agree more. GMR

9 The greens of summer are slowly giving way to the vibrant colors of fall in the northeast. Boston & Maine Alco RS3 No. 1501, seen here bringing a freight over the South River and past the power station for west Franklin County, adds an extra splash of color to this wooded scene. Bob scratchbuilt the station; the locomotive is from Bowser.

RAILROADING IN THE COMMONWEALTH

1 Electro-Motive Division Geeps from the Baltimore & Ohio and Central Railroad of New Jersey head through the cut to Catasauqua Yard to interchange cars with the Lehigh & New England. The scene takes place on Jim Kalenowski's N scale Penn & Eastern layout.

The N scale Penn & Eastern features coal-hauling lines in Pennsylvania between 1956 and 1968

By Lou Sassi ■ Photos by the author

JIM KALENOWSKI'S HOBBY JOURNEY isn't the typical one you read about in the hobby press. Though he has been interested in model and prototype railroads since childhood, he didn't become an active model railroader until later in life. The 12 x 25-foot N scale Penn & Eastern shown here was preceded by two other layouts built over the last three decades. Both were in N scale, but neither reached completion.

The Penn & Eastern is based on lines found in eastern Pennsylvania between 1956 and 1968. Among the railroads on Jim's layout are the Central Railroad of New Jersey, Lehigh & New England, and Lehigh Valley.

Jim's decision to model coal-hauling prototypes was influenced by having seen them in person, along with books, magazine articles, and videos. Visits to layouts depicting coal hauling eastern roads also had an influence.

FROM PLAN TO REALITY

Layout planning and construction started in 2019. Jim turned to Bill Beranek, known nationally as "The Track Planner," to design the layout. Once Jim was satisfied with the plan, he started preparing the second floor bonus room in his house for a model railroad.

First, he installed the room's ceiling, walls, track lighting, and flooring. Then Jim built the L-girder benchwork and topped it with ½" plywood. He used Woodland Scenics foam Track-Bed, sold in strips and sheets, to create elevation changes. Jim also attached tempered hardboard backdrops to the walls surrounding the layout and in the center of the freestanding peninsula.

2 Central Railroad of New Jersey Budd Rail Diesel cars 551 and 552 ease up to the Catasauqua, Pa., station to pick up passengers. After assembling The N Scale Architect kit, Jim applied Vallejo chipping medium and Tamiya paint to give the laser-cut wood structure an aged appearance.

3 This view shows a large portion of Jim's model railroad. The yard at West Catasauqua, Pa., is in the foreground. Behind it on the peninsula is East Bethlehem, Pa.

THE LAYOUT AT A GLANCE

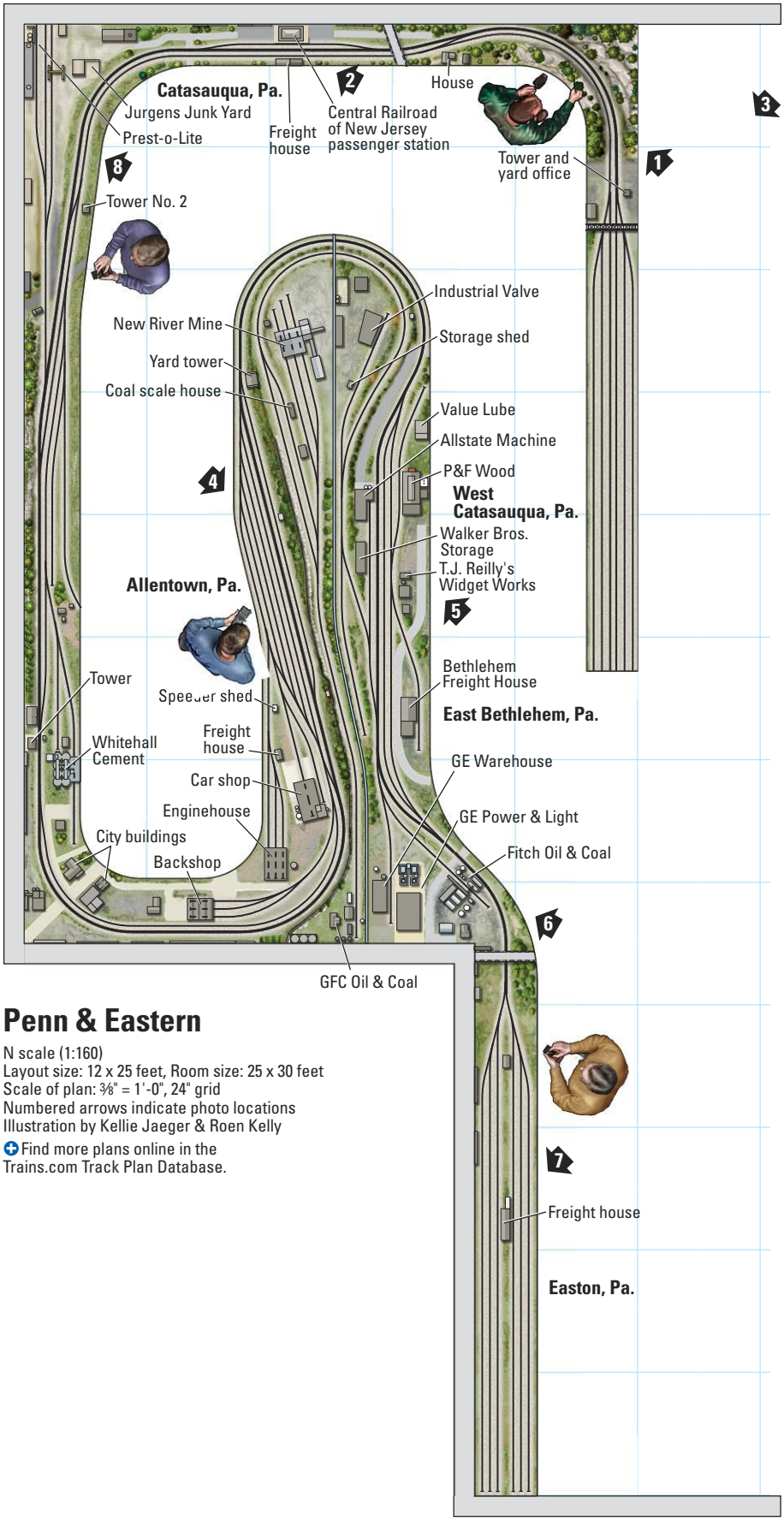
NAME: Penn & Eastern
SCALE: N (1:160)
SIZE: 12 x 25 feet
PROTOTYPE: Central Railroad of New Jersey and Lehigh Valley
LOCALE: Pennsylvania
ERA: 1956-1968
STYLE: walk-in
MAINLINE RUN: 40 feet
MINIMUM RADIUS: 14"
MINIMUM TURNOUT: Peco medium
MAXIMUM GRADE: 3%
BENCHWORK: L girder
HEIGHT: 42"
ROADBED: Woodland Scenics Track-Bed
TRACK: Atlas flextrack
SCENERY: extruded-foam insulation board and Hydrocal
BACKDROP: Walthers SceneMaster Instant Horizons and hand-painted
CONTROL: Digitrax wireless Digital Command Control

After mounting Instant Horizons backdrops from the Walthers SceneMaster line to the tempered hardboard, Jim hand-painted the sky and clouds. He then built basic landforms using 2"-thick extruded-foam insulation board sheets covered with plater cloth. He used sanded grout and Woodland Scenics ground foam for the basic ground cover. The trees and foliage are Scenic Express SuperTrees and Woodland Scenics flocking.

TRACK AND STRUCTURES

The main line on Jim's model railroad features code 80 flextrack from Atlas Model Railroad Co. He used code 55 track for many of the sidings.

The turnouts are from the Peco Electrofrog line (medium and large). Jim modified the switches by isolating the



Penn & Eastern

N scale (1:160)
Layout size: 12 x 25 feet, Room size: 25 x 30 feet
Scale of plan: ⅜" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger & Roen Kelly

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

4 A freight train destined for Elizabeth, N.J., rolls through the Allentown Yard. The three Geeps on the point are from Atlas Model Railroad Co. Most of the cars are from Micro-Trains Line Co. All of the freight cars are equipped with InterMountain metal wheelsets.

5 Having finished switching P&F Wood, Lehigh Valley Alco RS11 No. 7641 returns to the main line. Jim weathered the four-axle unit with Bragdon weathering chalks sealed with Testor's Dullcote.

frogs and wiring them for reliability. Double-pole double-throw toggles on the fascia are used to control the Tortoise by Circuitron switch motors.

In addition, Jim installed operating signals from Atlas and N.J. International. Azatrax signal boards are used to control the aspects.

Although Jim enjoys building structures in all mediums, he especially likes laser-cut wood kits. Many of the structures are from Bar Mills Scale Models, though other laser-cut wood manufacturers are represented.

In addition, Jim scratchbuilt the Hill to Hill bridge, a replica of the full-size structure in Bethlehem, Pa. All of the buildings on the layout weathered to some degree to enhance their realism.

RUNNING TRAINS

The locomotives and rolling stock on the Penn & Eastern are indicative of the period and prototypes being modeled. The locomotives are a mix of Alco and Electro-Motive Division products.

One of the more interesting diesels in Jim's roster is a Lehigh Valley Alco

Ironton Baldwin switcher No. 751 leads a train past some stratified rock on the Penn & Eastern. Jim shares his easy-to-follow tips for modeling this scenic feature.

Stratified rock

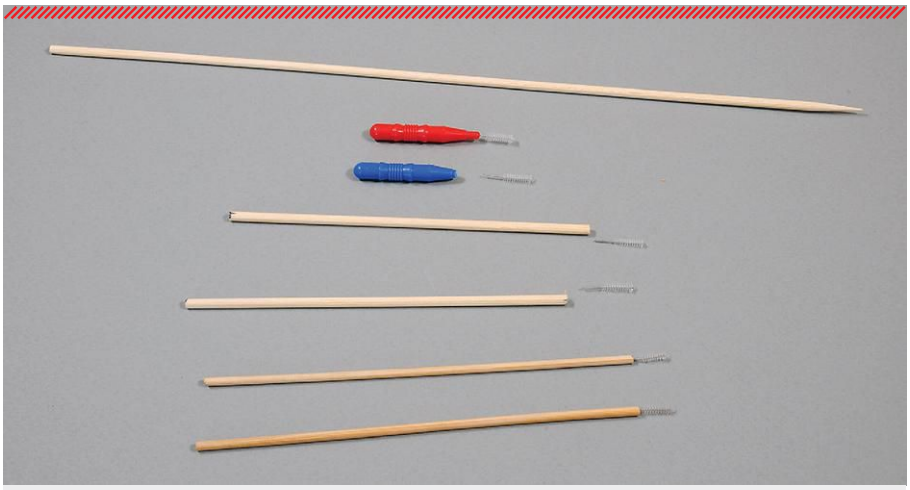
MODELING STRATIFIED ROCK is easier than you might think. First, I take some extruded-foam insulation board, stack it 1- or 2-inches high, and shape it to the contour of the scene. Then I cover it with Woodland Scenics plaster-impregnated gauze strips and let it dry thoroughly (no cold, damp spots).

Next, I mix a batch of lightweight Hydrocal and spread it over the plaster cloth, at least ¼" thick. Depending on the moisture content, wait 10 to 15 minutes. Don't let it dry completely.

As the Hydrocal sets up, I run a hobby knife horizontally through the scene. The Hydrocal will start to chip out, as shown in the scene above.

Finally, I color the Hydrocal with Woodland Scenics liquid pigments. I also add some of the manufacturer's ground foam and foliage along the edges to blend the rock into the adjacent scenery. — *Jim Kalenowski*

6 **Lehigh Valley Electro-Motive Division GP9 No. 301, painted in an experimental scheme, brings a freight past Fitch Oil & Coal. Many of the structures in this scene were spray-painted with Rust-Oleum Red Primer, coated with Vallejo chipping medium, then airbrushed with Tamiya Flat White.**



Having grown frustrated with different uncoupling devices, Jim made his own using bamboo skewers and interdental flossing brushes.

Do-it-yourself uncoupling sticks

OVER THE YEARS I'VE TRIED many uncoupling devices on my model railroad. Unfortunately, all have been problematic. That led me to make my own using bamboo skewers and interdental flossing brushes.

There are a variety of brushes on the market. I order mine through Amazon. Search for "BBTO 100 pieces Braces Dental Brush Flosser".

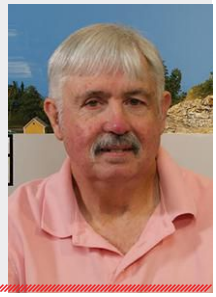
To build the uncoupling sticks, I first cut the plastic handle on the flossing tool 5/8" from the end of the brush side. Then I twist the remaining plastic in either direction until it disengages from the brush. Any remaining plastic can be discarded.

Next, I cut a bamboo skewer into 5" lengths — this will make two uncoupling sticks. I then use a pin vise and a No. 73 or No. 74 bit to drill a hole in the end of both pieces, approximately 1/4" deep.

After I dip the wire end of each brush into cyanoacrylate adhesive (CA), I insert it in the previously drilled hole. Once the CA has cured, you can start uncoupling cars. — *Jim Kalenowski*

MEET JIM KALENOWSKI

JIM KALENOWSKI GREW UP in New Jersey and worked for the Bell System for 30 years. He has always been interested in prototype and model trains. After settling in North Carolina following retirement, Jim was able to bring some of his favorite bygone coal-hauling railroads, like the Central Railroad of New Jersey, Lehigh Valley, and Lehigh & New England, back to life in 1:160.



RS3M "Hammerhead." The model is based on a prototype diesel that had a modified Alco body and a rebuilt Electro-Motive Division diesel engine. As with the structures, all locomotives and rolling stock are weathered with an airbrush and chalks.

Trains on Jim's layout are controlled with three Digitrax Digital Command Control cabs. Operations consist of local freights and bridge traffic, typical of the 1956 to 1968 era.

Jim uses a JMRI operating system with trains running in sequence. Presently there's no fast clock, but plans for one are in the works. A typical operating session lasts about two hours and involves six to eight trains.

ACHIEVING GOALS

From the start, Jim wanted to run the N scale Penn & Eastern with his friends. He feels fortunate to have accomplished that goal. In addition, he enjoys that he was able to bring this model railroad to completion, a goal many modelers strive for but few ever reach. GMR

7 Two Lehigh Valley Alco C628 diesels running long-hood forward leave Easton with empty covered hoppers for Whitehall Cement. The freight house at left is a Motrak Models kit. The six-axle road units, both Atlas models, are painted in LV's "Snowbird" scheme.

8 **Prest-o-Lite and Jurgens Junk Yard in Catasauqua, Pa., are two rail-served industries on the Penn & Eastern. Here, Lehigh Valley units pick up three gondolas loaded with scrap iron from Jurgens.**

RAILROADING ON THE

Family history inspired a love of the 'Annie'

By Ralph W. Moxley II ■ Photos by Craig Wilson

WHEN I WAS A BOY IN THE 1950S, my family stayed at Hill 'N Dale Resort on Crystal Lake, about a mile west of Beulah, Mich. The Ann Arbor RR track ran next to the south shore of the Crystal Lake, right past the resort. Often, I would hear the train coming from a distance and go wait for it to pass the resort.

The Ann Arbor RR was busy in the mid-'50s. There were at least two trains daily each way. There were no passenger trains in the 1950s. Most trains at that time had close to 100 freight cars (I remember counting them).

The railroad had new Alco FA2 engines and new Wabash-style steel cabooses with streamlined cupolas. There were no steam engines or wooden cabooses then. The Ann Arbor RR also had two Alco RS1s, and four Alco S3s used for switching the railroad, including the boats in Elberta, Mich.

The Ann Arbor RR trains were running from Toledo, Ohio, to Frankfort/Elberta, Mich., then back again. There were no signals. Everything was timetable-and train-order operation.

The railroad was a short cut that would save the freight shippers time by avoiding Chicago freight yards. Trains were loaded onto ferry boats at Boat Landing Yard in Elberta. The boats could hold about 30 freight cars, and had to be carefully loaded in order to avoid capsizing the vessel.

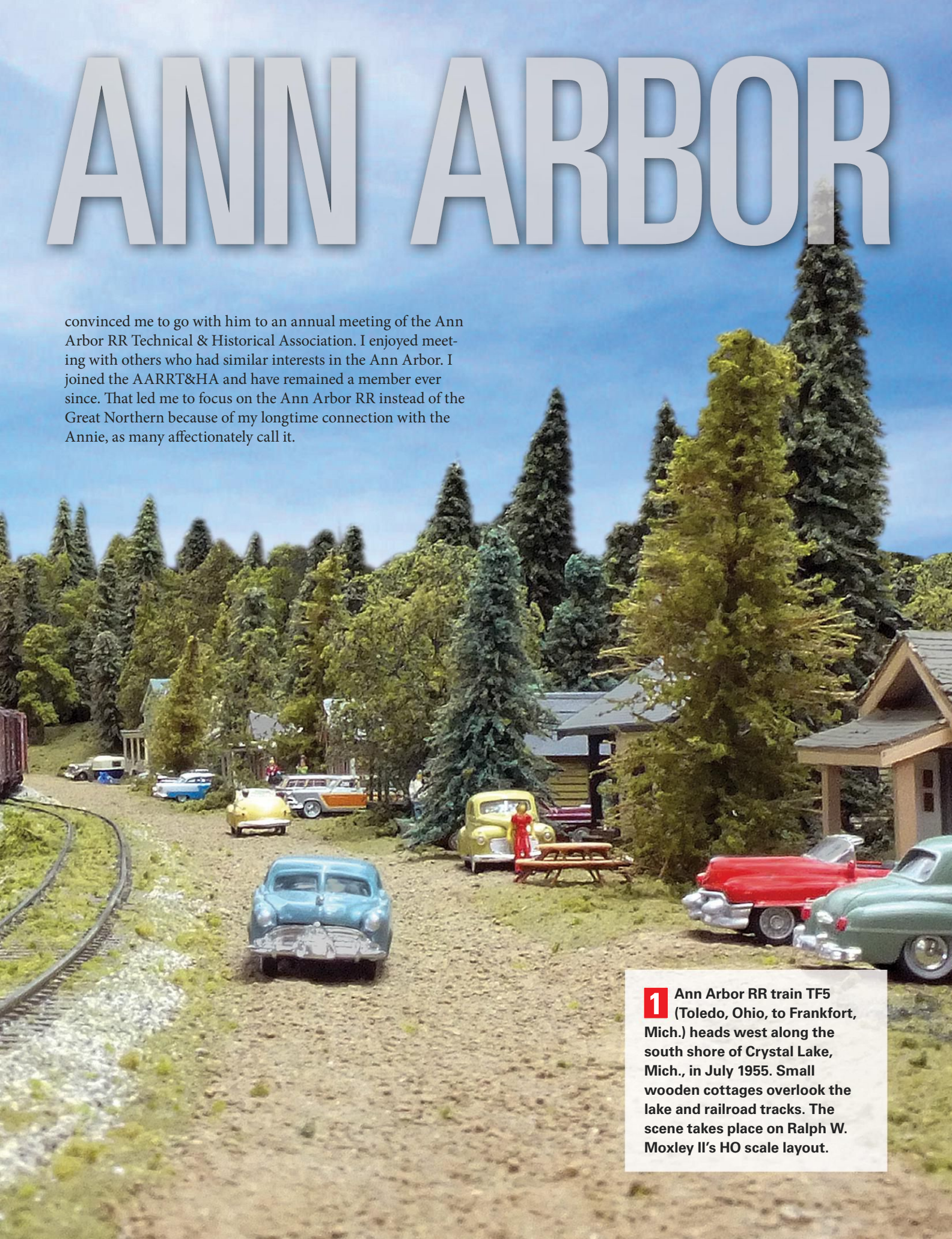
The Ann Arbor RR had six ferry boats in service in the mid-'50s. They went to two ports in Wisconsin (Manitowoc and } Kewaunee) and two ports in Michigan's upper peninsula (Menominee and Manistique).

ANN ARBOR RR TECHNICAL & HISTORICAL ASSOCIATION

My interest in railroad modeling dates to the late 1980s. At first, I focused on the Great Northern. In the fall of 1992, I attended a train show in the area where I met someone who

ANN ARBOR

convinced me to go with him to an annual meeting of the Ann Arbor RR Technical & Historical Association. I enjoyed meeting with others who had similar interests in the Ann Arbor. I joined the AARRT&HA and have remained a member ever since. That led me to focus on the Ann Arbor RR instead of the Great Northern because of my longtime connection with the Annie, as many affectionately call it.



1 Ann Arbor RR train TF5 (Toledo, Ohio, to Frankfort, Mich.) heads west along the south shore of Crystal Lake, Mich., in July 1955. Small wooden cottages overlook the lake and railroad tracks. The scene takes place on Ralph W. Moxley II's HO scale layout.

2 **A trio of Alcos await their assignments at Boat Landing Yard in Elberta, Mich. The coal tower at the engine service facility serves the ferry boats that use coal to fire their boilers. The sand tower and sand shed were needed for diesel engine traction on the hills between Elberta and Cadillac.**

Membership in the organization helped me to stay focused on finding historically accurate models of rolling stock. I decided to focus on 1955, since that was a busy time for the railroad.

I became involved in the organizational leadership of the AARRT&HA. As such, my duty was to attend train shows around Michigan, represent the organization and sell rolling stock, books, and photos focused on the Ann Arbor RR. At that time, in the mid-'90s, a new book by Robert I. Warrick was just published by Morning Sun Books — *The Ann Arbor Railroad, History and Operations*. That book was a hot seller and a great source of information on the railroad, and it motivated me to build a layout based on it.

MY FIRST HO MODEL RAILROAD

In late 2001 we purchased and moved into an existing home in Grand Rapids, Mich. I had asked the Realtor to find us a home with a minimum 300 square feet of storage space in the lower level I could use to develop a medium-sized model railroad. She found what we needed.

I started building my first HO scale model railroad layout in the winter of 2003. The plan was a single-track mainline with loops at both ends and a small freight yard in the center of one loop. The loops were on two different levels with a grade of about 2% between them.

Everything was running smoothly. The scenery had yet to be installed, but that was planned to come next.

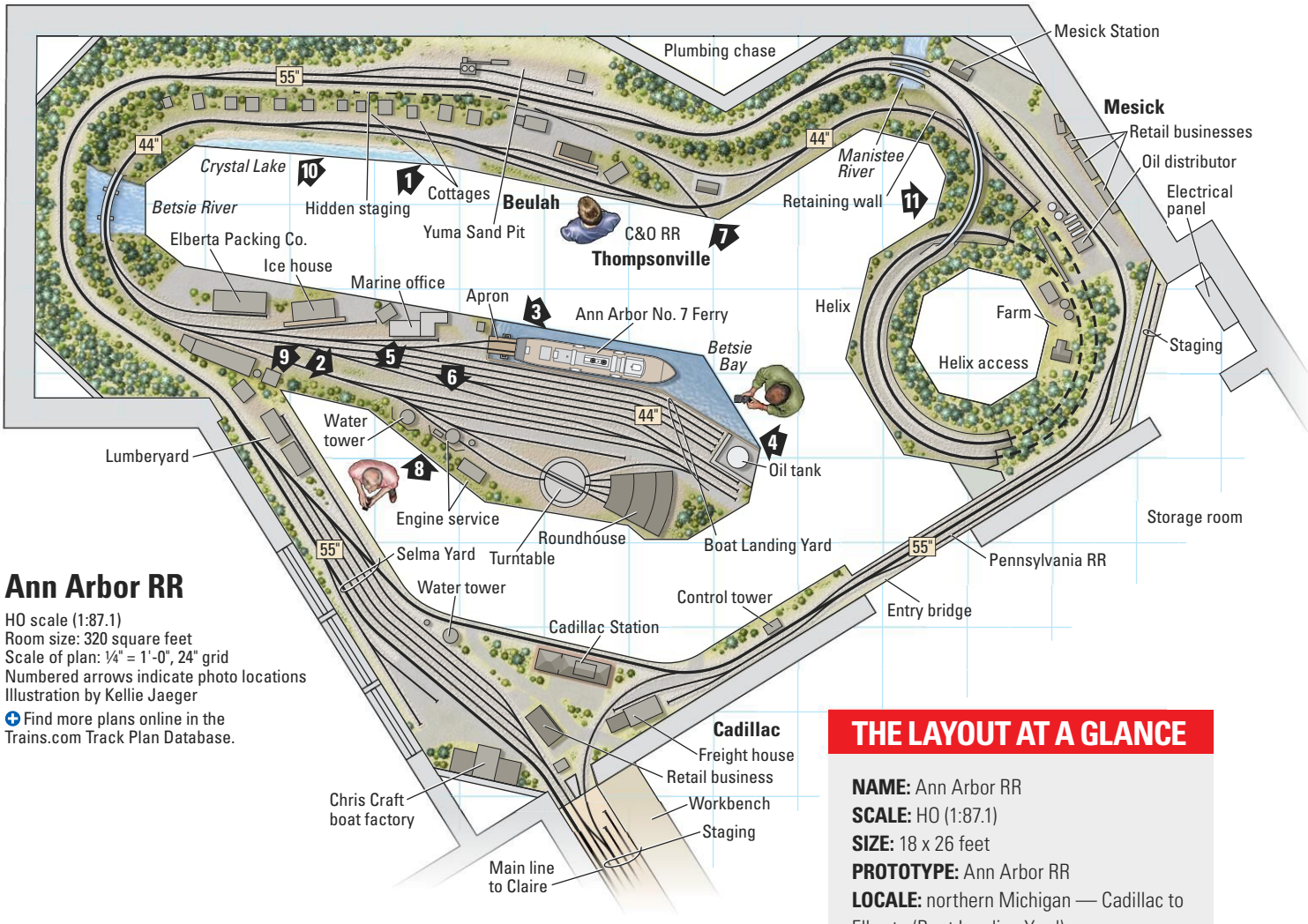
PLANNING A NEW RAILROAD

In the fall of 2004, I attended the annual meeting of the AARRT&HA. During that meeting, I showed photos of my new Ann Arbor RR layout to the members. After the presentation, one of the members, Jeff Hammond, came over to talk to me about the layout. He commented that what was accomplished looked fine, but he thought I could do better by developing a more historically accurate portion of the railroad for my layout. He offered to help me plan and build a new layout focused on northern Michigan towns.

Since he said he too was an architect, and lived 2 miles away, we could work together to plan and build the benchwork for the upgraded layout in a short amount of time.

The plan he proposed sounded good to me, so I accepted his offer. We spent the next four months planning the layout based on a 66 mile stretch of the railroad from Cadillac to Boat Landing in Elberta, Mich.

The layout plans were developed on CADD. Jeff would propose a concept and I would respond with adjustments. We had a very limited area to work in, and I wanted to make sure the aisles weren't too narrow. We also had to plan around some existing features of the space — a load-bearing wall, a utility sink, an electrical panel, and an odd shaped room!



Ann Arbor RR

HO scale (1:87.1)
Room size: 320 square feet
Scale of plan: ¼" = 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: Ann Arbor RR
SCALE: HO (1:87.1)
SIZE: 18 x 26 feet
PROTOTYPE: Ann Arbor RR
LOCALE: northern Michigan — Cadillac to Elberta (Boat Landing Yard)
ERA: summer 1955
STYLE: walk-in
MAINLINE RUN: 135 feet
MINIMUM RADIUS: 30"
MINIMUM TURNOUT: No. 6
MAXIMUM GRADE: 1.65% at helix
BENCHWORK: wood frame
HEIGHT: 55" (upper level), 44" (lower level)
ROADBED: HO scale cork roadbed on main line, N scale cork roadbed on siding and yards — both on ¾" plywood
TRACK: code 83
SCENERY: plaster-coated plaster gauze on Styrofoam
BACKDROP: tempered hardboard with painted sky and tree backdrop
CONTROL SYSTEM: Digitrax DCC

3 An Ann Arbor RR Alco S3 loads cars onto ferry boat No. 7 at Boat Landing Yard. Engines weren't allowed onto the loading ramp due to their weight.

4 Ann Arbor's No. 7 ferry boat is tied up at Boat Landing Yard in Elberta, Mich. The ferry boats transferred rail cars to two ports in Wisconsin and two ports in Michigan's Upper Peninsula. The model was built in 1978 by Craig Wilson using plans published in *Model Railroader* magazine.

We completed the detailed layout plans in March 2005, and started building the new model railroad in April 2005. The first thing was to disassemble the existing benchwork and salvage the track for the newer layout. We were also able to salvage all the wood from the first model railroad because the frame had been screwed together and not glued.

GOALS OF A NEW LAYOUT

Our long-term plan for the new layout was to start in Cadillac and include several local industries that were active in the 1950s, as well as the local towns of Beulah, Mesick, and Thompsonville. We included Crystal Lake with beach scenes, small cottages, and ski boats. We planned for a single-track main line with three passing sidings at Crystal Lake, Yuma, and Cadillac.

Our original plan was to have the trackwork come out of Cadillac on the 55" level and then travel down through a helix to the 44" level before going into Elberta. Bob Teusink, who helped with the DCC control system, suggested that we extend the 55" level all around the room for a continuous loop. We agreed and the change was easily made. We also put in a duckunder bridge at the entrance to the room that's high enough for an adult to easily to walk under.

The railroad has an interchange with the Pennsylvania RR at Cadillac. The PRR line heads north and goes into a hidden staging area.

Cadillac has a four-track yard, known as Selma Yard. There's a wye interchange track at Cadillac that allows trains looping the room in a clockwise direction to access the hidden staging yard in the adjacent room. The staging yard has five tracks and is about 10 feet long at the 55" level, directly above a workbench at the 32" level.

At Thompsonville, the Annie interchanges with the Chesapeake & Ohio (formerly Pere Marquette). There's a crossing, interchange track, and passenger station here.

Boat Landing Yard has a nine-track yard, plus engine service facilities. There is a ferry boat loading/unloading operation on one side of the yard. Boat Landing Yard had to be greatly compacted and reduced in size. If built exactly to scale, it would have been about 45 feet long. We had about 15 feet to work with in the train room.

5 The engine track at Boat Landing Yard has both Alco FA2s and an RS1 waiting for assignments. In December 1950, the Ann Arbor RR switched from steam locomotives to Alco diesel locomotives. The engine service facility is in the background.

NEW BENCHWORK FEATURES

The benchwork is stepped, with lower 44" level out front and 55" level against the wall. Both levels are about 18" deep. There's a tempered hardboard backdrop between the upper and lower levels. It's painted forest green, like all other tempered hardboard fascia panels on the layout. By stepping the two levels rather than placing one directly above the other, all

6 Specially designed open hopper cars wait to be loaded under the coal dock at Boat Landing Yard. Once loaded, they'll be transferred over to the ferry's car deck after all freight cars are removed. The hoppers are then emptied into coal bins below the car deck of the boats where the coal will be used to fire the boilers.


ANN ARBOR
WABASH
GRAND TRUNK WESTERN
GTW 5415

7 **A Chesapeake & Ohio EMD switcher approaches the interchange between the Ann Arbor RR and the C&O at Thompsonville, Mich.**

areas receive the same amount of light from the overhead lighting system. Also, there is no need to introduce lights underneath the upper level benchwork.

The 55" benchwork runs completely around the room, which is good for continuously running during open houses. The 44" benchwork runs from the helix to Boat Landing Yard. The lower level allows children to see the trains close up.

Benchwork is free-standing on double 2 x 4 legs with spacers. Beams supporting the benchwork are 2 x 6.

INSTALLING TRACKWORK

Bob Teusink recommended I switch from code 100 track to code 83 nickel silver track, which I did. He also recommended the new Walthers No. 6 DCC ready turnouts. I used manual throws as much as possible to save on costs and make switch installation faster.

Bob planned, built, and installed the entire DCC control and wiring system. He also installed two Tortoise by Circuitron switch machines with control panels at hard-to-reach locations.

To provide realistic elevation changes, all mainline trackwork was laid on HO scale cork roadbed. All sidings and spurs are on N scale cork roadbed. The layout's minimum radius is 30". Longer curves are superelevated by placing wooden ties under the outer edge of the track.

David Kmecik installed four sets of control panels and eight sets of electric switches to control passing sidings at Crystal Lake and Yuma, plus spurs on those lines. He also installed the switches that control access to the helix and the Thompsonville interchange siding.

THE HELIX

The helix is a key feature of the model railroad. I wanted to offset the two circular track levels and fully landscape the helix. With two loops between levels, we made the transition in a moderate 1.65% grade.

The helix is a simple octagonal shape with a 6 foot outside dimension. It has an interior octagonal opening of 3 feet to access the landscape and any trains that may run into difficulty.

The helix frame is on casters so I could easily roll it into position in the northeast corner of the train room once it was completed. Several times, I had to pull it out to do work on it. It's now permanently locked into position by the scenery.

The two track levels are offset 6.5" from one another to allow for landscape between the loops. The scenery is heavily forested, with bear and deer in the woods. The loops on the helix have tunnels that extend about one quarter of the full loop.

8 The Ann Arbor RR Marine Office at Boat Landing Yard controlled cross-lake shipping operations and Frankfort to Toledo (FT) train operations. The building was constructed for the U.S. Coast Guard.

WORKBENCH AND STAGING YARD

Both the workbench and the staging yard are located in the storage room adjacent to the train room. Access is through two short tunnels in the wall separating the two rooms. The tunnel entrances provide access from the Selma Yard and the wye track in Cadillac.

DCC CONTROL SYSTEM

Bob Teusink planned, built, and installed all Digitrax controls and track main bus. He planned four independent track zones with a circuit breaker for each to isolate shorts.

The system has a Digitrax DCS52 controller located below the Cadillac train station. The DCC system has four handheld Digitrax UT4R radio controllers. We planned for two Digitrax Simplex Radio/IR receiver panels (UR91) for picking up radio signals from handheld controllers. Receivers are located on opposite sides of the train room.

SCENERY TECHNIQUES

Once the roadbed and track were installed, I came back and glued in 1.5" layers of Styrofoam. I then used a rasp to roughly shape the Styrofoam. I filed it smooth for the final shape.

A layer of plaster-impregnated gauze was wetted down and then placed over the Styrofoam. I used a brush to apply a thick layer of plaster, which smoothed out any irregularities.

Next, I brushed on a coat of white glue and sprinkled on Woodland Scenics ground foam. Then I applied a layer of Scenic Cement to lock the ground foam into place.

I used Woodland Scenics Fine Ballast on all tracks. Ballast for sidings and spurs are a different color than the main track. I also used different colors for the PRR and C&O tracks. I applied Scenic Cement between the rails first. Then I applied the scenery glue to shoulders.

Evergreen trees are Grand Central Gems. Deciduous trees are SuperTrees with ground foam applied heavily and locked in place with Aqua-Net hair spray.

There are now 3,600 trees on the model railroad! The trees are densely packed. Evergreens and deciduous trees are carefully interspersed. Jim Shirreffs plants the trees on the layout. He simply punches a hole in the plaster and Styrofoam with a small nail, and then pushes the tree into position. No trees are glued in. That allows us to remove trees and relocate them as we see fit.

Magic Water was used for lakes and rivers. Jim airbrushed the bottom of Crystal Lake, Manistee River, Betsie

9 Ann Arbor RR Alco RS1 No. 20 arrives at Boat Landing Yard in Elberta, Mich., with cars for the Elberta Packing Co. plant. The plant served as a gateway to the yard that loaded the ferry boats, as well as a canning operation for local farmers.

River and Betsie Bay at Elberta. Crystal Lake was painted a turquoise blue/green color, the result of spring fed water and a sandy lake bottom. Rivers and Betsie Bay were painted to simulate the muddy and disturbed water. The Magic Water isn't tinted, which makes it look like real water. We used Mod Podge to create the wave effect on Betsie Bay. The fine beach sand was provided by Bruce Chubb of Sunset Valley fame.

BOAT LOADING OPERATION

Trains were loaded onto Ann Arbor RR No. 7 ferry. The full-size boat could hold 30, 40-foot freight cars. Idler cars were used during loading, which kept the heavier locomotive off the apron. Typically, two or three idler cars were used for working the boats.

The switch crews had to be careful as they unloaded and loaded the boat so it did not lean so far as to capsize. There were four tracks on each boat. Center tracks were half loaded first. Outboard tracks were loaded last. Unloading of the boat went in reverse order.

If space was available at the back of the car deck, people could drive their car onto the boat and get a cheap ride across Lake Michigan. You would often see people waiting at the apron for a chance to drive their automobiles onto the car deck.

THE FERRY BOAT MODEL

The model of Ann Arbor RR No. 7 car ferry was purchased from Craig Wilson in 2013. The apron and hoist house were included.

The boat model was based on plans for *The City of Milwaukee*, published in *Model Railroader* in April 1978.

The boat decks can be removed one at a time to view the guest rooms and officer quarters on each deck. You can also see the cabins, bunk beds, showers, toilets, and furniture. The car deck is accessible for loading and unloading.

Improvements to the model boat include reinforcement of the main deck; repainting of the hull; and a new sea gate, lifeboats, railings, and deck details. The ferry boat is one of the most popular jobs during operating sessions.

RUNNING TRAINS

Since passenger service ended on the prototype in 1950, my HO scale version of the Ann Arbor is a freight-only railroad. Most of the operation focuses on ferry boat loading and unloading. In addition local trains service the industries.

I host operating sessions once a month. A typical session lasts two hours. Jobs include working Boat Landing Yard and staging and loading the car ferry. There are also two positions for mainline trains. Crew members waiting between assignments are invited to relax in the family room where they can watch train videos.

Custom made train operation cards are used for car routing. We follow a fast clock, set at a 4:1 ratio. The day normally starts at 8 a.m., with operations wrapped up around 4 p.m. There's no dispatcher. I

10 **Ann Arbor RR FA2 engines pass the south shore of Crystal Lake. The lake has a unique turquoise color and white sand beaches.**

11 **Ann Arbor RR FA2 No. 52 passes through Mesick, Mich., and the oil dealer, who delivered to homes and local business on tanker trucks.**

control the interchange signals with a handheld radio controller.

A REWARDING JOURNEY

My goal was to capture the Crystal Lake scene through the use of realistic rolling stock, lots of details, 1950s automobiles, tourists, Chris Craft ski boats, white sand beaches, turquoise water and lots of evergreen trees. Each night before going to bed I peak at the model railroad, the Crystal Lake scenes and smile as it brings back fond childhood memories of staying at Hill 'N Dale resort near Beulah. GMR

MEET RALPH W. MOXLEY II

RALPH GREW UP in Birmingham, Mich., just north of Detroit. During vacations his family would stay at Hill 'N Dale Resort on Crystal Lake's south shore. The Ann Arbor RR tracks ran along the lake shore past the resort.

Ralph attended Michigan State University to study civil engineering. He later attended the University of Michigan where he earned his master of architecture degree. Ralph and his wife, Dr. Kathleen Moxley, a college professor, have two children and two grandchildren.

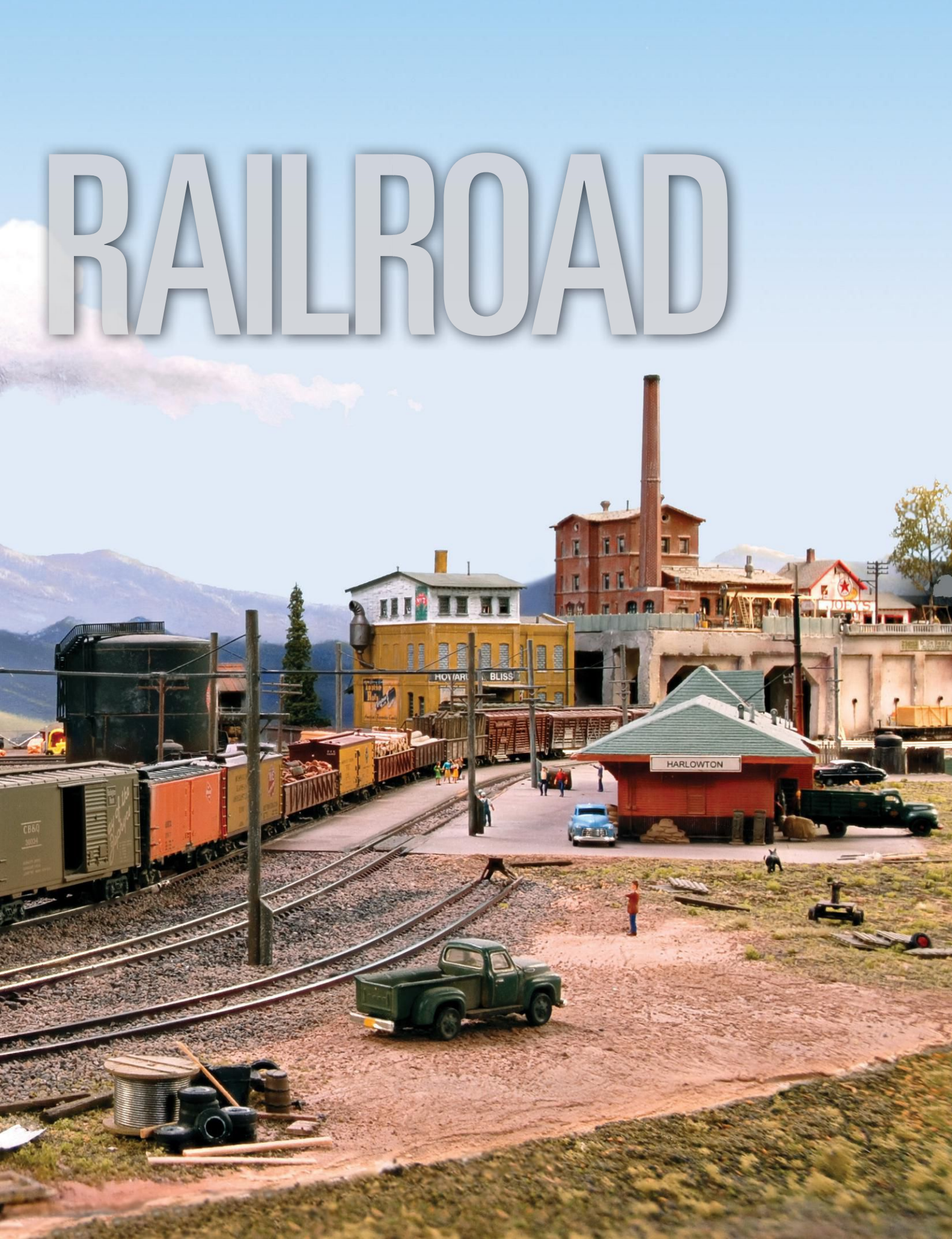
BUILDING A 1950S GRANGER

The Milwaukee Road North Montana Line carried a wide variety of freight

By Dan Lewis ■ Photos by the author

1 Time freight 164 leaves Harlowton for staging after completing its run on Dan Lewis' Milwaukee Road North Montana Line N scale model railroad. The Electro-Motive Division F7 is an Atlas/Kato engine with a custom paint job, super detailed by Dan. The scratchbuilt Harlowton Station is on the right. The broad sweep of Big Sky Country sets the scene of central Montana.

RAILROAD



2 This aisle (top photo) features Harlowton (left) and Lewistown (right). The large OS sign is to remind operators to "OS" the dispatcher (report their passing). The fascia features track diagrams, yellow for the MILW main line, green for the Great Northern line, and orange for the branch to Winnett.
The lower photo shows the open staging on the left and Great Falls station and yard at right. One of the advantages in N scale modeling is the ability to keep the layout width relatively narrow but still retain plenty of space for towns and scenery.

THE LAYOUT AT A GLANCE

NAME: Milwaukee Road North Montana Line
SCALE: N (1:160)
SIZE: 18 x 24 feet
PROTOTYPE: Milwaukee Road
LOCALE: central Montana
ERA: 1953 (fall)
STYLE: walk-around
MAINLINE RUN: 115 feet
BRANCH LINE RUN: 42 feet
MINIMUM RADIUS: 12½"
MINIMUM TURNOUT: No. 4 (industrial), otherwise No. 6
MAXIMUM GRADE: 2.2%
BENCHWORK: box girders
HEIGHT: 51"-56"
BASE AND ROADBED: cork on Homasote
TRACK: code 80 (Peco), code 70 and 55 (Micro Engineering)
SCENERY: plaster gauze over extruded-foam insulation board
BACKDROP: hand-painted tempera on drywall
CONTROL: CVP Easy DCC with wireless throttles

THE SO-CALLED GRANGER RAILROADS emanated westward from Chicago like spokes on a wheel. For farms and ranches in the Upper Mississippi Valley, they were the rail highways for shipping, and they included railroads like the Chicago, Milwaukee, St. Paul & Pacific; Chicago, Burlington & Quincy; Rock Island; and Chicago & North Western. In the post-Civil War era, farmers' organizations had worked to regulate railroad freight rates and passenger fares, and to that end, they promoted the granger laws, regulations by which states in the Midwest controlled tariffs while restricting the railroads from (unfairly) setting rates.

The Milwaukee Road, however, wanted a bigger slice of the railroad pie than


Milwaukee Road,
North Montana Line
N scale (1:160)
Room size: 18x24 feet
Scale of plan: ⅜" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Rick Johnson
Find more plans online in the Trains.com Track Plan Database.
Oil well
Stock pen
Gas station
Choteau
Duckunder
Station
Grain elevator
Service track
Caboose track
Coal
Water
Engine house
Station
Freight house
Great Falls
Iron works
Retaining wall
Anaconda Wire
Freight shed
Feed mill
Lumber mill
Stock pens
Water
Winnett
Montana Crushed Stone
GN staging
Denton
Station
Grain elevator
Great Northern connection and interchange
Great Northern
Lewistown Brick
Grain elevators
Judith Gap
Hotel
Cold storage
Montana Cattlemen's Assoc.
Lewistown
Depot
Machine shop
Warehouse
Team track
Freight house
Coal
Diesel fuel
Water
Lewistown Hide & Fur
Heath
Stock pens
15-degree crossing
U.S. Gypsum
Mine
Stock pen
Mine
Hanover
Portland Cement Co.
Teton Gorge
Stock pen
Water
Coal
Engine house
Oil tank
Anderson Trucking
Montana Power
Harlowton
GN staging
MILW staging
Staten Mfg.
Howard Bliss Co.
Stock pens
Oil tank
Station
Montana Flour elevator
Stock pens
Oil well
Oil tank car loading
Spring Creek
1
2
3
4
5
6
7
8

3 **A 4-6-2 Pacific departs Harlowton with the daily passenger train. The roster for the North Montana Line in 1953 was a delightful mix of steam and diesel. Though steam was on its way out, both light and heavy Mikados for freight trains and Pacifics for passenger service were still running.**

just the Midwest, so by the beginning of the 20th century the directors set their sights on a western extension all the way to the Pacific Coast. Though late to the game, in 1906 they began pushing their lines westward from South Dakota through Montana, Idaho, and Washington, thus becoming, in fact as well as in name, the Chicago, Milwaukee, St. Paul and Pacific RR.

Surveying began in November 1905, and part of the plan included the purchase of the Montana RR, which by 1903 already existed between Harlowton and Lewistown, Mont. With the promise of the railroad, more and more homesteaders moved to Montana, with new towns sprouting up along the railroad right-of-way complete with stations, elevators, and stockyards to accommodate the local farmers and ranchers. Indeed, the granger railroads in general and the CMStP&P in particular were active in promoting new settlements into these sparsely populated states.

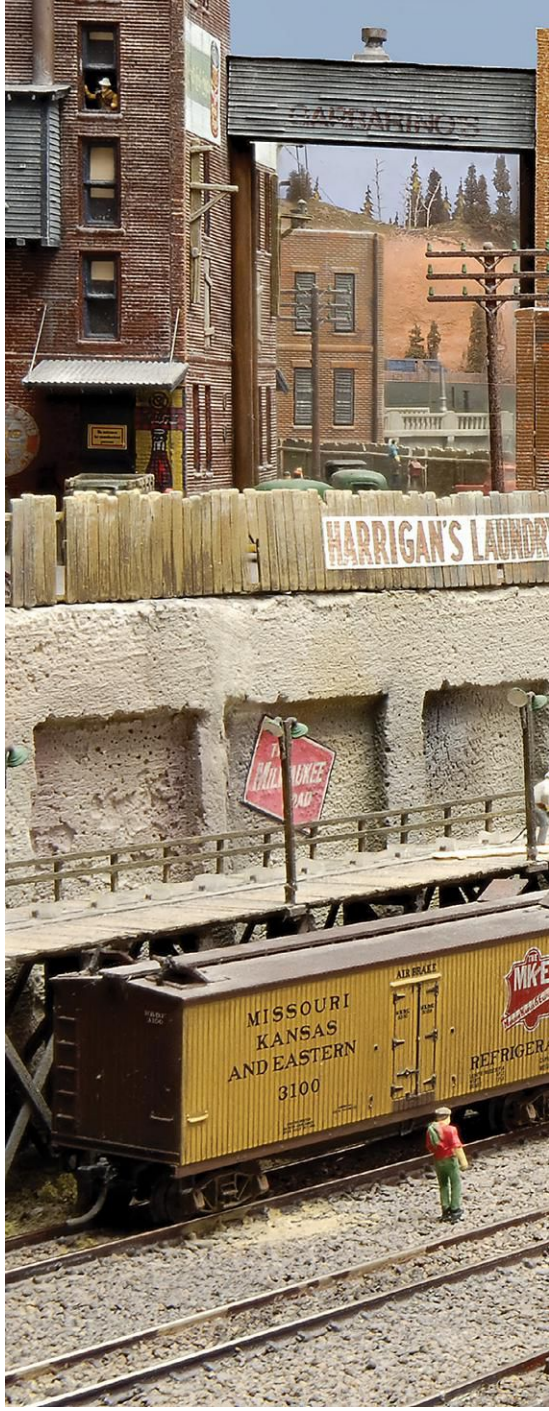
RESEARCHING AND PLANNING

Being a native Montanan, it was a natural for me to want to build a layout set in this area. Though I now live in Detroit, my wife and I took a research trip through Montana using Steve McCarter's *Guide to the Milwaukee Road in Montana* (Montana Historical Society, 1992), which described what was left of this fallen flag and how to find it. This, in turn, led us to Harlowton and Lewistown, the two towns that would become the most prominent for what I wanted to build. We trudged through ranches, visited small museums, accessed local libraries, and interviewed veteran railroaders. Packed with photos and multiple notepads full of information, we headed back home to begin layout construction.

I already had settled on the proto-freelancing approach — not the historical precision of Jack Burgess nor the artistic free composition of George Sellios, but something in between. I wanted signature structures faithful to the prototype but the freedom to create the supporting areas on my own.

What especially captured my imagination was the North Montana Line, a 265-mile branch of the CMStP&P that began in Harlowton and meandered northwesterly through Lewistown and several other small communities on its way to Great Falls and beyond. This was granger railroading at its best!

Primary commodities were grain and cattle, and the North Montana Line soon became one of the most important feeder lines on the whole Milwaukee system. Since this branch reached all the way to Great Falls, one of the largest cities in the state, a wide variety of products were shipped, ranging from copper ingots



4 **The outskirts of Dan's version of Harlowton sees train 118 arriving in the yard, having begun its afternoon trip at Great Falls and, after passing through various small communities, now connects with the MILW east-west trunkline.**

5 **During the 1950s, Lewistown was the headquarters for the Rocky Mountain Division of the MILW, the only division headquarters not located on the main line. Dan tried to construct the Lewistown station as closely as possible to the prototype.**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LEWISTOWN

6 Great Falls features one of the three scratchbuilt stations created just for this model railroad. The station's tower, at right, helps anchor this signature scene. A photo of it on the cover of the March 2015 issue of *Railroad Model Craftsman* led to a story in the *Great Falls Tribune*.

bound for the wire smelter to reefers of fruit for the grocery outlets.

STYLE OF LAYOUT

From the start, I strongly favored a walk-around style with the layout cantilevered from the walls. I already was modeling in N scale. Additionally, I wanted a clean look without using the space below the layout for storage. Hence, I built the substructure with box girders in sections not too large to navigate the stairs to the basement, and I kept the height at 51" to 56", so it would be near eye level with a more natural trackside perspective. I made sure there was sufficient aisle space, especially where there were yards on two opposite sides of the same aisle. If I was going to have operations — and I fully intended to do so — I wanted to make sure that operators standing back-to-back had plenty of space to be comfortable.

ERA AND PROTOTYPE FEATURES

Since I would be modeling the MILW's North Montana Line, I wanted to feature models of the engines that plied this line. The transition between steam and diesel on this branch took place in 1953. On my research trip I interviewed Ed Mielke, who was the roundhouse foreman and oversaw the

7 Extra 231 rolls by a stone mill on its way to the big marshalling yard at Harlowton. When driving northward toward Harlowton on Highway 191, one can see the huge stone flour mill and its large grain silos stretching out behind it.

transition on the North Montana. Modeling 1953 made it possible to have both steam and diesel running side-by-side.

Several retired hoggers, especially Red Hanley and Bob Spring, whose first firing dates went back to the early 1940s, supplied me with specific engine types and numbers from their time books. I began collecting the appropriate 2-8-2s, 4-6-2s, SD7s, GP9s, and of course, the unique Motorcar 5901. Given that the MILW only built two of these motorcars, it was highly unlikely that they would ever be offered commercially, so a 3D printed shell with a stretched Kato Alco RSC2 chassis became the order of the day.

Certain prototype structures were definitely on my "must have" list as well. The three signature stations at Harlowton, Lewistown, and Great Falls were givens. Since each of these depots was unique, it meant scratchbuilding them from photos, but since scratchbuilding is one of my favorite parts of the hobby, the challenge was a delight. I built the Harlowton station (now on the National Register of Historic Places) out of wood and paper, locating it just at the edge of town. Most of Harlowton I freelanced, though in the railroad yard I had space to scratchbuild two stalls of the roundhouse. I also built Courtney Livestock corrals for stock shipments.

The other two stations I built from styrene, covering the walls with brick paper. The Lewistown depot still stands, but it has long since been repurposed as the Yogo Inn). The Great Falls depot, its marquis looming more than 100 feet over the Missouri River, is still a landmark in the city, though it, too, has been repurposed.

One structure I definitely wanted to include was the Spring Creek Trestle a few miles north of Lewistown. At 1,391 feet it was the longest wooden trestle in Montana built by any of the railroads. I had photographed this structure myself, and internet research turned up many other digital images that were critical for scratchbuilding it.

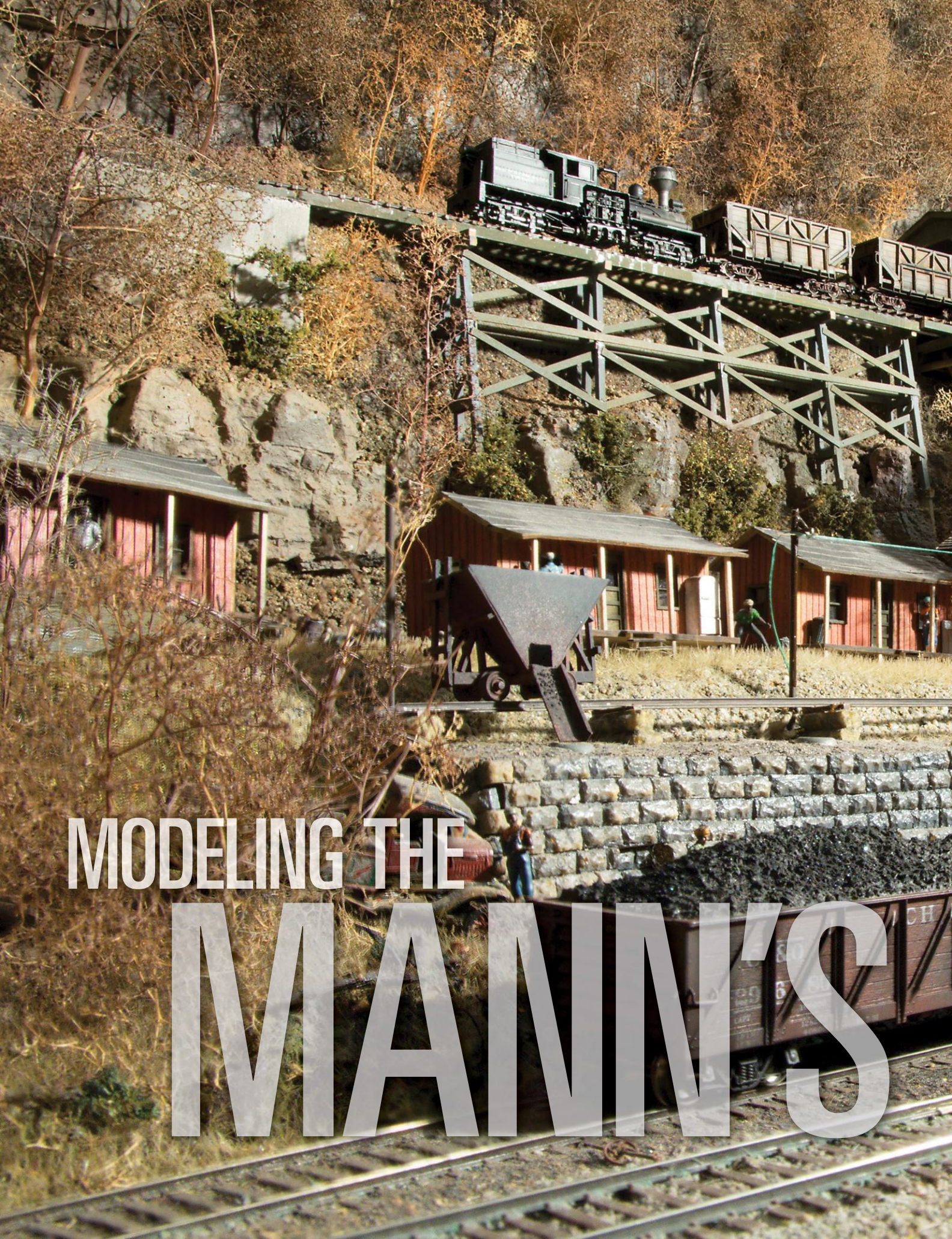
REACHING THE FINISH LINE

They say a model railroad is never finished. Actually, mine *is* finished, thanks to the COVID years when I was unable to travel and had abundant time at home to work on the layout. It's been nearly 30 years since my wife and I took that initial research trip to Montana, but I've enjoyed every moment since. I've never been in a hurry, and the joy has been in the journey. Even now that the layout is finished, I continue to enjoy running trains, hosting op sessions, doing photography, and writing about it. GMR

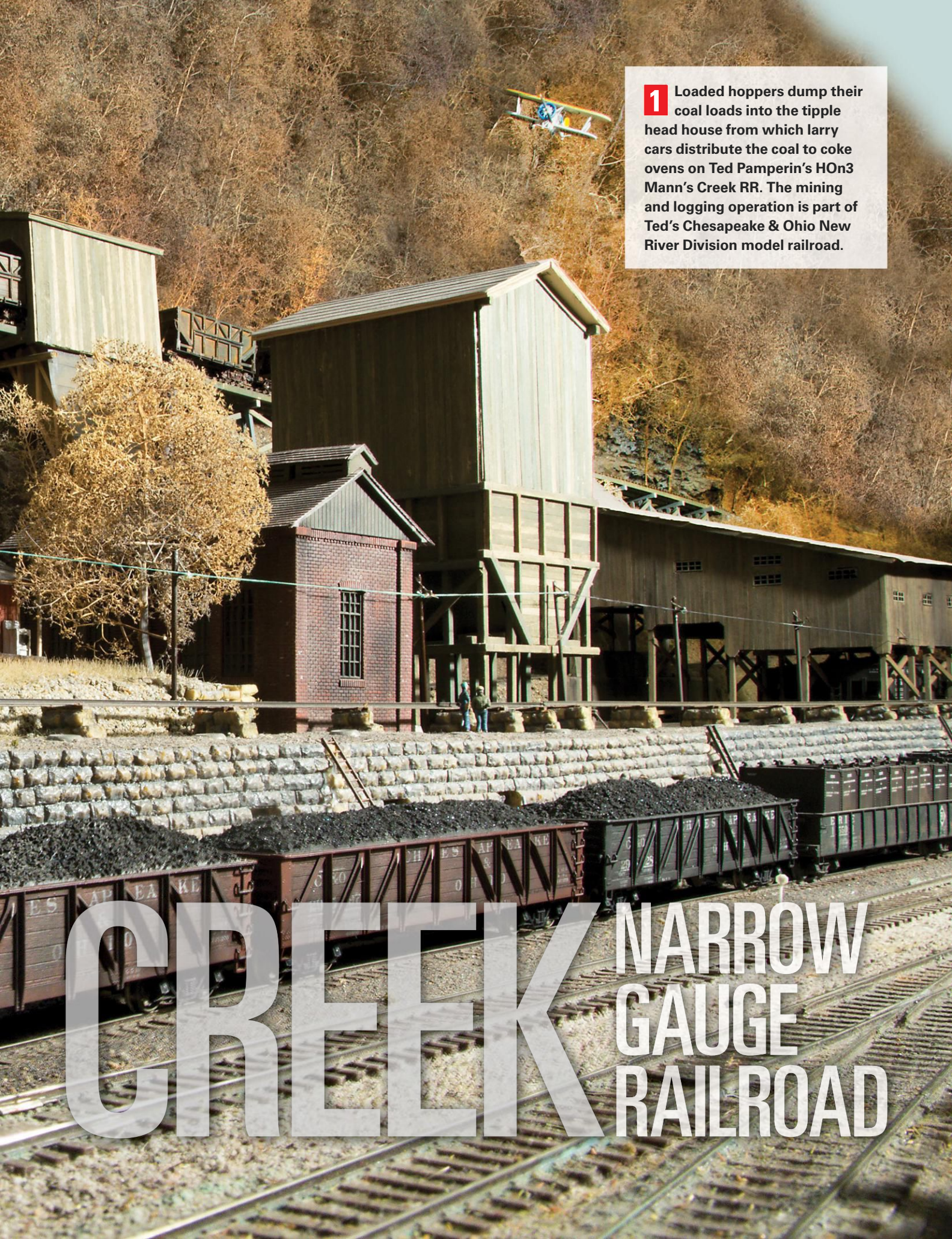
8 Venerable motorcar 5901 eases across Spring Creek Trestle (NM-1014) at the required 15 mph. Built jointly by the MILW and GN in 1912, the trestle initially featured a gauntlet track. Later, it carried just a single track, which required trains to stop and register their arrivals and departures.

MEET DAN LEWIS

DAN IS A RETIRED PROFESSOR and pastor. He has contributed several articles to MR and other hobby periodicals. Besides model railroading, his other interests include classical guitar, tennis, and golf. Dan also teaches the Adult Bible Class at Old Mariners' Church in Detroit.

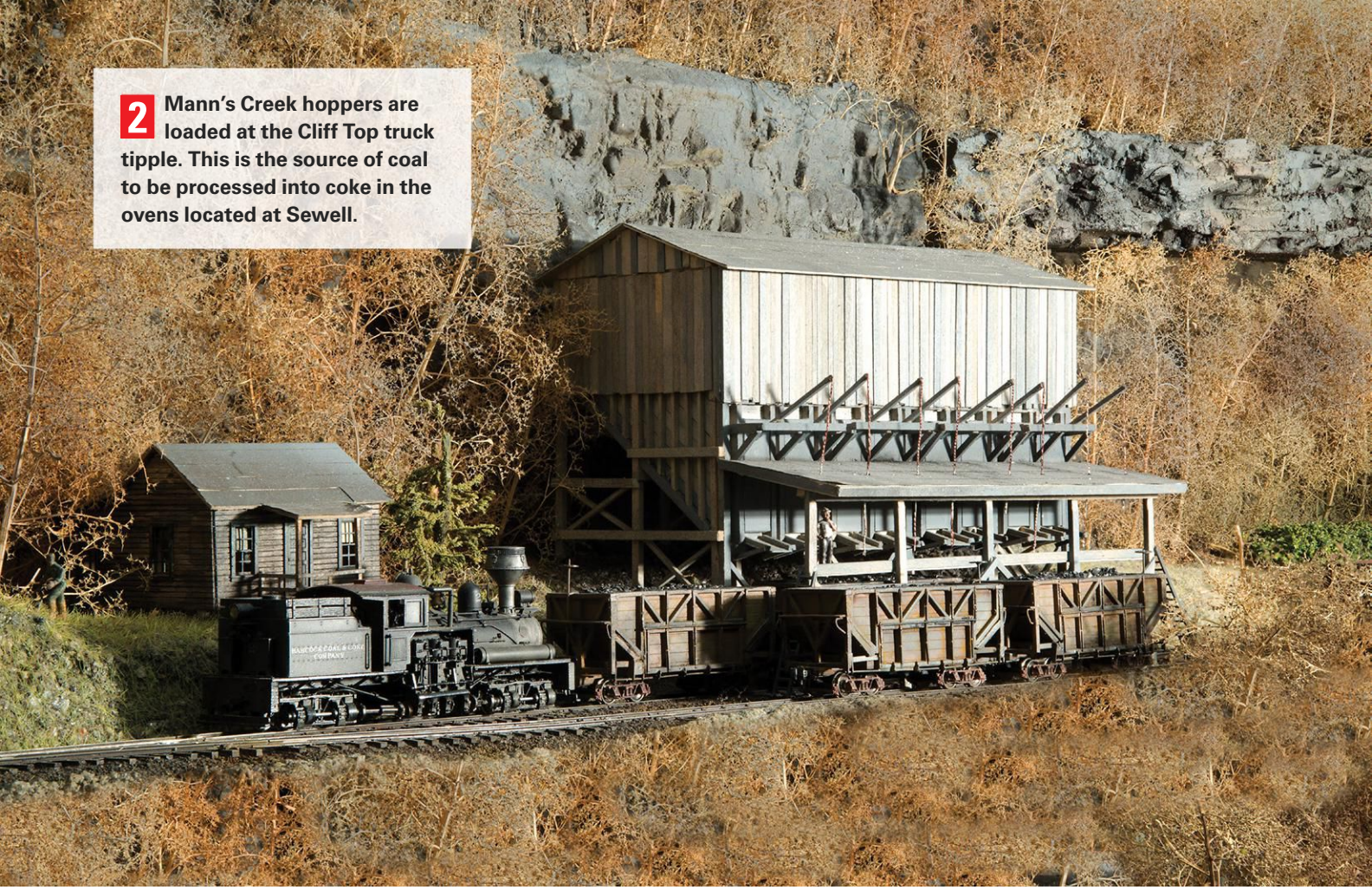


MODELING THE MANN'S



1 Loaded hoppers dump their coal loads into the tipple head house from which larry cars distribute the coal to coke ovens on Ted Pamperin's HOn3 Mann's Creek RR. The mining and logging operation is part of Ted's Chesapeake & Ohio New River Division model railroad.

CREEK NARROW GAUGE RAILROAD



2 Mann's Creek hoppers are loaded at the Cliff Top truck tipple. This is the source of coal to be processed into coke in the ovens located at Sewell.

This laid back experience offers a contrast to the heavy traffic on Ted Pamperin's Chesapeake & Ohio main line

By Ted Pamperin ■ Photos by Dan Munson

AS I DESCRIBED in a previous article featuring my Chesapeake & Ohio New River Division model railroad, I was as interested in creating a model of an eastern narrow gauge prototype as I was in modeling the C&O. The C&O evolved indirectly from my "narrow-minded" interest in pursuing this objective.

My desire to model an eastern narrow gauge prototype was driven by several factors:

1. Taking the path less traveled: Most narrow gauge modelers focus on western prototypes.

2. Geared steam motive power: The fascination I have with the geared steam motive power dominant on eastern narrow gauge roads makes them interesting.

3. Seasonal scenic options: The eastern climate offers a selection of seasonal options.

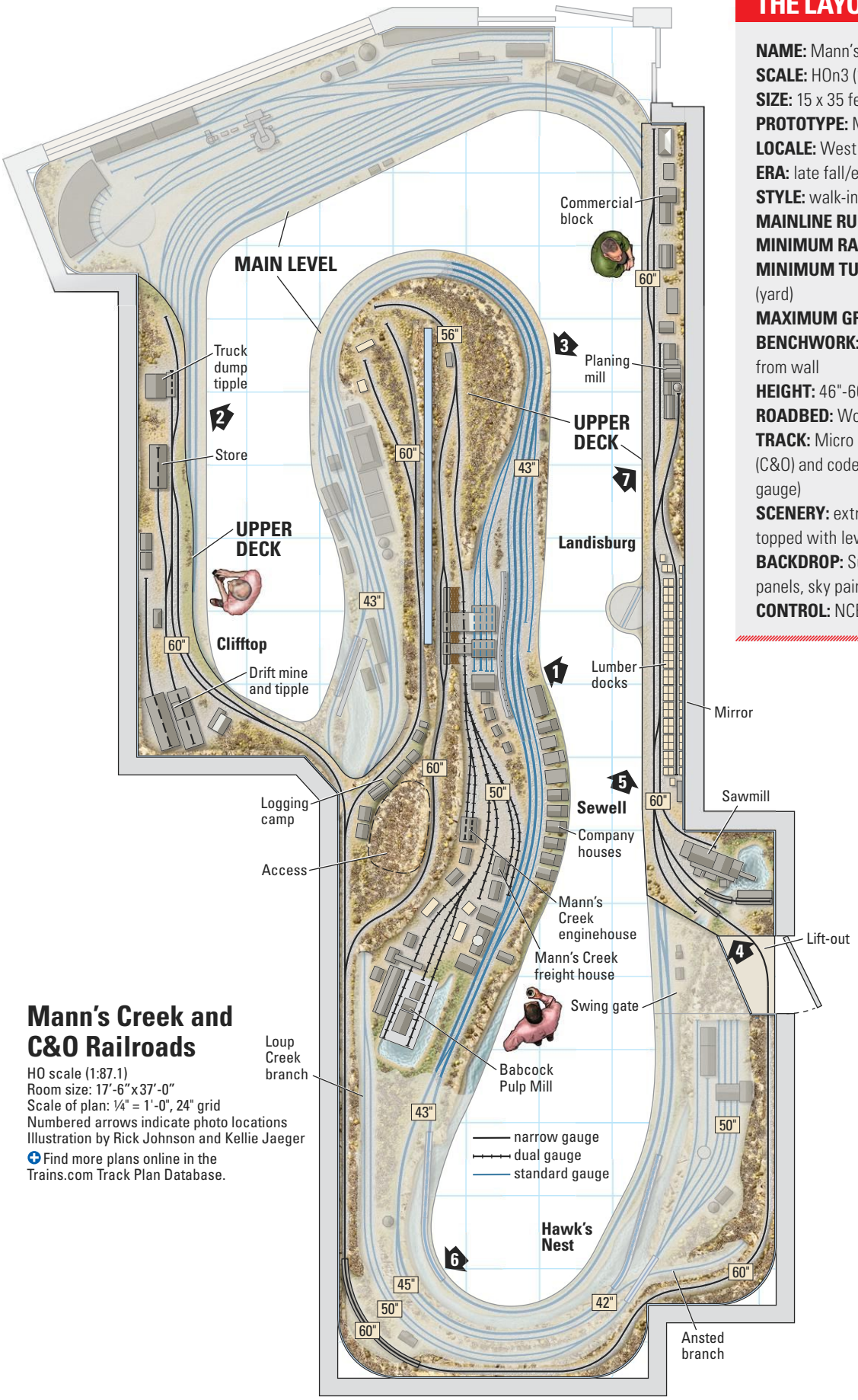
4. Range of industries: Coal, logging, and lumber are all part of the mix.

CONDUCTING RESEARCH

I aimed to model a specific prototype railroad/location and began researching to select one. In my search, I stumbled across a book by Ted Schnepf and Ron Lane, *West Virginia Narrow Gauge: Mann's Creek Railway.* The book documents the history, facilities, customers, equipment, and operations of the Mann's Creek RR, which I found compelling.

Shortly after the completion of the C&O railroad through the New River Valley of West Virginia in the early 1880s, the Longdale Iron Co. built 193 coke ovens at Sewell Station to supply coke for its iron furnaces in Virginia. To ensure a continuous coal supply for the coke ovens, a 3-foot gauge railroad was constructed up the canyon wall to coal seams above the rim, following the Mann's and Glade Creeks for an elevation rise of 1,300 feet. Company towns were built to support the coking operations at Sewell (in the valley) and Clifftop (canyon rim) for the coal mines.

Later, in 1908, logging commenced around Clifftop, and logging spurs throughout the mountain tripled the amount of trackage and motive power. The railroad was ultimately purchased



Mann's Creek and C&O Railroads

HO scale (1:87.1)
Room size: 17′-6″x37′-0″
Scale of plan: ¼" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Rick Johnson and Kellie Jaeger

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

THE LAYOUT AT A GLANCE

NAME: Mann's Creek RR
SCALE: HOn3 (1:87.1)
SIZE: 15 x 35 feet
PROTOTYPE: Mann's Creek RR
LOCALE: West Virginia
ERA: late fall/early winter 1943
STYLE: walk-in
MAINLINE RUN: 150 feet
MINIMUM RADIUS: 36"
MINIMUM TURNOUT: No. 8 (main), No. 6 (yard)
MAXIMUM GRADE: 4%
BENCHWORK: Gatorfoam, cantilevered from wall
HEIGHT: 46"-60"
ROADBED: Woodland Scenics Track-Bed
TRACK: Micro Engineering code 83 and 70 (C&O) and code 55 (Mann's Creek narrow gauge)
SCENERY: extruded-foam insulation board topped with leveling sand
BACKDROP: SuperTrees-covered foam panels, sky painted on walls
CONTROL: NCE Digital Command Control

3 The loaded hoppers make the trek down the steep grade to the coke ovens in the canyon far below.

4 Logs are dumped into the log pond that services the new Landisburg Saw Mill, still under construction following the fire that destroyed the previous mill.

by the Babcock Coal and Coke Co., which operated it most of its final years before ceasing operations in 1954.

5 Sawn lumber from the mill is stored in an adjacent lumber dock that occupies many acres. Class A Climax No. 4 services the dock.

MAKING CONNECTIONS

Ron Lane introduced me to Tom Maule, who had conducted additional comprehensive research on the prototype. Ron, Tom, and I each modeled an interpretation of Mann's Creek. I visited Tom's railroad multiple times. His fidelity to the prototype and phenomenal winter scenery inspired my decision to model late fall.

The Mann's Creek Railroad's location in the New River Valley of West Virginia is, in my opinion, the most spectacularly scenic location east of the Mississippi. At Tom and Ron's invitation, I visited the abandoned prototype right-of-way several times, gaining a firsthand appreciation for the rugged landscape the railroad traversed on its climb out of the New River Gorge.

DESIGN AND CONSTRUCTION

To emulate the spectacular canyon gorge, it was necessary to create a layout where the environment dwarfs the trains. I built a near-vertical forested backdrop covered in Scenic Express SuperTrees and rocky cliffs. The Mann's Creek right-of-way was scenically integrated into the overall layout, with only the Clifftop mine and Landisburg sawmill located on separate decks.

My interpretation of the Mann's Creek RR originates at a small dual-track interchange yard at Sewell. The C&O freight house and depot, Mann's Creek engine and freight houses, commercial block, and company houses are modeled. However, the slack tipple, coal tipple, and coke ovens dominate the scene, all scratchbuilt from pictures and drawings published in the Mann's Creek book and/or by the C&O Historical Society.

Standard gauge cars are switched in and out of the interchange track by a standard gauge brass United Models two-truck Climax locomotive. Three HOn3 two-truck Shay locomotives and a Mack Bus (not prototypical) by Precision Scale round out the motive power. All locomotives are Digital Command Control (DCC)-equipped with sound and stay-alive current capacitors, expertly fitted by Mark Guiffre of All Brass Backshop.

The railroad climbs a 4% grade out of Sewell to a switchback, reversing direction and continuing upgrade past the tipple headhouses. At the intersection of Glade and Mann's Creek, it branches to the Landisburg sawmill, Clifftop and the mine tipples,

6 A consist of log spline cars traverses Tank Trestle on the way to the Landisburg Saw Mill. Though coal is king on the Mann's Creek RR, logging is also important.

and a third branch that leads to the logging camp.

Construction commenced in 2005, with operations beginning in 2008. Unique techniques included using metal shelf brackets or 1 x 2 lumber brackets attached to wall studs for track and scenery deck support. GatorBoard, ¾" thick, was chosen for its lightweight, dimensional rigidity and ease of cutting, despite its higher cost when compared to plywood.

For the narrow gauge roadbed I chose Woodland Scenics N scale Track-Bed. This noise-absorbing material was the perfect complement to the GatorBoard base. DAP Alex Plus acrylic latex caulk with silicone was used to affix the Track-Bed to the GatorBoard as well as the track to the Track-Bed. After spray-painting the track brown, I used Laticrete 333 Super Flexible additive to affix the ballast. This milk-consistency product remains flexible after drying, retaining the sound deadening properties of the Track-Bed. Woodland Scenics Scenic Cement is a more expensive alternative adhesive to the Laticrete.

Micro Engineering supplied the narrow gauge and dual gauge flextrack and many of the turnouts. The interesting challenge was building the dual gauge turnouts for the yard at Sewell.

It wasn't until I laid out the yard that I realized it required four different dual gauge switches: Standard gauge turnout left, narrow gauge left and right; standard gauge turnout right, narrow gauge left and right. I purchased the jig for these from Fast Tracks, and after a few tries, successfully built the six or so

7 **Some of the lumber finds its way to the drying and planing mill where it's finished and loaded into boxcars for delivery to the Chesapeake & Ohio interchange.**

turnouts I needed. One of the most puzzling challenges was figuring out how to electrically gap the dual gauge switch rail components. Did I say the track configuration also required a narrow gauge left to right crossover track?

A FRESH APPROACH TO SCENERY

I created land forms using stacked 1" and 2" extruded-foam insulation board held together with skewers. The foam was covered with Step 2 leveling sand from Lowe's and glued in place with Laticrete thin-set additive.

I built the vertical tree-covered backdrop on a base of 1 x 2-foot, 1"-thick insulation boards painted brown. At my workbench, I installed Scenic Express SuperTrees in the insulation board, using an awl to punch a hole for the tree base. I painted the treed boards with rattle can shades of camouflage colors. I affixed the finished boards to the backdrop structure using fabric hook-and-loop strips. The trees effectively hide the seams between the boards, so no more work is required.

For the rock outcroppings, I cast copies of Cripplebush Valley Models rubber rocks as a master. I used Smooth-On Inc. OOMOO 25 material to cast a master mold of the Cripplebush rock. I used another product from Smooth-On, Flexfoam-IT, to cast a finished rock from the mold. The benefit of this approach is that the finished rock castings are flexible, will not chip, and can be spray-painted and saved for use when needed.

RUNNING TRAINS

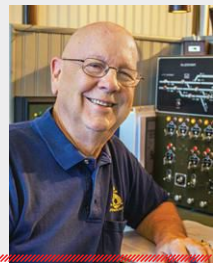
Typically, two operators manage the Mann's Creek during each session. Following a written script, the crew switches the standard gauge interchange and industries at Sewell, services the mine tipples at Clifftop, delivers timber to the sawmill at Landisburg, and transports finished boards to Sewell for export on the C&O. This activity fully occupies the narrow gauge crew for the entire four-hour session

A VALUABLE ADDITION

The Mann's Creek project scratched my itch to create a prototype narrow gauge model railroad, and complements the busy C&O main line. It offers substantial play value for its crew and provides a relaxed operating option compared to the C&O's highly charged mainline operations. Special thanks to Ron Lane, Ted Schnepf, Tom Maule, and David Olesen for their inspiration, support, and expertise. GMR

MEET TED PAMPERIN

TED GREW UP in Green Bay, Wis., and remains an avid Packers fan despite living in northern New Jersey for more than 40 years. He and his wife, Karen, have three grown daughters who also live in the area. A retired marketing consultant, he also enjoys golf and racquetball.



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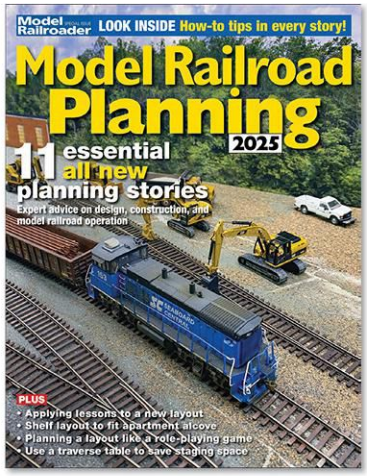

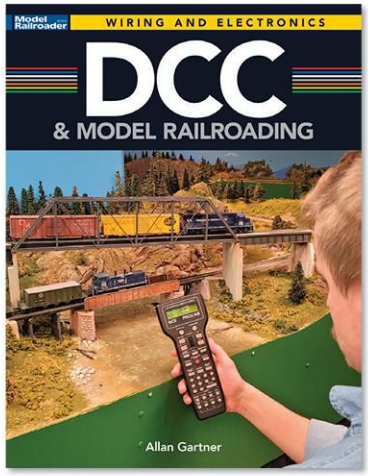

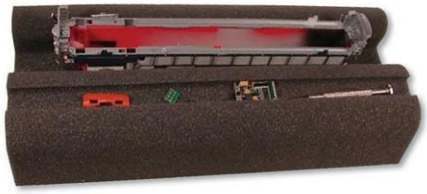

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