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Railroader**
SPECIAL ISSUE

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GREAT Model Railroads

2017

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10 eye-popping layouts

**in HO, N,
and O scales**

**Midwestern
railroading
done right**

p.8 and p. 74

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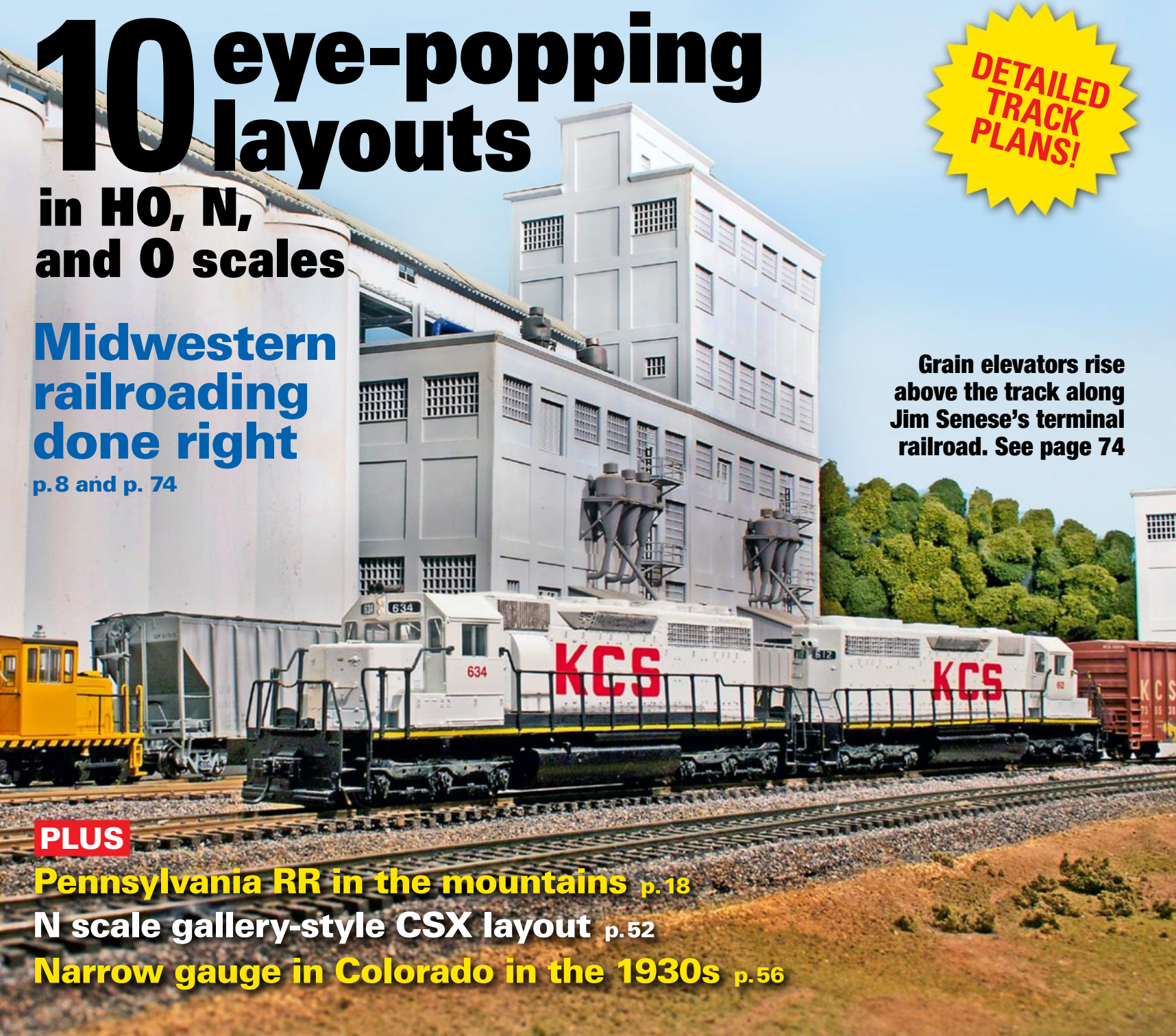
**Grain elevators rise
above the track along
Jim Senese's terminal
railroad. See page 74**

PLUS

Pennsylvania RR in the mountains p.18

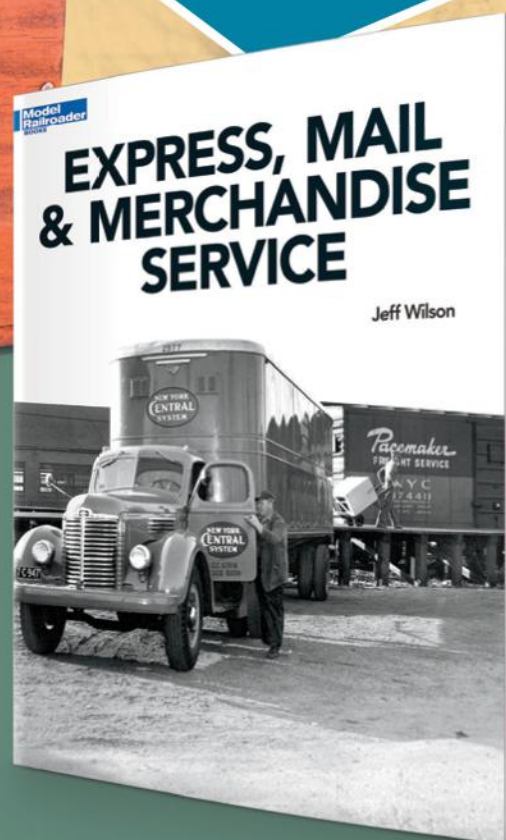
N scale gallery-style CSX layout p.52

Narrow gauge in Colorado in the 1930s p.56





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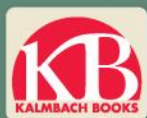


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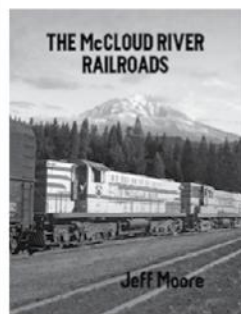
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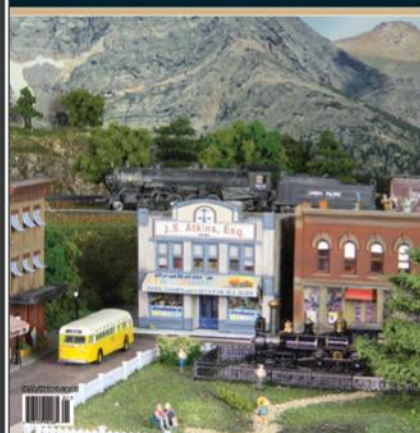
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**Model
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SPECIAL ISSUE

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Model railroads are like fingerprints

THERE ARE AS MANY WAYS TO APPROACH the hobby of model railroading as there are model railroaders. Sure, certain prototypes have more followers than others, and some modeling scales are more popular than others. Even different parts of the country have their fans – the Appalachian mountains, the prairies of the Midwest, or the American Southwest, for instance. But even within those broadly popular categories, you'll find a lot of variation. Like snowflakes, fingerprints, or Stradivarius violins, they may look the same at first glance, but when you look closer, no two are alike.

And I'm not just talking about differences in scale, era, or room size. Take, for example, Ken Jenkins' Rock Island Clay Center Branch (which you can read about starting on page 8) and Jim Senese's Kansas City Terminal (the topic of our cover story, on page 74). Both are HO scale flatland railroads set in Kansas in the middle diesel era, and occupy similar sized footprints.

But look beyond the tall "prairie skyscraper" grain elevators and you'll find two very different philosophies. Ken models several towns on one specific Chicago, Rock Island & Pacific branch line as it cuts across the Kansas plains in the autumn of 1969. Operations are easygoing, with a couple of manifest freights, a pair of local freights, and maybe a handful of extras a day.

Meanwhile, Jim's layout models Kansas City and only Kansas City, where it's always 3 p.m. Saturday, November 15, 1980. Six railroads ply the rails there, and operation is a carefully choreographed ballet of run-through trains, transfer runs, and interchange. Operating crews are assigned not only to work a particular railroad, but also to adopt the prototype's operating personality.

Let's compare two of the smaller layouts in this issue – Alex Marchand's N scale "gallery-style" Bone Valley display layout (on page 52) and the 2 x 4-foot HO scale Red Diamond Sugar diorama built by Gabriel and Jorge Martinez (page 36). Both are designed for display, not operations, though they differ in scale, size, time period, setting, even in presentation. But the most interesting thing about them is their construction methods. The Martinez brothers scratchbuilt their factory from modular panels cast in resin, the old-fashioned way. Meanwhile, Alex designed structures, rolling stock, even locomotive shells on his computer and had them 3-D printed – a new method. Both achieved stellar results.

Now take a look at the two photos to the right. At first glance, they're similar. Both show HO scale steam locomotives pulling trains under signal bridges at an interlocking in the mountains. The difference here is in concept. Dave Johnson's Pennsylvania RR layout, in the top photo (and on page 18), hews faithfully to its prototype. Terry Ketcham's West Virginia & Southern, in the below photo (page 42), is freelanced. But both effectively capture the romance of transition-era railroading in the picturesque wooded valleys of the eastern mountains.

That's what's great about model railroading – and about this edition of *Great Model Railroads*. No matter what you like, there's something in it for you.



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Dave Johnson's HO scale Pennsylvania RR follows its prototype closely.



Terry Ketcham's HO scale West Virginia & Southern is a freelanced layout.

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P27901

1 An eastbound freight passes the huge Co-Op Elevator complex in Clay Center on Ken Jenkins' HO scale Rock Island layout. Based on a Rock Island branch line in Kansas, Ken's railroad focuses mainly on grain traffic.

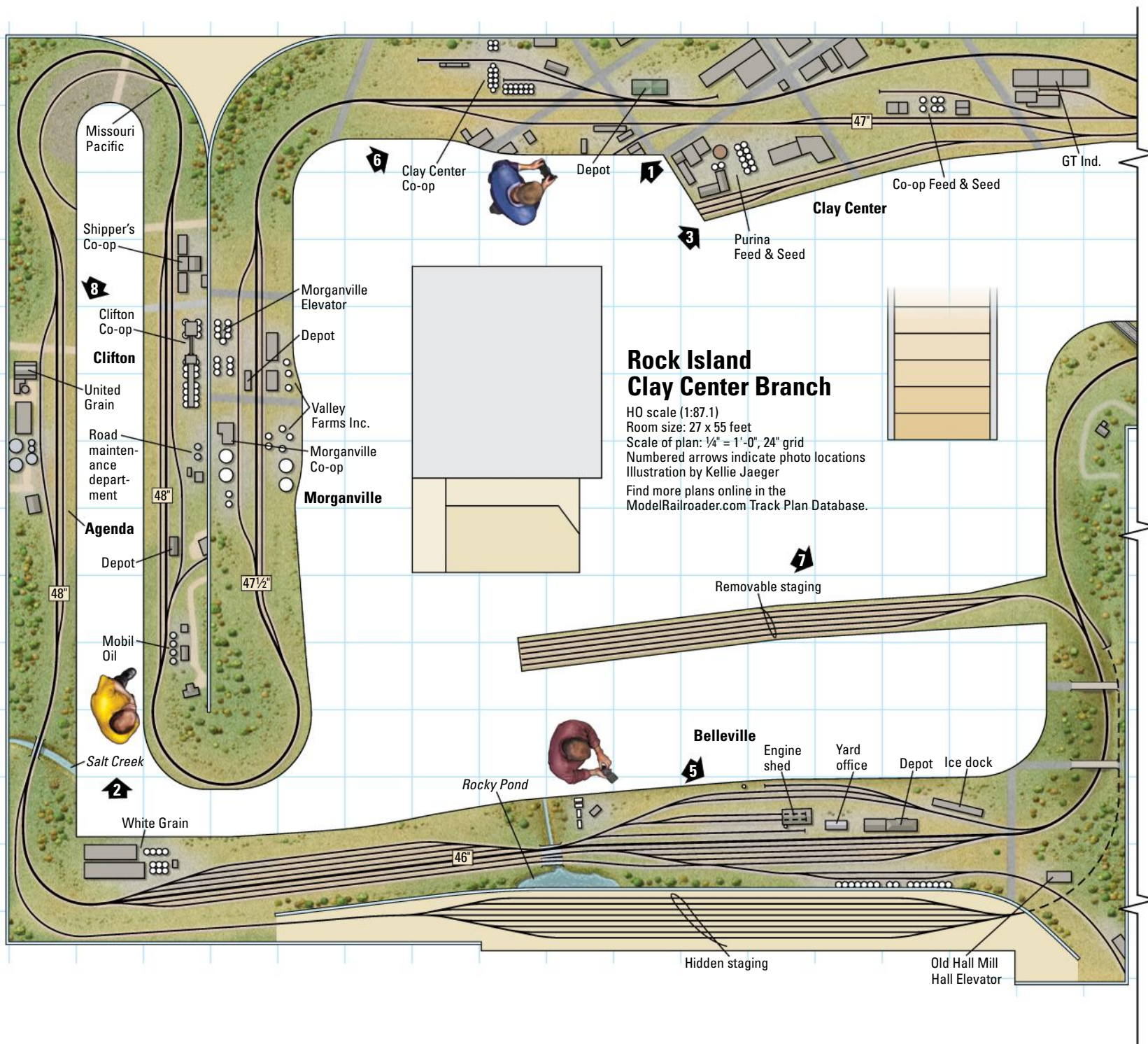


PRAIRIE SKYSCRAPERS ON THE HIGH LINE

Grain elevators establish this HO scale
Rock Island layout's locale and purpose

By Paul J. Dolkos ■ Photos by the author



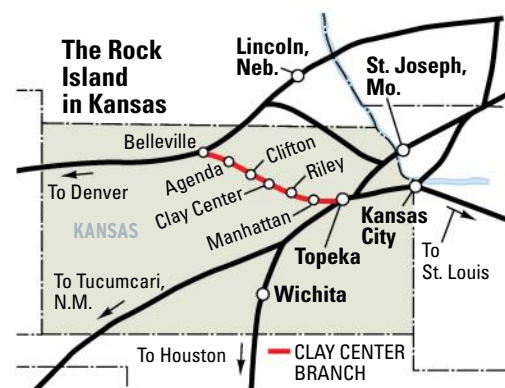


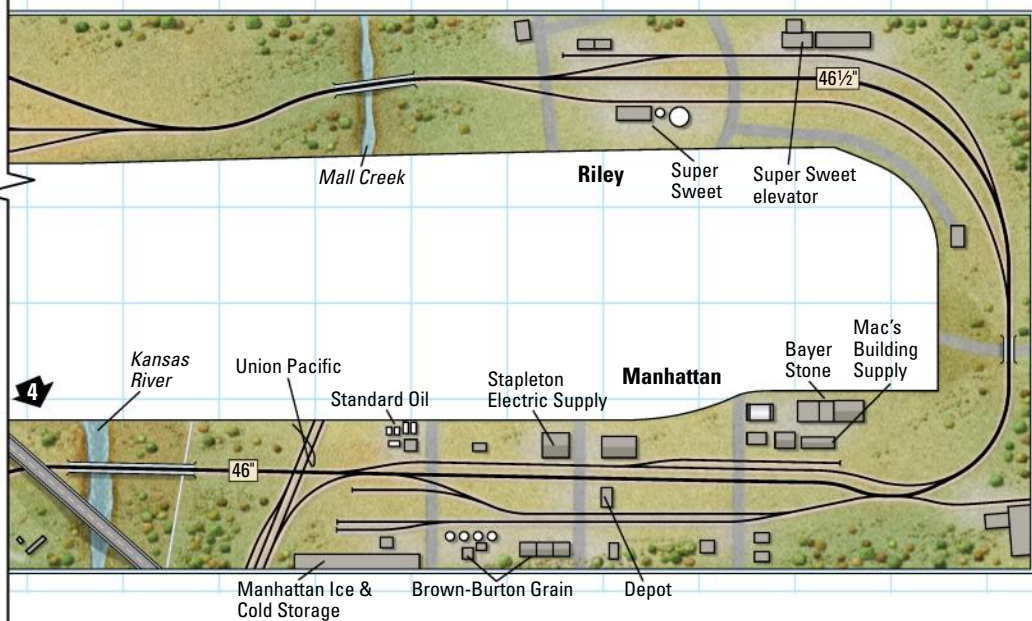
DECIDING WHAT TO MODEL can be a long and often enjoyable discovery process. Ken Jenkins began with a modest N scale depiction of the Atchison, Topeka & Santa Fe Ry. Later, after getting married and moving, he started working on a small HO layout loosely based on the Union Pacific RR.

Ken was honing his modeling skills, but he yearned to go beyond a generic model

railroad to one based on a specific time and place. He looked at the Union Pacific main line west of Kansas City, but rejected it as a modeling subject because it was double-tracked and had relatively few industrial switching opportunities.

Ken grew up near the Rock Island's Kansas City Yard, and his interest in that railroad increased when he got a copy of Thomas R. Lee's book *Rock Island Westward: Memories of the High Line* (AG Press, 1999). Ken focused on a section of the railroad from





THE LAYOUT AT A GLANCE

NAME: Rock Island, Clay Center Branch

SCALE: HO (1:87:1)

SIZE: 27 x 55 feet

PROTOTYPE: Chicago, Rock Island & Pacific RR

LOCALE: Northeast Kansas

ERA: fall 1969

STYLE: around the walls

MAINLINE RUN: 150 feet

MINIMUM RADIUS: 25"

MINIMUM TURNOUT: no. 6 (main), no. 5 (yards and spurs)

MAXIMUM GRADE: 1.25 percent

BENCHWORK: plywood on L-girder

ROADBED: cork

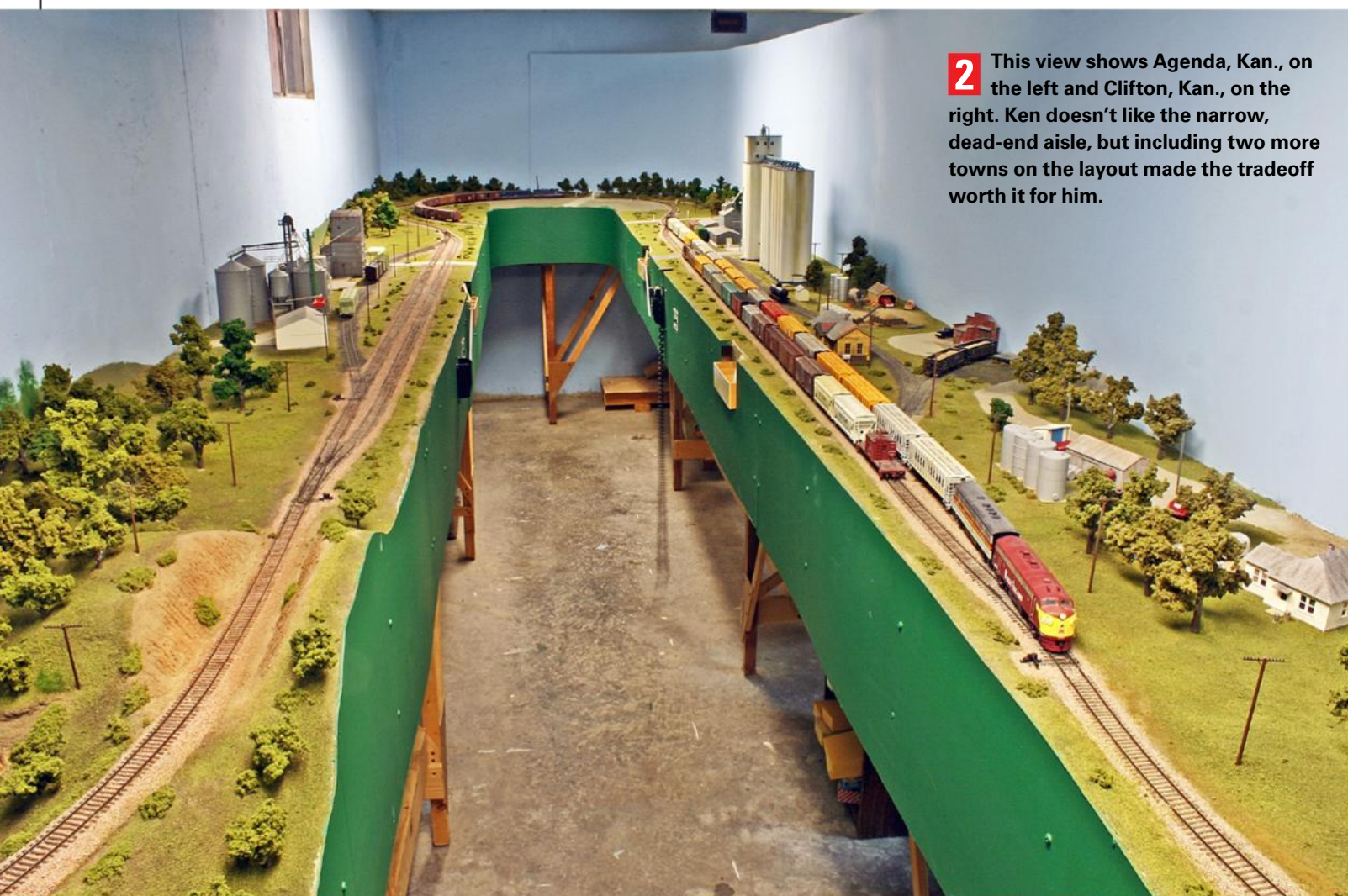
HEIGHT: 46" to 50"

TRACK: code 83 (main), code 55 and 70 (sidings and spurs)

SCENERY: extruded-foam insulation board

BACKDROP: painted concrete wall and some tempered hardboard

CONTROL: Digitrax DCC



2 This view shows Agenda, Kan., on the left and Clifton, Kan., on the right. Ken doesn't like the narrow, dead-end aisle, but including two more towns on the layout made the tradeoff worth it for him.

McFarland to Belleville, Kan., part of the Rock Island's St. Louis-to-Denver route.

THE HIGH LINE

This part of the Rock Island, listed in the employee timetable as the Clay Center Branch, was called the "High Line" by crews. It was typical of thousands of less heralded lines that made up a significant portion of the United States' 200,000 miles of railroad in the 1960s.

"Unremarked" is how David P. Morgan, the late editor of *Trains* magazine, referred to such secondary but relevant stretches of track. Modelers are frequently attracted to such prototypes because the modeling task is more manageable.

Ken especially liked the multitude of grain elevators the railroad served. Furthermore, it was single-tracked "dark" (unsigned) territory controlled with written train orders, so a working signal system wouldn't be required.

The Clay City Branch wasn't a busy line, so it seldom attracted railfans, making typical photo research somewhat difficult. But the High Line's eastern end was a little more than 100 miles from Ken's home, so it was practical to visit and explore the area. One weekend in 1996, Ken and his son drove west with 10 rolls of 35mm film to record as much as possible.

By then, much of the track had been torn up, because the line wasn't acquired by another railroad after the Rock Island's 1980 demise. Some formerly rail-served grain elevators had been torn down, but many elevators and other businesses still existed.

Ken photographed virtually everything that bordered the former right of way. Since his son was exactly 6 feet tall, Ken included him in many shots as a handy measuring reference. These photos, along with many others collected later, have been a vital modeling reference source. Widespread urban development in some of the towns Ken models have left them virtually unrecognizable when compared to photos he shot two decades ago.

STRUCTURES FIRST

Though Ken now knew what he wanted to model and had started accumulating a prototype reference base, there wasn't space in his home to build the envisioned railroad. But the lack of space didn't keep Ken from working on his future layout. He began to build models of the grain elevators, not only referring to his photos but also making additional field trips.



3 A Geep works the sidings at the Purina Feed & Seed elevator at Clay Center. While the model elevators aren't built as tall as the prototypes, the structures still dwarf the cars.





4 Purchased from the Union Pacific, E8 passenger units bearing Rock Island heralds but still wearing Armour Yellow paint cross the Kansas River with an eastbound freight at Manhattan, Kan.

5 Leased power and run-through units rest in the Belleville engine terminal. The mirror on the wall provides a view of trains on the staging tracks hidden behind the low view block behind the city.

Ken made a point of talking to workers at the elevators, telling them what he was doing and asking lots of questions. Most employees were very helpful. They let him take detail photos and measurements. This gave him a good understanding of how the maze of exposed conveyors and other grain-handling components worked. All this helped him create accurate and convincing elevator models.

So while Ken would have preferred to be working on a layout, his structure building provided the satisfaction of making some progress. He knew elevators would be key layout elements, and his eventual plan could be developed to accommodate them.

During this time, a hobby shop clerk



noted Ken's purchasing patterns with some wonder. Every week or two Ken would come in and buy packages of styrene, wire rod, and paint. Seldom, if ever, did he purchase a locomotive or car, car detail parts and trucks – what you might call “train stuff.”

Finally the clerk asked, “What are you doing with the materials you purchase every week?” Ken explained that he was getting ready to build a railroad but didn't have the space yet. The two have since become model railroading friends.

The grain business and its distinctive structures



6 Though most grain elevators share common elements – older grain bins, modern concrete silos, piping and conduits – each has its own distinctive look, one Ken Jenkins sought to reproduce with his kitbashed and scratchbuilt structures.

KEN OBVIOUSLY LOVES grain elevators. He's built and installed a dozen on the layout, appropriate for a railroad running through farm country. In Ken's model environment these elevators are mostly receiving or collection facilities for local grain crops destined to be shipped by rail to mills for processing into flour, cereal, feed, or for export. Some rural elevators also blend grains for feed and advertise the service with colorful, attractive signs.

Elevators make interesting structure models because their distinctive outline contrasts nicely with the typical boxy profile of many layout buildings. But even if your layout isn't set in farm country, urban mills processing grain products and elevators handling export grain have similar profiles. So just about any model railroad can justify the presence of an elevator-like industry.

Ken chose to kitbash or scratchbuild most of his elevators because he wanted to depict the specific prototypes in each town. While studying these prototypes, he found that while elevators may use similar components or even the same hardware, they all end up looking different.

Some of the most interesting elevator complexes are those that have been expanded over several decades. The original facility might have consisted of some heavily braced wooden bins. Years later, silos might be added, and finally modern round metal bins could appear. We modelers are fortunate that many examples still exist to be studied today.

Another change in grain shipments seen over the years has been the replacement of the 40-foot boxcar that used to carry

grain with larger capacity covered hoppers. In the 1960s, large-capacity hoppers were just starting to be used in grain service. By 1980, little grain was still shipped in boxcars. To enable hopper loading, new chute piping had to be installed. For a while, elevators could load both types of cars.

Prototype grain storage facilities can be quite large, affecting some of Ken's modeling calculations. Older wooden bunker-style elevators built to scale fit into layout scenes nicely. However, banks of newer concrete silos can measure 150 feet high.

Ken felt that such an elevator built to scale would overpower the model scene. He scaled down his larger elevators by about 20 percent. The difference isn't noticeable, and the structures still appropriately dwarf hoppers or boxcars parked beside them.

Starting with Walther's ADM Elevator kit, Ken adds additional sections to the silos to increase the silo height to about 100 scale feet. Ken also uses 1½" and 2" PVC pipe sections for silos. Prototype silo diameters vary, but generally are about 20 feet.

The rectangular sections of Ken's model elevators are built with styrene sheet and strip, just as one would create any model shed or similar structure. The conveyers and piping to move grain around are styrene shapes and rod.

If one chooses not to scratchbuild elevators, a wide range of building kits have been produced over the years. Searching the keyword "mill" on the web seems to turn up the longest list of kits. You can also purchase detail parts like cyclone collectors, grain dryers, and conveyors separately. – P.J.D.

Solving a staging problem



7 Ken's original staging plan bypassed one of the most important towns on his layout. He solved the problem by adding a removable five-track staging shelf.

AT FIRST THE LAYOUT only had an eight-track staging yard about 18 feet long, suitable for trains of 25 cars or so. It was concealed by a view block behind Belleville, Kan., the westernmost town on the railroad. That worked fine as long as Ken was just running trains around the room. But when he reached the point where he was seriously trying to replicate the prototype's operations, he noted a flaw.

A westbound through train would leave staging and pass through Manhattan, Kan., the easternmost modeled town on the Clay Center Branch, and continue through the rest of the other modeled towns in the correct order. But just before it reached the important junction town of Belleville, the train veered off into staging, missing the town. If it continued into Belleville, it had nowhere to realistically run beyond that point. The train could either back up and run into staging or continue west through Belleville, pass the east end staging switch, and then back into the hidden tracks. Such moves would be operationally unrealistic, as well as susceptible to derailments.

By the same token, eastbound trains exiting staging in the other direction also bypassed Belleville. This was a serious flaw in the track plan. Only locals originating or terminating at Belleville had a prototypical run.

Ken's solution was to build a second staging yard for westbound trains reached by a new turnout just west of Belleville. It's made up of two removable sections, each 8 feet long, creating a 16-foot, five-track yard that extends into the aisle in front of Belleville. It's located so crews are always standing on the ideal side of the benchwork for running and can easily walk with their trains.

The new staging yard is erected only during operating sessions. It could be made permanent, but not having it in place opens up the room between sessions. — P.J.D.

Two years after Ken started researching and planning his layout, he and his wife began looking for a new home. Luckily, their real estate agent appreciated Ken's requirement of a basement suitable for a model railroad. In 1998, they found the perfect house and moved in. The stairway to the basement came down in the middle of the space, so it wasn't an obstacle for an around-the-walls layout. Ken started planning.

FROM PROTOTYPE TO PLAN

There were 13 towns on the prototype High Line, but with only 150 linear feet or so of mainline run, Ken would have to eliminate some. The obvious choice was to omit those without grain elevators. During early construction, he modified his plan to add a peninsula. This created a narrow aisle that he doesn't like, but including two more towns makes the tradeoff worth it.



The track arrangements in each of Ken's towns closely follow their prototypes. This often yields a more interesting track plan. For instance, in Clay Center, one track sweeps away from the presumed mainline. It's a bit puzzling if you don't know that this was the original Rock Island main line. The straight track at the benchwork's edge was a former UP line, abandoned in 1963. The Rock then acquired the track to serve the local former UP customers.

OPERATION

The 1969 employee timetable for the High Line lists one daily-except-Sunday manifest freight each direction. The schedule specified



an early afternoon meet on the eastern section of the route, but dispatchers probably frequently changed that location to another town by train order.

For his operating sessions, in addition to these two scheduled manifests, Ken will send out a local freight in each direction. He also orders other extras that were frequently run on the prototype. One was referred to as No. 16, but since it was not in the employee timetable, it was run as an extra. Others were a Ford Motor Co. auto and parts train and the return of the empties, a UP detour train, and some extras hauling export grain bound for Russia, traffic that surged in 1969. Sometimes there's also a work train out on the line.

8 An eastbound freight passes United Grain, an elevator complex that has both its original wooden storage bin and modern steel storage bins, in Agenda. Ken scratchbuilt grain elevators for years before he had space for a layout.

While Ken's railroad is a bit busier than the prototype was on an average day, an operating session is a reasonable depiction of the High Line.

Today Ken has completed most of the major scenery work. To visitors, the model railroad appears to be virtually finished. His focus now is to fully implement a prototypically based operating scheme. Let the grain trains roll. **GMR**

MEET KEN JENKINS

KEN LIVES NEAR

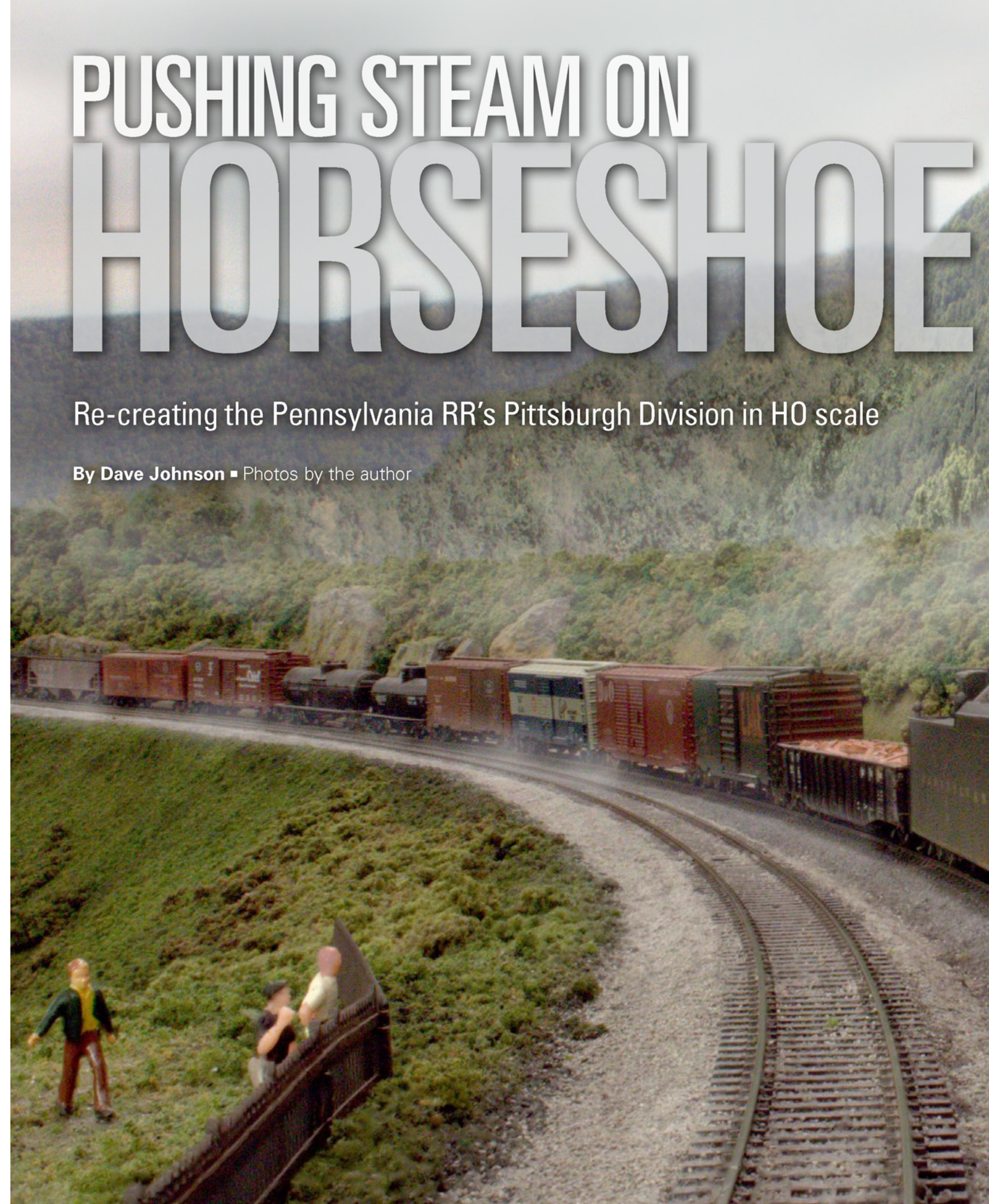
the Kansas City metro area with his wife, Linda. They have two grown sons. He's a supervisor in a foundry and has always had an interest in railroad-ing. He also enjoys an occasional canoe outing.



PUSHING STEAM ON HORSESHOE

Re-creating the Pennsylvania RR's Pittsburgh Division in HO scale

By **Dave Johnson** ■ Photos by the author



CURVE



1 Brakes smoke as eastbound M1a Mountain no. 6736 eases its train down Track 2 at Horseshoe Curve, while railfans watch the action. The iconic scene is the focal point of Dave Johnson's HO scale Pennsylvania RR Pittsburgh Division.

My favorite prototype has always been the Pennsylvania RR. I like steam locomotives, especially Pennsy's distinctive Bel-paire firebox design and high-mounted headlights.

In a previous home, I'd built the Panhandle Division of the PRR in HO scale. It was an operation-based railroad with staging yards at each end. Then in 2002, I visited fellow model railroader Larry Reynolds in Allentown, Pa., and his PRR Allegheny Division HO railroad.

I knew that if I ever had the opportunity to design and build another model railroad, it would be the Pittsburgh Division. So when we moved into a new home in 2004, I began planning the model railroad you see here.

The Pennsylvania RR's Pittsburgh Division dates to the 1850s, when J. Edgar Thomson, chief engineer and later president of the railroad, planned how to move the railroad over and through the Allegheny Mountains to Pittsburgh. He lengthened the main line, created Horseshoe Curve, and lowered the grade to 1.8 percent. In doing so, Kittanning Dam was built, supplying water to the City of Altoona, about 6 miles to the east of the dam.

By 1925, more than 14,000 people worked at PRR's Altoona Works complex, which covered 200 acres and was three miles in length. The shops produced locomotives and cars, tested equipment, and made major repairs. The freight yards classified hundreds of thousands of freight cars.

The prototype Pittsburgh Division is 113.8 miles of multitrack main line, interlocking towers, and 1.75 percent grades between Altoona, Pa., and Pittsburgh. Steam and, in time, diesel engines worked long trains up and over the mountains and around the famous Horseshoe Curve, where the noise echoed off the rock walls and squealing, smoking brakes held back trains coming down the hill.

My HO scale PRR Pittsburgh Division, set in 1952, has four main line tracks, two eastbound and two westbound. Trains are everywhere. Helpers push at the rear of a freight while the *Pittsburgh Limited* rolls downgrade with a set of E-unit diesels on the lead. All types of trains – mineral, merchandise, mixed freights, express, locals, and passenger, plus helpers running light and assisting other trains up the mountain – are seen on the Pittsburgh Division.



2 This view down the aisle between Cresson, Pa., at left, and Scotch Run, at right, shows part of Horseshoe Curve straight ahead. To give the landmark its due, Dave planned the layout so the inner track would have a 7-foot curve radius.

DESIGN AND CONSTRUCTION

In 2004, I designed my track plan using Adobe Illustrator software. I explored several different concepts, finally deciding on the one shown on the next page.

I built the railroad in two stages. Starting in 2005, the first stage stretched from Enola Yard (Harrisburg) east out of Spruce Creek Tunnel and into visible tracks at East Altoona. Altoona Yard and all the industry and station tracks were next.

I wanted to hold operating sessions, but had no westerly point for staging or turning trains. This prompted me to build a temporary 12-track staging yard and balloon track just to the west of Slope Tower. This temporary trackage was later used for Pitcairn Yard and the Cresson peninsula.

After returning from vacation in 2009, I realized that if I was ever going to finish the railroad the way it was planned, I needed to get started on the rest of the layout. Operating sessions were temporarily suspended and construction resumed.

I never had a final plan on how the railroad would end near my workshop, but as the benchwork was completed to South Fork, Pa., I added the Summerhill Branch to the north under Horseshoe Curve and into the back side of Pitcairn Yard. Radebaugh Tunnel just west of South Fork takes the

double-track main line into Pitcairn Yard staging. There are balloon tracks at both ends of the railroad that help turn trains after operating sessions.

It would have been great to run a four-track main all the way to Pitcairn Yard, but I didn't have the space, so the main line narrows at MG Tower to three tracks and again at Cresson to two.

PITTSBURGH DIVISION

On my modeled Pittsburgh Division, the four-track main grinds uphill from Slope Tower toward Horseshoe Curve, the centerpiece of my railroad, through Tunnel Hill and into Gallatin, Pa. This is where the helpers will be cut-off and return to Altoona running light. My best decision was to make Horseshoe Curve 14 feet wide to resemble the prototype.

The main line continues west through Cresson, South Fork, and through Radebaugh Tunnel into Pittsburgh staging. There are seven interlocking towers on the Pittsburgh Division, which from the west are: SO, W, MO, UN, AR, MG, and Slope. Slope Tower is shared with Middle Division territory to complete the Pittsburgh Division.

Pitcairn Yard has 12 tracks and a balloon track that connects to the Summerhill Branch, one of four branches that connect to

HO scale (1:87.1)
Layout size: 33'-8" x 37'-4"
Scale of plan: $\frac{3}{16}" = 1'-0"$, 24" grid
Numbered arrows indicate photo locations
Illustration by Dave Johnson and Rick Johnson

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

NAME: Pennsylvania RR Pittsburgh Division
SCALE: HO (1:87.1)
SIZE: 33'-8" x 37'-4"
PROTOTYPE: Pennsylvania RR
LOCALE: Pittsburgh to Harrisburg, Pa.
ERA: 1952
STYLE: walkaround
MAINLINE RUN: 235 feet
MINIMUM RADIUS: 30" (main), 28" (yard lead)
MINIMUM TURNOUT: no. 6 (main), no. 5 (yard)
MAXIMUM GRADE: 1.75 percent
BENCHWORK: L-girder and open grid
HEIGHT: 50" to 60"
ROADBED: cork (main), Homasote sheet (yards)
TRACK: code 83 and 100 flextrack
SCENERY: extruded-foam insulation board and plaster cloth
BACKDROP: prototype photos
CONTROL: Digitrax Digital Command Control



3 The coal tower at the East Altoona engine terminal is busy day and night. Here, two Decapods and an M1b Mountain are preparing for their next assignments.



the main line. The Cresson Branch has two stub-ended staging tracks for coal trains running to Altoona. In Gallatzin, the Glen White Coal branch runs to the Glen White Mine. And at South Fork, the South Fork Branch and the Summerhill Branch split off, heading south and north, respectively.

MIDDLE DIVISION

The prototype Pennsylvania RR Middle Division begins at Slope Tower in Altoona

and runs east to Harrisburg. Enola Yard has 12 staging tracks, including a balloon track for continuous running or turning trains after operating sessions.

On my modeled part of Altoona, the yard consists of nine tracks for arriving, classifying, and departing trains.

The main line to the north side of the yard begins at Rose Tower and runs westward to the Railway Express Agency building and Altoona Station. There's an

additional station platform siding and storage tracks for head-end cars, including two tracks at the REA building.

The six Middle Division interlocking towers on my model railroad are, from west to east: Slope, Alto, Works, Rose, Antis, and Bell. Freights coming into and out of the yard must cross over the interlocking, complicating the dispatcher's job. Also, east-bound passenger and mail trains must cross over at Alto to enter the station. Upon



Narrow benchwork

THERE IS A SECTION OF BENCHWORK

on my model railroad that narrows from 13" to 6" along the wall between Cresson and South Fork, Pa. My backdrops are from photographs that I shot of the Allegheny Mountains on trips to the area. I spliced a number of the photos together using Adobe Photoshop software to make the backdrops. I was able to print the backdrops at 24" x 66" on a large format inkjet printer.

When the backdrops were installed, they looked very real, especially in photos taken at track level. But I thought some type of foreground scenery was still needed to complete the scene.

I used colors that matched the backdrops to make the overall scene more realistic.

The entire length of South Fork, including W Tower, is only 13" wide and is almost 20 feet long with four tracks on 2" centers. Just past W Tower, the benchwork narrows to 6 inches.

Along this section, there is a 2" high clear Plexiglas guard along the edge of the fascia. This doesn't detract from the scene, and it definitely prevents accidents. The Plexiglas was purchased at a local hardware store and cut into 2 x 60-inch strips. —D.J.



The benchwork near South Fork, Pa., narrows to just 6 inches. Scenery blends the foreground into the photo backdrop, and a Plexiglas fence prevents derailed trains from falling.



4 The Union Refrigerated Transit icing platform in Altoona serves long strings of reefers on two tracks. The main line is under the Rose Interlocking signal bridge in the center. At rear is the large Empire Milling Co. elevator.

exiting, they will once again cross over at Works to correctly run on track no. 2 for eastbound traffic.

OPERATIONS

My goal was to build a model railroad that would simulate the Pennsylvania RR not only in how it looked, but also in how it operated. Obviously, there are concessions, but the model does portray heavy mainline railroading in the Allegheny Mountains.

My operating sessions have evolved over time, and with feedback from my crew, each new session improves. We started with five of us running trains on each other's model railroads in 2002. Now, more than 30 operators in our area can be called on for mark-up.

The normal crew size for the Pittsburgh Division is 16 operators. This includes two

dispatchers, an Altoona yardmaster, two Altoona switch crews, Local West Altoona engineer, six mainline engineers, and four helpers. The mainline engineers and helper crews share jobs as they become available during operating sessions. As the host, I try to make any operating session relaxing and enjoyable for all who are attending.



5 Two Alco RSD-15s roll through AR Interlocking with westbound freight LCL-1. The Pennsylvania named many towers with codes abbreviating their location; AR stands for Allegheny Ridge.

The two dispatchers working side by side moving trains over two divisions, the Pittsburgh Division and the Middle Division, use Java Model Railroad Interface software (jmri.sourceforge.net). The JMRI program has a schematic of the railroad showing all main-line turnouts, which are remotely controlled by the dispatchers.

I've installed video cameras on the ceiling at all interlocking towers. The computer monitor is placed between the dispatchers. This simulates "OS-ing" from each tower operator to dispatcher. A PBX phone system with two different lines connects each phone mounted near the tower on the fascia to respective dispatchers.

CONSTRUCTION AND CONTROL

I use L-girders and open-grid frames with $\frac{3}{4}$ " plywood for the benchwork, Homasote sheets for yard roadbeds, and cork roadbed on the main line. Horseshoe Curve's benchwork was constructed using flexible commercial metal tracking on the floor and ceiling. Wood 2 x 4 studs were installed and attached at the top and bottom. Open-grid platforms were cantilevered out from these studs and hardboard backdrops were put up.

I used $\frac{1}{8}$ " hardboard for the fascia, valance, and skirting. I painted it black and later applied a flat varnish to prevent scuffing. Carpet tiles on the floor make a finished and comfortable room.

I use commercial electrical clips (Erico Products Twist Clip no. 4G16) to hang fluorescent lighting and the valance hardboard from the drop ceiling's grid. The clips slide on the grid so they can be adjusted easily.

I also use the clips to mount the video cameras that monitor each of the interlocking towers for the dispatchers.

Digitrax DCC has been my choice since the mid-'90s. I have a large number of Broadway Limited locomotives and other engines with sound, so the layout draws a lot of current at start-up. Because of this need, I use eight boosters plus a command station working to keep everything running.

I use Digitrax PM42s for power management and DS64s to control my Tortoise by Circuitron switch motors. A separate 12V power supply keeps the accessory boards working rather than powering them through the boosters.

SCENERY IS FUN

Once you travel west of Altoona, the Allegheny Mountains take over. Working on the scenery for this part of my railroad has

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been very enjoyable. My scenery methods complement the photo backdrops, most of which are my photographs of the Alleghenies in western Pennsylvania. I assembled these images into 24 x 66-inch mountain scenes using Adobe Photoshop software. Some backdrops that were used on my old railroad I was able to remove and use again behind Altoona Yard and the passenger station.

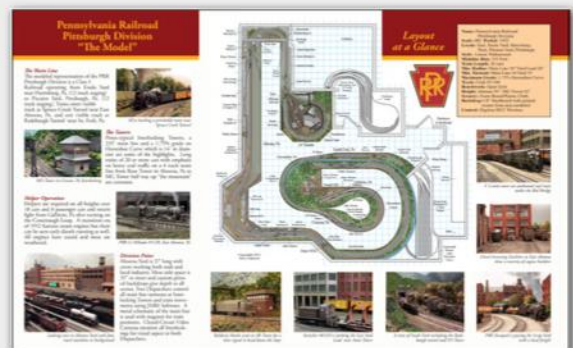
I like to use rock castings and do some rock sculpting in the foreground of each scene. There are some narrow shelves on my model railroad, so the three-dimensional foreground and mountain backdrops give the appearance of a lot of depth to the scenes.

Horseshoe Curve is similar to the prototype, except the rock castings in the foreground are smaller than they should be. The correct height would have been overpowering on a model railroad. The diameter of Horseshoe Curve is 14 feet, and the

Create a brochure for your layout

IF YOU'RE PLANNING to host an open house or operating session, a brochure about your railroad is a great handout for visitors. Include pictures, a description, and a track plan.

I designed my brochure prior to the National Model Railroad Association's 2014 convention in Cleveland, Ohio. I wanted the front panel to be a recognizable image, so I chose a class K4s Pacific running the main line in East Altoona. I created the graphics in Adobe InDesign software, but other software products such as Word or Publisher would work as well. — D.J.



When a National Model Railroad Association convention brought tours to his model railroad, Dave created full-color brochures to hand out to visitors, explaining his layout.



6 The scrapyard is just east of Red Bridge in East Altoona, while the Altoona Brewing Co. looms in the distance. Though the focus of the layout is multitrack mainline railroading, Altoona provides plenty of industries to switch.

7 Westbound coal train AP-3 departs Altoona with a pair of steam engines on the lead and another shoving on the rear. Though the signal bridge bears no signal heads now, Dave plans to add working PRR-style aspect lights.





1.75 percent grade simulates prototypical operation, especially with long trains.

All mainline tracks of 36" radius or more are superelevated. The visitor center at Horseshoe Curve is flat, with the foreground scenery dropping sharply into the valley using cardboard strips covered with tape and plaster cloth.

Foam insulation board is used to form the mountain areas. After sculpting the foam terrain to the right shape, plaster cloth was applied and painted brown. Ground foam and trees were added.

Ballast contains both light and dark shades to represent traction sand deposited by engines climbing the grade and brake

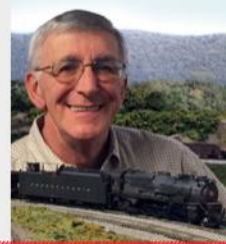
shoe dust accumulated from trains descending the mountain. I also prefer using multiple shades of track ballast because it looks more realistic to me than seeing the same shade on all track.

WHAT'S AHEAD

I need to finish some ballasting and scenery in Altoona Yard, finish some nearby industrial sidings, and add other small details to the overall layout. If additional space can be appropriated, I may add Johnstown to the area where Pitcairn Yard is now and move Pitcairn to the other side of the aisle where my workbench is. I'm also planning some track changes in Altoona

MEET DAVE JOHNSON

DAVE STARTED in model railroading with a Lionel train around the Christmas tree when he was 6 years old. He and his wife, Margie, are celebrating their 50th anniversary in December. Together, they were owners of a commercial printing business for 26 years. They live in Solon, Ohio, and enjoy spending time with their two children and four grandchildren.



Yard for changing head-end power and cabooses (caboose in PRR-speak) more efficiently.

I also would like to install working PRR aspect signals on all interlocking signal bridges. I intentionally didn't place signals on the bridges when I built them because I wasn't sure which electronic system I'd finally decide to use. My signal preference would involve using new electronic hardware for train detection, interfaced through the JMRI computer panels.

Model railroading is such a great hobby for so many reasons. It's an extremely creative activity built in three dimensions with movement. To build your own layout, you need to have some ability in so many different areas. A bonus is being able to operate it similarly to your favorite prototype with the help of good friends.

Another wonderful aspect of model railroading is being able to research the vast amount of prototype information available today on the internet.

Now that most of my scenery is finished and detailed, I also enjoy photographing different scenes around the layout.

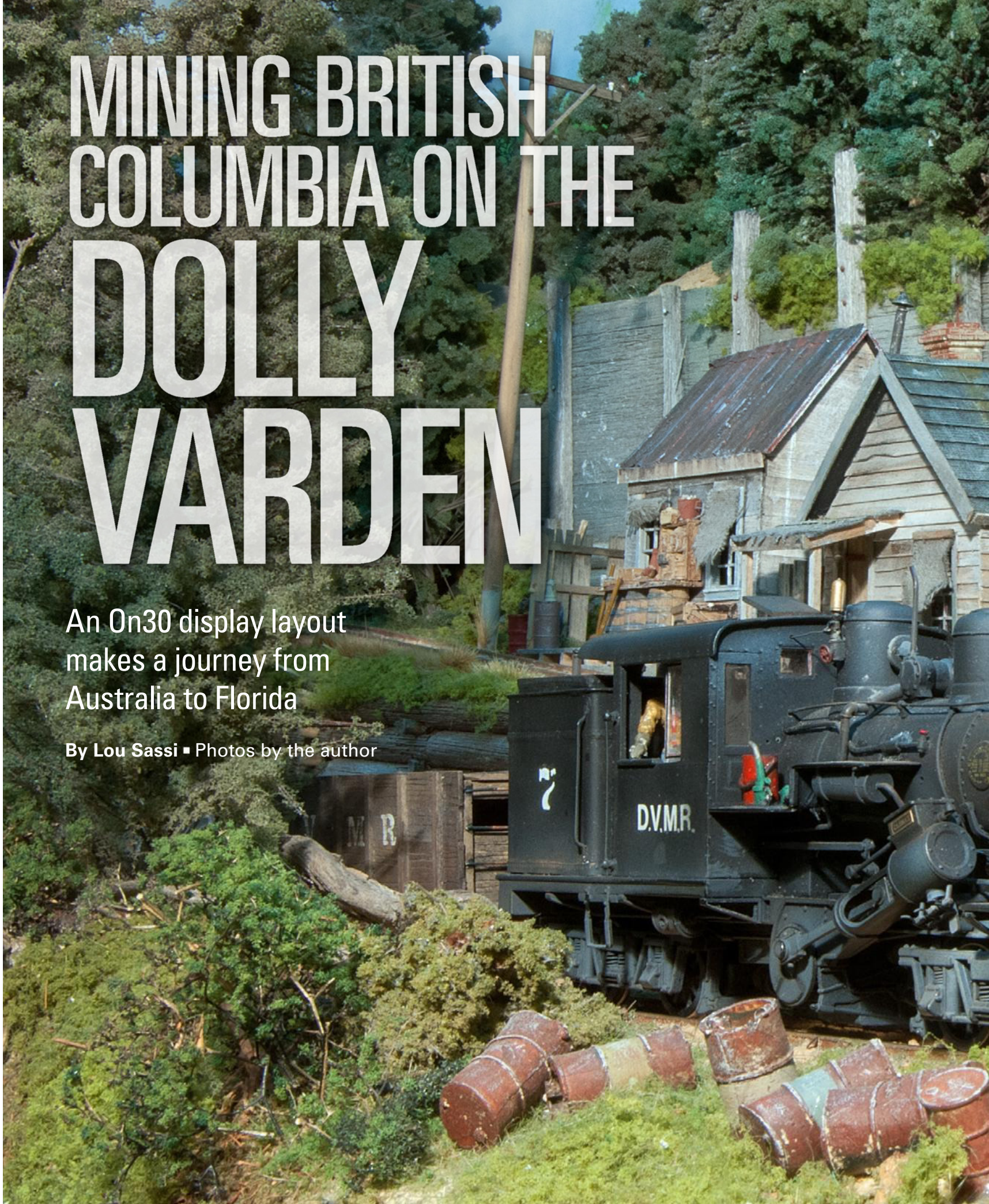
My wife, Margie, is very supportive of my modeling efforts. She helped me design and finish the train room, and her input on scenery and backdrops was great in creating the feel of mountain railroading. We travel together to railfan events and other model railroad functions. Our four grandchildren enjoy running trains and working on scenery, especially making trees.

It's been my pleasure to meet many wonderful friends in this hobby. As time has gone by, our friendships have endured, and we all look forward to seeing each other and running trains. **GMR**

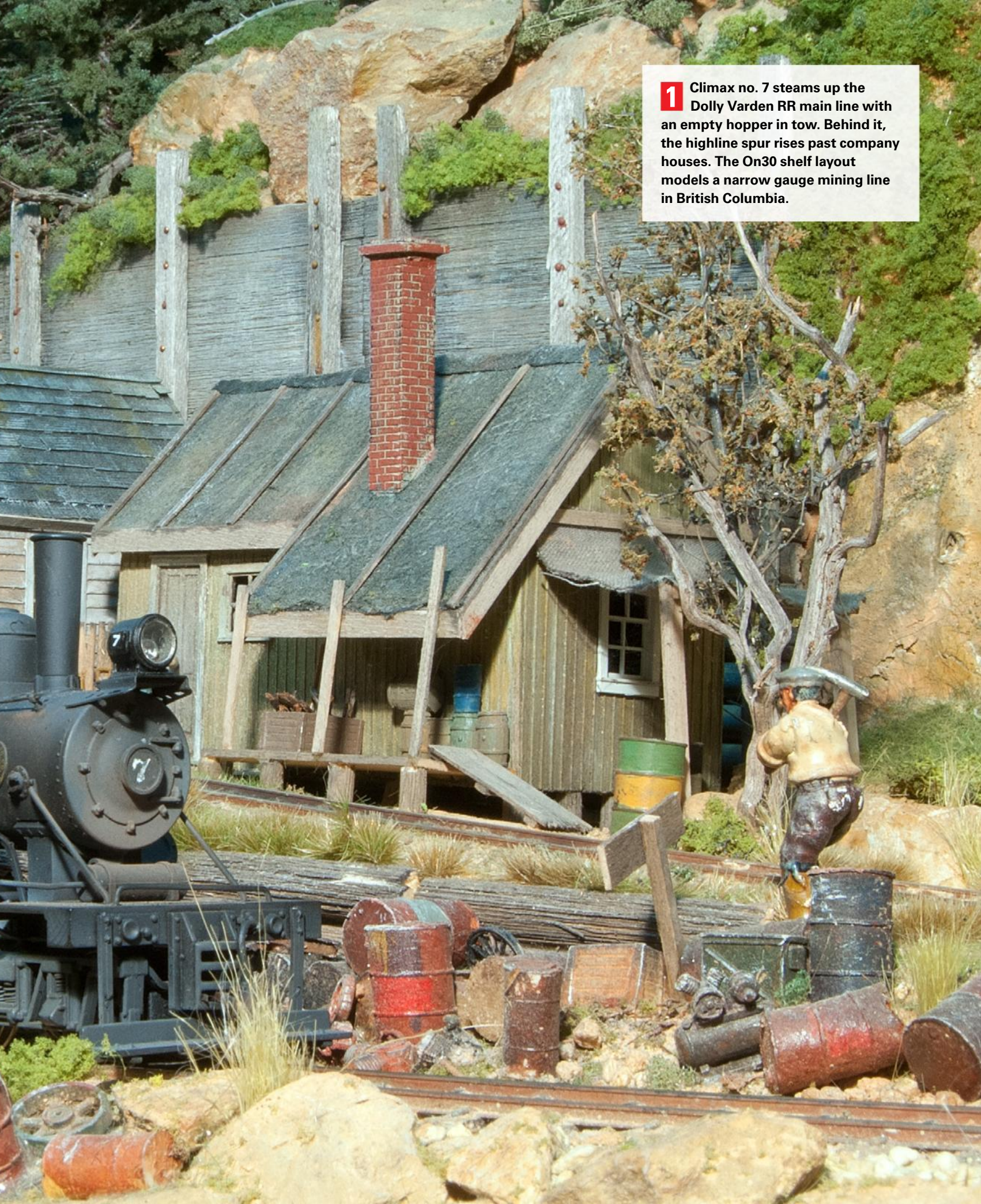
MINING BRITISH COLUMBIA ON THE DOLLY VARDEN

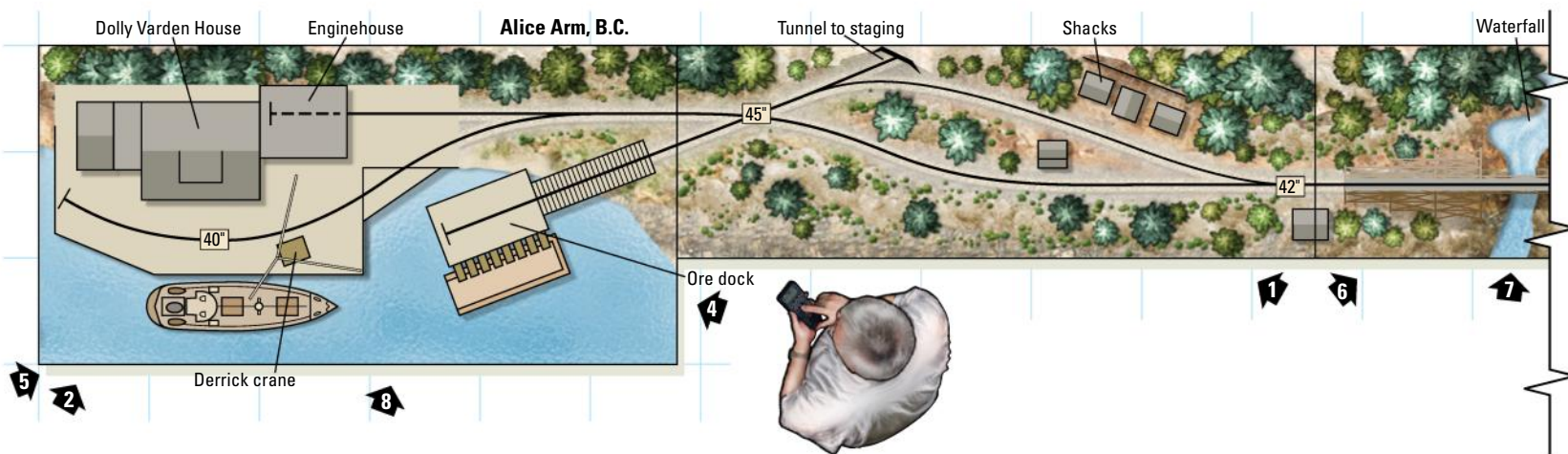
An On30 display layout
makes a journey from
Australia to Florida

By Lou Sassi ■ Photos by the author



1 Climax no. 7 steams up the Dolly Varden RR main line with an empty hopper in tow. Behind it, the highline spur rises past company houses. The On30 shelf layout models a narrow gauge mining line in British Columbia.





2 This overall view shows the shelf layout in its entirety. Built in Australia, the railroad is now one of several on display in the Suncoast Center for Fine Scale Modeling in Odessa, Fla.

The ON30 Dolly Varden RR has a globetrotting pedigree. Though it models a little-known narrow gauge mining railroad in British Columbia, Canada, it was originally built in Australia. After a few years on the train show circuit there, the layout was sold to its current owner, who displays it in a Southwest Florida museum dedicated to fine scale modeling.

The prototype Dolly Varden mines were located around the small settlement of Alice Arm on the northwest coast of British Columbia. Now almost a ghost town, Alice

Arm is situated at the head of a narrow inlet of the Kitsault River. The peaks surrounding the steep slopes of the Kitsault Valley rise to over 3,000 feet and are covered with permanent ice fields and snow. The lower levels of the Kitsault Canyon are impassable in many places, with the river's icy waters rushing through the riverbed below.

In 1910, four Scandinavian prospectors heard of silver discoveries in the area. They founded the Dolly Varden Mine Co. and built a 3-foot-gauge railroad into the almost impassable wilderness to haul out the product of the mines.

Operations in the mines lasted only about a decade, and the railroad was abandoned in the late 1920s. Due to the ruggedness of the terrain, most of the railroad's equipment sat rusting along the right-of-way until the

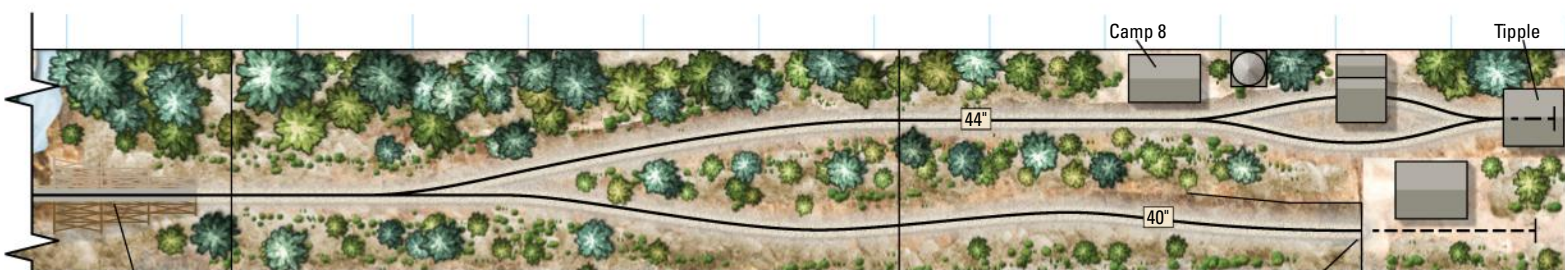
scrappers came for it in 1937. The town lasted until 1982, when the molybdenum mine that had been its lifeblood closed.

BUILT TO TRAVEL

The model Dolly Varden RR was the brainchild of two Australian modelers, John Hunter and Dan Pickard. They wanted a portable model railroad they could exhibit at train shows around Australia. John and Dan began building the On30 (O scale trains on HO gauge track) Dolly Varden in mid-2006.

Since the railroad had to be portable, weight was an issue. John and Dan began by building five aluminum modules, four 6 feet long and one 4 feet long for the large, curved trestle in the center of the railroad.

The hand-painted backdrop and the "roof" of the display are made from



Dolly Varden RR

On30 (1:48 scale, 30" track gauge)
Layout size: 3 x 28 feet
12" grid

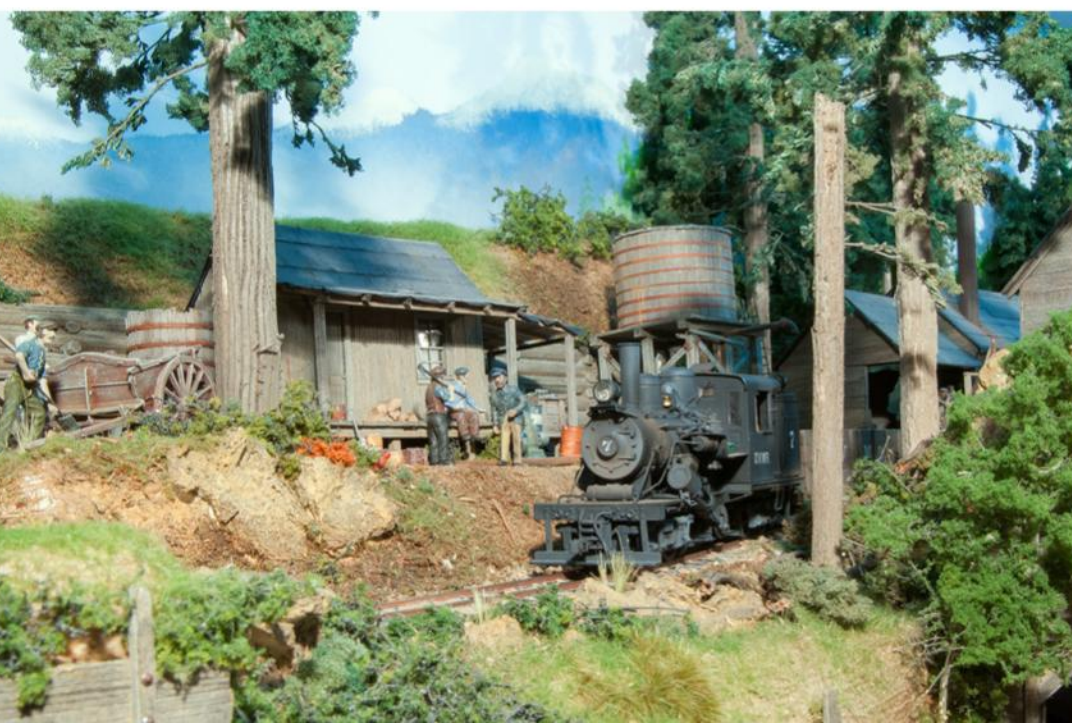
3 Tunnel

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



THE LAYOUT AT A GLANCE

NAME: Dolly Varden
SCALE: On30 (1:48 proportion, 30" track gauge)
SIZE: 3 x 28 feet
PROTOTYPE: Dolly Varden RR
LOCALE: British Columbia, Canada
ERA: 1920s
STYLE: shelf
MAINLINE RUN: 28 feet
MINIMUM RADIUS: 18"
MINIMUM TURNOUT: no. 4
MAXIMUM GRADE: 5 percent
BENCHWORK: aluminum
HEIGHT: 40"
ROADBED: cork
TRACK: flextrack
SCENERY: extruded-foam insulation board
BACKDROP: painted on foam core
CONTROL: direct-current, automated



3 Mine workers chat outside their homes as Climax no. 7 pulls a hopper from the tipple at Camp 8. The layout is automated to run trains back and forth without operator intervention.

NOW ON MODELRAILROADER.COM

You'll find a video of trains running on the On30 Dolly Varden RR on our website. Look for a link to the video in the Online Extras box at www.ModelRailroader.com.

Modeling prototype scenes



4 This view of the Dolly Varden House and wharf in Alice Arm, B.C., duplicates a prototype photo shot from atop the ore dock. All the structures on the layout are scratchbuilt to follow prototype scenes.

ON THE ON30 Dolly Varden layout, not only the structures but also the scenes are reproductions of their prototype counterparts. The scene of the Dolly Varden House and wharf on the model accurately reproduces a prototype photo featured in the book *Steel Rails and Silver Dreams* by Darryl Muralt. The wing of the main structure at the extreme right with the oddly angled end wall was the enginehouse for Dolly Varden motive power. — Lou Sassi



foamcore, while the fascia is medium-density fiberboard (MDF). Scenery is built on a base of 1" thick extruded-foam insulation board. The contours are either carved from foam or created using a shell of "gutter guard" wire mesh, topped with a thin layer of plaster gauze and a skin of acrylic gap sealant. This shell is very durable and well suited to a portable layout.

Rock formations are made by a method John and Dan call "soft rock." Extruded-foam insulation board is carved to shape and covered with acrylic gap sealant, then textured with grout and painted. This combination replicates the color and texture of real rock while keeping weight to a minimum.

Finished ground cover consists of a mix of commercial materials, real dirt, and home-made ground foam. All of the layout's many trees are handmade.

AUTOMATIC OPERATION

The wharf at Alice Arm, the Dolly Varden House built on that wharf, and the elevated ore dock occupy one end of the railroad. Halfway to the mine head, trains cross a scratchbuilt wooden trestle over a waterfall. They then pass the company housing at Camp 8 on their way to the powerhouse, sacking shed, and tippie at the opposite end of the display.

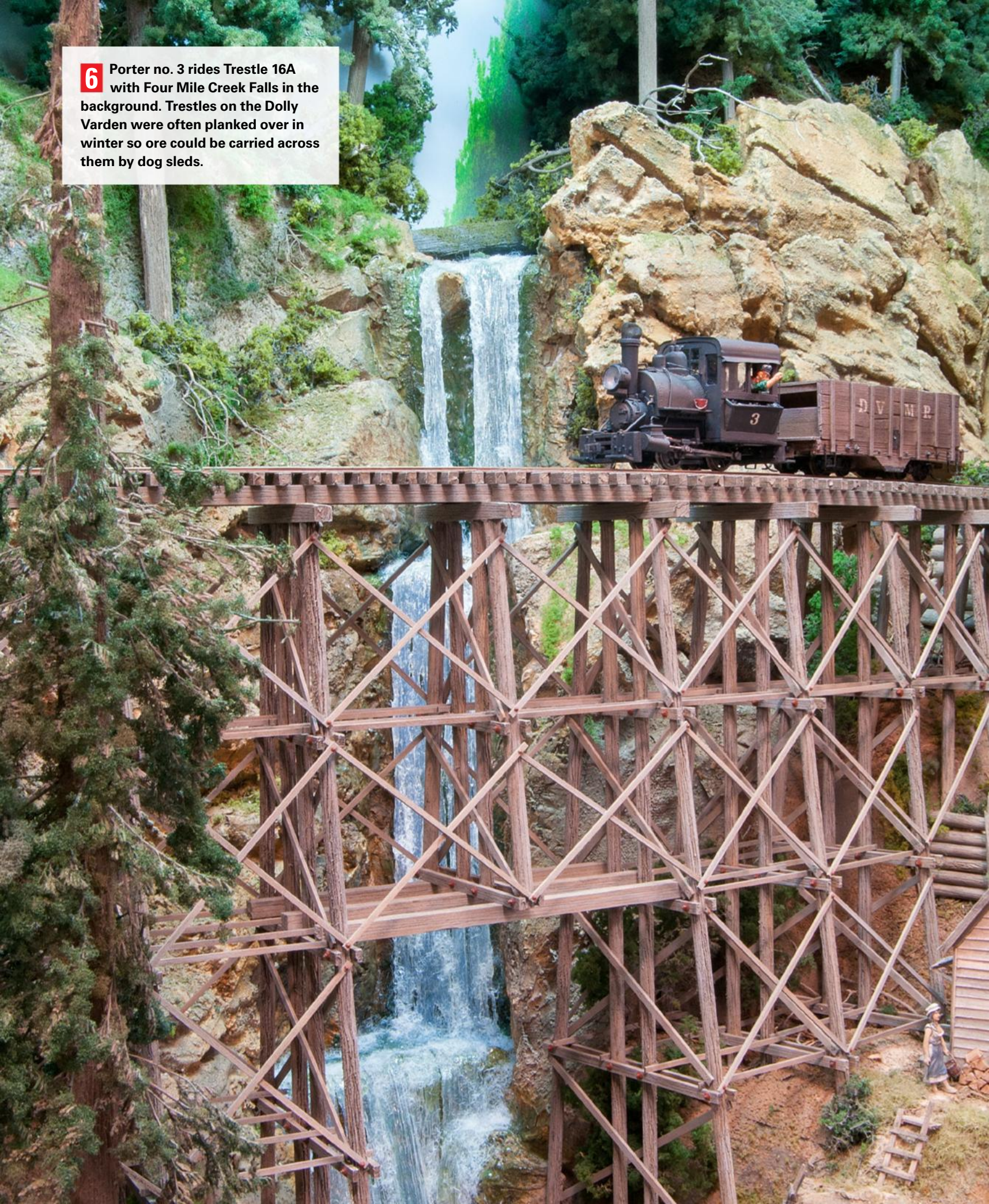
The model railroad was meant as a public display that followed the simple track plan of the prototype. The railroad consists of a single track running from the wharf to the mine. There's also a highline spur to feed the ore bunker at the wharf and passing sidings at both the large rock cut and the tippie.

Another turnout leads to a track that runs down into a tunnel under the mine. This leads to a two-track staging yard. There's another hidden track that sends a locomotive and ore car across the high line to the ore bunker. Commercial turnouts and flextrack are laid on a roadbed of cork.

There are three independent automatic circuits to operate the layout. Infrared triggers run the automatic shuttle circuits. One train does the short ore bunker run, the next goes from the wharf to the hidden staging under the mine, and the third train runs

5 Climax no. 7 parks a loaded ore hopper on the wharf at Alice Arm, B.C., the end of the line. The buff-colored building is the Dolly Varden House, a combined office, warehouse, and enginehouse for the railroad.

6 Porter no. 3 rides Trestle 16A with Four Mile Creek Falls in the background. Trestles on the Dolly Varden were often planked over in winter so ore could be carried across them by dog sleds.



Rapids, rivers, and waterfalls



7 Layout owner Dave Revelia and friend Jon Addison redid much of the scenery on the Dolly Varden RR, including the waterfalls in the signature trestle scene.

I'VE TRIED ALMOST ALL the methods that have been written about in the hobby press for making rapids and waterfalls. These are the methods I've settled on. I hope they'll work for you.

I use DAP Crystal Clear Caulk to make waves, rapids, and waterfalls. First, I spread a moderate amount of caulk into a small area of the water surface. I use a small brush to stipple the caulk into waves or rapids. You may need to use your fingers to spread the caulk around rocks and shorelines.

When the caulk has cured, I seal it with gloss medium or Enviro-Tex resin rubbed in with my fingers.

Now you may want to add foam in rapids or around rocks. To do this, I use small amounts of white poly fiber secured with gloss medium. Later I seal it with more gloss medium.

To make waterfalls, I use two methods. The first is to spread gloss medium onto waxed paper cut to the length and width of the waterfall. I add poly fiber to it and let it cure. Once it's dry, I carefully peel off the waxed paper using a razor knife and trim the edges. I cut the resulting sheet of gloss medium to fit and glue it in place with hot glue or clear silicone caulk.

The second method of making waterfalls uses a support of Sulky Invisible Thread, a clear polyester thread. I drive two screws into a board, as far apart as I want the waterfall to be long, and wind multiple strands of the thread between them. I then spread clear caulk on the thread and smooth it with a scrap of wood. When it's cured, I seal it with gloss medium. After that dries, I cut the thread to remove it from the screws, then attach the waterfall to the layout as before. — *Jon Addison*

Jon Addison stretches Sulky Invisible Thread between two screws to form a waterfall. He then coats the thread with clear silicone caulk and gloss medium.



from the mine down to the high rock cut. That's where the prototype would have changed over to the next locomotive, which would have completed the run downhill.

This automatic sequence runs continually with no intervention from the operators needed. There are dead sections of track that separate the powered sections and three throttles, one for each locomotive.

A NEW HOME

In early 2010, Dan and John decided to retire the Dolly Varden from the Australian exhibition circuit and place the railroad up for sale. Dave Revelia spotted their ad online.



8 Saddle-tank Porter no. 2 (not a prototypical engine for the Dolly Varden) pushes a hopper onto the 3,000-ton ore dock for dumping. The structure is scratchbuilt from stripwood.

Since Dave, a co-creator of the large-scale Sundance Central RR [featured in the December 2012 *Model Railroader* – Ed.] and a talented modeler himself, was in the process of developing a museum for fine scale modeling in the Tampa, Fla., area, he was interested in acquiring the Dolly Varden. Dave contacted Dan and John, and later that year, the deal was made and the railroad was shipped from Australia to the Suncoast

Center for Fine Scale Modeling in Odessa, Fla. (www.finescalemodeling.org).

As well executed as the Dolly Varden is, Dave and his friend Jon Addison decided to make repairs and improvements. Jon reworked the waterfalls on the center module, and Dave repaired the trackwork and added more motive power.

The Dolly Varden now resides alongside the Sundance Central and Jon's Sn3 Silverton Central [seen in the April 2007 MR – Ed.]. Dave, who is also an accomplished military modeler, hopes these layouts will be the nucleus of an array of displays dedicated to showcase all types of fine scale modeling. **GMR**

MEET DAVE REVELIA

DAVE REVELIA, from New Port Richey, Fla., is a retired firefighter with 24 years of service with the city of Largo, Fla. In addition to founding the Suncoast Center for Fine Scale Modeling, Dave is also the co-founder of the PODS portable storage business. He has three grown children.




A detailed diorama of a waterfront scene. In the background, a multi-story brick building with several windows and a rusted pipe is visible. In the middle ground, a brown train car with a window is positioned on tracks. The train car has "NEW YORK CENTRAL SYSTEM" in a circular logo, "P&LE", "5290", and "CARTON BOXES" printed on its side. To the right of the window, "BLAKE ENGINE" and "Steel Centers" are visible. In the foreground, there is a wooden fence, a pile of green bushes, and various industrial elements like gears and pipes. The scene is lit with warm, golden light, suggesting sunset or sunrise.

WORN-OUT WARE ON THE WATERFRONT

Argentinian brothers build a 2 x 4-foot
waterfront diorama over a two-week vacation

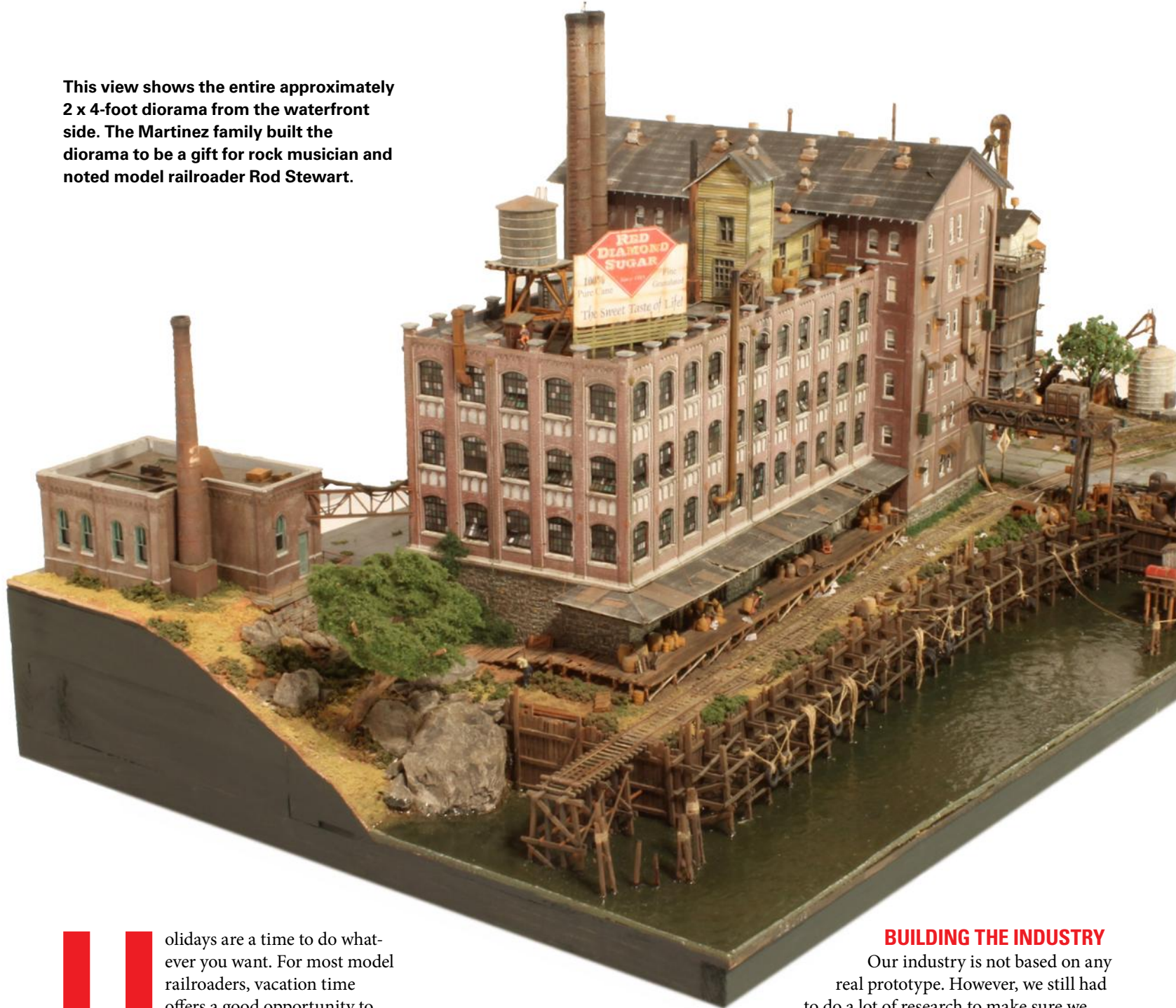
By **Gabriel E. Martinez** ■ Photos by Jorge Martinez



The brakeman on the step guides the switcher's engineer as he backs up to pull the empty boxcar from the Red Diamond Sugar refinery's loading dock. Gabriel and Jorge Martinez built this HO scale industrial diorama from scratch during a two-week vacation.

HOUSE

This view shows the entire approximately 2 x 4-foot diorama from the waterfront side. The Martinez family built the diorama to be a gift for rock musician and noted model railroader Rod Stewart.



Holidays are a time to do whatever you want. For most model railroaders, vacation time offers a good opportunity to make significant progress on their layouts.

Since my brother and I actually build custom model railroads for a living, a two-week break sounded to us like a chance to do something totally different. But before I knew it, I was model railroading again. My father talked me into starting a new project small enough to be finished in “less than a week,” as he put it.

Our shop is full of long weekend projects we work on every now and then, so I was a little reluctant to start a new one. But this diorama sounded like a nice project – to model a specific scene with a unique context

that we could focus on detailing completely. We don’t normally do this in our everyday work, due to tight schedules and limited budgets. In a way, this would be a different kind of modeling, with the freedom to create something special.

We began discussing the diorama and sketching what it should look like. We quickly decided on a waterfront industry. The size of the module would be about 2 x 4 feet. It would be dominated by a large early 20th-century building with an architecture combining stone, brick, and wood. The general appearance of the industry would be weatherbeaten and worn out.

And we only had two weeks to do it.

BUILDING THE INDUSTRY

Our industry is not based on any real prototype. However, we still had to do a lot of research to make sure we were going in the right direction to achieve a realistic appearance.

As the project took shape, it became necessary to decide what kind of industry it should be. That would determinate the look of the whole industry and the distribution of the surrounding buildings. We had some ideas from the beginning, but we finally went with a sugar refinery. During our research on waterfront industries in America’s Northeast, several times we came across the Domino Sugar plant in Williamsburg, N.Y., so the idea of a sugar refinery became quite appealing.

To complete the scene, we made some additions to the main building, connected by

pipng that helped create the feeling of a complex industry. We include a power-house in the back made from a modified Edison Street Powerhouse kit from Magnuson. Across the street is a massive scratchbuilt wooden silo with a modified Magnuson structure on top and some more secondary silos.

Assembling the main structures was relatively fast, taking about four days of the first week. But when we turned to the job of painting and detailing, my father and I needed help. So we asked my younger brother, Jorge, to assist us with some detailing, and my older brother, Ricardo Jr., to cast some resin parts.



THE TIME AND PLACE

Red Diamond Sugar represents a sugar refinery in the 1950s in the Northeast. The industry has seen better days; as a result, the building is poorly maintained. There's litter and junk everywhere. The building still operates as a distribution center for the city, where products arrive by train to be distributed by truck.

The pier where big ships once used to dock hasn't been used in decades, and a new business operates there now. The unused waterfront space facing the street was sold to a marine mechanic who built his shop there. The White Dolphin's business sign is missing thanks to a storm, but you can still see a big carved dolphin above the back doors of the shop.

A lot of different techniques were used on the construction of this diorama, since it's intended to be installed on a bigger layout. Very few commercial products were used on this project. Almost everything was handmade, including the cast resin structure walls, the chimneys, and details like junk piles and even the staircases.

All the stripwood used in the project was hand-cut with a saw or hobby knife from a thin sheet of cedar. The silos, seawall, freight platform, fences, pier, and mechanic's shop were scratchbuilt.

The large windows were designed especially for the factory and modified to model opened windows. All the graphics for the fence and rooftop billboard were designed and scaled for this project.



The back side of the diorama shows a wealth of barrels, boxes, junk piles, tanks, pipes, vents, smokestacks, and other details, almost all of which were custom-made from resin by the author's brother, Ricardo Jr.



The sugar company leased space at the end of its dock to The White Dolphin, a marine mechanic business. The little red structure was scratchbuilt in the style of noted modeler George Sellios.



A switch engine pulls from behind the factory. The structure was built from resin wall sections cast in molds.

Duplicating wall panels

WE CAST OUR OWN resin walls in room-temperature-vulcanizing (RTV) rubber molds made from modified commercial kits that are discontinued or hard to find. Having a large range of wall patterns, with the possibility to repeat them as many times as you

need, makes it easy to model any type of construction. We also have molds to cast stone patterns in resin, plaster, or flexible materials. The difficult part is to find the right combination of brick and stone patterns to achieve a realistic building. – G.M.

MEET GABRIEL AND JORGE MARTINEZ

GABRIEL AND JORGE'S FATHER

launched the family business custom-building model railroads in 1985. Gabriel, Jorge, and their brothers grew up surrounded by model trains of all kinds and scales. Today, South American Models (www.samtrains.com), based in Buenos Aires, is still the only business of its kind in Argentina.



Much attention was put into the many details. The wooden railings, for example, were built piece-by-piece, as were the metal railings, soldered together from brass wire. The personnel bridge that crosses the street and the yellow building on the roof are kit-bashed from commercial plastic kits.

The painting was mostly done by brush using acrylic paints. Weathering was accomplished by drybrushing. We also used some weathering powders, especially to create rust.

You may recognize the influence of well-known modeler George Sellios in our work. We included The White Dolphin mechanics' shop as a tribute to his Franklin & South Manchester RR.

WHY THE TWO-WEEK DEADLINE?

Rarely do we have the time to work on one project to the exclusion of all others until it's finished. As a result, we have multiple modules and models in our shop in various

stages of completion. But that wasn't the case with this project. It had a purpose and a deadline from the start.

This module was intended as gift for a very well known model railroader, rock-and-roll star Rod Stewart. [See Rod's layout in the December 2007, December 2010, and February 2014 issues of *Model Railroader*. – Ed.] The industry's name, Red Diamond Sugar, was chosen to share his initials, R.D.S. We had planned to give him this module during his last concert tour of Argentina. Sadly, we couldn't get word to him in time, so the gift wasn't delivered.

Later, when we did get an answer from a member of Rod's team, we were told that although Rod would love the gift, due to his tour schedule they couldn't pick it up. So we still have it. If Rod is reading this right now and wants to claim the gift, he can contact us anytime. But hurry; we may decide to add it to our own model railroad.



IT'S NOT WORK IF YOU LOVE IT

Being able to do what you love for a living can still be stressful at times. There's always a deadline you have to meet and budgets that don't always justify the amount of work you put into it. Dealing with eager customers isn't easy, either. But when we see the result

of all our meticulous work, we can't help but see it as more of a hobby than a job. We get as immersed in the modeling as we would if the layouts we built were our own. We had a great deal of fun during our two-week break doing what we do for a living the rest of the year, model railroading. **GMR**

The raw sugar storage bin across the street from the main plant was scratchbuilt and topped with a kitbashed structure. The Martinezes added lots of details to make the industry look busy.

APPALACHIAN

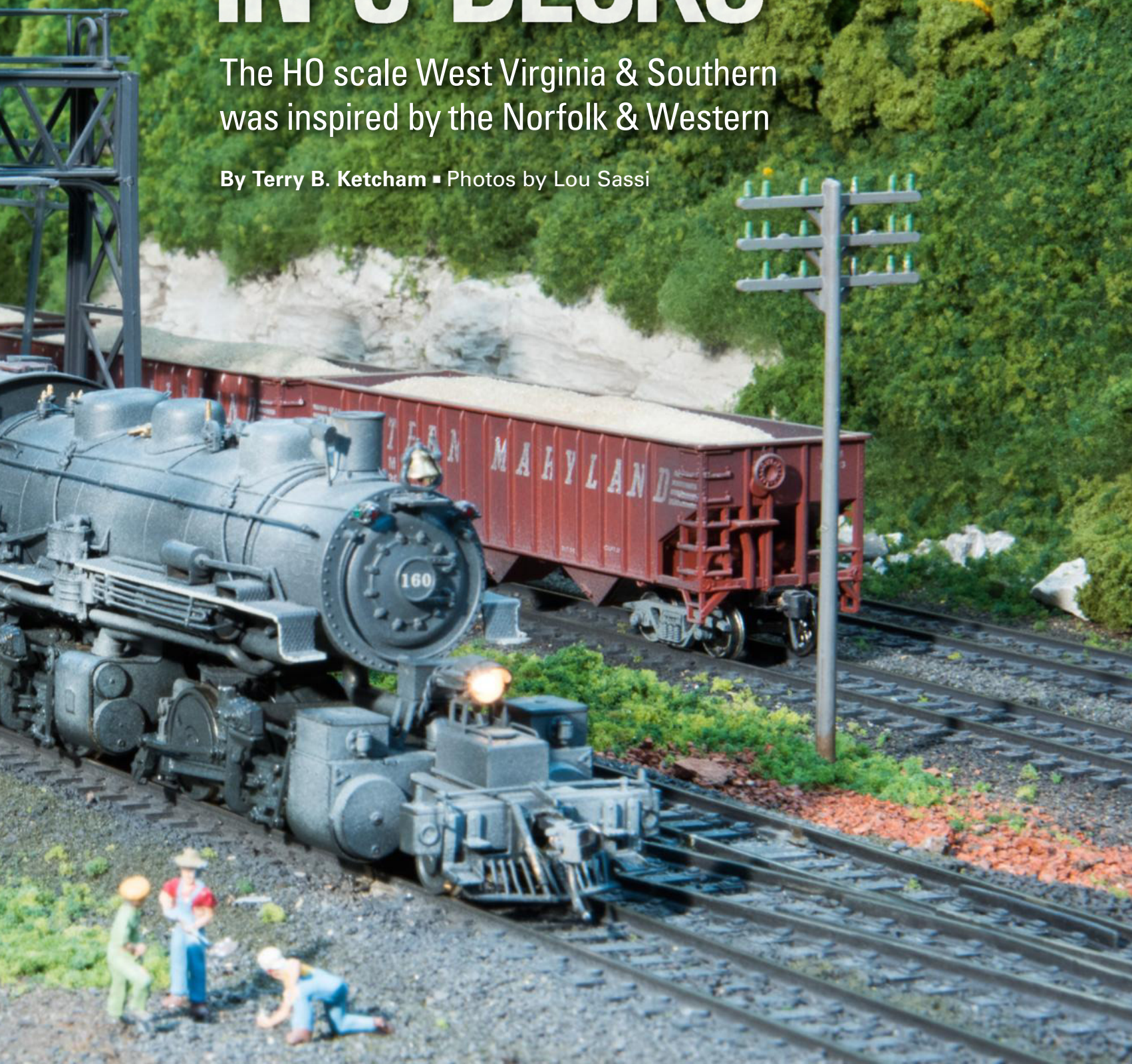


1 Train No. 277, with a string of wood-chip hoppers in tow, stops to pick up orders at Rockwood Yard Tower on Terry B. Ketcham's HO scale West Virginia & Southern Ry. Terry got interested in Appalachian railroading after reading a *Trains* magazine article.

ADVENTURE IN 3 DECKS

The H0 scale West Virginia & Southern
was inspired by the Norfolk & Western

By Terry B. Ketcham ■ Photos by Lou Sassi



Though I've been interested in model trains since I was a teenager, I never focused on any one particular era or aspect of railroad-ing. I just liked trains in general.

That changed after I read an article in the January 1962 *Trains* magazine about the Graham County RR in western North Carolina. The Shay locomotives and the lumber industry they served intrigued me. A few months later, *Model Railroader* did an article on modeling the Graham County RR.

Since the railroad was still in operation at that time, I pur-

chased an 8mm movie camera and drove from Long Island, N.Y., to western North Carolina to see these strange-looking geared steam engines for myself. As luck would have it, I arrived just after a Shay picked up a few cars from the Southern Ry. interchange at Tipton, N.C.

I drove to the nearest road crossing, parked my car, and hopped on the caboose for the 12-mile ride to Robbinsville, N.C., taking movies all along the way. After that experience, I was hooked on Shays. My first few model railroads were all logging roads, served by a two-truck Shay from Pacific Fast Mail.

Somewhere along the line, I also got interested in coal

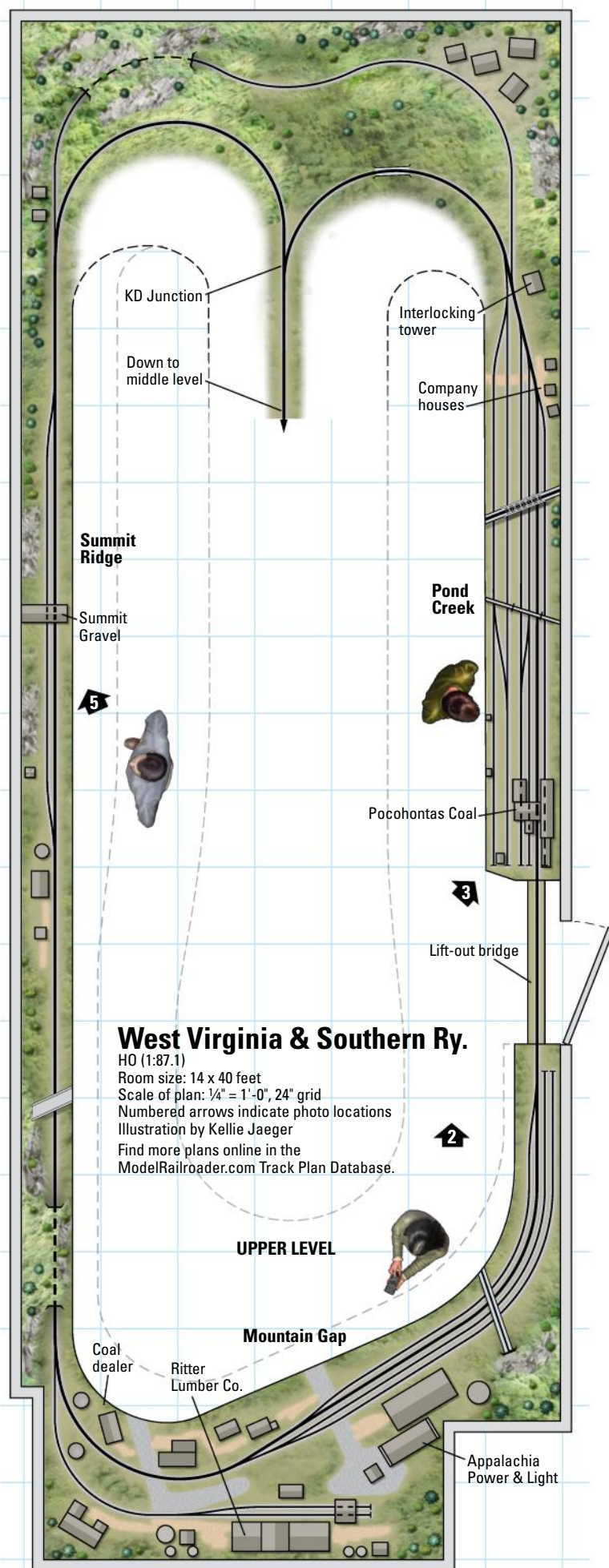


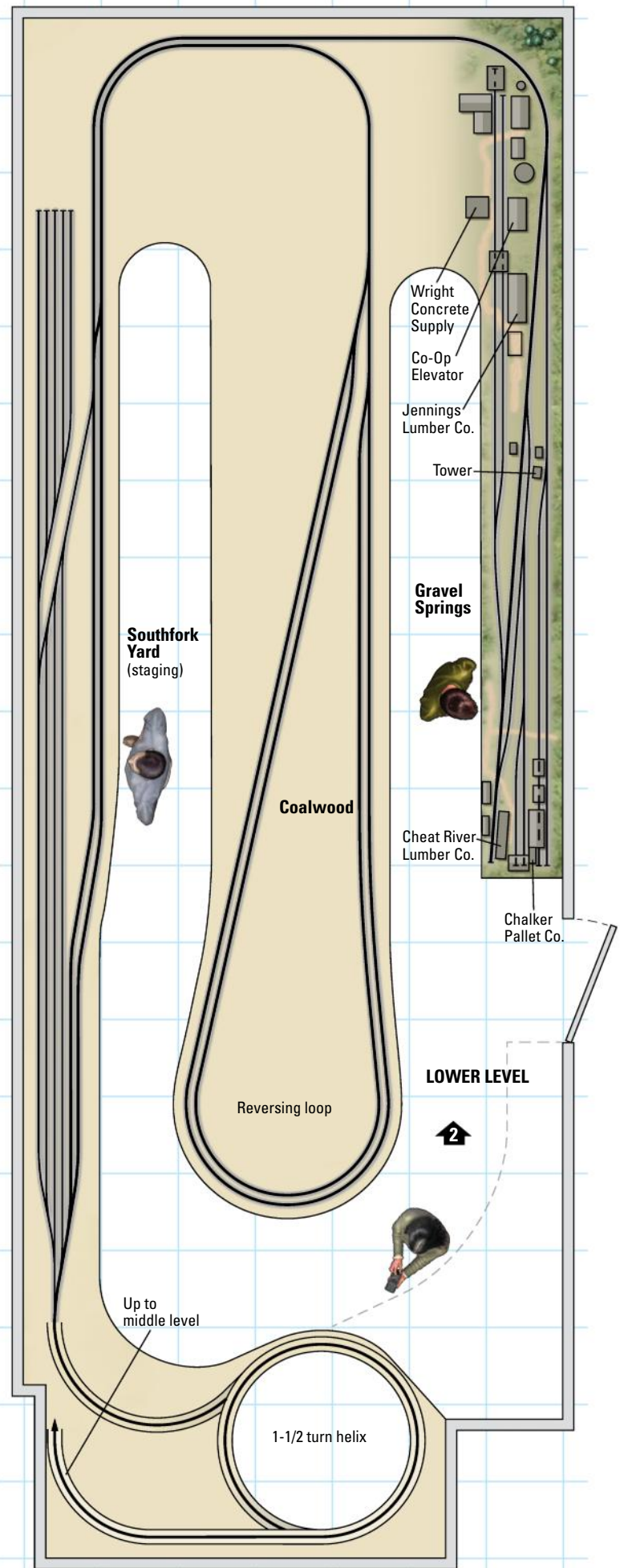
2 This view from near the layout's entrance shows the central peninsula with Eagle Bridge and Stony Creek on the left and Pond Creek (above) and Gravel Springs (below) on the right.

THE LAYOUT AT A GLANCE

NAME: West Virginia & Southern Ry.
SCALE: HO (1:87.1)
SIZE: 14 x 40 feet
PROTOTYPE: Norfolk & Western
LOCALE: Southeastern W.Va.
ERA: 1950s
STYLE: walkaround
MAINLINE RUN: 360 feet
MINIMUM RADIUS: 24"

MINIMUM TURNOUT: no. 6
MAXIMUM GRADE: 4 percent
BENCHWORK: L-girder
HEIGHT: 32", 44" and 60"
ROADBED: Homabed
TRACK: code 100 flextrack
SCENERY: extruded-foam insulation board covered with Sculptamold
BACKDROP: tempered hardboard
CONTROL: Digitrax DCC









Removable coal loads

I NEEDED A WAY to make removable coal loads for my operating sessions. I started by cutting strips of 1/8" thick tempered hardboard to fit inside each coal hopper. The strips need to fit loosely inside the cars, so they can be removed without lifting the car off the tracks.

To make the coal loads magnetic, I glued several steel washers on top of the hardboard base. Next, I glued a layer of coal on top, covering the hardboard strip and washers.

I purchased a magnet from a local hardware store and attached it to a wood stick. This is used to lift the coal loads from the hopper cars.

I labeled each load on the bottom with the reporting marks of the hopper car it fits. – *T.B.K.*



Terry embeds steel washers in his removable coal loads so they can be lifted out of the hopper cars with a magnet.

hauling, particularly the Norfolk & Western branch lines that reached back into the hollows of West Virginia's coal country.

My HO scale West Virginia & Southern Ry. is a multideck, single-track line loosely based on the N&W's Dry Fork Branch in southern West Virginia.

The railroad climbs from its main yard to the coal mines and lumber mills on more than 360 feet of track, passing through mountains and over bridges along the way. Though I operate

it as a point-to-point railroad, there are reversing loops at each end to allow continuous running when I host an open house.

PLANNING AHEAD

Moving to a new home in western North Carolina after retirement provided me with a 14 x 40-foot basement room dedicated to my railroad. All walls were insulated, covered with drywall, and painted sky blue. A suspended ceiling with 2 x 4 drop-in fluorescent light fixtures

3 The Pond Creek morning shifter works the tippie at the Pocohontas Coal Mine. Like most of the structures on the layout, Pocohontas Coal is scratchbuilt.

4 Trains cross at different levels near Lime Fork Pulpwood. Terry's main line climbs across the length of the long central peninsula to join the two decks without using a helix.



was then installed. I used chalk to mark up the concrete floor indicating the outer edge of all benchwork, which gave me a feel for the width of the aisles. I also drew some of the track with the chalk. I hated to cover it up, but I had to add carpet before starting the benchwork.

There's only one ideal height for a layout, and that depends on the height of the owner. A multi-level layout presents a challenge as to how to incorporate two, or in my case three, workable levels. I have one 40-foot-long wall with an upper level, main level, and lower level staging yard.

I used wall-mounted adjustable shelves as a mock-up to help me establish the heights of these levels. I experimented with

different heights and widths of cardboard to determine what height my upper level should be in relation to the main and the lower level staging. My upper deck is 16" wide at a height of 60". The main level at 44" is 30" wide, and the lower staging yard is 30" wide at 32" above the floor.

I used Atlas code 100 nickel silver flextrack and Peco turnouts. All turnouts are hand-lined except for a few that are hard to reach or see; those are controlled with Tortoise by Circuitron switch motors.

SCENERY

The majority of the scenery, at least 90 percent, was made using 2" extruded-foam insulation board. I built sections of the

Lift-out bridge

IN ORDER TO PROVIDE continuous running on the upper level, I built a removable bridge in front of the doorway into the train room. It's made out of oak and slides into wood brackets attached to the benchwork at each end. Track power to the bridge is supplied with jack pins from the main bus. — T.B.K.



Terry built this lift-out bridge to span the room's doorway and provide continuous operation on the upper deck.

5 Louisville & Nashville no. 1803, an Alco 2-8-2 Mikado, shifts hoppers under the tipples at Summit Ridge. Terry weathers his steam engines and rolling stock using an airbrush.



MEET TERRY B. KETCHAM

TERRY WAS BORN AND RAISED on Long Island, N.Y. He worked for the Long Island Lighting Co. as a draftsman for 37 years. After he and his wife, Carol, retired to Etowah, N.C., in 2001, Terry joined the Apple Valley Model RR Club in Hendersonville, N.C., where he is an active member.



6 Helper engine no. 1524 stops for water and coal at Laurel Bank, preparing to help shove the next train up the grade to KD Junction. The steep grades on the layout's peninsula make helpers an important part of operations.



mountainous scenery in another room, stacking pieces together “wedding cake” style. The layers were glued together with foam-safe adhesive caulk. Then, using a rasp, I shaped the foam.

Green latex paint was then applied, followed by plaster rocks stained with a mix of India ink and water. Woodland Scenics Clump-Foliage and a variety of trees finished each section, which was then set in place on the railroad.

Small ponds were made using Enviro-Tex Lite, a two-part epoxy. I layered the bottom of the ponds with sand, small stones, and twigs, all of which were glued down before pouring the Enviro-Tex. Waterfalls were made using clear silicone caulk, highlighted with white paint.

Much of the ground cover is soil purchased from a local big box store. I sift the dirt so that I only get the fine particles. I top it with a variety of ground cover from Woodland Scenics.

DCC AND OPERATIONS

I used 14 gauge bus wires for each of the six power districts on the railroad. I soldered 22 gauge wire drops to every other piece of track.

I use a Digitrax Digital Command Control system with wireless throttles to control my engines. Many of my steamers have sound decoders installed.

I host a monthly operating session using RailOp software to produce switch lists for the five operators running trains. We also have a yardmaster for Rockwood Yard and a dispatcher who sits in another room using a magnetic board to track trains over the railroad via two-way radio. The railroad was never built with operations in mind, but to me, this has been the most enjoyable aspect of the hobby.

LESSONS LEARNED

The biggest mistake I made was not planning ahead for lighting under the upper level

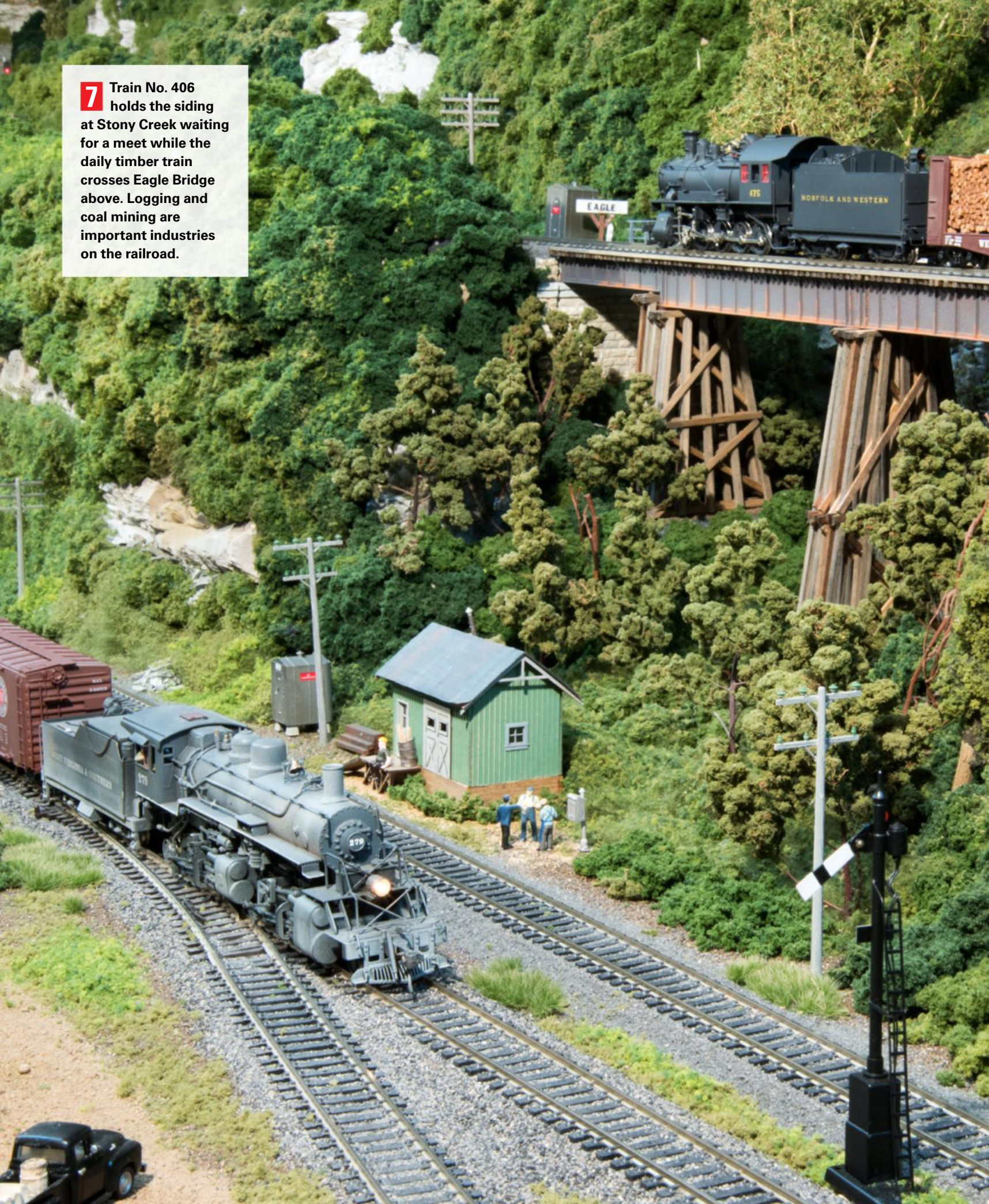
shelves and in the lower level staging yards. I had to add under-cabinet-style lighting fixtures after the railroad was built, which was not a fun project. I also needed to move some of the overhead light fixtures and add additional ones to better light the railroad. This was mainly done to eliminate shadows cast by the high scenery.

I've built numerous model railroads over the years, only to become disappointed with them and dismantle them. It took me many years to discover what I really wanted, what worked for me, and what didn't. I've never been afraid to start over again, trying to build on the lessons of the past. I'm happy to say that I'm really satisfied with my railroad as it stands today. **GMR**

NOW ON MODELRAILROADER.COM

Watch video of Terry Ketcham's HO scale West Virginia & Southern Ry. on our website, www.ModelRailroader.com.

7 Train No. 406 holds the siding at Stony Creek waiting for a meet while the daily timber train crosses Eagle Bridge above. Logging and coal mining are important industries on the railroad.



POSTCARDS FROM BONE VALLEY



A gallery-style layout depicts scenes from Florida's phosphate mining industry in N scale

By Alex Marchand ■ Photos by the author

Ever since middle school, when I checked out the book *Seaboard Coast Line in Florida – A Pictorial History* (Carstens Publications, 1985) from the local public library, I've wanted to faithfully model the trains of Florida. In particular, I've wanted to model the trains of the phosphate-mining region of West Central Florida known colloquially as the Bone Valley.

The region is called Bone Valley due to all the fossilized skeletons that have been

unearthed there by phosphate mining operations over the years. Phosphate is mostly used to make fertilizer. Within an area of about 35 square miles, Bone Valley trains run from mine to processing plant to port. For that reason, the Bone Valley seemed like a great prototype to model.

However, there was a hitch in my modeling desires. I was a kid. Not only did I have no money, I also had no experience building a model railroad. I couldn't drive myself to the Bone Valley to research the prototype.

Furthermore, living in Florida meant I had no basement for a model railroad.

All in all, the hurdles were great enough that I settled for "armchair model railroading" for many years. Nonetheless, the idea of modeling Bone Valley remained very much alive in my mind.

PLANNING

It took about 15 years for the pieces to finally start coming together. In that time, I tried my hand at modeling Florida scenery and scratchbuilding rolling stock, mostly in HO scale. Some attempts were less successful than others. But I kept making progress.

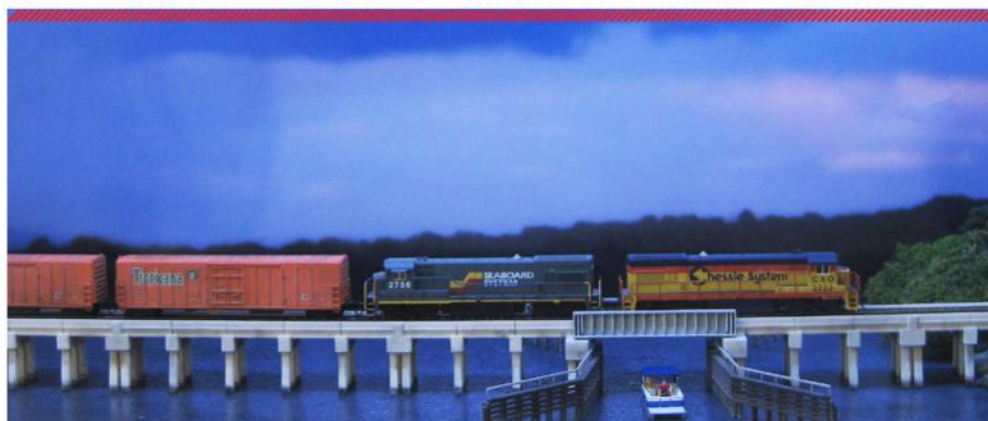
Then, in 2011, I got into 3-D printing (see "Accessible 3-D printing" in the November 2014 *Model Railroader*). I quickly saw that 3-D printing would solve many of the problems that were holding me back from



1 The Tropicana Juice Train rolls over the Palm River Bridge on Alex Marchand's N scale Bone Valley layout. The "gallery-style" layout displays three scenes in wall-mounted vignettes.

building a layout. With this technique, I could amass a fleet of prototypically accurate phosphate hopper cars. To keep costs down, I returned to N scale – even though that meant abandoning my earlier HO experiments. With my phosphate hopper fleet growing, it was finally time to take a stab at a Bone Valley layout.

The late 1980s is my favorite era for the Bone Valley region. In that period, the Bone Valley was still a very busy place, with more than a dozen big companies mining and processing phosphate. Today, due to mergers and mined-out phosphate reserves, only one big company remains.



2 Alex modeled Florida's typical summer afternoon thunderstorms with a cloudy photo backdrop, lowered lighting, and a sound effects module.

Rainy-day modeling

WITH THIS LAYOUT, I wanted to test out the idea of depicting a rainy summer day – my favorite weather. Therefore, I photographed all my printed backdrops on rainy days.

To match the dark skies, I needed subdued lighting. I was able to achieve this by lighting the layout using a few strings of C3 cool white light-emitting diode Christmas lights. Although the lower lighting makes photography tricky, it makes the scenes look more realistic by hiding tiny imperfections.

Low lighting is a trick used extensively to increase realism at a famous place located near the Bone Valley that you might have heard of – Disney World. I figured if it was good enough for Disney, it was good enough for me, and I'm quite pleased with the results.

To accentuate the rainy day effect, I have a Pricom Dream Player Pro to provide ambient thunderstorm sounds as well as pushbutton-activated train sounds. I haven't taken the leap to DCC, let alone to sound-equipped locomotives. The Dream Player provides all the sound on my layout. – A.M.

I decided I'd better start small with my layout. I figured 4 x 7 feet would be adequate. I wanted to test out a few fairly novel ideas, so I didn't commit to anything very big. One of those ideas I call a "gallery layout."

WHAT'S A GALLERY LAYOUT?

When viewing a model railroad, the first thing I always notice isn't the modeling, but the way in which the modeling is presented. Presentation is important to me. In my opinion, quality modeling deserves the same treatment as a great painting. In other words, the presentation should reflect the quality of what's being presented.

Over the years, I'd made a list of things I wanted in a layout. I wanted it to have a clean look. I wanted a layout that could be integrated into the main living space of a house. I wanted it to look finished throughout the construction of the layout regardless of how long the process actually took. And I wanted to break up the layout into manageable scenes.

In combining all those factors, I came up with the idea of a "gallery layout." I define a gallery layout as a style of model railroad layout construction in which the layout is divided up into manageable scenes that look like they're hanging on a wall, like paintings in an art gallery.

CONSTRUCTION

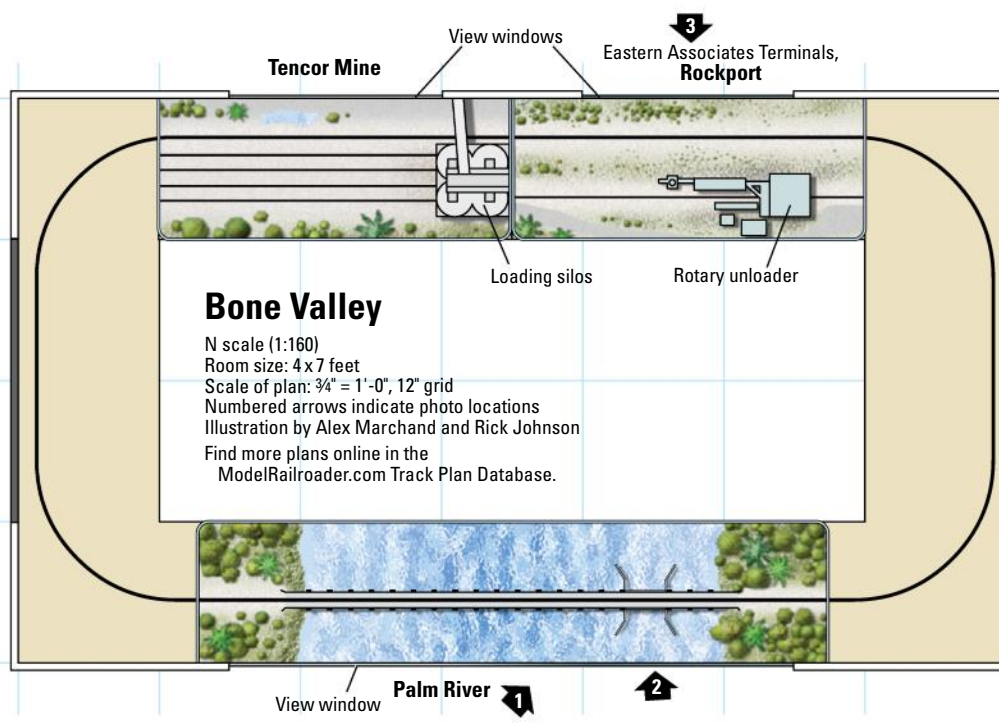
Rather than building a table or a shelf, my gallery layout involved constructing walls on which to present my work. Fortunately, wall construction materials and information are readily available.

With just a little time spent viewing some framing and drywalling how-to videos on YouTube, I learned everything I needed to know. Drywall panels (gypsum boards) are cheap and cut with just a utility knife. Joint compound is available premixed. And framing a wall using 2 x 4s or 2 x 3s just requires a saw, hammer, and nails.

I framed up the walls for my layout with 2 x 3 studs, as if I had been building an

THE LAYOUT AT A GLANCE

NAME: Bone Valley
SCALE: N (1:160)
SIZE: 4 x 7 feet
PROTOTYPE: CSX/Seaboard System
LOCALE: West-central Florida
ERA: late 1980s
STYLE: gallery
MAINLINE RUN: 18 feet
MINIMUM RADIUS: 12"
MINIMUM TURNOUT: none
MAXIMUM GRADE: none
BENCHWORK: Homasote on open-grid
HEIGHT: 59"
ROADBED: Woodland Scenics
TRACK: Micro Engineering code 55
BACKDROP: Printed photos on foam board
CONTROL: DC walkaround



interior wall for a house. Each scene for the layout would be framed in a window in the wall. Once the walls were up, I built a 12" open-grid shelf on the inside of the walls, topped with Homasote.

When the shelf was ready, I attached the drywall to the walls, then finished the joints. Finally, I painted my new walls and installed baseboard. I didn't cut the windows into the drywall until I was ready to lay track.

I rigged up a removable piece of drywall for interior access. In retrospect, it would've been better if I'd just installed a door.

After I cut out the windows, I built removable frames inset with Plexiglas to finish the openings. They protect the layout not only from dust but also from errant fingers. Since I have young nephews and a niece who often want to see my model trains, the acrylic pane makes that possible without having to worry about potential damage. However, there are drawbacks. The acrylic reflects exterior lighting, causing glare. Another disadvantage is that I can't touch the trains without removing the panes first.

SCENE BY SCENE

One advantage of a gallery layout is that it divides the model railroad into manageable chunks. That makes it easy to use what *Model Railroader* contributing editor Tony Koester calls Layout Design Elements (LDEs). [An LDE is a visually and operationally recognizable model of part of a prototype railroad. – Ed.] You just find prototype scenes, model those as faithfully as possible, and arrange them in a way that makes sense.

So that's what I did. Three vignettes depicting prototypical scenes are modeled on my layout. Since each is separated from the others with its own separate photo backdrop mounted on foam board, I didn't have to worry about the distance between scenes. I just had to make sure the scenes were ordered in a way true to the prototype.

The largest scene on the layout is a slightly compressed model of the Palm River Bridge on the east side of Tampa Bay, which lies on the route from Bone Valley to the main phosphate shipping port of Rockport. (Farther south lies Bradenton, where the famous Tropicana Juice Train originates).

The bridge was 3-D printed. I made the water from an actual photo of the Palm River. Using photo-editing software, I stretched the photographed water out into a rectangular surface and had it printed as a poster. This ensured it would match perfectly with the water on the backdrop, which I printed from the same photo.

Once I glued down the printed water surface, I covered it with gloss acrylic medium applied with crumpled plastic wrap to make little waves. I made sure not to overwork the gloss medium, because doing so could have introduced air bubbles.

The Palm River scene leads to two scenes on the other side of the layout. One is a phosphate mine called Tencor, located deep in the Bone Valley south of Fort Meade, Fla. Tencor is named for its original owner, the Tennessee Corp. Later it was owned by Gardiner, and then Cargill. Tencor has long since been mined out and its concrete phosphate storage

silos demolished, but it still survives on my layout. I modeled the phosphate on the ground and in the hoppers in the Tencor scene with using Crayola Air-Dry Clay.

The third scene depicts the Eastern Associates Terminals rotary unloader at Rockport. The model depicts the unloader as it existed in the late 1980s. Like many other things on the layout, the unloader housing and dust-collection system was designed on my computer and 3-D printed.

At the end of the layout between the scenes is a backlit map of the region, with modeled scenes highlighted with red dots. I originally intended to model another scene, but I opted against it. Another thing I decided against was the use of turnouts. Although my initial trackwork included a few turnouts for operation, I eventually eliminated them and gave up on operations for the time being. No turnouts has resulted in absolutely no derailments on the layout.

SCENERY

I needed to figure out how to model four types of trees in order to faithfully depict Florida scenery: live oaks, slash pines, Sabal palms, and Washingtonia palms. Live oaks were easily modeled using trimmed Super-Trees and flock. Slash pines were modeled using appropriately shaped SuperTrees with tufts of Late Summer Silflor static grass glued piece-by-piece to the branches to represent tufts of pine needles. And the Sabal palms and Washingtonia palms were modeled using olive green adhesive vinyl cut with a digital cutter (see the June 2014 MR).



3 This view of the Rockport Eastern Terminals section shows how the scenes are recessed in a wall, protected by a removable acrylic window.

The trunks of the palms were made from styrene tubing with thick floral wire inside to curve and plant the trunks. I added texture to the palm trunks by rolling the styrene tubing in a line of joint compound and later sealing it with acrylic medium.

Although Washingtonia palms aren't native to Florida, they're nonetheless a common sight around the state – especially trackside. Due to the trees' tall stature, the Atlantic Coast Line RR planted Washingtonia palms to act as landmarks at important places such as depots, stations, and junctions.

With the tree issue settled, I finished out the scenery with Late Summer Silflor static grass and saw palmetto bushes. The saw palmettoes were digitally cut from the same vinyl as the Sabal and Washingtonia fronds.

The track, which is Micro-Engineering code 55 flex track, was ballasted with High-ball limestone N scale ballast mixed with a little bit of light gray and dark gray ballast.

LOCOMOTIVES AND CARS

There were three types of motive power that defined the Bone Valley region from the early '70s to the early '90s: the General Electric U18B, GE U36B, and GE MATE (Motors for Added Tractive Effort). All three types of motive power were often found together. MATEs were road slugs with their own fuel tanks that were designed to be lashed up with U36Bs.

Unfortunately, all three types of motive power were owned almost exclusively by CSX predecessor Seaboard Coast Line, which made them scarce in N scale. At the time, only the U36B was available as an older, hard to find Bachmann model. [Atlas now produces the U36B in N scale. – Ed.]

I solved the MATE issue by 3-D printing my own shell. And I dealt with the U36B

problem by simply 3-D printing a flared radiator to replace the radiator on an Atlas U23B. Other than the radiator and a slightly different door configuration, the U23B and U36B are outwardly alike. I still haven't solved the U18B problem to my satisfaction.

The B36-7 is another key locomotive missing from my current layout roster. Typical power on a northbound Tropicana Juice Train during the late '80s would have been three B36-7 locomotives. [Atlas now produces the B36-7 in N scale. – Ed.]

A variety of covered and open hoppers and gondolas served the Bone Valley. Many of those cars were unique to the region. Some are still operating there to this day. However, many have been retired or rebuilt.

The open-top cars carried "wet rock," which is unprocessed phosphate, to processing plants in the region. The covered cars carried processed phosphate, called "dry rock," to ports on Tampa Bay and north to farms. All of the gondolas and some of the hoppers were equipped for rotary dumping.

Armed with numerous prototype photos and a Seaboard Coast Line book of freight car diagrams acquired from the ACL & SAL Historical Society, I set out to faithfully re-create the unique cars of the Bone Valley in N scale using 3-D design software. Once

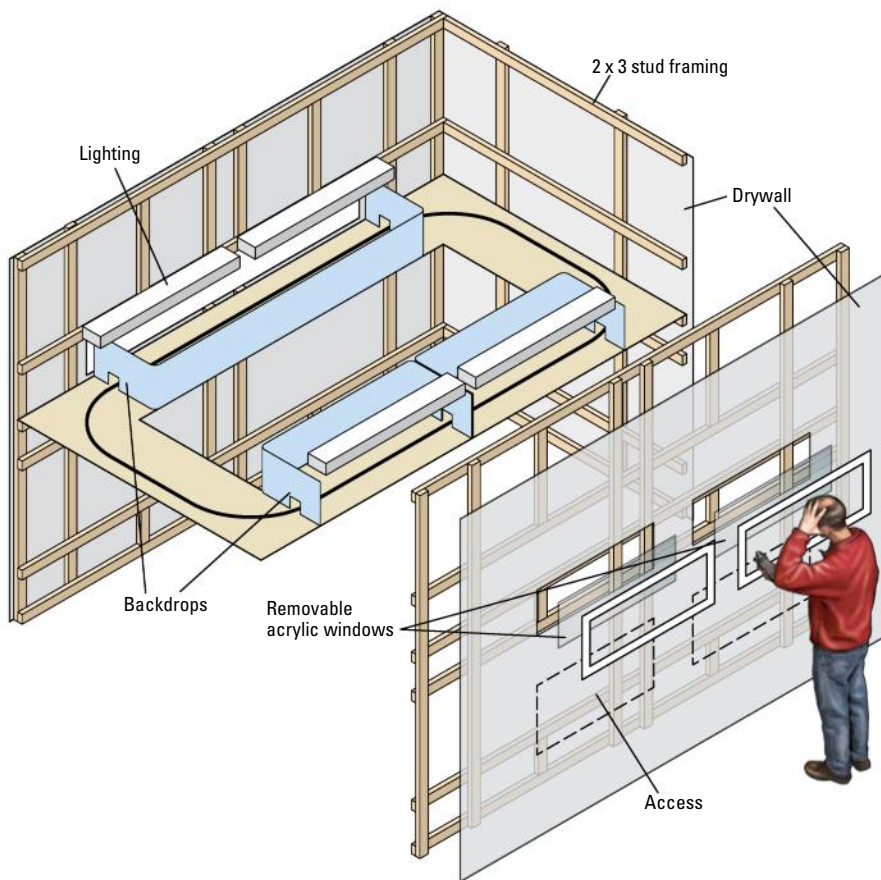
designed, I had the cars printed by the 3-D printing company Shapeways in its Frosted Ultra Detail (FUD) material.

JUST THE BEGINNING

Since I was exploring some new ground with my layout, I was skeptical at first. But in the end, everything turned out great. With lessons learned and tests confirmed, I'm ready to build a Bone Valley layout four times the size of this one. However, before I break ground on that layout, I want to build all the structures and rolling stock I'll need. So it's hard to say how long it will be. **GMR**

MEET ALEX MARCHAND

ALEX FIRST BECAME INTRIGUED by trains at age 7 when he took an Amtrak trip from Fort Lauderdale, Fla., to Canton, Ohio. He's a writer, graphic artist, and private investor. Alex is best known for his mind-bending philosophical comic books, such as *The Universe Is Virtual* (Inspired Arts Press, 2015).





COLORADO'S GOLD

This compact H0 scale layout captures the charm of western narrow gauge's heyday

By Eduardo Romo ■ Photos by Bob Werre

1 Denver & Rio Grande Western no. 464, a class K-27 Mikado leased to the San Juan del Oro RR, rolls into town while a freight rumbles by above. Eduardo Romo built his 6 x 10 foot HO scale layout after catching the narrow-gauge bug on a trip to Colorado.

FIELDS IN 6 X 10 FEET





After building two HO layouts, I made a trip to Colorado Springs, Colo., where I became hooked on narrow-gauge rail-roading. My fascination for that exceptionally beautiful region of the country rekindled my desire to model Colorado's slim-gauge lines.

I dreamed up the town of San Juan del Oro, located in the San Juan mountains of Southwest Colorado, to be the focal point of a new layout. The layout would be freelanced, but still realistic and prototypically believable. I opted for a 6 x 10-foot space with a double-loop, figure-8 track plan.

Then, I was asked if I would like to show my large HO layout at a National Model Railroad Association regional convention that was scheduled for Minneapolis, where I live. Since I had 12 months' notice, I decided to see if I could build this new HO_{n3} layout in time for the convention. With the encouragement and support of my train friends, I was able to complete most of the layout in time for the tours.

THE RUSH BEGINS

Before I could put anything on the actual layout, research had to be done, such as the geographical and geological characteristics of the area to be modeled. This of course involves both written and photographic sources. Fortunately, plenty of information exists, and that simplified some of the task.

After that, the creation of the layout's "story" became the main focus of the project. Because Colorado was once part of Mexico, I got the idea of the Spanish name, San Juan del Oro. "Oro" is Spanish for gold. This name became the story.

I drafted preliminary sketch after sketch. Eventually I came up with the final concept and started developing scale mock-ups of the terrain until I came to one that successfully incorporated the three main factors I wanted on the layout: gold mining, lumber, and a small town with local businesses, people, and quaint flavor.

The first step was finishing the layout room, including a suspended ceiling, electrical outlets, and lighting. Only after that was

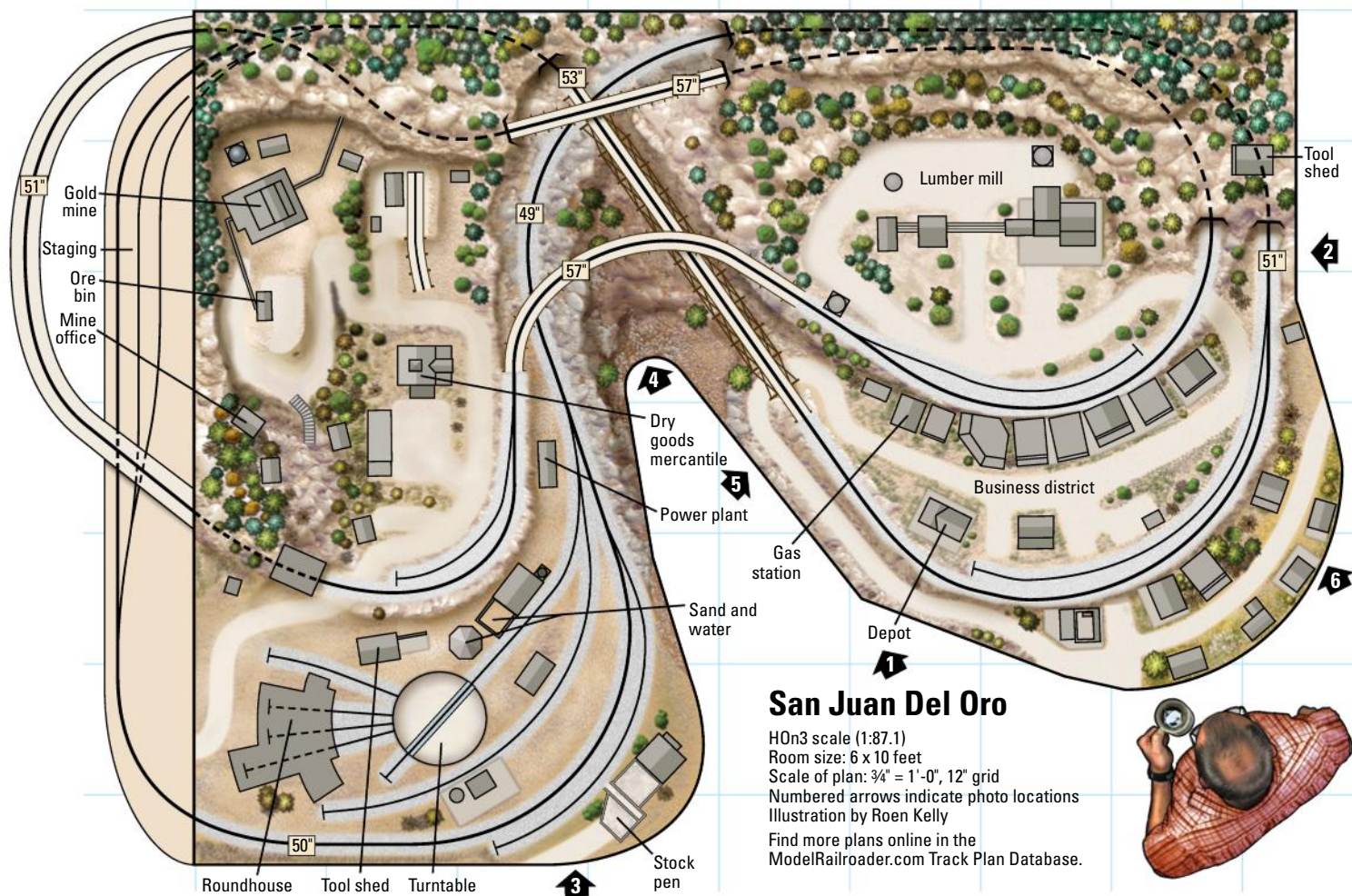
2 This photo of the central portion of the San Juan del Oro layout shows how many separate detailed scenes can be packed into a small space.

complete could benchwork begin. Recycled 2 x 4s from a friend's dismantled layout helped in the construction effort.

The height of the layout and the track grading made it necessary to work from background to foreground. Code 70 Shinohara track was put down on Homasote over 5/8" plywood. My friend Doug Hodgdon of Douglas Designs helped me in the laying of impeccable trackwork. I installed Tortoise by Circuitron slow-motion switch motors to control the turnouts. This completed the first part of the job.

NOW, THE REAL FUN

Knowing that trains could roll without problems over the track allowed me to move on to the part of the job I like best: developing the concept plan, sketching ideas, and roughing in the basic terrain using cardboard and plaster.



3 Several stockcars are parked for loading at the stock pen on the Montallban Ranch. Many of the vehicles on the layout, including the Fordson tractor and Mack truck, are by Jordan Products.

THE LAYOUT AT A GLANCE

NAME: San Juan del Oro
SCALE: HOn3 (1:87.1 proportion, 3-foot gauge track)
SIZE: 6 x 10 feet
PROTOTYPE: freelanced
LOCALE: Southwest Colorado
ERA: 1932
STYLE: walk-in
MAINLINE RUN: 64 feet in two independent loops
MINIMUM RADIUS: 18"
MINIMUM TURNOUT: no. 6
MAXIMUM GRADE: 2 percent
BENCHWORK: L-girder
HEIGHT: 49" to 76"
ROADBED: Homasote on plywood
TRACK: Shinohara code 70
SCENERY: hardshell and extruded-foam insulation board
BACKDROP: photo print on tempered hardboard
CONTROL: direct current

I constructed and detailed mini-dioramas while comfortably sitting at my workbench, where all my tools, supplies, and detailing parts were handy. That sped up the process of building a great deal of the layout.

I love the idea of uniqueness, so most of the structures on the layout are scratchbuilt. I started designing the buildings by creating architectural drawings in HO scale. [See “The art of the mock-up” on page 65.] Any structure that started with a kit, whether plastic or any other material, was kitbashed. I used acrylic paints to simulate aged wood and other effects. Designing and constructing structures is, for me, the best part of model railroading. I enjoy every minute of this process.

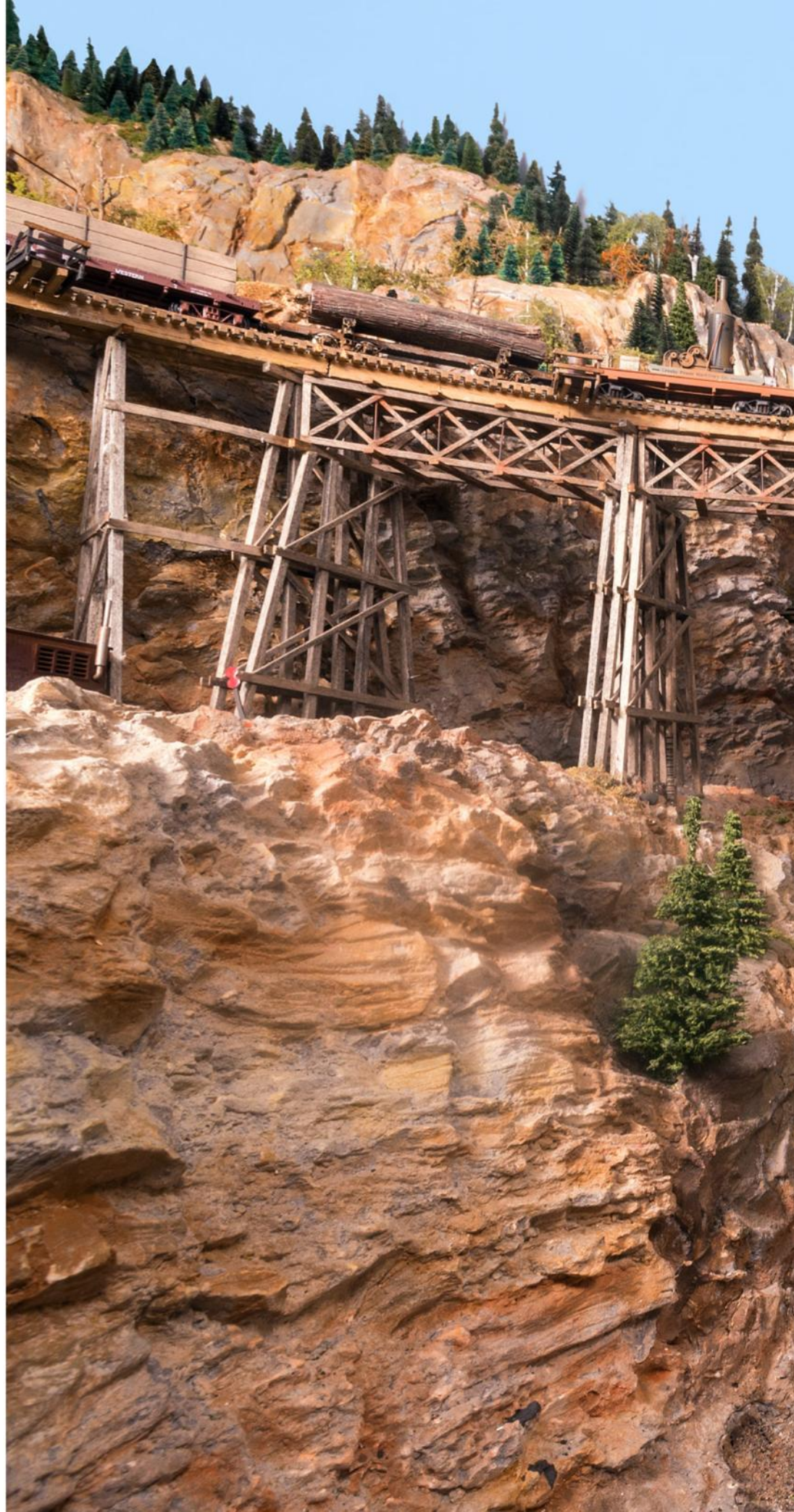
Another aspect of the hobby that I enjoy is detailing scenes. I collect all kinds of pieces and parts of different kits. Friends give me their unwanted bits and pieces, which blend with commercial detail parts when weathered. Mixing acrylics and powders can add the right look to a scene. Even old cigarette lighters have interesting parts that have made nice clutter in scenes.

I scan wall signs into my computer and print them on tissue paper, giving a result that melts into any structure when applied with full-strength white glue. I press the paper into the surface irregularities with a stiff paintbrush.

I made mock-ups of various scenes and tested them on the layout for size and scale. Sometimes buildings proved to be too large for the setting, so I resized or modified them to appear more realistic in the scene. After arriving at a mock-up with the proper proportions, the final structures were built.

When I build a wooden structure, I often use wood stirrers from coffee shops to make lap siding. I make a frame mock-up with door and window openings and finish it using the wood stir sticks glued to the framing. I don't make the doors from scratch; I use commercial plastic parts from Tichy Train Group and Grandt Line. All the roofs are completed with either corrugated metal or tar paper made from tissue or parchment paper. The structures are then painted and weathered with chalks.

4 Three wood trestles cross in the signature scene at the center of the roughly L-shaped layout. Eduardo salvaged some of the bridges on the layout from friends' layouts and scratchbuilt others.







Some bridges and trestles were salvaged from a friend's layout, and others were scratchbuilt. Drawings and mock-ups aided in getting location and curves correct.

SCENERY AND DETAILS

On a trip to Wyoming, which I call "the sagebrush pilgrimage," I gathered sagebrush twigs and brought them home to use as armatures for deciduous trees. I use only the bare trunks and limbs of the sage to model dead trees. It's very effective. I call my trees the "art sculptures" of the layout.

Heki, Noch, and Busch products formed the basis for evergreen trees. SuperTrees from

Scenic Express were also used after being flocked with fall colors.

Retaining walls were made with plaster molds, using cut stone, random stone, and timber patterns.

Figures on the layout are primarily by Preiser, painted with Vallejo acrylics using techniques taught by Dave Revelia and Brian Nolan. They were a great inspiration in my desire to paint and weather detail parts and figures. National Model Railroad Association president Charlie Getz also shared a tip to make men's hats from clothing snaps.

The vehicles are by Jordan, modified to fit the 1932 period of the layout.

5 The Shay has just picked up a load of fresh-cut lumber from the sawmill, the second-busiest source of traffic on the line after the gold mine. Eduardo built many of the deciduous trees on the layout from sagebrush twigs.

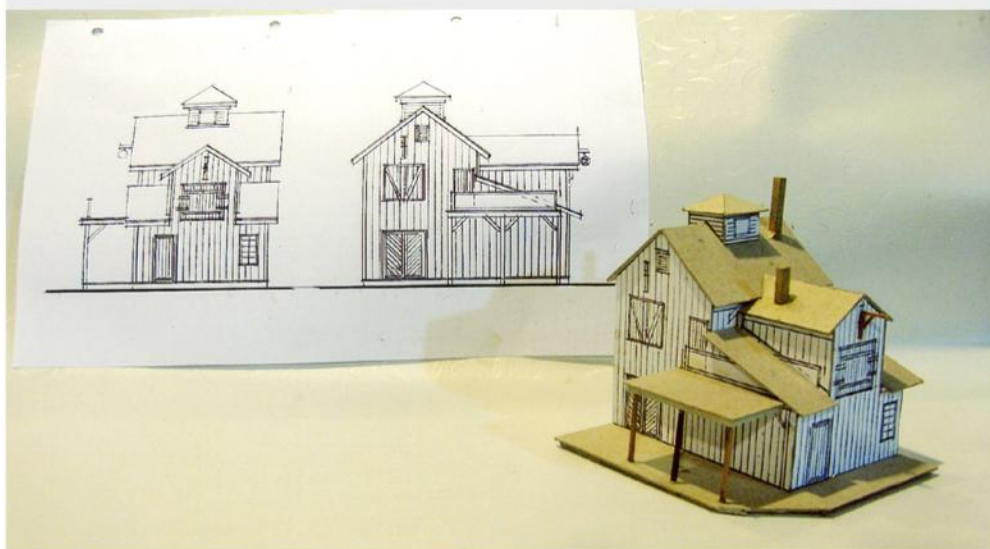
My good friend David Thompson helped to create the background. He's an experienced photographer who used Adobe Photoshop software to stitch together photographs that we printed on archival photo paper to the correct length using a large-format printer. This method blended the colors of the layout and the background, giving the viewer a nice vista with depth.



Due to the size of the layout, motive power and rolling stock didn't have to be extensive, so I settled on two brass K-27 Mikado steam locomotives, two brass Shays, and a Roundhouse C-19 Consolidation. These were painted along with rolling stock and passenger cars from various manufacturers to round out the "players" for the stage. The discovery of HO_{N3} Blackstone products was a revelation.

Seeing two trains of no more than four to six cars each running over the bridges, trestles, and ravines gives me great satisfaction. A small staging yard behind the main partition of the layout gives me an opportunity to

The art of the mock-up



⚡ In his career as an architect, Eduardo learned techniques for building mock-ups that he uses when planning structures for his layout.

IN MY JOB AS AN ARCHITECT, model making is a basic tool for the development of any important project. An idea starts as a sketch that later matures into a scale drawing. If the concept works in two dimensions, the 3-D model is next.

Mock-ups are just as useful in model railroading. I apply the same process from idea, to sketch, to accurate drawings. Finally, I glue the scale drawings to cardstock, cut them apart, and assemble them into a 3-D model mock-up.

This rough model will confirm the final model will fit all the correct dimensions for the available area. Adjustments are best made at this point. Building these models also helps in decisions like paint color, details, and weathering. I also make it a habit to save my mock-ups, as sometimes parts can be reused for future projects.

Some may think that all the time and effort spent in this process is wasted, but if you're scratchbuilding or kitbashing, you'll save time and money on revisions. Also, if some projects get delayed, the mock-up can stand in on the layout temporarily. – E.R.



6 Not all gold miners use the railroad to get their ore to market. Eduardo modifies and hand-paints the figures on his layout. (See "Painting figures" on page 65.)

7 Shay no. 3 emerges from a long tunnel with a load of lumber from the mill. The engine, like most of the rest of Eduardo's motive power, is a brass model.



Painting figures



▲ Eduardo paints several figures at a time. He starts with a base of white primer, then paints skin colors before moving on to clothing.

PAINTING MINIATURE FIGURES is a small job that helps the layout in a big way. I had the privilege of working and studying with one of the masters, Dave Revelia. [Dave's Dolly Varden layout is on page 30. – Ed.] I've used some of his techniques on my layout.

I paint several figures at a time, generally 8 to 10. I first glue them to short cylinders of wooden dowel that act as pedestals. Next, I use Armory Brand White Primer for the primer coat and let it dry thoroughly.

I then grab my assortment of Vallejo acrylics to start the coloring. I find this brand of paint to have the most reliable pigments. I use sable brushes from no. 000 to no. 1.

First I apply skin tones. Then I'll pick a color I can use for pants on some figures, a jacket on another, and a shirt on a third. This way, I spend less time opening and closing paint containers.



▲ Eduardo uses clothing snaps, filled with putty and shaped with pliers, to model sombreros and other hats.

After the larger clothing items are painted, I move to smaller articles like gloves, caps, and hats. Diluting the paint with water to make washes helps create some transparency and emphasizes highlights and shadows to simulate varying amounts of light falling on the subject.

Fellow narrow-gauge modeler and National Model Railroad Association president Charlie Getz taught me his technique for making sombreros and other hats with brims. I use metal clothing snaps, fill the holes with body putty, then use needle-nose pliers to bend the brims. It might be necessary to trim off the top of the figure's head to make the hat fit.

Once I'm happy with the overall look, I add a wash of India ink mix. This will accent the creases and shadow areas of the figures. – E.R.

bring one or two additional short trains onto the scene if I wish.

WHAT THE FUTURE MAY BRING

A railroad modeler's work is never done. In addition to the unavoidable dusting and track cleaning, I have bigger plans for the San Juan del Oro. I want to connect it to my existing HO layout in the next room. The addition of Digital Command Control using NCE equipment is also in the near future, as is installation of signals and detail lighting. My train friends are encouraging me to enlarge the layout. That's a possibility, but as I get older, that project must be left to others.

All aspects of layout construction were opportunities to expand my knowledge and

try new techniques. Exploring magazines and the internet for ideas offered solutions to problems I encountered. I enjoy reading railroad history and applying geography and history to my layouts.

The most satisfying aspect of my hobby is the search for the solution of the visual problem in front of me. The time I spend on my modeling is the time I treasure most. Doing research, enjoying the camaraderie of my modeler friends, designing, and scratch-building give me enormous satisfaction.

By combining my imagination, my passion for art, my profession as an architect, and my love for narrow-gauge trains, I find great joy in exploring and creating the world of model railroading. **GMR**

MEET EDUARDO ROMO

AFTER STUDYING ARCHITECTURE in Mexico, Eduardo moved to Minnesota to study anthropology and art. He retired after 45 years as an architectural designer.

Eduardo lives in Minneapolis with his wife, Jennifer, a mile away from his adult son, Luis Eduardo. He is a member of several railroad clubs in Minneapolis.



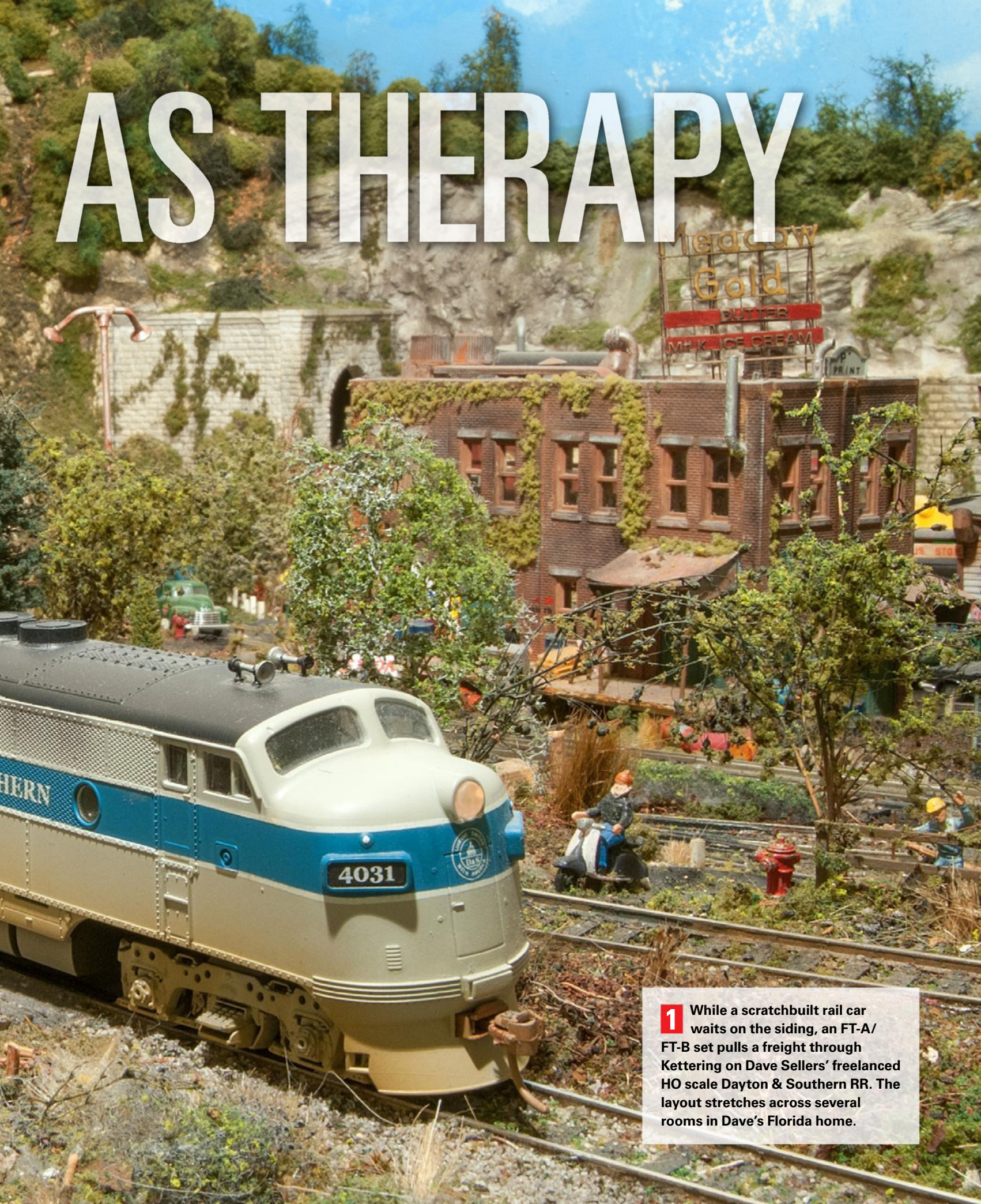
MODEL TRAINS

For this modeler, trains are more than a hobby – they were a way to heal

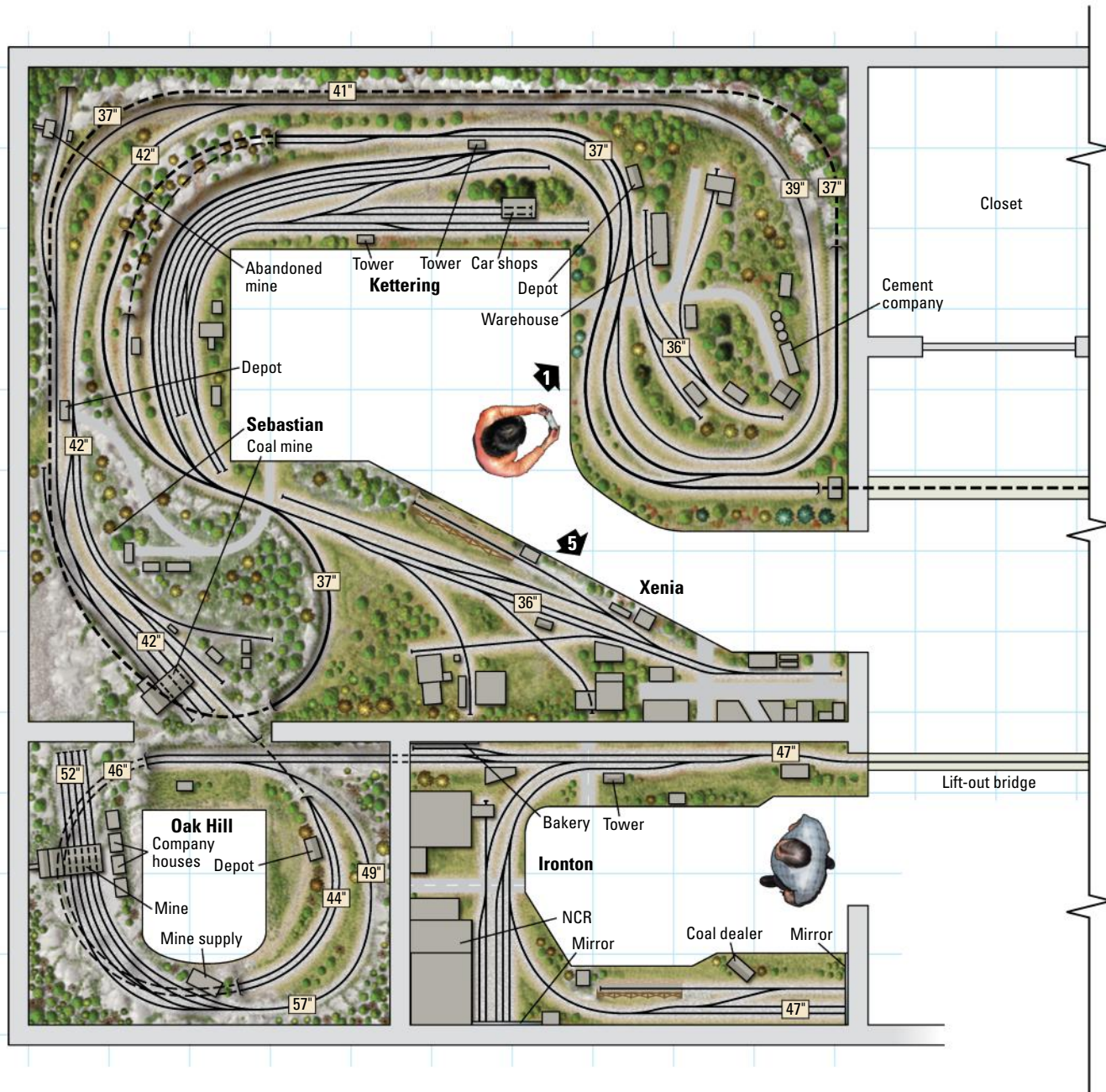
By Lou Sassi ■ Photos by the author



AS THERAPY



1 While a scratchbuilt rail car waits on the siding, an FT-A/FT-B set pulls a freight through Kettering on Dave Sellers' freelanced HO scale Dayton & Southern RR. The layout stretches across several rooms in Dave's Florida home.



Many hobbyists would agree with the statement that model railroading is therapy. Dave Sellers means that literally.

Dave's interest in model railroading began with a Lionel train set given to him by his parents at Christmas when he was 8 years old. But he got serious about the hobby in 1989 after suffering a cerebral hemorrhage. After returning from the hospital, Dave started to build a new layout – his fifth, but his first in HO scale – as a way to retrain his mind and muscles to work together.

Two years later, he scrapped that project and started his current model railroad, which he's been working on ever since. Though it appears mostly complete, he considers the railroad still under construction.

Dave grew up near Dayton, Ohio, and has many childhood memories of watching trains on the Baltimore & Ohio, Penn Central, Louisville & Nashville, and Chesapeake & Ohio railroads. So when he started this layout, he decided to loosely base it on the B&O in southern Ohio during the steam-to-diesel transition era.

He wanted the railroad to represent local peddler freight and coal operations, with the only passenger service being a doodlebug running between Dayton and the small community of Oak Hill. Rather than follow the prototype precisely, he tweaked a few details here and there, and the freelanced Dayton & Southern was born.

NO BASEMENT? NO PROBLEM

Dave lives in Florida, where few homes have basements due to the geology of the

state. The lack of a traditional layout space didn't stop him from building the railroad, though. Dave commandeered two bedrooms, a laundry room, and a closet, then designed a layout plan to fit the space.

After clearing out the rooms, he installed track lighting, built a lift-out bridge to span a doorway, and painted a backdrop onto the walls. Five mirrors were strategically placed to reflect the tracks and scenery, making the railroad look larger.

Next he built benchwork, a combination of open-grid, L-girder, and shelf style. For the subroadbed, he laminated Homasote onto plywood.

Trackwork is Atlas code 83 and 100 flex-track. The Atlas no. 4 and no. 6 turnouts are lined manually or by Tortoise by Circuitron switch motors. The switch motors are activated by control panels around the railroad.

Printing company

Wonder Bread factory

NOW ON MODELRAILROADER.COM

You can watch video of trains running on Dave Sellers' HO scale Dayton & Southern RR on our website. Look in the Online Extras box at www.ModelRailroader.com.

THE LAYOUT AT A GLANCE

NAME: Dayton & Southern

SCALE: HO (1:87.1)

SIZE: 23'-9" x 47'-6"

PROTOTYPE: freelanced Baltimore & Ohio branch

LOCALE: Southwest Ohio

ERA: steam-to-diesel transition

STYLE: walk-in

MAINLINE RUN: 150 feet

MINIMUM RADIUS: 18"

MAXIMUM GRADE: 3 percent

MINIMUM TURNOUT: no. 4

BENCHWORK: L-girder, open grid, and shelf

HEIGHT: 36" to 52"

ROADBED: cork

TRACK: Atlas code 83 and 100 flextrack

SCENERY: hardshell

BACKDROP: painted on walls

CONTROL: NCE Digital Command Control

DAYTON

Culieia

Dayton & Southern RR

HO scale (1:87.1)

Room size: 23'-9" x 47'-6"

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

Numbered arrows indicate photo locations

Illustration by Rick Johnson and Roen Kelly

Find more plans online in the

ModelRailroader.com Track Plan Database.

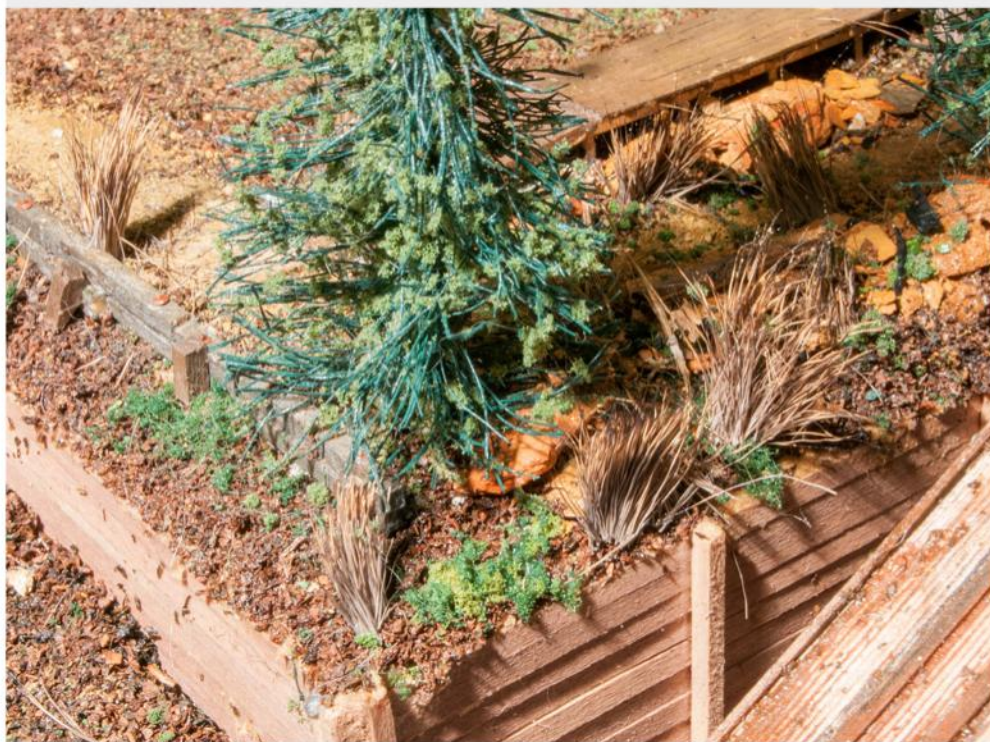
2 This overall view shows the Dayton room from the entrance. The tracks at far left are for scenic purposes only, and don't connect to the main line.



Weeds from fur



Dave harvests clumps of hair from strips of deer hide, sometimes dyed, for use as weeds on his layout.



Several weed clumps, made of deer hair, are seen on Dave's layout. The natural color blends with the scenery.

TO MAKE STANDS OF TALL WEEDS, Dave cuts tufts of animal fur and glues them in place on the layout. His favorite pelt to use is deer. Sometimes he dyes the fur green or yellow, while at other times, he uses it in its natural color. – L.S.



3 An Alco RS-1 pulls a short coal train through Dayton. Dave painted all the Dayton & Southern diesels in a variant of the Baltimore & Ohio's blue-and-gray paint scheme.



4 Baltimore & Ohio GP30 no. 6936 spots cars in Lyall Yard in Dayton. Dave weathers his locomotives and rolling stock with acrylics and chalks.



Homemade patch tar



Dave mixes printer toner into glue to make a sticky, black compound he uses to simulate roofing tar.

DAVE MIXES BLACK PRINTER TONER and Aleene's Tacky Glue to make his own roofing tar, which he uses on his structures where the real thing would be used to waterproof roof joints. His recipe is 30 percent toner with 70 percent glue, which he mixes in small



Dave uses this sticky substance where tar would be used to seal a roof, such as around this smokejack.

quantities so he can use it up before it dries. The mixture looks gray at first, but shrinks and turns shiny black as it dries. Dave uses it around chimney flashings and smokejacks, where flat roofs meet walls, and on the joints of rolled roofing. — L.S.



SCENERY AND STRUCTURES

Basic scenic landforms were constructed of hardshell, using either plaster-soaked newspaper or plaster cloth. Finished ground cover was made the old-fashioned way, using combinations of real dirt, tobacco, tea, chalks, various colors of acrylic paints, diluted shoe dyes, and printer toner.

Dave built his tree armatures using Scenic Express SuperTrees, rope, and florist wire. For foliage, he used ground foam materials from Woodland Scenics and Scenic Express.

The water on his layout was modeled with Woodland Scenics' Realistic Water, tinted with acrylic paint. Dave hand-carved his rockwork from plaster and colored it with artist's acrylics.

The structures on the layout are a combination of kit-built, kitbashed, and scratch-built, both wood and plastic. Regardless of the origin of a structure, Dave always adds interior bracing to make it sturdier. He also weathers them and personalizes them with exterior signage and roof details. While he adds a great amount of exterior detail, he doesn't fuss with building interiors.

All the bridges on the layout are either kitbashed or scratchbuilt.

TRAINS AND CONTROL

Dave has 40 locomotives, nine of which are steamers. Most are equipped with Digital Command Control sound decoders. His first- and second-generation diesels are from makers such as Atlas, Stewart, Walthers, and Broadway Limited Imports. His steam power is all from Bachmann Spectrum.

Dave weathers his equipment using acrylics and chalks sealed with Testor's Dullcote. Dave has had custom decals made up for his Dayton & Southern RR. He settled on his diesel paint scheme by inverting the B&O's blue-and-gray scheme.

The layout is controlled by an NCE Digital Command Control system with six cabs. Dave is presently contemplating adding a signal system and a dispatcher's panel. He feels that doing so will greatly enhance his operating sessions, which presently keep from five to seven operators busy for up to two hours.

Based on the comments made by the many people who have visited and operated on Dave's model railroad, he feels he has achieved his goal of building an impressive model railroad accurately representing the Southwest Ohio of his youth. **GMR**

5 An Electro-Motive Division SW7 pushes a coal hopper onto the trestle at Potts Coal Co. in Xenia. Dave conceived the layout as focusing on urban local freight and coal operations.

MEET DAVID SELLERS

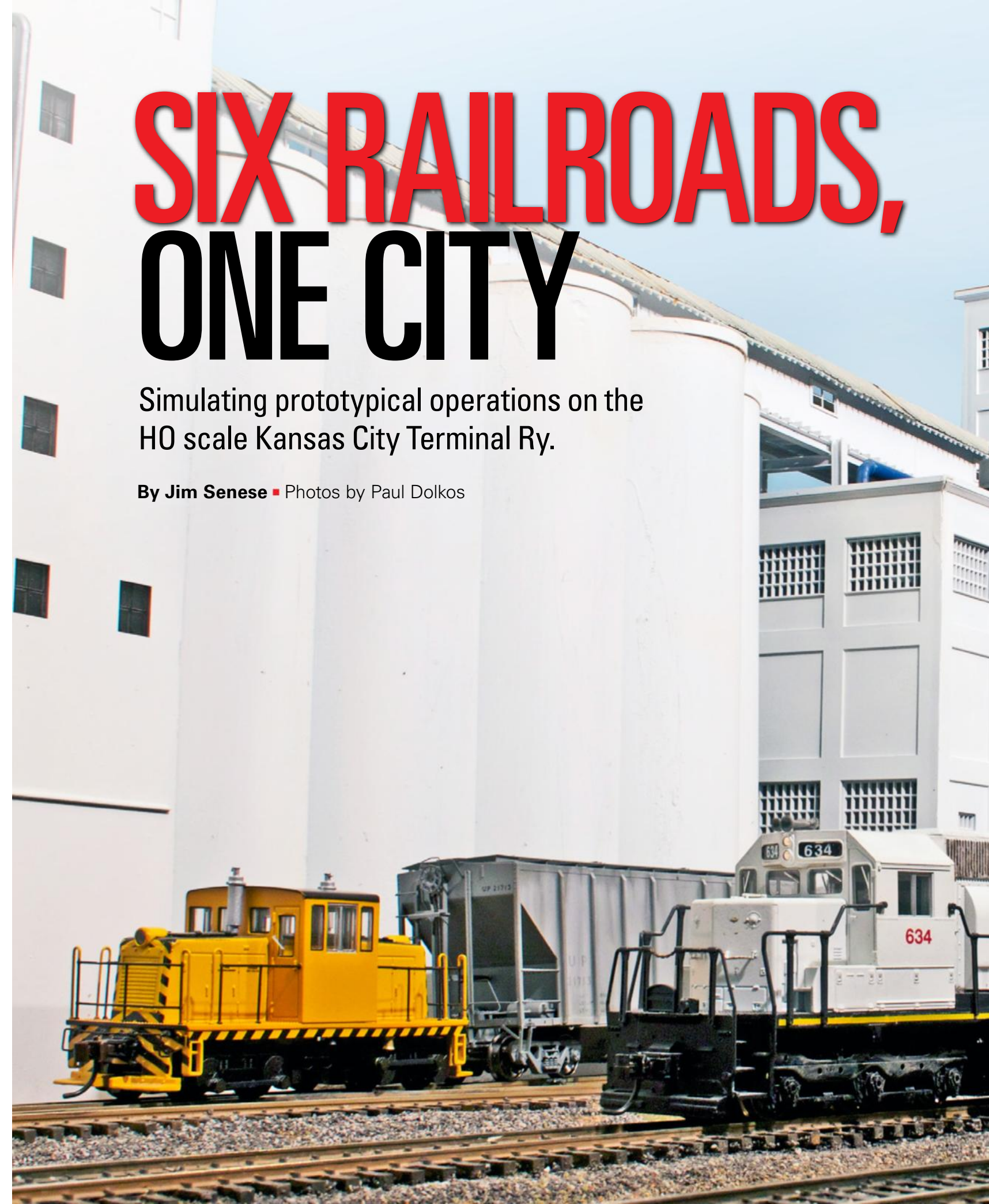
DAVE SELLERS HAS BEEN a model railroader for 66 years. He has won numerous awards and National Model Railroad Association modeling certificates. Dave lives in Tampa, Fla., where he is an active member of two model railroad clubs, a local fishing club, and the Tampa Bay Dog Club.



SIX RAILROADS, ONE CITY

Simulating prototypical operations on the
HO scale Kansas City Terminal Ry.

By **Jim Senese** ■ Photos by Paul Dolkos





Over the 16 years I've been hosting operating sessions on my Kansas City Terminal Ry., crewmembers keep telling me the same four things they enjoy about operating the HO scale layout. First is the variety of railroads they have a chance to operate. Second, "employment" by these railroads is random and learned by selecting a sealed envelope. Third, crewmembers are asked to portray the personality and corporate culture of the railroad they work for – thus adding an additional dimension to the prototype operation. And fourth is what I call the "cadence" of the session: each crew works a group of industries in its own section of Kansas City, classifies cars in its own yard, and then interchanges

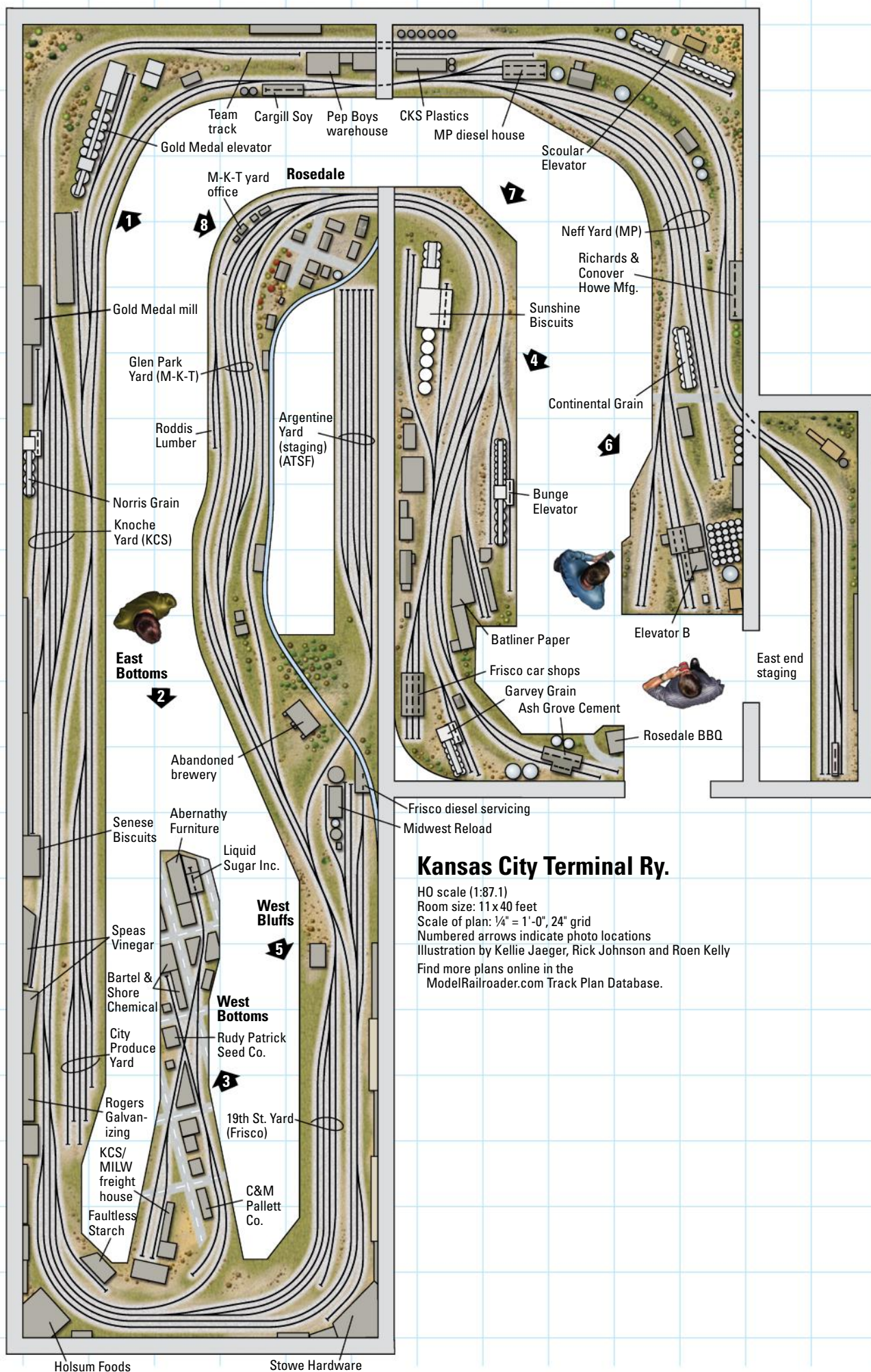
cars with the other modeled railroads. All the jobs are close to equal in difficulty and satisfying in their own way.

KCT'S BEGINNINGS

On Nov. 15, 1980, the day I model, 12 railroads used Kansas City (both the Missouri and Kansas sides) as the central point in a hub-and-spoke arrangement. It was a convenient place for these railroads to interchange cars with other trunk lines. In addition, Kansas City originated a fair share of its own rail traffic with grain, automobile manufacturing, steel, and other industries. Adding to the railfan's enjoyment is the large number of run-through trains.

The Kansas City Terminal Ry. Co. was formed in 1906 by combining the old Union Depot Co. and the Kansas City Belt. It was a joint venture

1 While an industry-owned General Electric 45-tonner switches the Gold Medal Flour elevator, a Kansas City Southern freight rumbles past. Jim Senese's HO scale Kansas City Terminal Ry. layout features an intricate operating system in which six railroads interchange with each other.



THE LAYOUT AT A GLANCE

NAME: Kansas City Terminal Ry.

SCALE: HO (1:87.1)

SIZE: 11 x 21 plus 11 x 40

PROTOTYPES: Atchison, Topeka & Santa Fe; Kansas City Southern; Kansas City Terminal; Missouri-Kansas-Texas; Missouri Pacific; and St. Louis-San Francisco (Frisco).

LOCALE: Kansas City, Mo. and Kansas

TIME: 3 p.m. Nov. 15, 1980

STYLE: around-the-walls

MAINLINE RUN: none; all track is considered within yard limits

MINIMUM RADIUS: 30"

MINIMUM TURNOUT: no. 6

MAXIMUM GRADE: none

BENCHWORK: open-grid on shelf brackets

HEIGHT: 51"

ROADBED: cork on Homasote; Homasote in yards

TRACK: code 83 Atlas and code 70 Micro Engineering flextrack; code 55 on some industrial track

SCENERY: extruded-foam insulation board

BACKDROP: painted tempered hardboard

CONTROL: CVP EasyDCC



2 This overall view shows the West Bottoms end of the main room. The Kansas City Produce Yard is at right; the Frisco's 19th Street Yard is at left.

between six railroads: the Union Pacific; Chicago & Alton; Chicago, Rock Island & Pacific; Atchison, Topeka & Santa Fe; Chicago, Milwaukee, St. Paul & Pacific; and St. Louis-San Francisco (Frisco).

The KCT continues today under the ownership of Watco, a short-line railroad holding company. It operates on 168 miles of track in the Kansas City switching district. The main tracks form a circular route. The route north of downtown is sometimes referred to as the North End Freight Line, and the other route south of downtown passes through the old Union Station complex.

The road has three small freight yards of its own – Mill Street Yard, Blue River Yard, and Coburn Yard. According to an old employee handbook, more than 2½ million freight cars were interchanged per year between the 12 railroads.

Although the KCT runs only a few trains of its own each day, its tracks see heavy use by interchange, local, and run-through trains. These are the trains I model.

My HO scale version of the KCT occupies two rooms upstairs in our old farmhouse. One room is 11 x 40 feet; the other is 11 x 21 feet. A third room (also 11 x 21) serves as the crew lounge and my railroad library.

A CVP EasyDCC system is used to control the railroad. Each crew has a T5000 radio throttle that transmits to two RX904 receivers (one in each room of the layout). Six EasyDCC ZoneMaster 7-amp boosters power the railroad.

When my railroad was featured in *Model Railroad Planning 1999*, trains ran on Atlas code 83 flextrack. Since then, as sections of the railroad have been redesigned and rebuilt, Micro Engineering code 70 weathered flextrack has replaced the code 83 rail. Tam Valley Frog Juicers are installed on every turnout that has an insulated metal frog. Most locomotives have SoundTraxx Tsunami sound decoders. All are programmed with a speed curve that severely restricts the engine's top speed.

Room lighting has evolved, too, from standard fluorescent fixtures to screw-in compact fluorescents and now to light-emitting diodes.

A VARIETY OF RAILROADS

On my version of the Kansas City Terminal, you'll see or operate six of the 12 roads that ran in Kansas City in November 1980. The six are the Santa Fe, Frisco, Kansas City Southern; Missouri-Kansas-Texas (The

Katy); Missouri Pacific; and, of course, the KCT itself.

I model Nov. 15, 1980, at 3 p.m. I chose November 15 because that was the last Saturday the Frisco existed as an independent entity before it was consumed by the Burlington Northern. The time was chosen because weather reports showed that there was light rain with a high temperature of 34 degrees in Kansas City that morning – not the best railfanning conditions.

The westernmost point on my KCT is Rosedale, Kan. This is the site of the Frisco car shops and the Garvey Grain Co. elevator. Two industries there are served by a section of Katy track called Cooper's Lead. Rosedale is also home of the locally famous Rosedale BBQ, enjoyed by rail crews and railfans.

The easternmost point is Elevator B in Neff Yard, Kansas City, Mo. The distance between these two points is just over 8 miles.

ADOPTING PERSONALITIES

Operating sessions start with a crew briefing, including emergency exit and personal safety instructions. The sessions last three hours. Beverages and snacks are provided, but must be consumed in the crew lounge. Smoking is allowed in designated areas.



3 A St. Louis-San Francisco ("Frisco") SW1500 switcher crosses St. Louis Avenue as it switches Kansas City's Central Industrial District, a.k.a. the West Bottoms. The desire to model this industrial area's concrete and brick canyons inspired Jim's layout.

4 While a Missouri-Kansas-Texas switcher works Bunge Elevator in the foreground, an M-K-T transfer run sets out from Glen Park Yard with a cut of cars bound for another Kansas City trunk line. Meanwhile, a Frisco transfer run pulls in with cars for the Katy.



Although I don't want operating my KCT to be too much like playing *Dungeons & Dragons*, I do like how the operators get into their roles. At one session several years ago, the operators told me they hoped that a certain colleague of theirs got assigned to the KCS because he would be forced to be a nice guy for the next three hours.

Article XXIX of the contract states that
"Cabooses will be furnished on all extended



Transfer cabooses on the Kansas City Terminal

ONE SIDE BENEFIT of transfer operations on Jim Senese's Kansas City Terminal is that they give Jim the chance to model and run a fleet of sometimes unusual cabooses. Each transfer run leaving one of Jim's five yards is required to have a caboose. Some of the prototypes Jim models are still used as "shoving platforms" today to give train crews a protected environment on back-up moves. Here are some in use on Jim's KCT:

A. Atchison, Topeka & Santa Fe class Ce-8 waycar no. 999718. The prototype for this steel caboose was manufactured by International Car in 1978. The white

"Wide Vision" cupola designates that the waycar is for transfer use only. The model is an Overland brass car.

B. Union Pacific Class CA-4 no. 25154 was built by Pullman Steel Car Mfg. Co. The green "T" represents restricted use for transfer service. The prototype caboose was retired in January 1980. However, the model returns to service on Jim's KCT from time to time. It's another Overland brass model.

C. Missouri Pacific no. 11040 is a Magor type built in 1951 and clearly marked for Yard Service. It was retired in 1985. The brass model is by Overland.

D. Kansas City Southern shop-built transfer caboose no. 390 was scratchbuilt for Jim by friend (and NMRA Master Model Railroader) Rick McClellan.

E. Frisco shop-built transfer cabooses nos. 1337 and 1345 are models built from Moloco kits. Jim built no. 1337; no. 1345 was built by Tom VandenBosch.

F. Missouri Pacific transfer cabooses nos. 13000 and 13800 are short-bay-window (SBW) cars that were homebuilt in MoPac's DeSoto and Sedalia shops for over-the-road use. Later in the 1980s, they were used for transfer service on some parts of the road. — P.J.D.

6 A Missouri Pacific SW1500 switcher couples onto a cut of hoppers at Elevator B east of Neff Yard, while in the background, a Kansas City Southern freight train heads into staging.



The best of both worlds

THERE SEEMS TO BE a recent trend among model railroaders to dismantle their railroads and move on to something else once the layouts are finished. Model railroader Chuck Hitchcock once compared building a model railroad to an artist painting a picture. When an artist is done, she moves on and starts another painting. Chuck wondered, why shouldn't a model railroader do the same?

This led him to dismantle his Santa Fe Argentine Division and build his Argentine Industrial District layout. Many other noted modelers have done the same – Doug Tagsold, Gary Hoover, Greg Johnson, Andrew Dodge, Lou Sassi, and Tony Koester, to name a few. Some changed eras or prototypes, and some even changed scales.

I grew up in Cranston, R.I., not far from the New York, New Haven & Hartford's tracks. When my mom and I would ride the bus to downtown Providence to shop, the best part of the trip was the ride down Allens Avenue. This was, and is, a waterfront commercial and industrial district with plenty of street trackage.

I remember seeing orange-and-green New Haven switchers running around boxcars on street tracks, spotting some and picking up others. In fact, my fascination with Kansas City's West Bottoms is probably driven by the similarities between it and the Allens Avenue/South Providence industrial district.

My Kansas City Terminal has been around for about 20 years. It was featured in an article in *Model Railroad Planning 1999* and has given me and my friends hours of enjoyment. But recently I've been wondering if the KCT is getting old and should be replaced – perhaps with a layout based on the New Haven around Providence, R.I.

One consideration is the cost involved, since none of my 300-plus pieces of 1970-1980 vintage rolling stock and motive power would be appropriate on a 1950-vintage New Haven pike. Another question is, why? Does the West Bottoms bore me? Is the railroad really finished? Is this continuous improvement or just change?

The bottom line is that I truly like both venues and both eras. My KCT continues to provide plenty of enjoyment and opportunities to be creative. If I get bored, there are six other trunk lines I can bring into the Kansas City Terminal. So, the KCT stays.

Despite all that, the New Haven still beckons me. Fortunately, Bonnie and I live in an old farmhouse that might be too big for the two of us. I used to joke that as the kids moved out I'd take over their bedrooms and expand the railroad. Though they've been out for a while, the KCT doesn't need any more space. My plan now is to build a 21-foot New Haven shelf railroad over the bookcases in my library/crew lounge.

The benchwork will be easy. The track plan is simple. It will run from a small yard to eight industries with facing-point and trailing-point switches and two runaround tracks buried in the street. The real opportunity for me will be structure building and the construction of those 40-foot resin boxcar kits that have accumulated on my shelf over the years. It's the best of both worlds. – J.S.

Continued from page 79

and transfer runs." Such is the case on my KCT, too. The use of the furnished transfer cabooses is required on all interchange runs. [See "Transfer cabooses on the Kansas City Terminal" on page 80. – Ed.]

Meanwhile, the Kansas City Terminal switcher sets out mechanical refrigerator cars at the City Produce Yard. Other railroads will come by later to pick up empties.

EMPLOYMENT

Car forwarding is done using switch lists much like those used in 1980. One side lists which cars are to be pulled and their

destinations. The other side shows the cars that need to be set out at each industry.

The list also shows customer-requested car moves. For example, Gold Medal Flour might want the cars from track M771 pulled and replaced with the cars waiting on storage track M772. Like on the prototype, everything has a name or a number on my KCT. If possible, each industrial track has the same track number as on the real railroad's track diagram books. Laminated track diagrams with a large "You Are Here" dot are installed on the fascia around the layout.

To recognize operators who make return visits to my KCT, everyone receives a



7 A Frisco mixed freight, led by General Electric B30-7 no. 864 and Electro-Motive Division GP38 no. 638, passes the Sunshine Biscuits plant near the Kansas-Missouri state line. The food processor replaced a non-rail-served tank farm.

"valuable" Kansas City Terminal lapel pin and "thank you" card after their fourth session. Originally, these gifts were intended to reward operators who mastered each railroad on the layout. However, this became difficult due to the random job assignments.

MISSION COMPLETE

My quest to replicate the railroads of the West Bottoms and their interchange activities has been very gratifying. The research, construction, and operation of the layout has taught me new skills, fostered scores of new friendships, and possibly influenced others in the hobby. **GMR**



8 Employees at the Katy yard office in Rosedale watch as a Santa Fe transfer run drops off empties in the yard. The locomotive, a GP7R, was recently rebuilt with a low short hood and Topeka cab.

MEET JIM SENESE

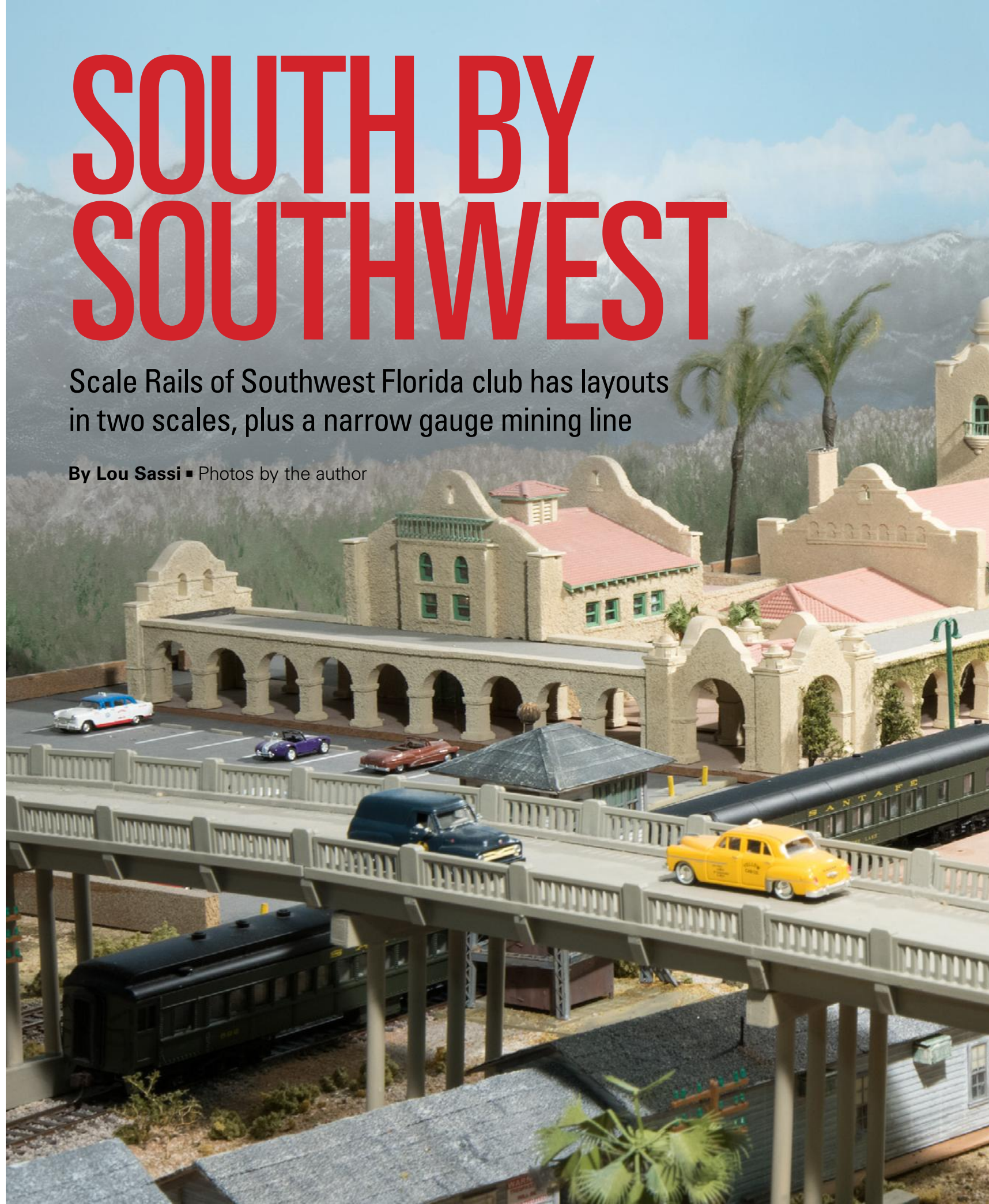
JIM HAS ENJOYED watching trains and building models all his life. Eight years ago, after earning a Ph.D. from the University of Oklahoma, Jim embarked on his second career as a business educator at the University of Tulsa. Jim and his wife of 43 years, Bonnie, have lived in rural Rogers County, Okla., for the last 20 years. They have three grown children and six grandchildren living on both coasts. Jim's other hobbies all have a connection to model railroading: railroad history, prototype research, travel, and photography.



SOUTH BY SOUTHWEST

Scale Rails of Southwest Florida club has layouts in two scales, plus a narrow gauge mining line

By **Lou Sassi** ■ Photos by the author



1 The scratchbuilt San Bernardino Station hosts the eastbound local from Victorville while the westbound *Super Chief* passes through. Club member Stan Seeds built the station from measurements he made on site.





The next time you visit Southwest Florida, be sure to see the Scale Rails of Southwest Florida Model RR Club in North Fort Myers, Fla. The club traces its roots to 1983, when it rented meeting space in the Fort Myers area. In the

1990s, a passenger car donated to the club became its meeting place. After a few years, the club sold the car to a Texas tour company. The proceeds were used as seed money, and members raised an additional \$56,000 to make a down payment on their current 2,500-square-foot, air-conditioned building. The clubhouse includes separate HO/HOn3 and N scale model railroads, an extensive modeling and prototype railroad library, and a tool and machine shop. The

club also owns two boxcars stored in the Seminole Gulf RR yard in Fort Myers.

There are 39 members, 10 of whom focus primarily on N scale [see “The N scale Tidewater Southern RR” on page 92]. Membership includes both full-time Florida residents as well as part-time “snowbirds” who winter in Florida. Activity swells from November to April, when the part-timers are in town.

A WESTERN THEME

It might seem odd that a club in a South-eastern state would focus on railroading in the Southwest, but club members wanted their HO scale layout to feature big mountain scenery and significant grades. Also, many members owned equipment lettered for western railroads. The decision was made, and the HO scale railroad was named the Santa Fe, Colorado & Western RR.

2 Rerouted by a track washout, the *California Zephyr* rolls through Pueblo, Colo., on the Scale Rails of Southwest Florida’s HO scale club layout. The station was scratchbuilt by club member Jim Morse.

Portions of the layout modeled on actual California prototypes begin on the upper level in San Bernardino and travel over Cajon Pass past Sullivan’s Curve, Mormon Rocks, and on to Victorville, duplicating the Santa Fe’s Los Angeles Division. Club members made several research trips to the area. On the lower level, the line models a portion of the Denver & Rio Grande Western’s Joint Line from Pueblo, Colo., through Colorado Springs, Castle Rock, and on to Denver. Each level can be run independently, and a helix connects the two between Victorville and

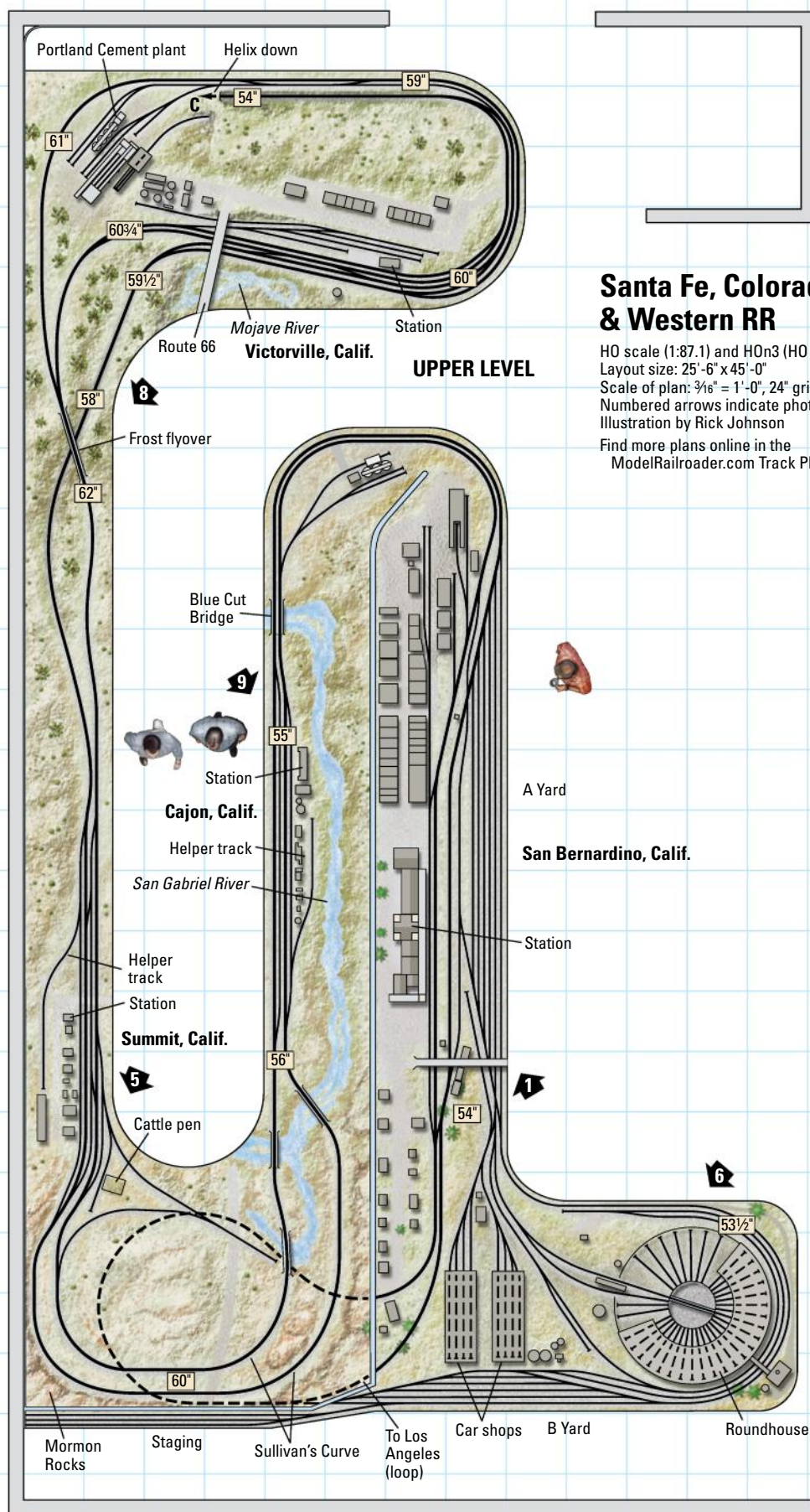
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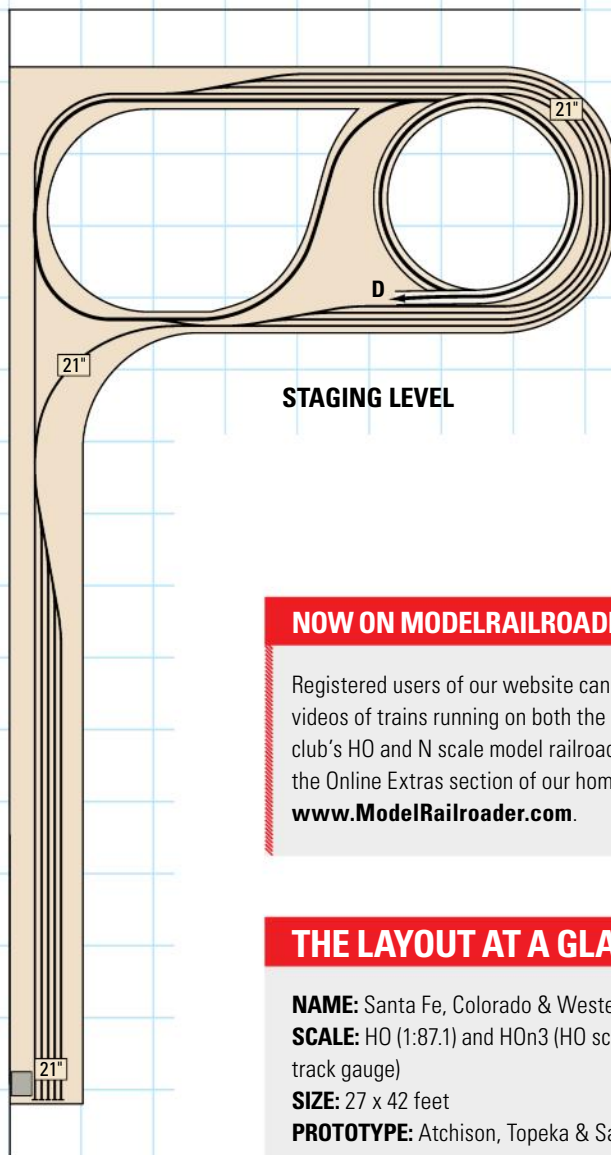
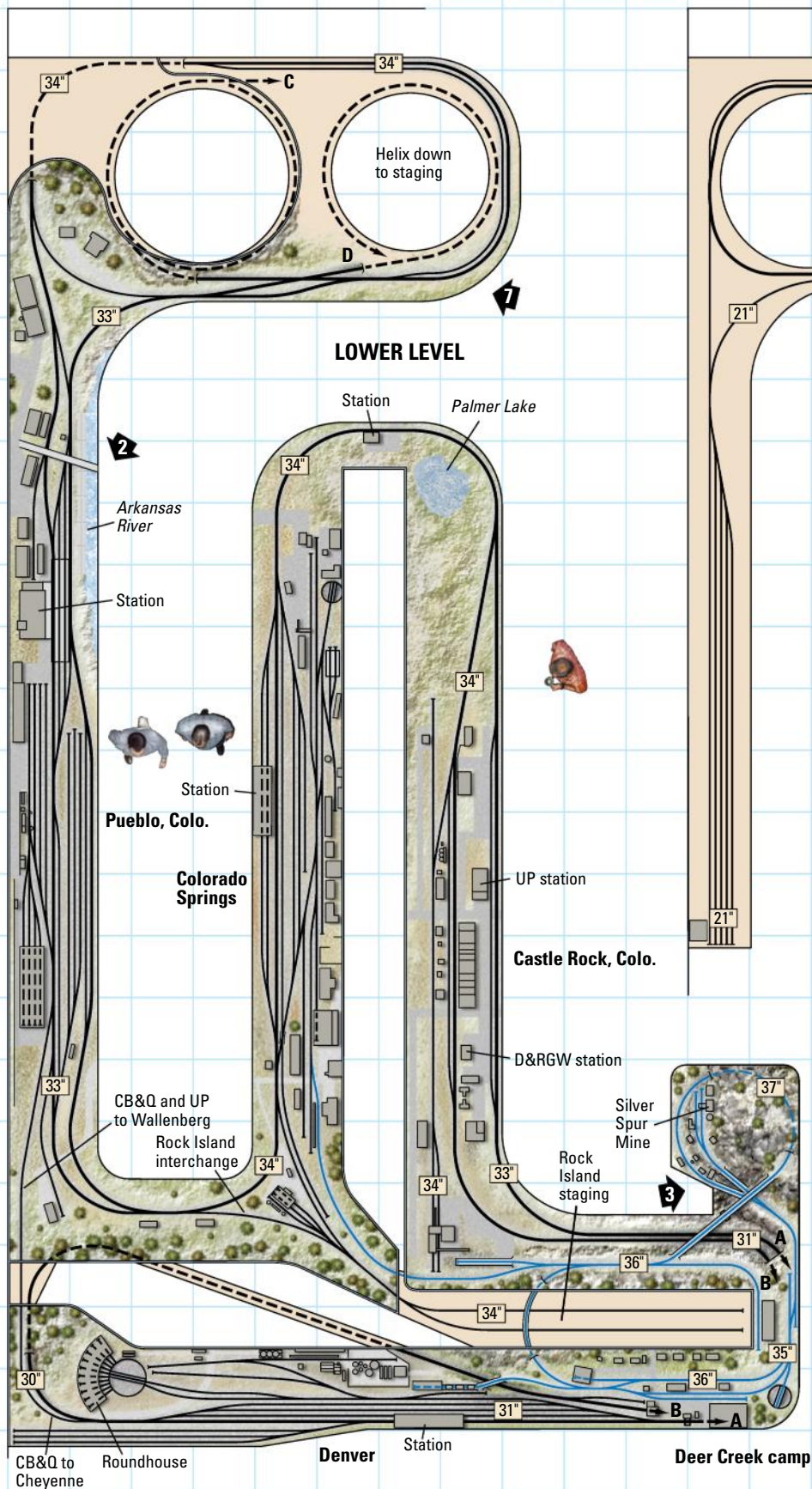


3 A class C-19 Consolidation sporting a “bear trap” smokestack crosses the trestle into Silver Town while a class K-27 Mikado crosses the iron truss bridge overhead on the narrow gauge portion of the HO layout.



4 The Scale Rails HO scale club layout is seen in this overall view. The narrow gauge section is on the top deck at far left; Victorville is at far right. The club owns its 2,500-square-foot headquarters.





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Registered users of our website can watch videos of trains running on both the Scale Rails club's HO and N scale model railroads. Look in the Online Extras section of our home page, www.ModelRailroader.com.

THE LAYOUT AT A GLANCE

NAME: Santa Fe, Colorado & Western RR
SCALE: HO (1:87.1) and HO_N3 (HO scale, 3 foot track gauge)
SIZE: 27 x 42 feet
PROTOTYPE: Atchison, Topeka & Santa Fe and Denver & Rio Grande Western
LOCALE: California and Colorado
ERA: 1955-1965
STYLE: multi-level walk in
MAINLINE RUN: 731 feet
MINIMUM RADIUS: 28 inches (HO), 18 inches (HO_N3)
MINIMUM TURNOUT: no. 6
MAXIMUM GRADE: 2.2 percent up, 3.2 percent down
BENCHWORK: open grid
HEIGHT: 21" (staging), 32" to 35" (lower deck), 54" to 62" (upper deck)
ROADBED: cork
TRACK: code 83 flextrack (HO), code 70 (HO_N3)
SCENERY: Sculptamold on plaster cloth over extruded-foam insulation board forms
BACKDROP: painted on tempered hardboard, wallboard, and concrete block walls
CONTROL: Digitrax DCC



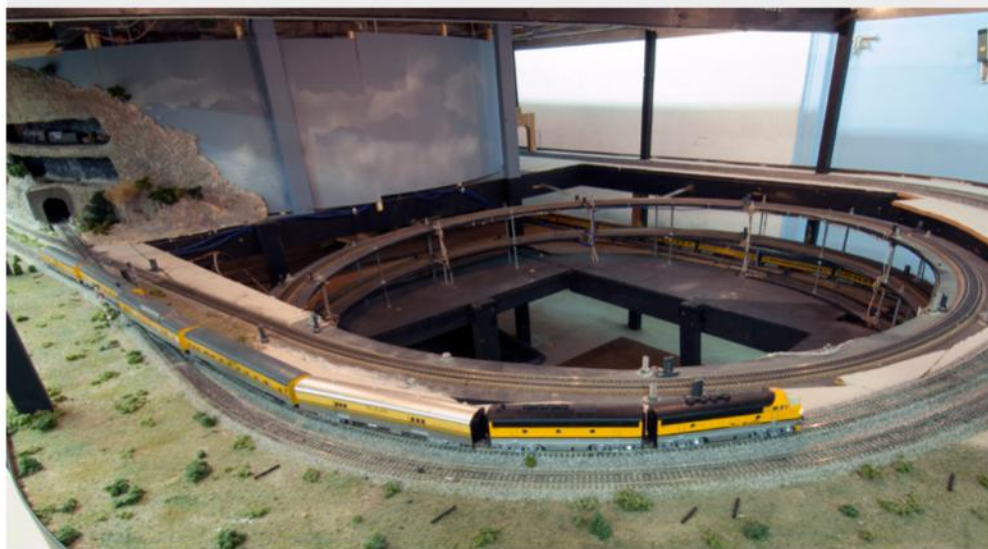
5 A large trackside “TRAIN” sign flips up to alert train order operators at the Summit depot of an approaching train. Numerous other locations on the prototype Santa Fe had similar train indicators.

6 Engine no. 3780 takes a spin on the pony-truss turntable at San Bernardino. The scratchbuilt roundhouse is accurate to the 1950s, when late steam was giving way to first-generation diesels.





A tale of two helixes



7 Trains emerge from the helix connecting the upper and lower decks of the club's HO scale layout from the tunnel portal at left. Above the portal are two windows that let operators see their trains inside the helix. The lower helix in the foreground, yet to be enclosed, leads down to staging.

THE LONG UPPER HELIX connecting the decks of the Scale Rails club's HO scale layout represents the tracks between Victorville, Calif., and La Junta, Colo. Operators can keep track of their trains' progress on this helix on a nearby control panel. There, light-emitting diodes (LEDs) representing towns along the route – such as Flagstaff, Ariz., and Albuquerque, N.M. – light up as the trains pass infrared detectors spaced about a foot apart on the helix track. Two windows are cut into the helix's enclosure for those who want a more direct visual confirmation of their train's safe passage.

After emerging from the tunnel portal at the base of the helix, trains reach a turnout. One branch routes trains to Pueblo, Colo., on the lower level; the other sends them down a second helix to staging. Depending on whether the trains came from California on the upper deck or Colorado on the lower, this helix represents different prototype routes, so the indicator lights on this helix's panel show different towns being passed depending on which way a toggle switch is thrown.

Thanks to the close spacing of the infrared train sensors on the tracks, operators can safely run more than one train on the helixes at a time by maintaining a three-light space between them on the control panel. This keeps trains flowing, making tight schedules possible. – L.S.

Continued from page 86

Pueblo. Another helix running down from Pueblo goes to staging. There's also a 3-foot narrow gauge line that climbs from Colorado Springs into the Rocky Mountains' timber country. In addition to logging, the narrow gauge line delivers livestock, ore, and coal to Colorado Springs, where several dual-gauge tracks facilitate interchange.

CONSTRUCTION AND SCENERY

The upper level of the railroad was built using just about all the tried-and-true techniques ever detailed in *Model Railroader*

over the years. The lower sections were actually built in the open aisle area and pushed into place under the upper level when finished. This prefabrication included benchwork, track, and wiring. Scenery was added after the lower levels were installed.

The original turnouts on the layout are gradually being replaced with handlaid ones using Fast Tracks assembly fixtures. There are more than 40 standard gauge, 15 dual gauge, and 25 HO_{n3} turnouts.

Most structures on the layout are built from craftsman kits or kitbashed for their specific locations. There are 45 National

Model Railroad Association Merit Award-winning models on the layout. The layout was constructed when Digital Command Control was very new. From the beginning, the model railroad was wired for DCC, with the advice and technical assistance of a very helpful Digitrax dealer.

The lower level is lit by incandescent lighting installed under the upper-level benchwork before the scenery was started. Incandescent track lighting illuminates the upper level. Soon, both will be replaced with light-emitting diode lighting.

Continued on page 94

The N scale Tidewater Southern RR



Florida East Coast E7 no. 1007, pulling a Jacksonville-to-Miami passenger train, passes a station in its namesake state on the Scale Rails club's modular N scale layout.

THE SCALE RAILS CLUB'S N scale layout is modular, based on Ntrak standards. When all modules are assembled together, it's 49 inches wide by 27 feet long.

The setup is normally controlled with Digitrax Digital Command Control, but the main lines are electrically isolated so they

can be run using direct current if a club member desires.

The scenery and structures are loosely based on the Tidewater region of the southeastern United States from the early 1950s to the mid-1970s. The layout doesn't model any specific town or rail system, since the first three modules were cobbled together from an older layout. These three modules were later remodeled to provide a seven-track yard. Two integrated 6-foot-long modules were added with a fourth inner track serving multiple industries.

The four Ntrak standard corner modules were replaced with 180-degree end modules with tighter than standard curve radii. This reduced a 1-foot back-to-back gap between the modules to 1". Space for the layout was at a premium, and no operator could fit into the 1-foot opening anyway. With additional modules, the layout now has the two end modules, four 6-foot modules, and six 4-foot modules.

A long passing siding was added to allow for the addition of another module, this one featuring two switching puzzles.

This module has sections based on the "Timesaver" and "Inglenook Sidings" switching puzzles. Under DCC control, both puzzles can be worked at the same time.

Though many Ntrak setups simply let three trains travel around and around in an oval, the Tidewater Southern includes plenty of industrial sidings to switch. The industries on the main layout include oil depots, coal mines, flour mills, power plants, warehouses, grain elevators, and factories. The Timesaver offers five more.

The layout boasts more than 150 structures. Featured are laser-cut wood kits by Bar Mills, American Model Builders, Blair Line, JL Innovative Design, and Northeastern Scale Models. Plastic structures include Walthers Cornerstone, Design Preservation Models, and Woodland Scenics models.

Though there are no grades on the layout, three modules incorporate mountain scenery. This is constructed from Sculptamold and plaster cloth over extruded-foam insulation board.

Most of the trees are made from twigs that are coated with hairspray and flocked



This overall view shows the club's Ntrak layout from the locomotive terminal end. The club exhibits the layout at an annual train show.



A pair of Burlington Northern Santa Fe General Electric C44-9W diesels roar across the countryside on the N scale layout. The locomotives are by Kato.

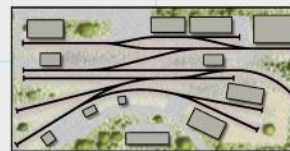
with various ground covers; many are also made with poly fiber.

The N scale railroad is a feature at the Scale Rails of Southwest Florida train show each year. Members can set the layout up or break it down for transport in about two hours. As sound units have become available in N scale, the club now has two diesels and two steam locomotives with sound. Members plan to build two more 6-foot modules and to add more sound-equipped locomotives. — L.S.

THE LAYOUT AT A GLANCE

NAME: Tidewater Southern RR
SCALE: N (160:1)
SIZE: 4'-1" x 27'-0" plus 24" x 48"
PROTOTYPE: freelanced
LOCALE: Eastern United States
ERA: 1950-1970
STYLE: island
MAINLINE RUN: 162 feet
MINIMUM RADIUS: 18"
MINIMUM TURNOUT: no. 4
MAXIMUM GRADE: none
BENCHWORK: modular
HEIGHT: 40"
ROADBED: cork
TRACK: code 80 flextrack
SCENERY: Sculptamold on plaster cloth over extruded-foam insulation board
BACKDROP: painted tempered hardboard
CONTROL: Digitrax DCC

Puzzle module



Oil refinery



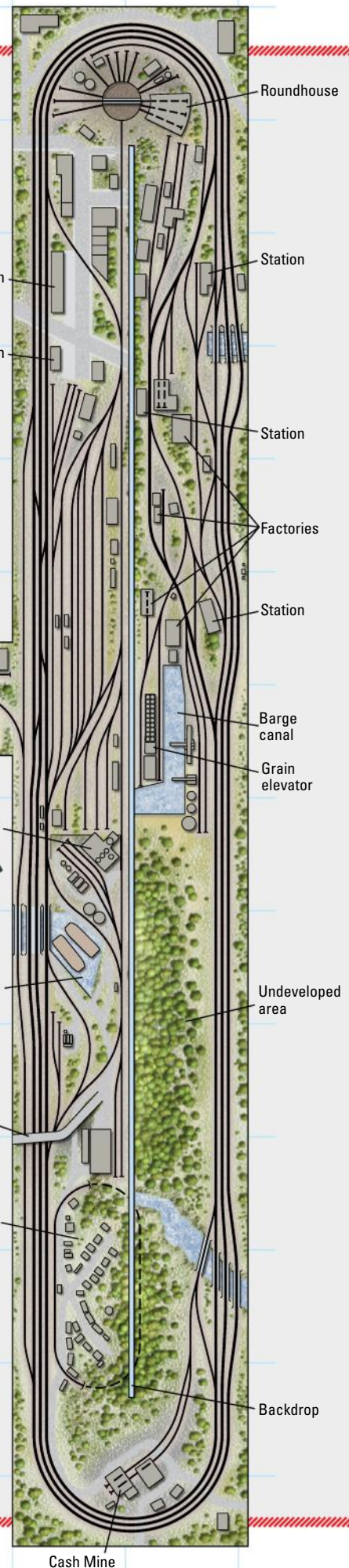
Barge canal

Overpass

Village

Tidewater Southern RR.

N scale (1:160)
 Layout size: 4'-1" x 27'-0"
 plus 2 x 4 feet
 Scale of plan: $\frac{3}{8}$ " = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson
 Find more plans online in the ModelRailroader.com Track Plan Database.



Building Joshua trees



8 The eastbound *Super Chief* and train 62 from Barstow meet at the Frost Flyover near a stand of scratchbuilt Joshua trees on the HO scale layout.

JOSHUA TREES ARE FOUND in the Mojave Desert at altitudes from 2,000 to 6,000 feet. While these trees can grow as tall as 40 feet, they typically mature at 15-30 feet. Club members scratchbuilt the trees in the Mojave area of the HO scale layout using wire armatures, static grass, and grass tufts.

The first step is to build a skeleton for the tree. Use pliers to twist bundles of copper wire together to form the trunk. Next, separate out smaller bundles of two or three strands and twist them into branches. Soldering the base will give the trunk more rigidity, but isn't necessary. Brush several coats of white glue on the wires to cover the texture of twisted wire.

After applying the last layer of glue, use a static grass applicator to apply 2mm length static grass to the trunk and branches. The club uses Scenic Express no. 50190, Late Summer. Spray the flocked armatures a medium brown color.

Spray static grass tufts (like Scenic Express Silflor no. MN73794, Autumn Buffalo Grass) with a medium green paint. Apply these tufts to the tips of each branch with Walther's Goo or cyanoacrylate adhesive. — L.S.

[For another way to model Joshua trees, see the May 2014 MR. — Ed.]

Continued from page 91

Sculptamold is used extensively over a subterrain built from extruded-foam insulation board and plaster cloth. Plaster rock castings abound, and the rocks at Sullivan's Curve and the Mormon Rocks are hand-carved. The desert areas are scenicked with zip-texturing, with dry Hydrocal and pigment sifted over wet plaster. [This technique was described in the April 1965 MR. — Ed.]

Some locations, particularly around Victorville, are populated with impressive cottonwood trees, built from sagebrush

armatures, Scenic Express SuperTrees, and ground foam. Scratchbuilt lodgepole pines, ponderosa pines, and aspens fill much of the narrow gauge areas. Many of these were built by a member who has given clinics at national conventions on making realistic pines. Also scratchbuilt were the Joshua trees found in the Mojave Desert near Victorville. [See "Building Joshua trees" above. — Ed.]

CLUB ACTIVITIES

The group holds formal operating sessions on the layout every other Thursday morning.

MEET THE SCALE RAILS CLUB



THE CLUB welcomes visitors Tuesdays and Saturdays from 10 a.m.-2 p.m. The clubhouse is at 1262 Piney Road, North Fort Myers, Fla. More information about the club is available on the web at www.scalerails.org.

It takes about 20 operators to conduct a full session, including two or three dispatchers and five yardmasters.

The staging yards at La Junta, Denver, and Los Angeles can hold 24 trains between them. Trains operate on timetable and train orders (TT&TO), and cars are routed using car cards and waybills. During a typical session, 20 to 25 trains will run, including the *California Zephyr*, *Super Chief*, and *Royal Gorge*, as well as local passenger hops, freight trains, and freight extras.

Scale Rails is a 100 percent NMRA club, meaning all members belong to the organization. This gives the club access to the NMRA's insurance and achievement programs. Two club members are NMRA Master Model Railroaders, and other members hold modeling achievement certificates.

Each spring, Scale Rails provides free modeling clinics for both members and the general public. These clinics include modeling subjects such as trees, building craftsman kits, scratchbuilding models, weathering techniques, electronic controls, handlaying turnouts, locomotive maintenance and repair, resin casting, scenery, and a range of DCC topics. Many current members were introduced to the club via these clinics, which are held every Saturday from January through April.

More than just a collection of friends who like to run trains together, the Scale Rails of Southwest Florida club has the goal of building a museum-quality model railroad display. Though work on both layouts continues, it's apparent that its members have achieved this goal. **GMR**



9 The latest in 1950s motive power, a set of Electro-Motive Division F3 diesels, rolls through Cajon, Calif. The buildings were scratchbuilt by Stan Seeds, a National Model Railroad Association Master Model Railroader.

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A quiet spot

By Paul J. Dolkos ■ Photo by the author



MY BALTIMORE HARBOR DISTRICT model railroad is an industrial switching layout set in a port city. That doesn't mean that there's nothing but canyons of old brick factories and piers.

While exploring the prototype, I noted many areas full of trees and open spaces, some along the water. I had a section along one wall that, while quite suitable for more industry, I elected to use for a quiet zone between two switching areas.

In contrast to the other urban scenes, it features a working swing bridge over Curtis Creek, just as the prototype waterway is crossed in Baltimore. The scene provides a pleasant opportunity to simply see a train run through a scene, no switching required.

But it isn't always a passive scene. The bridge can be opened and closed at my discretion, so an event can be created. There are signals at each end of the bridge. An engineer who finds the signal in the stop position must halt and sound four shorts on the horn or whistle. That requests a signal whether or not the bridge is open.

I, as bridge tender, close the bridge should I decide there is no marine traffic approaching and set the semaphore to "approach." Then the train can cross at the 5 mph limit. There are no controls on the fascia. The bridge and signals are controlled wirelessly so crews have to wait for the bridge tender to act. **GMR**

On the Baltimore Harbor District, a Western Maryland transfer run crosses the Curtis Creek swing bridge. It's a change of pace from the many busy switching areas on the layout.



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