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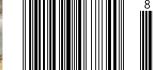
A master modeler repuiles his railroad

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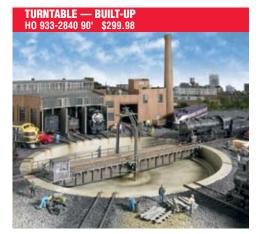
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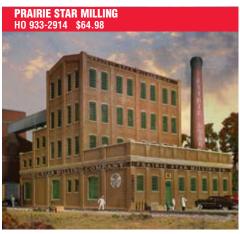


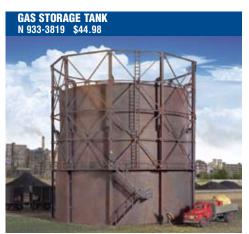




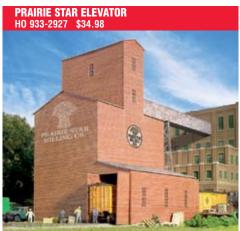


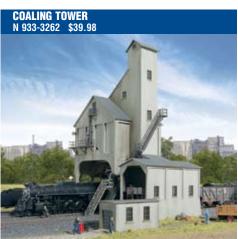










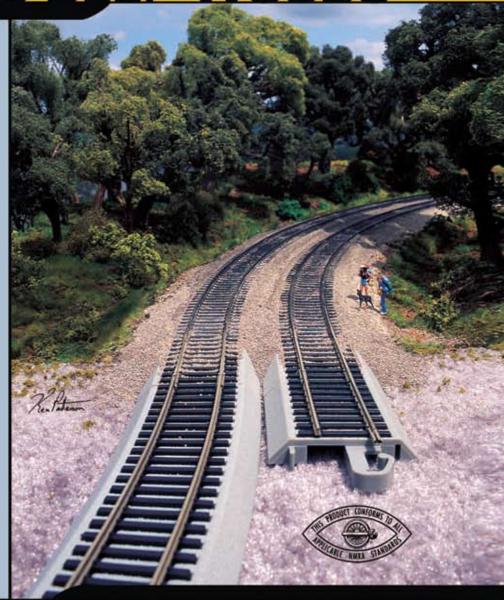


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Model Railroads

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>> ON THE COVER

Master scenery modeler Dick Elwell has rebuilt his beautiful HO scale Hoosac Valley RR in a larger basement. Lou Sassi photo





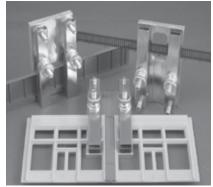


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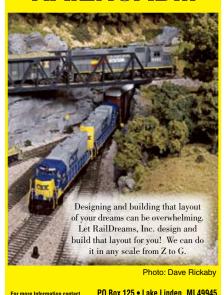
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Richard E. Taylor MMR

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Model Railroads

The ultimate achievement_



Welcome to our annual celebration of model railroading's ultimate achievement. There are many facets to our hobby, from carpentry and electronics to model building and scenery construction. But while there are many ways to approach and enjoy model railroading, most of us agree that our goal is to put everything together in a layout that reflects and fulfills our enthusiasm for trains and railroading. The layout builders in this edition of *Great Model Railroads* have all achieved that goal.

We also ask our layout builders to share some of the experience gained in planning and building their railroads. Every feature in this magazine includes specific ideas and techniques that you can use on your own layout. These cover subjects such as train-room improvements, packing a sectional layout for shipment, making realistic highway signs, using mirrors to extend scenic effects, painting ties and rail, and many others. We know you'll find the model railroads presented here inspirational, and we also want to help each of you achieve the goal of building your own great model railroad.

Andy Sperander

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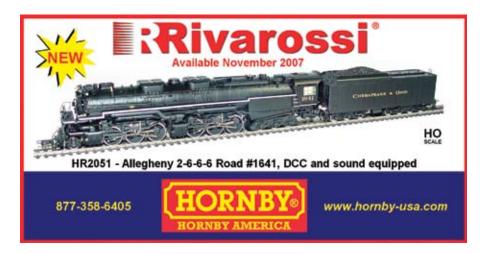
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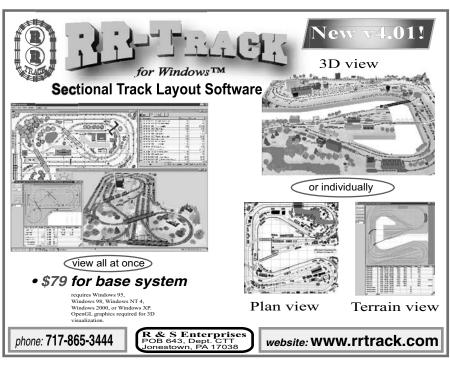
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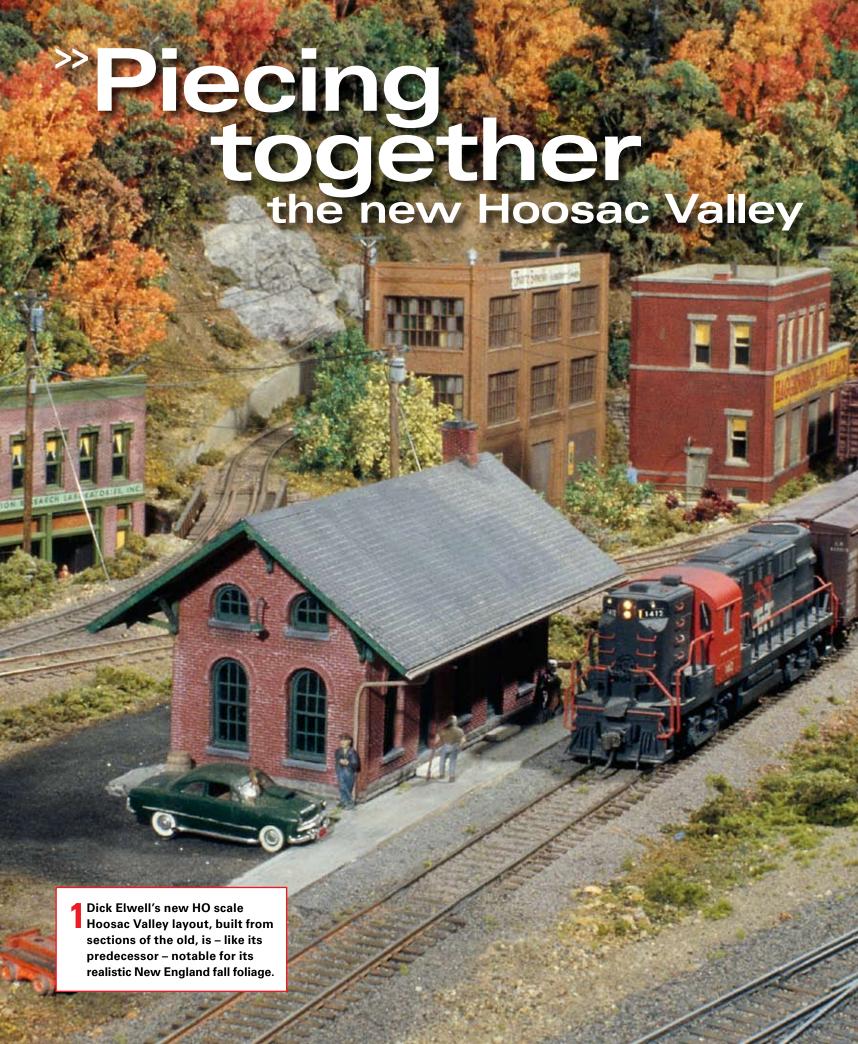








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A move is an opportunity to make a great layout even better

By Lou Sassi • Photos by the author

Saving sections of a layout for a move can be difficult at best. Usually what was once a fully scenicked main line or an operating yard - or worse yet, an entire layout - ends up decorating a Dumpster. Fortunately, that was not the result when Dick Elwell and his wife decided it was time for a new home. Rather than see his beautiful HO scale Hoosac Valley [See Great Model Railroads 1996. – Ed.] become part of a landfill, Dick resolved to cut it apart and put it back together in his new home. A side benefit was that he would be able to take this opportunity to correct some problems with the layout.

But let me back up a little and tell you something about the original Hoosac Valley. I had met Dick (and his magnificent layout) during a family minivacation in October of 1976. My wife Sally and I, along with our two sons, had stopped to browse in a hobby shop in a quaint little town in the Berkshire Mountains of western Massachusetts. I remembered that a fellow named Dick Elwell had just had his layout featured in *Railroad Model Craftsman* and I thought that we might be in his neighborhood, so

I asked the shop owner if he knew Dick. "Of course. He's one of the nicest fellows you could ever meet, and I'm sure he'd be more than happy to have you stop by."

Within the hour we were standing in one of the most beautiful model railroads I had ever seen. Its miniature fall foliage replicated perfectly the look of the real countryside we had just passed through.

Hoosac Valley no. 1

The story of the original Hoosac Valley, as you'll see, is really an integral part of the story of the current Hoosac Valley. Dick and his wife Sandy had moved into the house when they were first married in 1961. He was able to acquire rights to not only the basement but, in time, to the adjacent garage. This had given him a 26 x 40-foot area in which to build his layout.

As the inspiration for his layout, Dick chose Western Massachusetts, where he

2 Adirondack Northern GP7 no. 452 emerges from a tunnel along the shores of Keller Bay. The colorful locomotive and its train are headed for Whitehall Junction.





>> Basement improvements

Dick worked with his contractor to incorporate some unique features into the basement (a.k.a, layout space) of his new home.

- By having 2 x 14 engineered joists rather than the standard 2 x 12 in some places, lally columns were kept to only three for the entire basement and located so they would be hidden when the layout was completed.
- Ceiling height was increased to 7'-6" rather than the standard 7'-0", and the floor joists overhead were interlocked with the main steel I beams rather than placed above them. This allowed the I beams to be raised so they would not be exposed below the drop ceiling.
- Dick installed the drop ceiling with integrated 8-foot-long fluorescent lights above the layout.
- He realized that by adding a seven-square-foot area to one section of the basement, he could increase the radius of the tracks leaving Whitehall. He had the cellar expanded by the required footage. In fact, to our knowledge, Dick's home is the only one in town that has exterior front steps with a full basement beneath them.
- Dick also had drain pipes placed in the basement floor to accommodate two dehumidifiers.

had been born and raised. His freelanced Hoosac Valley RR was a 1950s bridge line that ran from West Pittsfield, Mass., to Essex Junction, N.Y., passing through the area where he lived. He designed it to interchange with prototype roads, the New York Central and New York, New Haven & Hartford in Pittsfield and the

Delaware & Hudson in Whitehall, along with two fictitious lines, the Greylock Terminal and the Adirondack Northern.

Dick also designed and built an impressive dispatcher's panel, which his good friend Frank Czubryt usually manned. [Frank Czubryt's layout is on page 108. – *Ed.*] Frank was a good choice

Hoosac Valley FA-2 nos. 1604 and 1605 pass Curley's coal yard as they enter Hoosick Falls Yard.

for that position, considering his years of employment with the New York Central.

Even though the Hoosac Valley that I saw in 1976 was what I would consider a finished model railroad, Dick continued to change and improve every aspect of it. Painted backdrops became photographic murals of the Berkshires. Older signals were replaced with better hand-built signals from Shiloh Signals in Gloversville, N.Y. Dick rebuilt, remotored, or replaced older locomotives and rolling stock with newer, better detailed, and better running equipment.

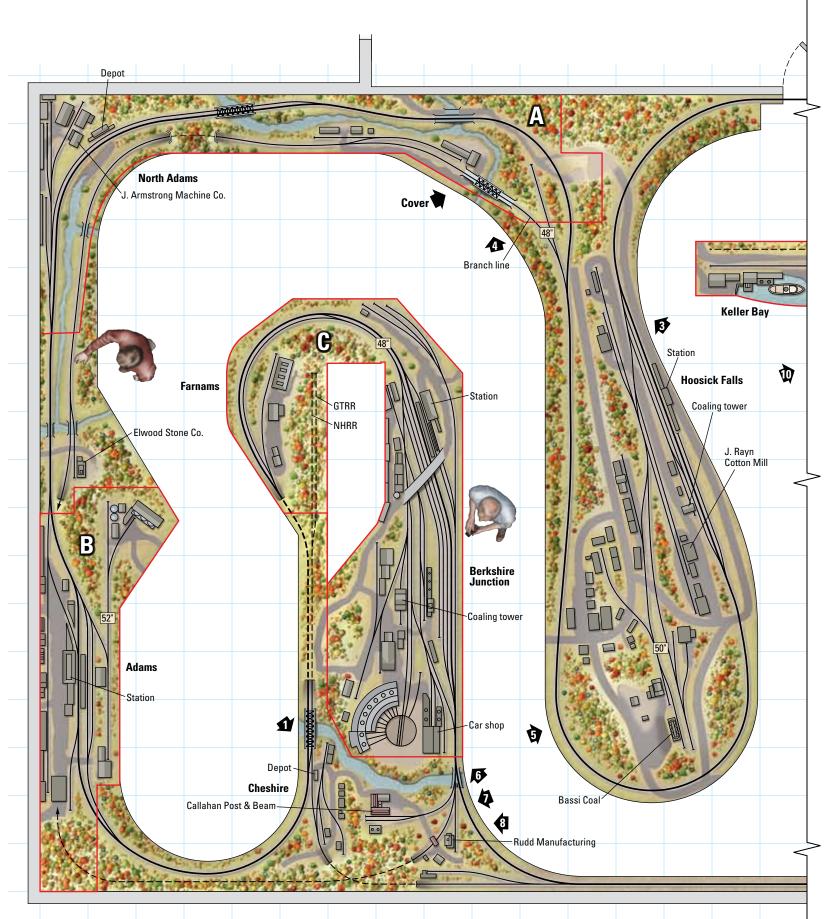
Thanks to a chance meeting with Tony Parisi of Tony's Train Exchange, North Coast Engineering Digital Command Control (DCC) with SoundTraxx sound decoders replaced DC control in 1996.

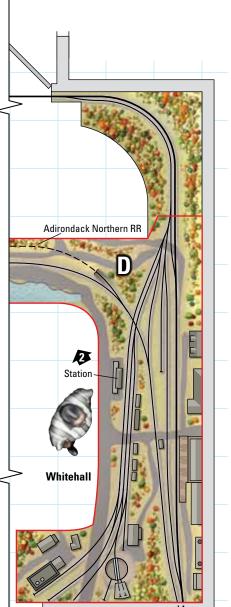
As beautiful as the Hoosac Valley was, Dick wasn't entirely comfortable with the

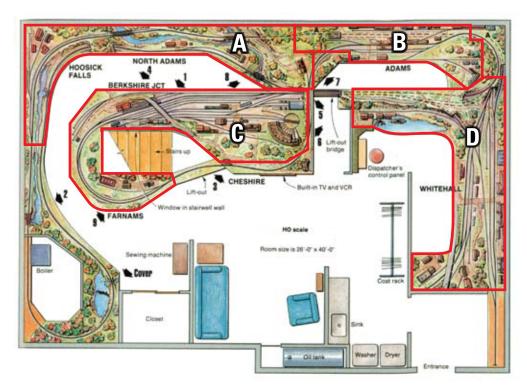
 $continued\ on\ 14$

New Haven RS-11 no. 1412 rolls on the branch line while Hoosac Valley locomotives 1520 and 1608 head south on the main line.









>>The layout at a glance_

Name: Hoosac Valley RR Scale: H0 (1:87.1) Size: 34 x 64 feet Prototype: freelance

Locale: western Massachusetts, Berkshire

Mountains **Era:** 1945-1957

Style: point-to-point with continuous-running option Mainline run: 365 feet Minimum radius: 28"

Minimum turnout: no. 6 Maximum grade: 1½ percent Benchwork: open grid and L-girder

Height: 48" to 52"
Roadbed: 5/8" plywood

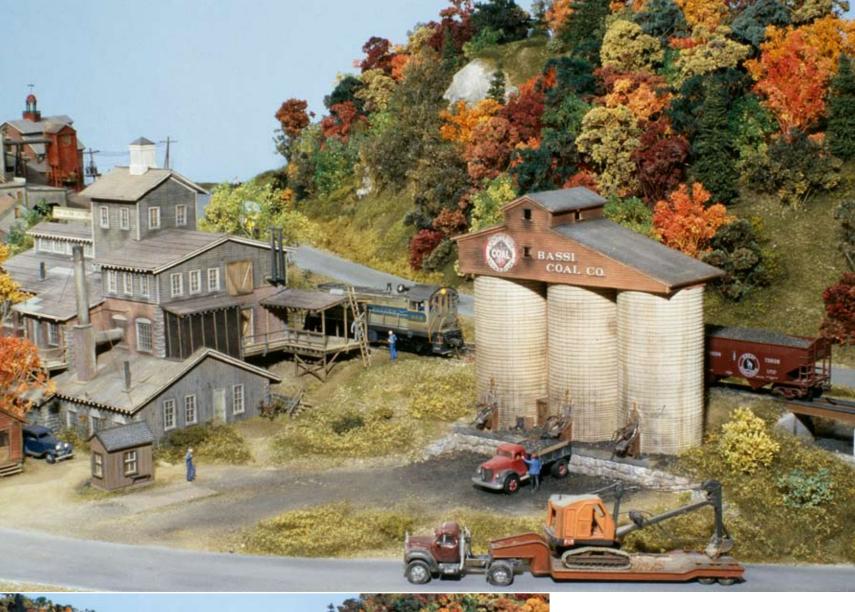
Track: handlaid and code 83 flextrack **Scenery:** hardshell and plaster over

Styrofoam

Backdrop: 1/8" Masonite

Control: North Coast Engineering Digital

Command Control



- 5 Serving Van Galder Casting Co. and Bassi Coal in Hoosick Falls today is Hoosac Valley no. 665, an Alco S-1.
 - The Hoosac Valley's roundhouse at Berkshire Junction stands on the bank of the Green River. The river marks where a transplanted section and the new layout meet.

 $continued \, from \, 11$

design. His staging yards, along with much of the main line, were hidden, and the runs between towns were not as long as he would have liked.

Opportunity for improvement

In 2002 Dick and Sandy decided it was time to move to a new home on the other side of town. Not only would the move enhance their living space, it would give Dick the opportunity to make some layout changes for the better. Dick kept



thinking about how nice it would be to unfold and uncover all of that hidden track and extend it to distances that would better replicate the prototype.

The new home would have a footprint of 34 x 64 feet. As long as the laundry room was on the first floor and the garage would be used as a garage, Sandy was happy to turn over the entire basement to the layout. An entrance that didn't bring foot traffic through the upstairs living areas of the house was also incorporated into the post-nuptial agreement.

Dick had never been unhappy with the appearance of the Hoosac Valley, and from an aesthetic and operational point of view, most of the track plan was fine. So, his goals for the new layout were twofold: first, save as much of the original railroad as possible; and second, make sure that the flaws of original HVRR didn't show up in the new layout.

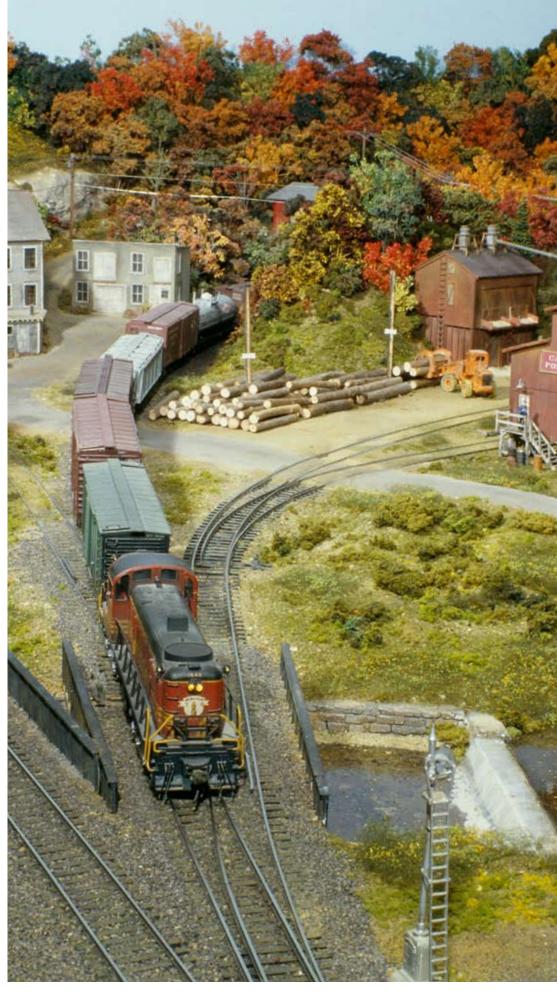
After first making a scale drawing of the new floor plan, he enlarged a copy of the track plan of the original layout (from the 1996 issue of *GMR*) to the same scale as the floor plan. He and his friend Bill Duffe cut out sections of the photocopies and began trying them in various configurations on Dick's floor plan until they were happy with the results.

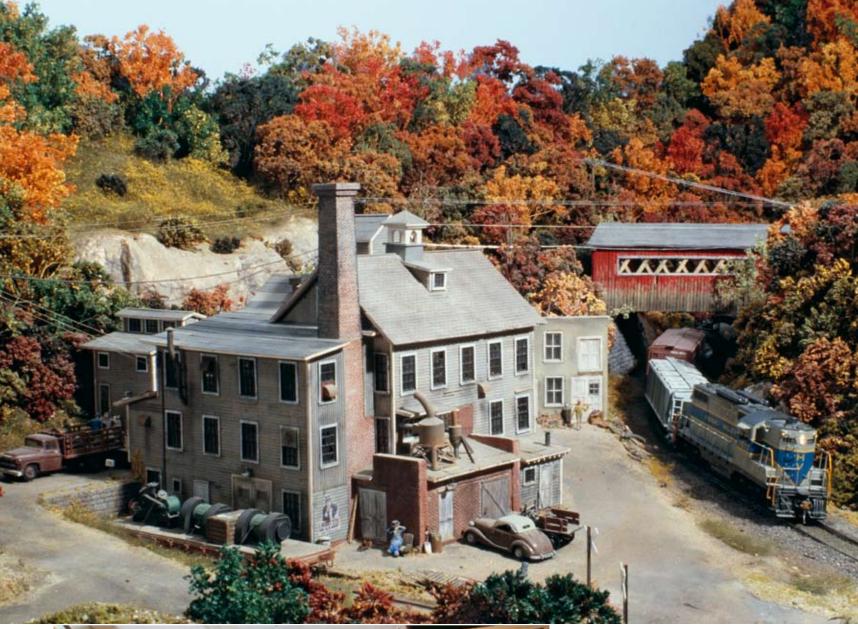
A moving experience

As the new house drew closer to completion, Dick and his operating crew descended on the original HVRR and began a six-week project that would bring the remnants of the original railroad to its new home. Before the railroad could be removed, however, walls had to be demolished and electrical and heating components had to be moved. Since the house was to be sold, the interior of the original garage had to be rebuilt.

When the dismantling, destruction, and reconstruction had been completed, Dick commandeered a flatbed truck. Over two nights, the crew firmly secured the salvaged sections of railroad on the truck for the move across town. As a result of careful planning, Dick and his crew managed to salvage intact almost 90 percent of the original HVRR.

Before switching the two sidings at Callahan Post & Beam, a Boston & Maine local freight pulls off the branch line into Berkshire Junction.







- Only in New England would you be likely to see a covered bridge over the main line. Here, Hoosac Valley Geep no. 1517 is on the branch line next to Rudd Manufacturing Co.
- Dick's new dispatcher's panel is under the stairway, out of the traffic pattern and away from the distractions of crew members operating the layout.

Once the sections of original railroad were in position at the new house, the advantages of the new design became immediately apparent.

• The two new staging areas, Essex Junction and Pittsfield, are completely exposed and easily accessible to the right of the stairway into the basement.



Whitehall, N.Y., was a section of the layout brought to the new house pretty much intact. The move gave Dick the opportunity to make improvements and saved a lot of time, money, and effort.

- The dispatcher's panel, located in Whitehall on the old HVRR, is now under the stairs, away from the operators and the scenicked portion of the layout. Contact between train crews and the dispatcher was through strategically located telephone call boxes.
- The open-grid benchwork of the original sections is now attached to "L" girders that support the new areas.

Though Dick had used hardshell (Hydrocal-soaked paper towels) for his scenery base since the 1960s, on the new construction he uses Hydrocal only for rockwork. The scenery base in all of the new sections is Styrofoam.

For ground cover Dick still uses real dirt he acquires from local fields. Ground foam and poly fiber work well for smaller brush and bushes. The old railroad's signature – miniature late fall foliage – covers the new layout, and peppergrass is

>> More on the Web

For a panoramic view of this layout, visit www.modelrailroader.com

interspersed with the wild oregano that covered the hillsides of old HVRR. As before, the ponds, lakes, and rivers on the new layout are made from Enviro-Tex and Castolite.

Dick realized that handlaying all the rail required for the new layout was not as good an idea as it had been 45 years earlier. After all, the flextrack available today is far superior to that available in the 1960s. So, he used Atlas code 83 flextrack in all of the new areas, except for one handlaid curved turnout.

Now, five years after the move, the new Hoosac Valley RR is up and running. Prior to his once-a-month operating sessions, Dick makes up handwritten switch lists, developed from a system used by the Penn Central. As with the old HVRR, this keeps eight road crews and two yard crews busy for more than two hours on a typical evening.

So, is the new railroad everything Dick wanted it to be? Is this the ultimate version of the railroad? Knowing the history of the Hoosac Valley, the answer to both questions is probably no. Dick has always been able to find ways to make modifications and find scenes or operations to improve. But there's no question that Dick made the most of the opportunities the move to a new home presented. The Hoosac Valley RR – already a great model railroad – is even greater. GMR

>>Meet Dick Elwell



Dick has been a model railroader for 68 years, if you start counting when his parents gave him a Lionel train for Christmas.

He switched to HO scale in 1956, and began building the original Hoosac Valley in 1961, after he and his wife Sally moved into their new home. That layout, featured in several magazine articles over the years, is the one he dismantled in 2002. The Hoosac Valley featured here is the successor to the original HVRR.

Dick retired from the New England Telephone Co. in 1991 after 38 years. When he is not model railroading, he spends his spare time doing volunteer work, playing golf in the summer, and skiing in the winter.

Dick and author Lou Sassi have been good friends for more than 30 years.

Santa Fe Or, all you need across the is a belt sander!

By Jay Miller Photos by the author

My Panhandle & Santa Fe Ry.

is an expression in HO scale of my passions for prototype modeling and realistic operation. It's also a time machine back to my 1950s childhood when the world was

in Technicolor, Warbonnets were king and the Atchison, Topeka & Santa Fe ruled the Texas Panhandle.

I'm a sixth generation native Texan, born and raised in Amarillo – headquarters of the Western Lines of the AT&SF and its subsidiary Panhandle & Santa Fe Ry. A Texas law in effect until 1962 required all railroads operating in the state to maintain a corporate headquarters in Texas. So the Plains Division was officially incorporated as the Panhandle & Santa Fe Ry., the P&SF.

The segment I model is the Third District of the Plains Division. It's the west end of the division's 310-mile main line from Waynoka, Okla. to Clovis, N.M., the 103.7 miles from Amarillo to Clovis.



Panhandle

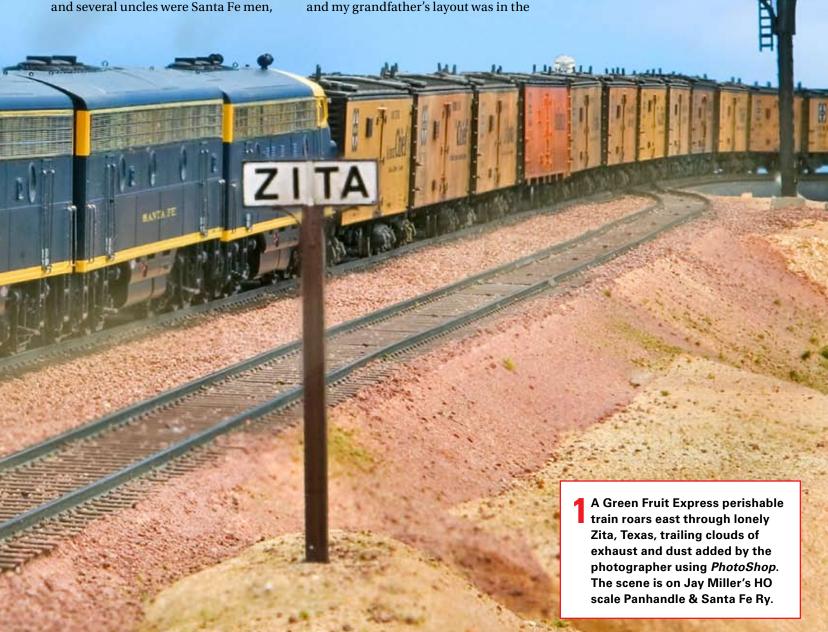
(Just to be clear, the Panhandle is not "West Texas." It is an entirely different region of the state. El Paso is in West Texas, Amarillo is in the Panhandle.)

Growth of a passion

My dad's family came from Clovis, 104 miles southwest of Amarillo. Dad's father and several uncles were Santa Fe men,

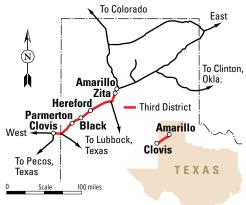
and one of his aunts was a Harvey Girl at the Clovis Harvey House, so you could say that the Santa Fe is in my blood.

For more than 45 years I've been involved with model railroading; both Dad and my grandfather were modelers. My dad and I built a couple of layouts together in our garage while in Clovis, and my grandfather's layout was in the





P&SF across the Panhandle



basement. Back in the 1950s layouts were nothing like we have today, but the men had a passion for trains they passed along to me.

In the early 1970s, after graduating from college, I was working in Galveston. I built a shelf layout there and once a week drove to meetings of the Houston Society of Model Engineers. That club built a huge layout in the old Union Station, and a lot of good modelers lived in town. I became a regular operator with Gil Freitag and started making trips back to Austin, where I met David Barrow and Andy Sperandeo. We were all Santa Fe fans, and I well remember the various expansions of David's Cat Mountain & Santa Fe. His "pre-minimalist" CM&SF greatly influenced my layout designs.

When I moved to Dallas in 1978, it was my good fortune to meet the dean of model railroad operators, the late Cliff Robinson. Cliff took me under his wing, and I became a regular member of the Wednesday night operating crew on his HO Marquette Union Terminal (MUT).

Cliff was also mentoring a young electronics genius named Keith Gutierrez, who was developing his CTC-16 command control system on the MUT. Very shortly I started a layout I'll call my first P&SF in my garage. It was probably the first layout built from the ground up with Keith's control system.

With Cliff's guidance I learned more about prototypical model railroad operation. Practice came with many road trips, especially to David's in Austin, 2 Jay built the P&SF to operate with his friends. Here Bill McPherson switches a cut of empty box cars for the grain elevators at Black. The structures are all scratchbuilt and based on the prototypes. Although this town is on one side of the layout's central penisula, the divider backdrop at left makes it look like a shelf layout.

Richard Kamm's in Shreveport, and Chuck Hitchcock's in Kansas City. Dallas was and still is home to a bunch of fine railroaders, so all of us honed our proficiency operating on local layouts as well.

My interest in prototype modeling intensified, and I helped form the Santa Fe Modelers Organization. I went on to serve that fine group for many years as a board member and magazine editor.

For a variety of reasons, I took a sabbatical and went "on the wagon" with regard to model railroading. After eight years of self-imposed exile, I missed my many friends in the hobby, and realized that my passion for trains was still alive.

In 2002 my wife and I decided to add a second story to our 1929 Tudor house in Dallas. My good friend Keith Jordan (often mistaken for my evil twin brother) had been after me for several years to get back into model railroading. His prodding took effect, and our addition included an 11 x 35-foot room for a new layout. By January 2003, we finished the remodeling and construction began on a new Panhandle & Santa Fe.

Operating philosophy

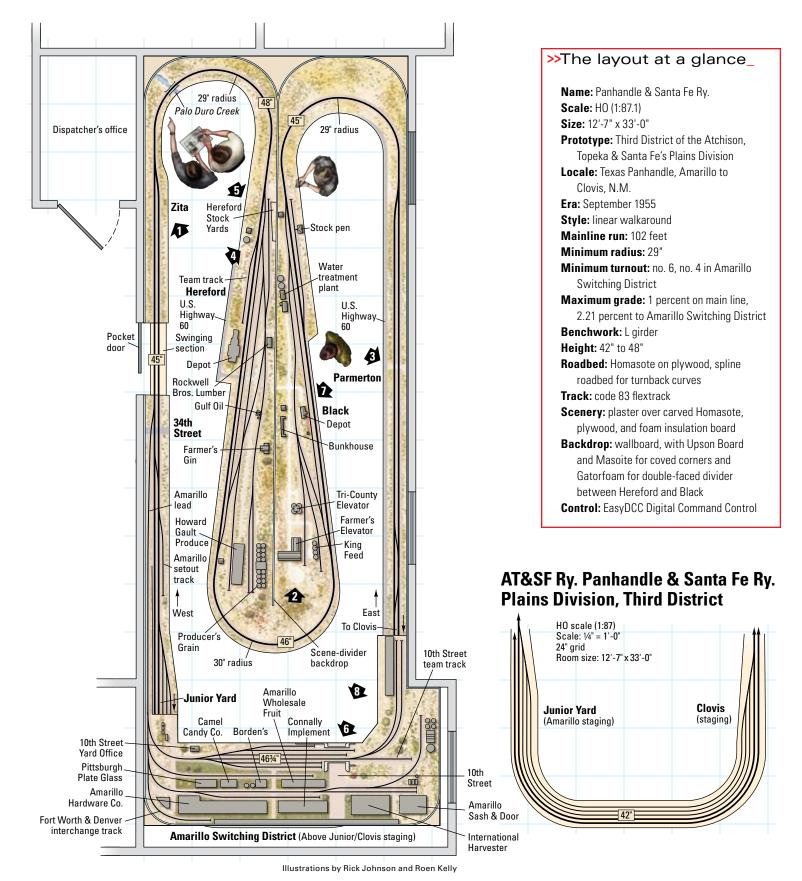
"Model railroading is supposed to be fun," Cliff Robinson used to say. "If my guests aren't having fun playing with my trains, I have not done a good job." Cliff probably drummed this into my head a thousand times. While he could be very serious about the "game" we played, he took pains to ensure that nobody was bored or worked to the point of missing out on the fellowship. I was deeply affected when he passed away in 1991.

In this second iteration of the P&SF I've tried to combine what I feel are the two sometimes competing operating philosophies of switching cars and running trains. I personally don't see how you can have one without the other.

It was a given that the layout would use Digital Command Control, and obvious that I'd be taking good advantage of a friendship if I used EasyDCC from Keith Gutierrez's CVP Products.

I'd started down the path of building a Centralized Traffic Control (CTC) signal system on the first P&SF, but didn't know then how I'd make it work. Bruce Chubb's Computer/Model Railroad Interface (C/MRI), introduced in *Model Railroader* in 1985 and '86, made prototypical model signaling a reachable goal. (See "The P&SF CTC machine" on page 24.)

I moved my modeling period up from 1942 to 1955, to take advantage of the new generation of diesel and freight car models that had come on the market. The era change also let me to take better advantage of historical resources in my



collection. I chose September because that was just about the end of steam on the Plains Division.

Background and goals

My dad was a professional photographer who made a lot of pictures of the

Santa Fe in Amarillo in the mid-1950s. We made countless trips to my grandparents' in Clovis on U.S. Highway 60, which paralleled the Third District. I knew this was the area I wanted to model.

My wife and I don't plan to stay in Dallas forever, so I planned this layout to

be a warm-up for one to be built in larger quarters within 10 years or so. I wanted to work the kinks out now, experiment with scenery and trackwork techniques and build or buy back all the "hubcaps," i.e., really important stuff, that I'd disposed of in my absence from the hobby.



I solicited advice from many of my old associates for track and roadbed techniques. Some of the advice I took, some I didn't, and there was a lot I should have!

Design philosophy

The Plains Division is a busy portion of the Santa Fe's Southern District from Ellinor, Kan., to Belen, N.M. This was the primary AT&SF freight route between Chicago, Kansas City, and the West Coast, as it still is for today's BNSF Ry.

The P&SF runs through rich farm and ranch land. If money is to be made, it either comes from cattle or crops on the ground or from oil and natural gas under the ground. But while lot of traffic originates in the Panhandle, even more bridge traffic runs through it.

["Bridge traffic" is freight coming from beyond one end of a rail line and moving to a destination beyond the other end. For modelers it can be a good reason for running a lot of through trains with limited terminal facilities. – *Ed.*]

I wanted to be able to keep three operators busy and have a dispatcher overseeing the whole show from the CTC machine. As it turned out, two operators run local and through trains and one runs the Amarillo Switching District – almost a separate layout unto itself – and fills out some through trains.

A railroad with CTC and long passing sidings is meant to run lots of trains. In the model world, however, this depends on the capacity of the staging yards. Unfortunately, I didn't have room for enough staging to realize the full potential of this layout. That's something I'll correct next time. Number One among lessons learned from this P&SF has to be, "Don't skimp on staging!"

Construction

The benchwork is simple L-girder, and it helped to use a laser level on a tripod. I used ½" plywood for the base and ½" Homasote for the subroadbed, except in the large turnback or "lollipop" curves.

Train 4 speeds along next to U.S. 60 at Parmerton. Officially nameless but known to Santa Fe railroaders as the "Southern Route Fast Mail," this train carried mail, express, and a few passengers between Los Angeles and Kansas City via Clovis and Amarillo, on a route primarily used for freight traffic.

I won't go the Homasote route again. This is one piece of good advice I didn't heed. I like having the track an inch or so above the base to allow for more realistic scenery. But carving out unused Homasote (probably 60 percent of it) was wasteful and a lot of unnecessary, messy work.

The lollipop curves are on spline roadbed, which I'd never tried and wanted to learn about. The splines worked well and kept the curves smooth, and I will use this method again.

Engineering for the signal system, track and benchwork was completed before we started construction. Andy





- Though primarily a freight line, from 1954 onward the Santa Fe's Southern Route had its own streamliner, the San Francisco Chief, running between Chicago and Oakland, Calif. Here train 1, the westbound Chief, meets an eastbound stock extra in the shadow of the steel water tank at the east end of the Hereford passing siding.
- With the streamliner speeding west, the dispatcher lets Extra 5000 East back onto the main line. This 1930 2-10-4, nicknamed "Madame Queen," was the forerunner of a fleet of even larger, more modern engines of the same type. The model is a Hallmark import superdetailed by Santa Fe historian and author John McCall.

>>The P&SF CTC machine

My Centralized Traffic Control (CTC) "machine" was designed and built for the full-size Panhandle & Santa Fe Ry. by the Union Switch & Signal Co. of Swissvale, Pa., in April 1948. It was installed in the dispatcher's office on the second floor of the Santa Fe General Office Building in Amarillo in June 1948. It controlled 104 miles of main line between Amarillo and Clovis, New Mexico, the Third District of the Plains Division.

They're called machines and not just control panels because they contain a lot of relays and other hardware wired to automatically send and receive control signals. Called a "Style-C Control Machine," the unit had two 30" wing cabinets on each side of a 60" central cabinet for a total capacity of 90 columns of traffic and switch levers.

In spring 1986, I learned that the Santa Fe planned to replace the Style-C machines with a new computer-driven division operating center, and would sell the old green machines for scrap. They were complete except for the track model diagrams, which the railroad had given to some of the dispatchers who'd worked with these machines. I bid \$100 and purchased the Third District machine.

My dad and I drove to Amarillo from Dallas with a trailer on May 2, 1986, to dismantle and carry off my prize. We hired a couple of laborers from the employment center and started the job. I decided that several hundred pounds of relays and the chart recorder would have to stay, so we left them in place. As we started cutting cables, a shower of sparks came up from the floor. Someone forgot to cut the power to the machine! Eventually we located the chief signal maintainer, who turned off the juice. I imagined causing a series of train wrecks, but the machine was actually off line.

As if that wasn't enough, a wildcat strike broke out at the railroad and we were afraid we wouldn't be able to get the machine out of the building. We convinced the strikers we were just private citizens and not employees, so our salvage job went on.

It took two days, but we managed to get all the cabinets in the U-Haul trailer and back to Dallas, where I began the job of cataloging and planning what to do with this monster.

I stripped all the control levers, indicator lights, and badge plates from the end cabinets and carefully boxed and packed all these parts. At the time, I had no place for any kind of CTC



Here's the finished Centralized Traffic Contol machine Jay built for his HO scale P&SF, using panel fronts and other components salvaged from the prototype machine that once controlled the same P&SF line that he models.

machine, and no effective way to connect it to a model railroad, so I stored the CTC cabinets in a mini-warehouse.

Needing cash during my hobby hiatus, I sold the three cabinets to Fred Thomas of Tulsa, Okla. I gave all the salvaged parts to Keith Jordan, who traded them to Rod Loder. At the time Rod was building beautiful reproduction CTC machines and saw that the parts had good homes.

Then in 2002 I was getting back into the hobby. Since Bruce Chubb had perfected his C/MRI system, an operational CTC machine was a real possibility.

Fred Thomas had passed away, but his widow still had my old machine in her basement, untouched since 1989! She remembered me and said I could buy it back, so Bill Childers, his son Aaron, and I hustled to Tulsa and hauled the CTC cabinets back to Dallas in October 2004. Several months and several gallons of Simple Green all-purpose cleaner later, all the components and wires were removed and cleaned up. I pressed a cartridge tumbler into action to polish the plated parts.

My new dispatcher's office was little more than a 4 x 6-foot closet, so there was no way the complete cabinets would fit in

Sperandeo and Keith Jordan visited and drew the two main switching towns (Hereford and Black) on the finished benchwork. After they left, I adapted their work to my own tastes.

Local pal and expert modeler Lloyd Keyser designed the drop section across the entry door and showed me how to superelevate curves. I wanted to have all of the track down and the signals in place before doing any scenery work. This proved to be a good idea, as no matter how good a plan looks on paper, the cars and locomotives have a vote! Some realignment was necessary.

Chuck Hitchcock and the Kansas City gang strongly urged me to use Atlas code 83 flextrack and turnouts. Thinking I knew better, I went with Micro Engineering track and Walthers turnouts on the main line and sidings. I did use the Atlas track, however, in the towns and in Amarillo. The next P&SF will be *all* Atlas because I find it simply functions better. Once painted and ballasted, it looks as good as any track.

I have an electronics background, so my construction practices for control and signaling are pretty regimented. All the wiring is neat, labeled, documented, and of the proper size and termination.

Bruce's C/MRI system (which we fondly dubbed the "Chubb-O-Matic") uses a lot of circuit boards, and I assembled every one of them. Dan Crews at Sunrise Enterprises (www.sunrisenterprises.com) built the signals for me based on Santa Fe standards. Early on, Mike Burgett of Control Train Components





there. We looked into having new front panels made, but a friend suggested I simply cut off the original front panels since I wasn't going to use the cabinets anyway. I made a squaring jig and proceeded to cut the mild steel panels to the width I needed. It worked! I built a cabinet frame out of clear poplar and began to test fit all the components.

Meanwhile, I worked out the final configuration of the track model schematic. Figuring out exactly where all the switches and signals would go was the most difficult job. I spent many hours modeling the possible locations, and I built dummy signals for the layout as location aids.

When all was ready, I finalized the artwork, which I'd drawn in Adobe *Illustrator* using the one remaining prototype track model as a guide. A local engraver made the three track model panels and necessary badge plates.

I'd worked with a local professional paint store back when I was restoring ham-raido equipment, and that dealer mixed the paint for the CTC machine. A sample from the old machine was matched to a Benjamin Moore oil-based enamel used for industrial coatings. I filled some holes in the cut-off front panels



The "OS section" at the east end of Black is a typical remote-controlled interlocking in CTC. Including a powered turnout and three absolute signals, it's represented on the machine by a column of controls and indicator lights.

and did a lot of wet-sanding to smooth the surface for painting. I sprayed two coats of paint and allowed everything to dry for a week. Then I applied a coat of paste wax to the surfaces before attaching the components.

There are an incredible number of small parts and screws in this monster. Mostly they are original US&S components, but I replaced some of the smaller screws because their slotted heads were worn.

Using over 500 feet of 22-gauge wire to connect the input/output (I/O) cards, it took me about a week to wire all the panels for the C/MRI system. Then I laced the wires into neat cables with waxed cord.

I wrote an Automatic Block System (ABS) software routine in BASIC to get started, but Mike Burgett of Control Train Components wrote the final CTC program. He's a rail signaling professional and knows how this stuff really works.

The rebuilt machine was operational in January 2006. Almost 60 years after its initial construction, it still controls the same portion of the Santa Fe for which it was built, just reduced to HO scale! -J.M.

(www.ctcparts.com) was involved in the software programming and signal system design.

All the mainline turnouts are powered with Tortoise motors and linked to the CTC system. We use a switch plate on the fascia with push buttons and a switch key when crews need to take the motors under local control.

Industrial siding and spur turnouts in the two towns are also powered and controlled with toggle switches. I used ground throws in Amarillo.

Simple scenery

On a field trip to the Panhandle many years ago, Keith Gutierrez commented that all I needed to model its flat terrain on my layout was a belt sander!

While there's a ring of truth to that statement, there's also obvious separation between the track and the ground. Contrary to popular belief, there are depressions and rises across the vast open country. Fortunately, the Panhandle has few trees, although I do have a couple of lonely specimens on the layout.

My choice of scenery material is pretty simple. To me, both texture and color are paramount. I chose Arizona Rock and Mineral products for the base coloring and ballast materials and am happy with the results.

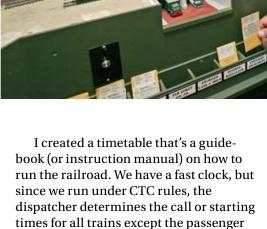
I scratchbuilt all of the structures from photographs or sketches I've made over the years. Along with my dad's pictures, I've collected a big notebook of prototype research including standard Santa Fe plans, Sanborn maps, aerial photographs, and a variety of ephemera.



- A Baldwin VO-1000 saunters over the 10th Street overpass in the Amarillo Switching District. Jay drew the structure mockups in the background with Adobe *Illustrator*, and mounted prints on illustration board to assemble. They show how the scene will ultimately look with scratchbuilt structures.
- Jay scratchbuilt the depot at Black in styrene, based on measurements and photographs. To complete the scene in this image, he used *PhotoShop* to add the farm field stretching off to the horizon and the signal and communication wires on the railroad's pole line.







We run one local train in each direction, two through freights which may (or may not) make one pickup or setout, and two non-stop freights in each direction. We also run the westbound *San Francisco Chief* and the eastbound Southern Route Fast Mail.

runs. They operate on schedule in good

The Amarillo operator generally moves 30 to 40 cars in a session and has to make pickups and setouts at the Fort Worth & Denver interchange track and the Amarillo setout track. He also runs at least one of the through trains. It takes about two hours to complete a session.

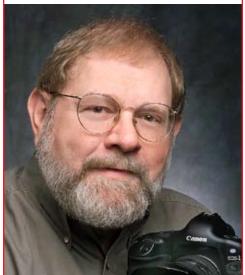
The next P&SF

old Santa Fe style.

It took me 16 years but I finally convinced my city-girl wife that we needed to buy ourselves a piece of Texas and move to the country. In the summer of 2006 we found a place near Crawford (west of Waco), and within the next five years we'll build our retirement paradise and relocate. A new "playpen" building is on the drawing board for an expanded P&SF with one more mainline station and plenty of staging. And yes, I will keep the belt sander handy! GMR

Here's Bill Childers at the Amarillo Switching District. This is a switching layout unto itself with 12 industries and an interchange with the Fort Worth & Denver. Cars move to and from the rest of the P&SF through the Amarillo setout track.

>>Meet Jay Miller



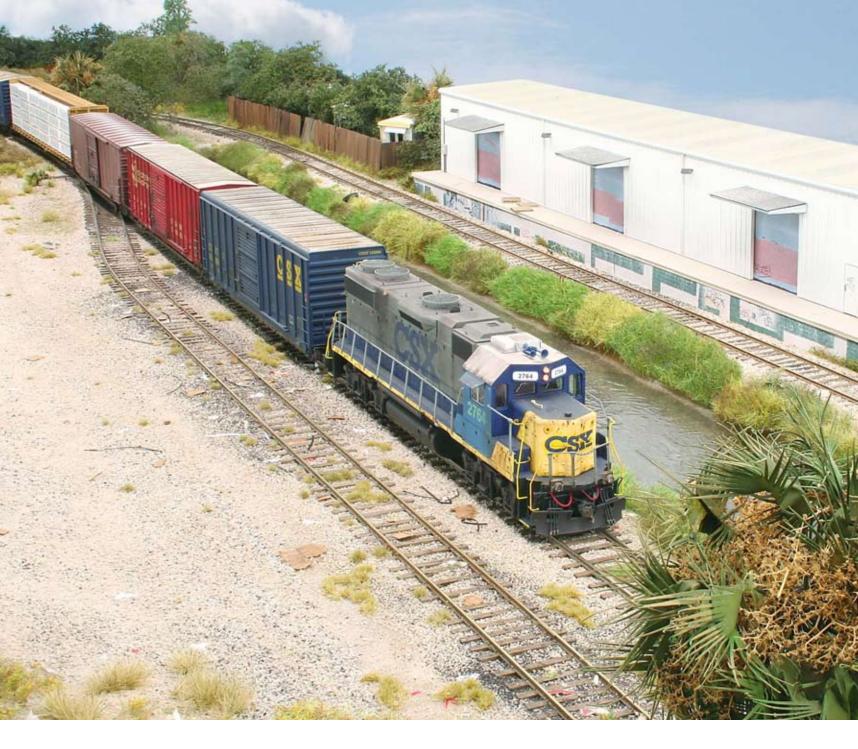
Stan Wollenski photo

Jay Miller is a third generation professional photographer. He's been a model railroader for over 40 years and served nine years as editor of the *Santa Fe Modeler* magazine. Jay and his wife Laynie live in Dallas and have two daughters.

Operations

We use waybills and car envelopes to govern freight car movements. I've never been a big fan of computer-generated switch lists and don't like systems that move cars just to play games or make work. The waybills show why each car is moving, which may not be important to every train or yard crew but matters a lot to me.

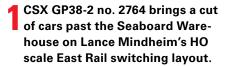
I also think it's important to experience mainline movements, like a long reefer train pulled by an A-B-B-A set of F units stretching out and running with the signals. My operators agree, so in our sessions everybody gets to run at least one through freight or passenger train. If I had more staging, we'd run even more.



Voodoo and palmettos

A modern industrial switching layout on a shelf





Even by the lofty standards of railroad lore, the stories don't get much better than what was being laid out for me by a retired railroader at a recent prototype modelers' meet. Having learned that I was in the process of planning a switching layout based on an industrial park in Miami, the gentleman was explaining how Voodoo traditions



intersected with modern day railroading in South Florida. According to the explanation, it's a belief within the Voodoo culture that evil could be warded off through the sacrifice of a chicken. For the spell to work, the sacrifice had to be particularly violent in nature and carried out in accordance with very specific procedures. A live chicken is placed in a pillowcase with a paper bag of money. The package is knotted off at the top and draped across the rails moments ahead of an approaching train. A few seconds later, the deed is done.

He had my full attention.

But more to the point, he went on to describe the Miami rail scene in such vivid detail that a project that had been on life support and unable to get out of the planning stages for some time was immediately injected with a new vitality and momentum that saw it through to completion less than eight months later. Such was the genesis of my CSX East Rail layout.

Florida's charm

Why model South Florida? A post on the Web site www.trainorders.com said it best. "Miami is a strange place.... It's a bit of a tropical paradise, a third-world country, an amazing mix of cultures and history. It isn't for everybody. It's also unlike pretty much any other place in the country."

Modern Miami is paradise for those who love industrial railroading. Industrial parks with faded pastel warehouses

2 Lance used a handful of intermodal containers to suggest the Antillean Marine storage yard. Low-relief structures and partial industries work well on shelf layouts.

abound. In many ways, one has the feeling of stepping back in time to the 1950s, when spotting a single car at a small industry was the norm. It's an area that cries out to be modeled.

The lure of the modern era

For many years I was in the majority of modelers whose primary interest was the steam-to-diesel transition period. I had no interest in modeling the modern era. In fact, I'd completely discounted it.

At some point, and I don't know why, I did a 180 on modern-day modeling. As I looked around, I discovered that today's railroads operate freight cars that are as varied and interesting as those of previous eras. I also discovered that smaller rail-served industries, while on the decline, do still exist. If they aren't being served by Class 1 carriers (BNSF Ry., Canadian Pacific, and CSX, among others), short lines are doing the switching at these industries.

However, the biggest advantage of modeling the modern era is the availability of research material. No longer do I have to look for a critical (and often elusive) photo. If I need prototype information, all I do is visit the prototype and take pictures.



Switching on a shelf

At slightly more than 9 feet long by 9 feet wide (see the track plan at right), the East Rail layout is small. Though I had space for a larger model railroad in the loft above my workshop, I kept the layout a more manageable size. The advantages of building a larger layout are readily apparent, but building a small model railroad has advantages of its own.

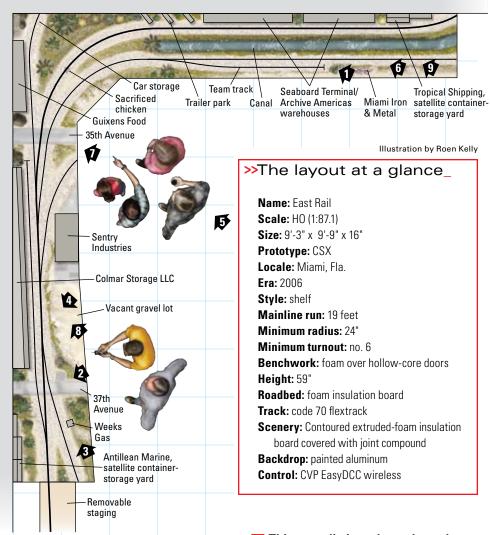
Among them are the opportunity to complete the layout in a reasonable amount of time, to model highly detailed scenes, and to arrange impromptu operating sessions with ease. Of course, maintenance is less time-consuming, too.

Palm trees and signs are just two ways Lance conveys to visitors that this layout is set in Miami, Fla. The buildings are based on prototypes in the East Rail industrial park.

After modeling the steam-to-diesel transition, Lance gave the modern era a try. Four-axle road locomotives and patched-out boxcars are typical of today's railroads.







CSX East Rail layout

HO (1:87.1)
Layout size: 9'-3" x 9'-9
Scale: ½" = 1'-0", 24" grid
Numbered arrows indicate photo locations

This overall view shows how the layout fits in the corner of the room. That's Lance's 12-year-old son, Zachary, standing on the step stool switching cars at the Seaboard Terminal warehouse.







In the end, the East Rail project was driven by three of my interests: South Florida geography, the modern era of railroading, and a favorite layout (John Wright's Federal Street shelf layout, *Model Railroader*, May 2003).

Friendly advice

I initially had some difficulty combining these three interests in a workable model railroad. Fortunately, the input of the retired railroaders at the prototype modelers' meet broke my designer's block.

The railroaders were kind enough to sketch out the general track arrangements of the Class 1 railroads in Miami

and the locations of various industrial parks. They also suggested a few that would be especially good to model.

When I returned home from the meet, I did a virtual aerial survey of Miami's industrial parks using Google Earth. It occurred to me that flying to the area for a one-day trip wouldn't cost much more than a decent Digital Command Controland sound-equipped locomotive.

I selected four or five industrial parks that held the most promise from a modeling standpoint. Then I took a 6 a.m. flight to Miami, rented a car, and spent the day shooting almost 300 digital photos of the various industrial parks.

While two empty gondolas await loading at Miami Iron & Metal, CSX GP38-2 no. 2764 spots boxcars at the Seaboard Terminal and Archive Americas warehouses.

Fortunately, I was able to photograph the parks safely and unobtrusively from public sidewalks. I was home in time to watch the 11 p.m. news!

After reviewing the photos, East Rail industrial park seemed to have the most modeling potential. Geographically, the East Rail spur is just south of Hialeah Yard and approximately a half mile east of the airport. While on my trip I was able



>>Timesaving steps to a detailed layout_

There are ways to leverage your time in such a way as to have both a fairly detailed model as well as one that goes together relatively quickly. One way is to develop an eye for which details make a visual impact and which don't. This keeps you from spending hours building things that aren't noticeable.

Another is to use higher-quality products. For example, both the Atlas MP15DC and Proto 2000 GP38-2 are of such high quality that very few additional details were needed. A little weathering, an extra part here and there, and they were ready to take their place on the layout.

Finally, there must be an understanding of why what you're looking at appears to be realistic – or not. In the hierarchy of elements that enhance realism, color, texture, and scene composition play a much more important role than detail. If the color of a layout element is off or the scene composition is too cramped, we have a sense that something isn't quite right, even if we aren't exactly sure what it is. On the other hand, if a detail is omitted, a streetlamp for example, the eye doesn't pick up on that as quickly. – L.M.



to sketch out the park's track arrangement on a notepad, copy it for my layout's track plan, and select industries that already existed.

I'd previously attempted a freelance version of this design and found the approach to be extremely difficult. But now there was no guesswork and no concerns as to whether the layout theme would be believable.

While the layout is close to prototypical, I did take some liberties. The spur I selected to model is named the Big Hole Lead. In real life, this spur serves the Seaboard Warehouse/Archive Americas, Colmar Storage, and Guixens Food Group.

I selected several other interesting industries from adjacent spurs to include on the layout. Specifically, I added Weeks Gas, Sentry Industries, Gator Industries, and Miami Iron & Metal.

In all respects, the layout is very simple. Benchwork consists of 1" foam attached to hollow-core doors with Liquid Nails. The doors are supported on heavy-duty shelf brackets. In keeping with the worn-down appearance of industrial parks, I didn't lay the track on roadbed. Instead, I placed it directly on the foam. In the one section where I wanted the track to appear a little higher, I placed it on a strip of .060" styrene. I

Lance found that today's freight cars are as varied as those of previous eras. Boxcars, such as this Penn Eastern Rail Lines 50-footer, are common on modern railroads.

used Micro Engineering turnouts, and they are manually lined by simply moving the points with a fingertip. I used an EasyDCC wireless system, keeping wiring to a minimum.

Measure once, build twice

To rewrite a phrase from carpentry, once I had the layout base in place, I "built" the layout twice. The first go-around



>>Featured industries_

The industries featured on my layout (and listed below) are based on actual businesses in the East Rail industrial park. Here's what each industry moves by rail.

Colmar Storage: warehouse specializing primarily in bags of green coffee beans

Gator Industries: injection-molded footwear Guixens Food Group: food distributor Miami Iron & Metal: scrap metal

Seaboard Warehouse/Archive Americas: records warehouse

Sentry Industries: pool chemicals (primarily chlorine) **Weeks Gas:** liquefied-petroleum gas for forklifts

involved assembling photo mockups to test the plan. I began by laying down the foam scenery base and shaping the contours. Modeling flat Florida terrain goes quickly. Then, in one afternoon, I laid all of the temporary track using Atlas code 83 products, connected an old Model Rectifier Corp. power pack, and began running trains.

Over the next several weeks I made scale-size structure mockups. I started by assembling pieces of foam core into boxes that matched the structures. Then I used a photo-editing program to clean up my digital photographs of the prototype structures. Finally, I used 3M's Super77 cement to attach the photos to the foam core.

At this point I had an operating layout with all of my industries represented in

3D. This approach gave me a good idea of what I had before I invested a lot of time, money, and material in scratchbuilt structures and detailed track. This first pass at the layout was worth the effort, resulting in the relocation of a spur.

Satisfied that I was headed in the right direction, I moved on to the layout's second phase, starting with re-laying the track. Working from right to left, I gradually replaced the Atlas rail with more-detailed Micro Engineering code 70 flextrack. Had I been faced with this trackwork decision several years ago, I probably would have opted for handlaid track. I'm now of the opinion that high-quality flextrack is the better option. Micro Engineering flextrack comes with cast-on tie plates and spikes that you simply don't get with handlaid track. In

Colmar Storage LLC is a sprawling low-relief structure between 35th and 37th Avenues.
The industry primarily stores bags of green coffee beans.

that sense flextack is more realistic than handlaid. And laying flextrack is, of course, much faster.

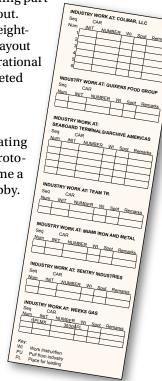
When I had completed a structure model, I replaced the mockup with the real structure. Since all of the buildings had to be built from scratch, this was the

most time-consuming part of building the layout. Gradually, over an eightmonth period, the layout morphed from operational mockup to a completed model railroad.

Operation

For many, operating a model railroad prototypically has become a hobby within a hobby. Among those who

Lance uses modified CSX work order forms, like the one shown at right, when he switches cars.



enjoy operating, there's a wide spectrum of interests. My preference is for shorter, more-relaxed sessions that focus on industrial switching. I love the rhythmic cadence of a switcher methodically going about its task of spotting cars, free from the pressures of the clock and clearing opposing trains. Modeling a specific spur as it actually exists in the real world and doing so in the current era puts you in the nice position of just copying what the big boys do.

On my trip to the Miami industrial park, the switcher had just shown up while I was there, and I was able to watch its entire operation. CSX operates off of what is called a work order. Essentially, this is a glorified switch list on a computer tablet the engineer keeps with him.

The actual form, which I found online, is easy for the layman to follow, so I simplified it a little bit and used it to run the model railroad. (This is another advantage of modeling the modern era. Both CSX and the manufacturer of their computer work order system make many switching related operational details available to the public on their Web sites).

On my East Rail layout, a typical session takes between 45 minutes to an hour to complete, depending on how much car-spotting there is at the warehouses. I'll often run a shorter 15- or 20-minute impromptu session in the evening.

A session starts with the train spotted on the staging spur. The operator receives his work order printed, out on an *Excel* spread sheet, and simply goes about the tasks laid out for him. There are no switching puzzles *per se*.

You will notice, however, that the layout has no passing siding. As with the prototype, all of the turnouts are oriented in the same direction. This negates the need to run around a car to shove it into the siding. The one spur oriented in the opposite direction is handled by staging that industry's cars behind the locomotive at the start of the session.

Lessons learned

The completion of every model railroad leaves one with lessons learned and things that could have (or should have) been done differently. It also validates some of the core concepts you had going in.

If I were to start over, the one element I would handle differently would be the backdrop. While it looks fine when



The backdrop on the layout is painted aluminum, so Lance used Adobe *Photoshop* to add real sky backdrops to the images shown in this article.

viewed in person, the backdrop has characteristics that make photographing the layout difficult. First, it's not tall enough. When I take photographs down the length of the layout, I find that the overhead layout lights constantly encroach on the shot. I wish I had made the backdrop at least a foot taller.

Second, the shade of blue I used is much too light. My digital camera consistently registers its displeasure as it tries to separate the pale blue sky from the light-color tones on the surrounding warehouses. I should have selected a darker shade of blue.

On the positive side, I've learned the advantages of bringing other people into the process as teachers. Without the input of two retired railroaders (who prefer to remain anonymous) and the coaching by skilled digital photographers and skilled rolling stock modelers, I never would have gotten the results I did. I've gained as much or more satisfaction from the new friendships developed while building the project as I did from actually constructing it.

Finally, I did take some risks with this layout. I'd never modeled south Florida,

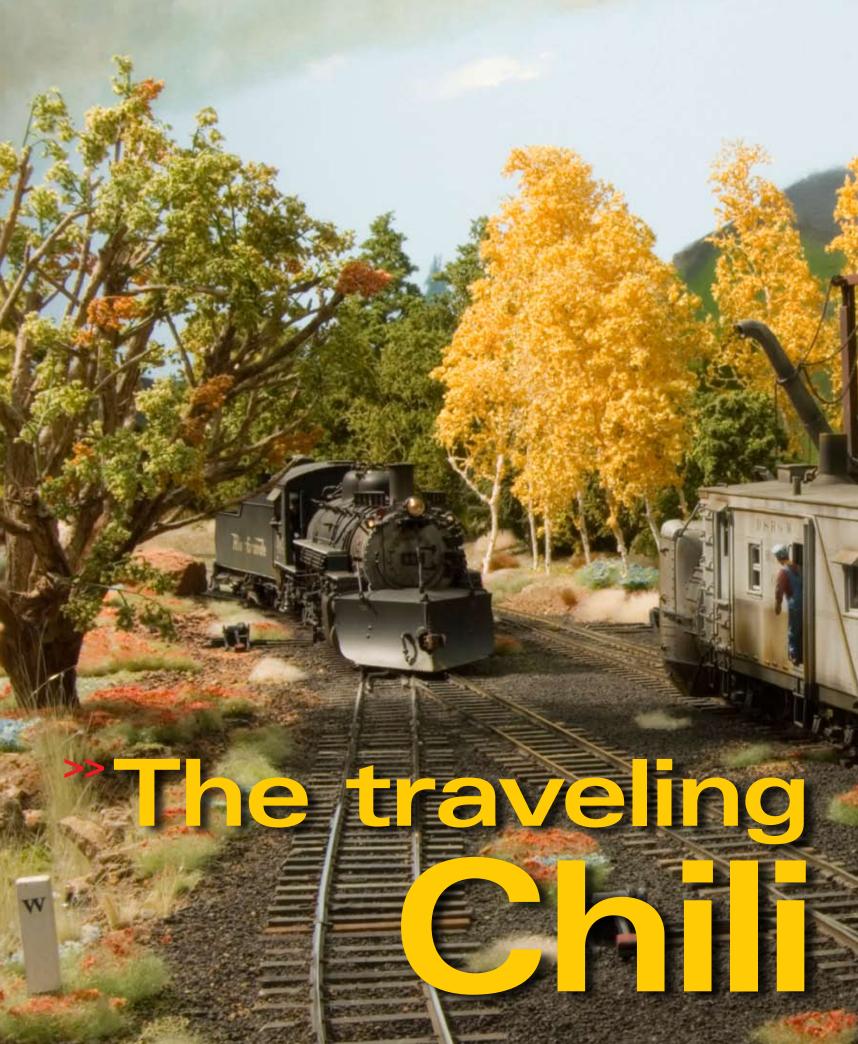
>> Meet Lance Mindheim

Lance, a frequent contributor, is owner of the Shelf Layouts Co., a custom layout construction and design firm. He got his start in model railroading when, at age 8, his parents built him a 4 x 8-foot HO layout. Lance is married to wife Cathy and they have a 12-year-old son Zachary. When he's not building model railroads Lance enjoys fishing, following the Washington Redskins, and feeding his addiction to TV crime dramas.

and there were few people I could consult with who had. I'd never modeled the modern era, and it had been some time since I'd modeled in HO.

I also acknowledge that my modeling interests going into this layout are of lesser interest to the modeling population as a whole. Would anybody even care to look at the finished layout? How would I feel if they didn't?

In the end it all worked out. The biggest lesson I learned is that you can get satisfaction from venturing into modeling areas that are outside your comfort zone. You may also find satisfaction in ending up with a model railroad that's a true joy to own, operate, and experience on a daily basis. GMR





This compact Sn3 Denver & Rio Grande Western layout is built for military moves

By Steve Amitrano • Photos by Tommy Holt

Indian Summer is upon the high country. The trees on the mountains are starting to show their colors, and the grasses in the valleys are turning golden brown. Crisp temperatures bring the foreboding hints of winter, and dark clouds lay heavy on the mountaintops. Storm clouds of another kind are gathering on the other side of the world as European powers march toward a second World War.

For now, southwestern New Mexico is far removed from the world stage and is starting to recover from the Great Depression. Railroading is back in the black, and the resurgence of commerce is keeping the rails polished. There's newfound pride in the mechanical department of the Denver & Rio Grande Western, with locomotives receiving fresh coats of paint and better-quality overhauls. Rolling stock is being repaired and upgraded, and facilities modernized.

The outlook of the narrow gauge line looks promising for the next few years. Even the new Rio Grande herald has been warmly accepted by all but a few of the old hoggers.

Welcome to my little piece of heaven.

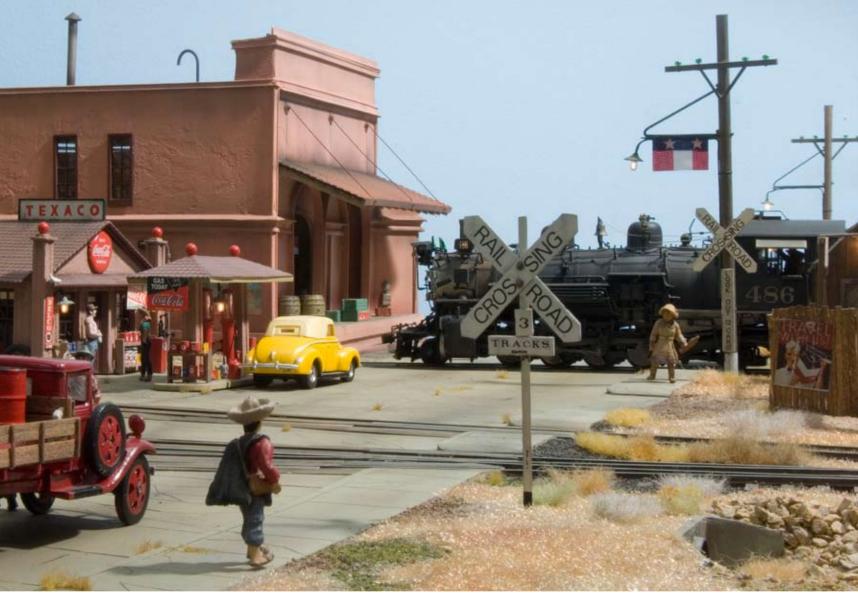
Design and concept

I'm now retired from the United States Air Force, but my wife is in for another few years. As members of the military we've been required to move every three or four years, so any railroad I built had to be movable. It's also a fact that military housing is often less than spacious. Most spare bedrooms are about 10 x 12 feet. In designing my layout, I started out with these as givens – movable and smallish.

I had a few other requirements. If space proved to be tight, I wanted to be able to set up and run at least part of the layout. I also wanted to be able to expand the layout in any direction, should more







space become available. I also wanted to get the layout finished and running in a reasonable amount of time.

Finally, in the military, we have a maximum-household-goods weight limit, so the layout needed to be lightweight yet durable enough to withstand some rough handling by the movers.

Benchwork versatility

Each table is built to be movable and can fit through a standard doorway. The

Engine no. 488 crosses a dirt road as a sedan crests the top of the hill. Blue columbines are in bloom on this summer day. Steve has planted hundreds of flower patches throughout the layout. Having the road go below the level of the tracks helps disguise the fact that the track itself is flat.

heaviest section weighs only 90 pounds, so I can jockey the tables, without assistance, to where they need to go.

When set up, the tables fit in a 10×12 space. To minimize the number of track breaks, I made them of different sizes. Even so, I still need to remove and replace 15 sections of track each time I move the layout.

When I laid the subroadbed, I sanded smooth all of the Homasote that spanned the seams. Then I painted it semi-gloss black. This keeps the ballast adhesive from bonding with the Homasote.

Removal of the track is simple. First, I remove all rail joiners and spikes, wet the area, and let it soak. Then I gently pull up the section of track; the roadbed remains intact. I rinse off the flextrack for reuse. Once I've removed the track, I scrape up the ballast and throw it away. This is the only thing that is non-reusable.

Morning rush hour in Santa Fe years ago meant something different than it does now as a K-36 blocks traffic while switching tank cars. The gas station and the farmer's co-op building are scratchbuilt. The co-op building's stucco finish is a mixture of baby powder and paint applied with an airbrush.

I use 1/4" carriage bolts to align the tables. The height is adjusted by leveling screws on each leg.

When I first completed the benchwork and the Homasote roadbed, I bolted the tables all together and taped rice paper across each seam. Then I walked on top of the layout. If the paper tore or wrinkled, I reinforced the benchwork. This ensured the layout would survive many moves and stay sturdy for years to come.

Before laying track, I sealed all of the wood, especially the Homasote. This may

>> Padding the layout for transport_



Steve has had to move the Chili Line often. As a result, he's devised all kinds of ways to protect the more-delicate features, including this water tower. Note the pegs used for repositioning.

When packing up the layout, I first lay out one-sided corrugated card-board, which I buy in 4 x 100-foot rolls. The layout piece is placed in the middle.

Next come two layers of $^{1}/_{2}$ " bubble wrap. This also is sold in 4 x 100-foot rolls. The bubble wrap protects the sides, top, and bottom of the layout pieces. This is followed by at least 4" of soft foam rubber all around. I label each piece of bubble wrap and foam the same as its table for easy repacking.

At this point, I fold the cardboard up, over and around the layout piece and use duct tape to secure it as you would wrap a present. This holds the other packing material in place and protects the outside of the layout. I add additional padding to the corners.

When all is said and done, I have a minimum of 6" of padding on each surface. The packing materials are lightweight and easy to use. The only thing that can't be reused is the cardboard.

Every time we've relocated, the movers are impressed by this method. They then build wooden crates for the tables so they can move them more easily. Of course, the crates provide additional protection.



>>The layout at a glance_

Name: The Chili Line

Scale: Sn3 (1:64, 3-foot gauge)

Size: 9'-6" x 11'-6"

Prototype: Denver & Rio Grande Western **Locale:** Chama and Santa Fe. N.M.

Era: mid-1930s to 1950s Style: doughnut Mainline run: 43 feet Minimum radius: 34" Minimum turnout: no. 6 Benchwork: L girder

Height: 54" **Roadbed:** Homasote **Track:** code 70

Scenery: Hydrocal and natural materials

Backdrop: hand-painted on 1/8" Masonite

Control: P-B-L Foreground Sound System II,
combined with stereo amplifier, reverb with

surround-sound speakers

seem like overkill, but our household goods are often placed in storage where there is no climate control. Unsealed Homasote and plywood don't handle moisture well. This extra work has paid off, as I have had no indication of roadbed or frame movement from changes in temperature or humidity.

Details and documentation

All detail items (telephone poles, figures, vehicles) had to either be removable or built to withstand the pressure of the packing foam when shipped. Delicate areas that cannot be removed are covered with plastic bowls before the table is packed (see "Padding the layout for transport" at the left).

All structures have permanent foundations, with some having pins that hold them in place and allow them to be exactly repositioned after they're removed. I've also color-coded each of the tables and their respective buildings and detail parts. For example, one table is designated yellow. The storage crate for the detail items has yellow markings, and each tree, telephone pole, sign, and figure is marked somewhere with yellow.

When that part of the layout is finally in its crate, I mark the crate with yellow paint. Months later, after a move, I know exactly what crate holds what. In addition, I have a continuity book with a layout drawing of each table's detail

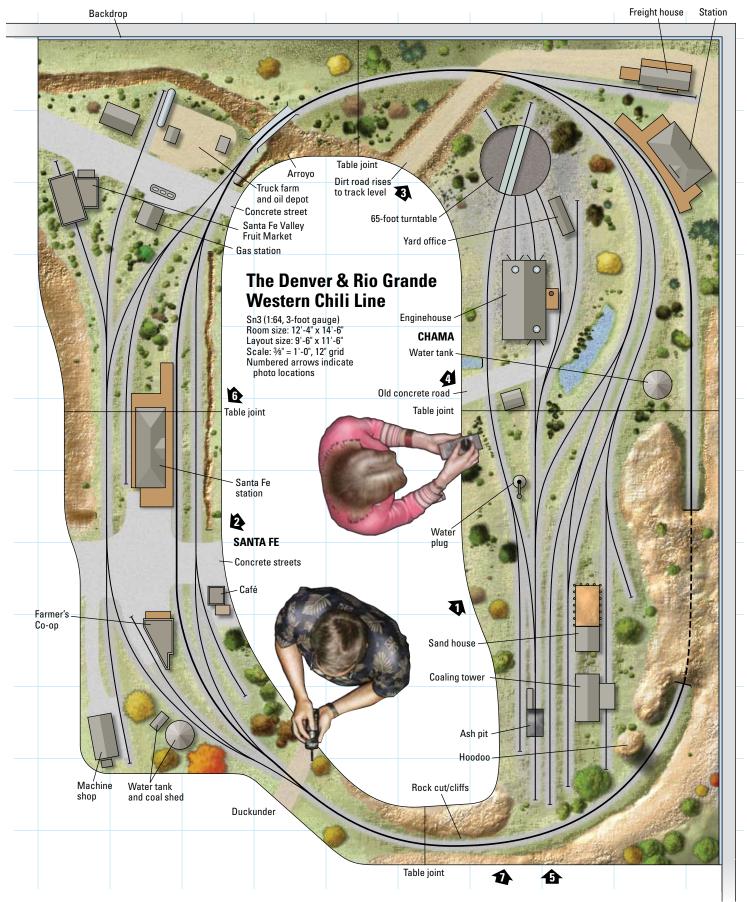


Illustration by Dick Skover



Two yard workers fixing a leaking water column give a friendly wave to the engineer of engine 486 as it chuffs past. The Mikado is backing through Chama Yard to make up its train for Santa Fe. The K-36 is a custom painted Overland Models engine.

items and buildings. This way everything goes back to the exact spot it was in before being shipped.

I have also written assembly and disassembly information, electrical schematics, paint formulas, and other helpful keys on the bottom of the layout. I need this kind of help when I need to figure out why I did something a certain way years after the fact.

Some other things I've learned

I use off-the-shelf, readily available materials whenever possible. If you're likely to move your layout at some time in the future, you're not going to want to try to find a replacement part that was unique to the region you're no longer in!

I firmly believe it's important to keep the trackwork and electrical system simple. I've seen huge, beautiful layouts that NASA technicians would find tough to keep in good condition. I keep mine simple, since I'm the one who has to fix it. I call this idea "Low-Tech/High-Touch."

I control all turnouts with Caboose Industries ground throws. This makes me slow down and "work" the line instead of sitting back and pushing a button. I've soldered feeder wires to the rail every foot or so for flawless conductivity. All wiring is high-grade stereo speaker wire.

Due to the layout's small size, I decided the track should have no grades. However, small hills, cliffs, and an arroyo break up the flatness. These terrain features disguise that the track is flat.

I attach the backdrops to each table in slots and bolt them in place. I have built-in shelves under the benchwork to store items. The layout skirt is black fabric attached with clothespins glued to the benchwork – cheap and reusable.

Rolling stock must run

If the locomotives I buy aren't already painted – or painted to my liking – I paint



them myself. In fact, only two of my nine engines still have their original factory finish. I've finished some engines in the late-1930s D&RGW scheme and others with the post-1940s flying Rio Grande. Each has its own unique appearance, but retains the Rio Grande family look.

I also removed the trip pins from the Kadee couplers. This does two things for me. First, it makes the couplers look more prototypical; second, it means I have to manually uncouple cars, as in the real world. Low-Tech/High-Touch again.

I follow a three-pronged cleaning process for flawless operation: locomotives, rolling stock, and track. If one of these isn't done, you simply continue to spread dirt and crud around the layout.

My diligence means that when I fire up the layout after months of inactivity, it runs like a marble on glass.

Once a year I inspect and clean each car. Twice each year I thoroughly inspect and clean each engine.

Cleaning includes all wheels, locomotive drawbars, drawbar pins, journals on the locomotives, tender trucks, and all other electrical contact points.

One of my standards is for each of my locomotives to run smoothly at a scale 2 mph – about 3 feet in 60 seconds.

This effort really pays off when running double-headed or when having a helper cut in at the rear of a train. There is no bucking and no derailments. And there's another advantage: reliable slow-

5 After taking a spin on the turntable, K-37 no. 492 eases through the enginehouse to the yard to pick up its consist. The enginehouse is fully lighted, including lights in the inspection pit.

speed operation makes a trip around the layout take longer, making it seem larger.

Buildings mostly from scratch

I've scratchbuilt most of the structures on the layout. There are a few kits, but those have all been modified to suit myself and their location. All of them, except for two small sheds, are styrene. My preference for plastic comes from its durability in long-term, non-climate-controlled storage.

Buildings that are readily visible have interior details and lights. All buildings have exterior lights.

As hard as I try, it seems like there's always a gap between the building and its foundation. To hide these gaps I airbrush the bottom edge of the buildings with flat black. That way, your eye doesn't catch the hard right angle.

On the Santa Fe side of the layout, I've applied a variety of Southwest-style stucco finishes. I finished one building with Squadron White Putty thinned with acetone. I troweled it on, and when it dried, stained it with pigments. I've finished other stucco buildings with white N scale ballast glued on with paint.

And I finished one of the newer buildings by mixing baby powder and paint and airbrushing it onto the building. This creates a striking stucco finish that's amazingly easy to apply. Best yet, it didn't plug up the airbrush (Badger 200-20) and went on at about 15 psi. This baby powder/paint mix is a also gap filler, so it covers unwanted seams.

Subtly seasonal

When designing the scenery, I made sure there were viewing "galleries" –

points where you'd view scenes without seeing the entire layout. Depending upon where you're standing, rows of trees, power lines, streets, and buildings force you to look at the layout in sections. This also keeps viewers from noticing the layout is flat.

My scenery conveys another subtle message. On the Chama, N.M., side it's mid-summer with green foliage and a little burnt autumn grass. I've also planted hundreds of colorful flower patches on the Chama side. The trackage on this side is well kept.

On the Santa Fe side, it's late summer with different shades of burnt grass colors and very little green. I've developed a technique to build up the grass height between rails so no ties show – just the tops of the rails. At eye level, it looks as though trains are running on a sea of grass. More than half the trackage on the Santa Fe side looks like this.

I built most of my trees. The hoodoos – wind-carved rock pillars – and rock tunnel are removable. In areas where Hydrocal rock castings can't be removed, their foundation is ½" insulating foam. No permanent rock feature touches the benchwork. The foam acts like a shock

The glow of coach lamps lights the scene a few minutes before sunrise as a potbelly stove warms passengers waiting in Santa Fe to board the northbound train. The Santa Fe station is scratchbuilt, and the Chili Line coach is a P-B-L model with modified interior and battery-powered lights.

absorber should the layout take a jolt in shipping. I have never found so much as a hairline crack in any of the rocks.

I consider the fascia a part of scenery. Mine has no right angles. I applied damp paper towels to the un-tempered side of a sheet of ½ Masonite. While it was wet, I carefully bent and secured it in the curves needed. I countersunk all of the fascia screws so it has a nice, smooth, museum-quality surface. This flowing fascia also makes the layout seem larger.

Slow speed really is slow

What makes the layout work for me is that I can visually dismiss named areas of the layout in favor of another location. In other words, Santa Fe doesn't necessarily have to be Santa Fe in my mind.





Some limitations exist only in the way we think and look at something. I don't lose sight of the fact that this is a hobby, and that to enjoy it, I must continually think in creative ways. In this hobby, imagination is essential.

When making up a train, on my layout Santa Fe is really an extension of the Chama yard. This provides a lot of fun and challenges, as no train can block a street for more then 10 minutes, and at no time can a stopped train block both streets. So longer trains must be set out in sections until departure time. Sometimes it takes 30 minutes to service a locomotive and assemble a train.

Once a train departs, a mind shift takes place. Chama becomes Chama and Santa Fe becomes Santa Fe, once again geographically separated. Limited siding lengths, slow-speed operations, and

Pengine no. 488 idles as the crew dumps its ashes. Meanwhile, other Denver & Rio Grande Western engines get ready for another day on the Chili Line. The stone engine house with its through trackage can be seen at the top left.

numerous street crossings make for an enjoyable time. I also imagine that trains that have traversed the layout a few times have reached other points on the Chili Line and switch out cars as needed.

Let's say that a train leaves Santa Fe for the journey north. I'll have the train use the runaround track behind the Santa Fe station as the main line, mentally not passing through Santa Fe. Then I'll switch the train into the siding in front of the Santa Fe station, imagining that this is Espanola, N.M., and that the freight house in Chama in the left far corner is an industry at Espanola.

Capitalizing on my locomotives' finetuned performance, I switch the layout at the blistering speed of 5 to 7 scale mph. This slow-speed operation brings out the laid-back operations of the Chili Line long forgotten.

With a short mixed train plying the rails through seas of burnt summer grasses complemented by high-fidelity steam sounds, one can easily slip back into a bygone era when life (and machines) were simpler and everything was a little slower.

That's what the Chili Line was – and still is – here in Central Texas. GMR

>> Meet Steve Amitrano

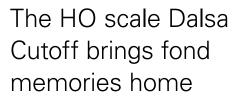


Steve retired from the United States Air Force after 21 years. His wife, Catherine, is an Air Force lieutenant colonel. Catherine and Steve have three children: Megan, 12; Andrew, 10; and Hannah, 6. Steve is also an internationally certified second-degree black belt in Songahm Tae Kwon Do. Steve finds that martial arts and full-contact fighting relieves the stresses of model railroading. Steve is also the owner of the Chili Line Railway Co., which does custom finishing on steam locomotives in all scales.



Deep in the heart of Texas







By Joe Mainz Photos by Tommy Holt

You might say that my wife, Sharon, and I have one of our favorite train-watching locations in our own backyard. No, we don't live next door to the Southern Pacific (now Union Pacific) in San Antonio. But we do have our HO Dalsa Cutoff layout, featuring the Espee line across central Texas between Hearne and Flatonia. It's in a building we built for it just out of our back door.

I've been an avid SP fan since the late 1950s. That's when my older brother painted my Lionel engine with the Espee's black widow paint scheme and my dad built our first layout. The SP was a natural choice to model since I grew up about five blocks from the SP's Sunset Route in southern San Antonio.

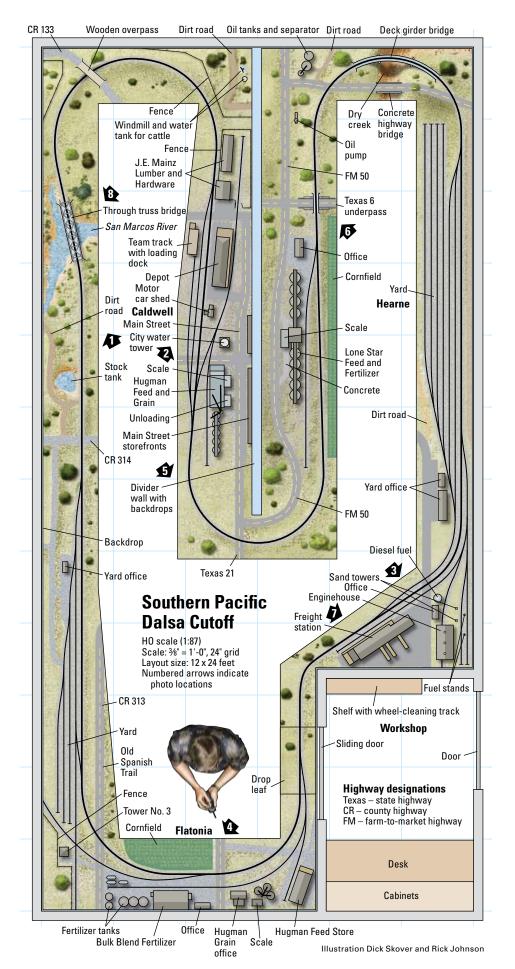
After building a couple of HO layouts on my own, we started our present model railroad in 1992, after Sharon and I moved to our current home. Over the years we've made several trips to Flatonia, about 80 miles east of San Antonio. That's where the Dalsa Cutoff, originally constructed as a shortcut between Dallas and San Antonio, connects to the New Orleans-Los Angeles Sunset Route. Some of those railfan trips extended up through Caldwell, Hearne, and many of the other small Texas towns in that area.

2 A Dallas-San Antonio freight has a clear order board as it rolls past Joe's scratchbuilt Caldwell depot.



I decided to model this line mainly because it was here, and especially in Flatonia, where we most enjoyed watching trains. Also it's fairly close, so we could check on prototypes as I was building, it has the kind of rolling farm country scenery I wanted to model, and it had a good amount of traffic.

[The Flatonia Subdivision, as the Dalsa Cutoff was formally known, formed a strategic link between the Cotton Belt connection in Corsicana, Texas, and the Sunset Route to L.A. It was



>>The layout at a glance_

Name: Southern Pacific Dalsa Cutoff

Scale: H0 (1:87.1) **Size:** 12 x 24 feet

Prototype: Flatonia Subdivision between

Flatonia and Hearne, Texas
Locale: south-central Texas
Era: 1970s into early 1980s
Style: linear walkaround
Mainline run: 88 feet
Minimum radius: 24"
Minimum turnout: no. 6
Maximum grade: none
Benchwork: L-girder
Height: 50½"

Roadbed: Tru-Scale milled wood
Track: Peco code 75 flextrack

Scenery: plaster cloth over aluminum

screen wire

Backdrop: ¼" Masonite hardboard Control: cab control with MRC Control Master 20 walkaround throttles

part of the route of the SP's – at times the world's – fastest freight trains, the *Blue Streak Merchandises* or "BSMs," from St. Louis and Memphis to Los Angeles. – *Ed.*]

The layout depicts the line between Hearne and Flatonia, part of the Southern Pacific's Austin Division in the 1970s and early 1980s. I've also modeled the connection with the transcontinental Sunset Route at Flatonia.

Layout building

Our railroad is housed in a dedicated 12 x 24-foot building in our backyard. We had it constructed in 1992 when we moved here, although I did all the interior finishing and preparation for the layout myself.

The backdrop is $\frac{1}{4}$ " Masonite hardboard painted a light sky blue. I constructed L-girder benchwork using 1 x 2s with 2 x 2 legs. In the areas that would be flat, such as the yards, I used $\frac{5}{8}$ " and $\frac{3}{4}$ " plywood. In open areas, the mainline sub-roadbed is also $\frac{5}{8}$ " and $\frac{3}{4}$ " plywood on risers with Tru-Scale roadbed.

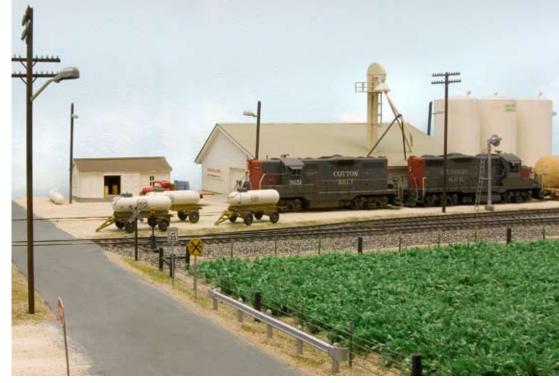
I used 1 x 6s as profile boards along the backdrop and the front edge of the layout, and cut them out with a saber saw to the terrain contours we wanted. The profile boards also gave us a place to tack the aluminum screen that supports our scenery. In addition, we tacked the



- In the wee hours, engine hostlers and mechanics at Hearne are preparing locomotives for the day's local freights. The office, enginehouse, and freight station (right) are all by Joe, who enjoys scratch-building structures.
- The Hearne local switches the fertilizer dealer at Flatonia. Joe and Sharon used AstrotTurf for the field in the foreground, thinning it out to form rows that resemble early corn.

screen to wood blocks of various heights to form the rolling landscape.

With the profile boards in place, we added a front fascia made from smooth wood paneling with its top edge cut to match the front profile. We made the lighting valence with the same paneling.



Scenery and design

Starting in the 1970s, we had several opportunities to visit David Barrow's Cat Mountain & Santa Fe HO railroad in Austin. I was most impressed with the overall feel of his layout. The room was neat and clean, the lighting was behind a valance that lined up with the front edge of the benchwork, and the scenery was simple and uncluttered. I knew this was my kind of model railroad.

I wanted to capture the feel of that 97mile stretch between Flatonia and Hearne, where small Texas towns with grain elevators, fertilizer distributors, and feed stores are spread across rural countryside with farms and ranches.

With the knowledge we gained from making many trips to the area over several seasons, I decided to set the layout in spring or early summer. That's when the local foliage shows off its best colors.

We used plaster cloth over the aluminum screen to model the area's rolling hills. We covered the plaster cloth with Gypsolite (used for texturing sheetrock) to make a smoother surface for the paint and ground cover.

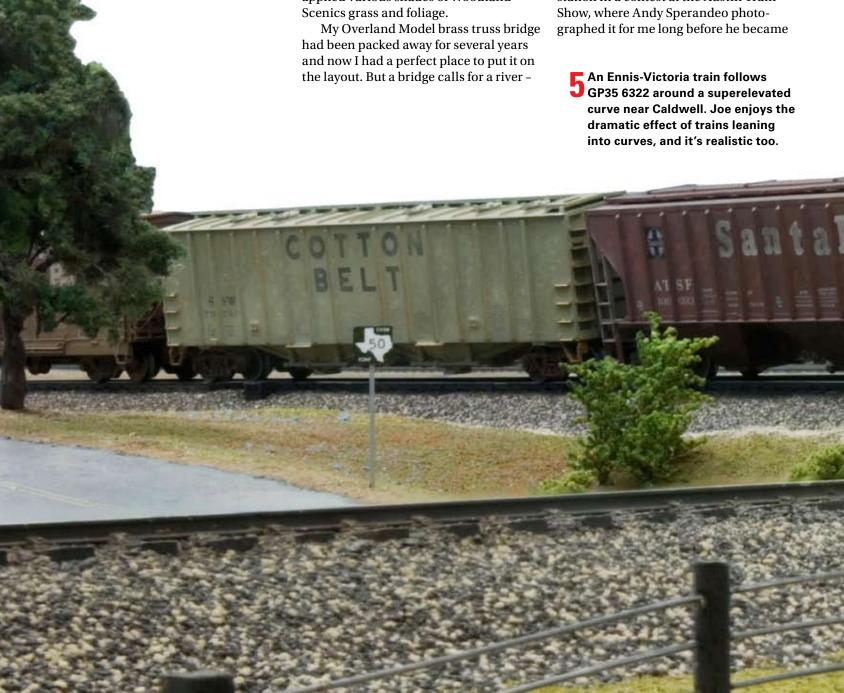
For the first layer of ground cover, we applied real dirt collected from Flatonia and the other areas we modeled. This helped to simulate the actual variety of soil types found in this region. We then applied various shades of Woodland Scenics grass and foliage.

the San Marcos in this case - and we had never modeled water.

Thanks to Chuck Ellis of Austin, who answered all our questions, we finally took the big step and used a two-part acrylic resin to put in the river and a nearby stock tank for cattle. We first applied dirt to the riverbed and the bottom of the tank. Then we tinted the resin with craft colors before we poured it. The tinting let us get the different hues we wanted for the river and tank.

Structures and track

Scratchbuilding structures is one of my favorite pastimes. The first one I built in the late 1970s was an SP no. 23 standard station. In 1979, I entered that station in a contest at the Austin Train Show, where Andy Sperandeo photographed it for me long before he became



editor of *Great Model Railroads*. That model is on the railroad today as the depot at Caldwell, Texas.

From that point on, I've scratchbuilt all the structures, signals, and other railroad items on our layout. I use photographs and measurements taken from actual buildings and structures. We always keep a tape measure in the car to measure things we see like buildings, fertilizer tanks, filler tubes, storage tanks, and signs.

The structures on our layout represent actual prototypes along the railroad we're

modeling, as well as some seen on other train-watching trips. However, with the exception of Tower No. 3 at Flatonia (Texas interlocking towers are identified by numbers), we've used them in freelanced locations, wherever they fit best on the layout. I display prototype photos of the items I've modeled on the front fascia.

I use a variety of items to weather models, from non-frosted eye shadows to Bragdon Enterprises powdered weathering colors. I think of weathering as an important part of the detailing of structures and rolling stock, and I treat my trackwork the same way.

I painted the rails and weathered the ties and ballast. I used a mixture of two parts black and one part white Highball Ballast because that's a close match to the ballast the SP used during the time I'm modeling. I also made sure to superelevate my curves because for me there's nothing better than watching a train banking into a curve.

Operating the railroad

As shown in the track plan, my layout is fairly simple. I use DC cab control with Model Rectifier Corp. (MRC) Control Master 20 walkaround cabs. Car movements are governed using car cards with waybills. I also use a card for each





locomotive unit and caboose, and I use the cards to keep track of maintenance for all rolling stock.

The particular card operation system I use was featured most recently in the Step-by-Step department of the February 2005 *Model Railroader*. Entitled "Moving freight and making names," it was

written by David Popp, who is now MR's managing editor.

I usually run a local from Hearne to Flatonia, setting out and picking up cars along the way. As I make up the train in the Hearne yard, I block (group) the cars in station order according to where they'll be set out.

Caldwell is my first stop. Customers there include a grain elevator, a lumberyard, and a team track.

After working Caldwell, my next stop is Flatonia, where there's a feed store, grain elevator, and fertilizer dealer. In addition, I work the Flatonia yard, where I set out and pick up cars that came up



A Texas Dept. of Public Safety trooper crosses under the tracks on state route 6 as the southbound Ennis-Victoria freight approaches. The old Union Switch & Signal Co. Style B lower-quadrant semaphores served through the 1970s on some former Texas & New Orleans lines in the Lone Star State.

>> Road signs_



Realistic highway signs lend authentic local flavor to the Dalsa Cutoff.

Some of the best scenery details on our layout are road signs for the specific part of Texas that we're modeling, as shown above. Most of them are made from photographs.

We've taken many pictures of county and farm-to-market road signs, highway signs, speed signs, and building signs.

We took several pictures of each sign we wanted to use, trying to shoot from as close and as straight-on as possible. So we'll know what size to make them for HO scale, we also try to measure all the signs.

Our good friend, Jim Hipp, also a modeler, scanned our photos into his computer and spent lots of time working on them using Adobe *Photoshop* and *Publisher*. He not only reduced the signs to scale size, but as the above-right photo shows, he also squared up any that were taken at an angle and corrected color problems as needed. He printed them on glossy photo paper for the look of enameled metal signs.

The next step is the signposts, like the example at right. Joe cuts out K&S .005"-thick brass shim stock to match the size of the sign. It can be cut with sharp scissors, and it makes a good backing for the photographic sign.

For round posts he uses Details Associates .033"-diameter brass wire, equivalent to $2\frac{1}{2}$ " pipe in scale. Joe solders the post to the the shim stock and paints the backing and post

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Joe and Sharon photograph signs they want to model, and friend Jim Hipp uses computer software to turn the images into scalesize glossy prints.



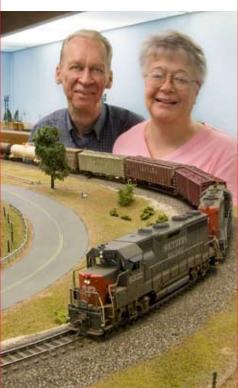
Joe uses brass rod and shim stock for posts and sign backing. The Mainzs attach the sign prints with clear-drying canopy glue.

with Model Master Aluminum Non-Buffing Metalizer lacquer. For sturdy wood posts, he uses K&S Special Shapes 1/32"-square brass bar painted an appropriate color after it's soldered to the shim stock. The final step is to attach the signs to the brass backing. We use clear-drying model-airplane canopy glue.

We used this photo technique not only for all our highway signs but also for the product signs on our feed stores. When we couldn't photograph signs on the prototype stores, our friend Jim found the manufacturers' logos on the Internet and printed them out to scale size for use as signs. – *Joe and Sharon Mainz*



>> Meet the Mainzs



Joe and Sharon Mainz

have been married almost 40 years and in model railroading almost that entire time. They are both members of the San Antonio Model Railroad Association (SAMRA), and Sharon currently serves on the board of directors and the layout management committee of that group. They enjoy traveling, train-watching, and photographing trains and the buildings that go with them.

They want to recognize the help their friend Jim Hipp has given them with signs – see "Road signs" on page 53. They also want to thank two more friends and fellow members of SAMRA: Paul Steves for all his work on getting their track plan drawn in *CADRail*, and National Model Railroad Association Master Model Railroader Al Boos for sharing his vast knowledge on scratchbuilding structures.

The Hearne yard switcher, a pair of Electro-Motive MP15s m.u.'ed nose-to-nose, shuffles boxcars at the freight house to serve offline customers. The railroad's radio tower stands between the freight house and the enginehouse.

from the Victoria Subdivision (represented by an off-site staging yard).

I turn the train at Flatonia, "turn" in this case being railroad terminology for swapping ends with the engine and caboose. On my return trip to Hearne, I work Lone Star Feed and a small fertilizer cooperative.

When I arrive back in Hearne, I cut off the road engines off and take them to the enginehouse. Then I re-block the cars with one of the Hearne yard switchers to



A local freight rumbles over the pin-connected through truss bridge over the San Marcos River. The river, poured with two-part acrylic resin, represents Joe and Sharon's first attempt at modeling water.

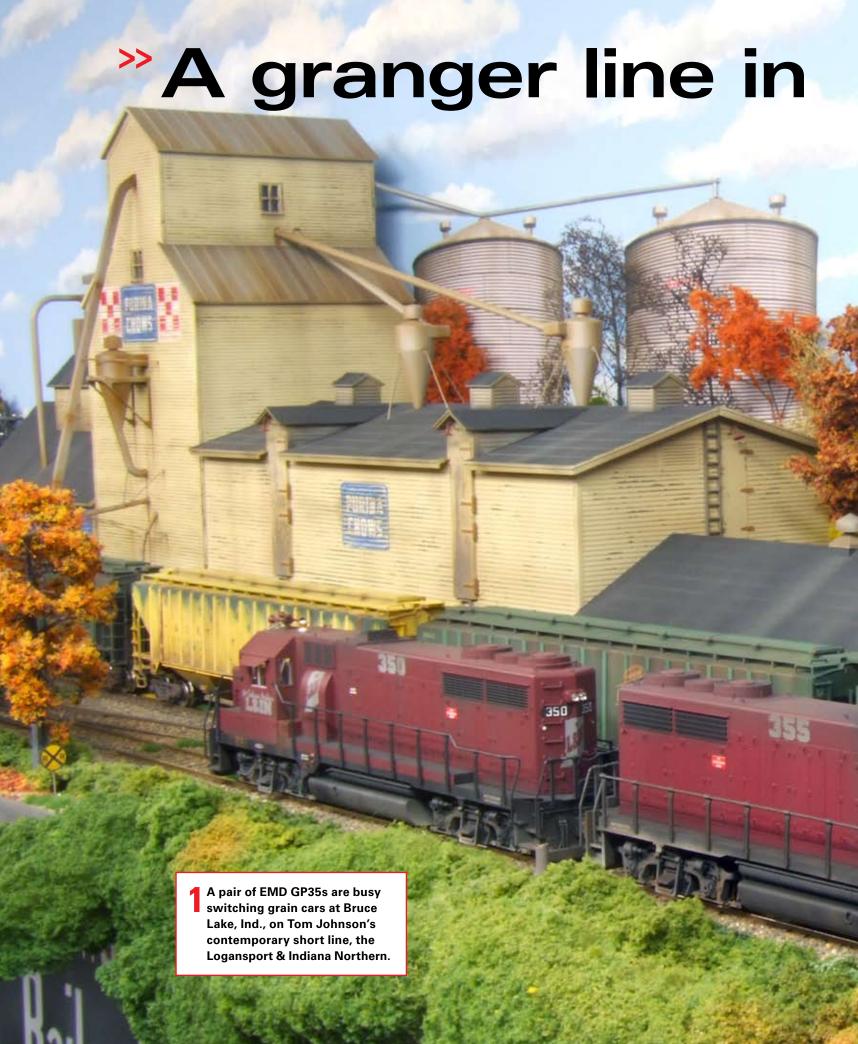
make up another train. In addition to doing yard work, the Hearne switch engines have to take care of the freight station and other local customers in town. There's plenty to do and a typical session lasts about two hours.

Never done

Although the layout appears to be finished, there's always more to do. I want to plant more trees and Sharon wants to add clouds in addition to the horizon shading we've already done on the backdrop.

I'm in the process of rebuilding my scratchbuilt searchlight signals to make them both closer to scale and more prototypical in configuration. We also want to increase the amount of detail on the layout in general.

I'm currently working on a new lighting system using WireMold tracks and compact fluorescent bulbs. At some time I might convert to Digital Command Control (DCC). Although I can operate the layout now without DCC, today's control systems offer features I really like. Thinking about the ability to program engines to run together in a consist, the constant lighting, and the advantages of wireless handheld controllers, it gets harder and harder to keep doing things the old way. GMR



Hoosier country

Shortline railroading on the HO Logansport & Indiana Northern

By Jim Six • Photos by the author





The roots of Tom Johnson's Logansport & Indiana Northern (L&IN) go back to his childhood in the early 1960s. Tom's uncle would set up his American Flyer trains in a spare room so the two of them could spend many hours running trains. But, local prototype railroads also played a big part in Tom's current model railroad.

Tom grew up in Plymouth, Ind., a small town where the Pennsylvania RR main line crossed the Nickel Plate Road's Michigan City branch. While the busy Pennsy was always of interest, it was the Nickel Plate that became Tom's favorite. In fact, the temptation remains to rebuild the L&IN to represent the Nickel Plate's Michigan City branch.

By the time he started the present L&IN in 1995, Tom was "hooked" on branchline operations in northern Indiana. He wasn't interested in big-time Class 1 railroading, but found he preferred a branch or shortline theme that wouldn't be overly demanding on his time or resources. The idea was to limit the real estate along both sides of the track so he could spend time detailing the layout for maximum realism.

Coupled with the slow pace of a short line is Tom's love for the old grain elevators and the covered hopper cars that serve them. He's also interested in the older structures that populate rural Indiana, so the L&IN provides the perfect setting for his artistic skills.

Concept

Tom's L&IN is a freelanced presentday midwestern shortline railroad that's part of the Indiana Northern Rail Corp., or INRAIL. The INRAIL system includes two other contemporary short lines owned by his friend, Quintin Shini: the Marion & Indiana Northern (M&IN) and the future Hoosier Northern (HN).

In theory, Tom's L&IN was originally part of the PRR, running north from Logansport to South Bend, Ind. While it survived as a Penn Central branch line, 2 Short lines seldom take much time to paint locomotives, but here's an updated L&IN GP35 that carries the new INRAIL System colors.

the L&IN was later spun off by Conrail and became independent in the late 1970s. It became part of the INRAIL system in the early 1990s.

Layout construction

Overall, the L&IN is an 85-foot-long shelf layout that snakes around the perimeter of two rooms. It ranges in width from 6 to 20 inches. The narrow right-of-way allows both rooms to also serve as family living space.

Several small towns and industries occupy the wider areas, while the right-of-way between towns is narrow. It's a short line with simple track arrangements that don't require much depth.

Tom supported the layout using metal brackets on 12" centers. The layout's height is 60", providing great eye-level



This L&IN crew is picking up interchange cars the Norfolk & Western left for them on the main line just north of the crossing at North Logan.

viewing. The narrow shelf made it easy for Tom to complete the scenery in a short period of time.

Even more important, the narrow layout is simple to maintain and keep clean. Everything is within easy reach, so Tom can clean the track and vacuum the entire layout in less than an hour!

Scenery

Tom used a variety of materials in constructing the L&IN's scenery. The ground cover is sifted real dirt mixed with other model materials made by Highball, Woodland Scenics, and Scenic Express. Tom uses diluted Elmer's glue to hold these texture materials in place.

For the wooded areas, he used a combination of Super Tree kits and ready-to-install trees from Woodland

Scenics and Scenic Express. To further enhance the appearance of these commercial trees, Tom added ground foam foliage and painted the trunks to bring out the bark detail.

Tom also made his own trees from natural materials, such as goldenrod, found in nearby fields. After spraying the goldenrod with adhesive, Tom dipped it in ground foam foliage. He then added a coat of hairspray on top helped hold any loose foam in place. Once the homemade trees were dry, he used them mostly for fill behind the foreground commercial trees.

The backdrop is made of tempered hardboard. Tom painted the clouds and trees using acrylic and oil paints. He painted the backdrop trees with a fine

Frick Services is a major customer at Kewanna. On this run, the L&IN train crew is working with INRAIL no. 2751, a former Conrail U23B.



Taking time to add moldings and cover all of the raw wood gives the railroad a finished look like built-in cabinetry that's part of the room.

Abandoned

elevator

Lucerne

Lucerne elevator

Countrymark

Co-op elevator

Anhydrous

dealer Wilson's

Kewanna

Railroad

sheds

maintenance

Frick Services
elevator
Depot

Bar MM Feed & Supply

Lynn's Coffee Shop Devon's Farmers

Antiques Co-op

ammonia

Grass

Creek

Depot

Karrie's Antiques

Metea





Name: Logansport & Indiana Northern

Scale: H0 (1:87.1) **Size:** 24 x 26 feet

Prototype: freelance short line **Locale:** northern Indiana

Era: present day

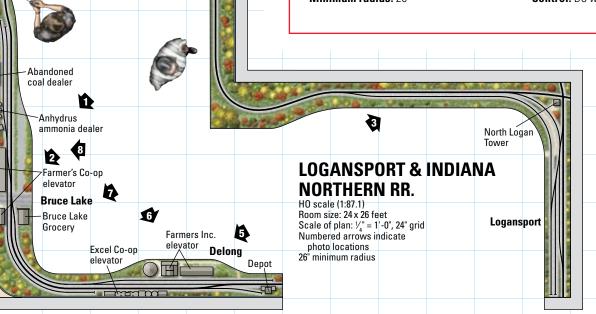
Style: around-the-walls shelf Mainline run: 85 feet Minimum radius: 26" Minimum turnout: no. 6
Benchwork: shelf brackets

Height: 60"

Illustration by Elisabeth Kelly

Roadbed: cork on ¾" plywood Track: code 83 flextrack Scenery: plywood covered with real dirt and ground foam texture

Backdrop: tempered hardboard **Control:** DC walkaround throttle



The Excel Co-op elevator at Delong is the L&IN's largest customer. This elevator even has its own Alco S-1 switcher to move cars around.

brush and gray and black acrylic paint to look like they've already lost their leaves. He added the twig detail with a finepointed marker pen and colored pencils.

To add more depth and ease the transition from foreground to background, Tom attached some of the trees to the backdrop. He made these backdrop trees using natural materials covered with polyfiber and ground foam.

Most of the structures are built from plastic and wood kits. Many of the plastic structures were kitbashed in order to make them look different from the original kits. Tom painted and weathered all of his structures and added many typical details. He made many of the signs from decals, or cut signs from photos he's taken during railfan trips.

Train service

Like most modern short lines, the L&IN maintains close contact with its customers and operates trains as needed. Waybills are used to route the cars to various destinations across the railroad.

The L&IN is a single-track railroad with passing tracks and spurs that serve industries commonly found in northern Indiana's small towns. Even though the railroad operates only one train at a time, the passing sidings are maintained for runaround switching moves. Many of these communities have only one siding that still serves a grain elevator.

Logansport is the south end of the L&IN, and South Logan Tower is the site of a major interchange with RailAmerica, Norfolk Southern, and the Winamac Southern. Two long tracks west of the tower allow RailAmerica to set out covered hoppers, but most inbound cars come off the NS, which leaves its interchange deliveries on the L&IN main line just north of the diamond.

Other towns along the modeled rightof-way include Lucerne, Metea, Grass Creek, Kewanna, Bruce Lake, and Delong where the L&IN interchanges with the Hoosier Northern. All of these places represent actual small farm towns with populations under a thousand. Each has its own grain elevator. These towns have



>>Narrow shelf layout construction_



Most visitors who see the Logansport & Indiana Northern RR are curious about how I built and attached my benchwork to the wall.

My benchwork is very narrow, ranging from 8" to about 16" at most. It's attached to the wall with metal shelf brackets. A contractor recommended using metal brackets mounted on 12" centers. See photo above.

On top of the brackets, I mounted 8- and 10-foot lengths of good quality 1"x12" shelving boards. For sections of the layout that are wider than 12", I attached additional boards on the inside edge to produce a wider shelf. I then added a layer of 3/4" plywood glued and screwed on top of the shelving boards. The front edge of the layout shelf is gently contoured to avoid long straight edges. I finished the front edge with a trim molding. After 10 years of service, I haven't had any problems with this construction method.

To soften the edges of the shelf, I extended some of the foliage over the edge of the layout so it covers parts of my trim strip.

Visitors regularly comment on how narrow the layout is. Since I primarily model the right-of-way, I'm not interested in modeling a large amount of country-side. The layout averages about a foot wide and is approximately 85 feet long. But, building such a narrow layout reduced the cost and the time needed to complete construction, including the scenery. – *Tom Johnson*



The co-op grain elevator across the street is a good railroad customer, but the hot food at the Bruce Lake Grocery makes it a popular stop for hungry train crews.

old signs, gas pumps, and pop machines dating from the 1950s through the 1970s.

In keeping with Tom's "Keep it simple principle," the L&IN is operated using a single walkaround DC cab and a P-B-L Foreground Sound System II.

Rolling stock

The primary locomotives for the L&IN and other INRAIL short lines are Electro-Motive Division GP35s. Other motive power that can be seen on the L&IN and other INRAIL layouts are General Electric U23Bs and B23-7s, EMD GP38s and GP40s, and a few old Alcos. Most of this power can be found on the much larger M&IN district of the INRAIL system. All of Tom's locomotives have extra details and weathering.

Today's INRAIL locomotives feature a simple red-and-gray standard paint scheme that uses colors similar to those on the old Monon passenger equipment. Tom also has a number of locomotives in the earlier L&IN maroon and gray paint as well. A few units appear in the M&IN's red and gray and the HN's green and gray. Patched-out former Conrail and Burlington Northern second-hand locomotives can also be found in service on the INRAIL railroads.





Spotting a loaded ammonia tank car at the Bruce Lake fertilizer plant is the last switching move no. 254's crew has to finish before lunch.

they're leased by private owner grain companies or co-ops. Occasional tank car loads of anhydrous ammonia are handled for the fertilizer dealerships. Boxcars and other types of rolling stock are rare, and most visitors soon figure out that Tom's secondary hobby is modeling grain hoppers!

Continuing enjoyment

One of Tom's primary goals for the L&IN was to have a layout that would be something to enjoy when he retires. This means it had to be easy to build, maintain, and operate. The future will continue to see more refinements as Tom continues to enjoy making small changes in the scenery details and adding or changing structures. Tom's also planning a couple of extensions that will add more customers to the L&IN. GMR

>>Meet Tom Johnson



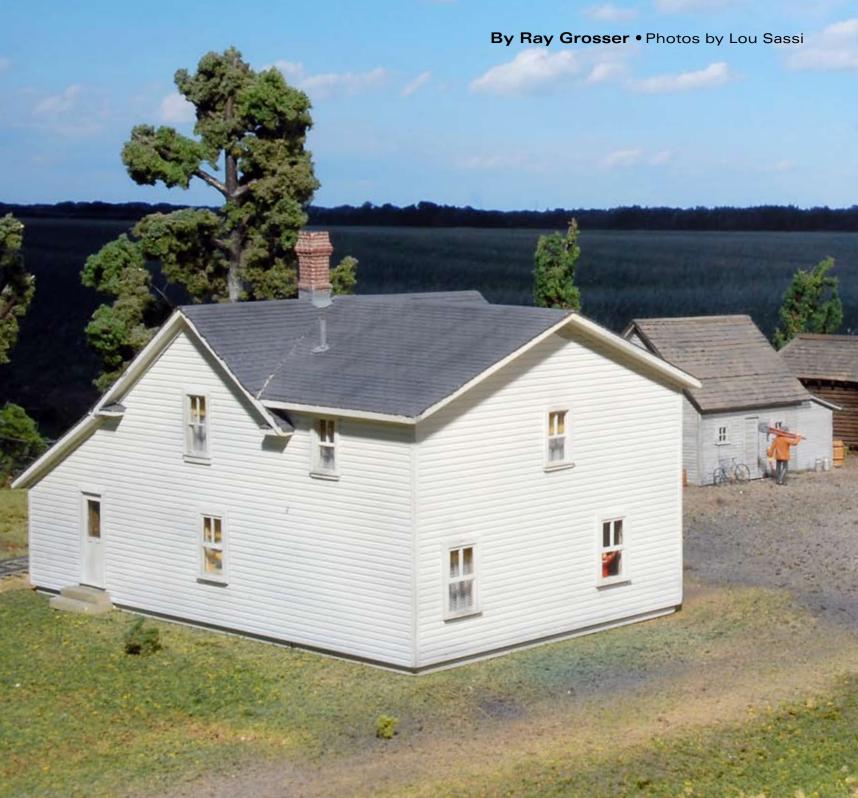
Tom has lived in rural northern Indiana his entire life where he and wife Jane are teachers. Both of them are true artists and craftsmen (Jane makes collectable dolls and bears). Besides working on the layout, Tom spends time doing other artwork including painting. Tom also enjoys railfanning and photographing trains – primarily covered hopper cars, grain elevators, and other old small town structures.

Thanks to freelancing, Tom enjoys running the older locomotives seen on many shortline railroads today. As Tom puts it, "The trick to realistic freelancing is to keep what you do reasonable. Think about how a real short line would resolve a particular problem without exceeding the constraints of a tight budget."

Small contemporary short lines don't own rolling stock, so most of the 100-ton grain cars operating on the L&IN are owned by the connecting railroads or

*Follow the Soo Line a Cross

Transition-era scenes highlight this 18 x 34-foot HO layout



the plains

My wife Renee and I built our HO model railroad to showcase the granger setting of the Soo Line in northern Minnesota during the 1950s. Granger refers to the farmland and farmers of the upper Midwest who often belonged to the local Grange or farmer's association. We both grew up in that time and place and have strong connections to railroading.

Since we modeled so many of our favorite places, we call our layout the Grosser's Nostalgia Trip.

Watching trains run through each detailed scene conjures up many pleasant memories for us. After years of taking our sectional layout to shows and conventions, we retired it from the road and added to the main line.

A GP9 hauls a local passenger train past the Fasen Farm on Ray and Renee Grosser's HO layout. Renee Grosser scratchbuilt the structures from photos of a farm belonging to family friends. The layout features many superdetailed scenes.





>>The layout at a glance_

Name: Grosser's Nostalgia Trip

Scale: H0 (1:87.1)
Size: 18'-0" x 34'-0"
Prototype: Soo Line
Locale: plains of Minnesota

Era: 1954

Style: sectional doughnut with peninsula

Mainline run: 130 feet Minimum radius: 48"

Minimum turnout: no. 6 yard, no. 8 main line

Maximum grade: .8 percent Benchwork: modified L-girder Height: 35½" to 42½"

Roadbed: 1/2" Homasote on 1/2" plywood

Track: code 70 flextrack

Scenery: Sculptamold over foam and hardshell **Control:** Digitrax Digital Command Control

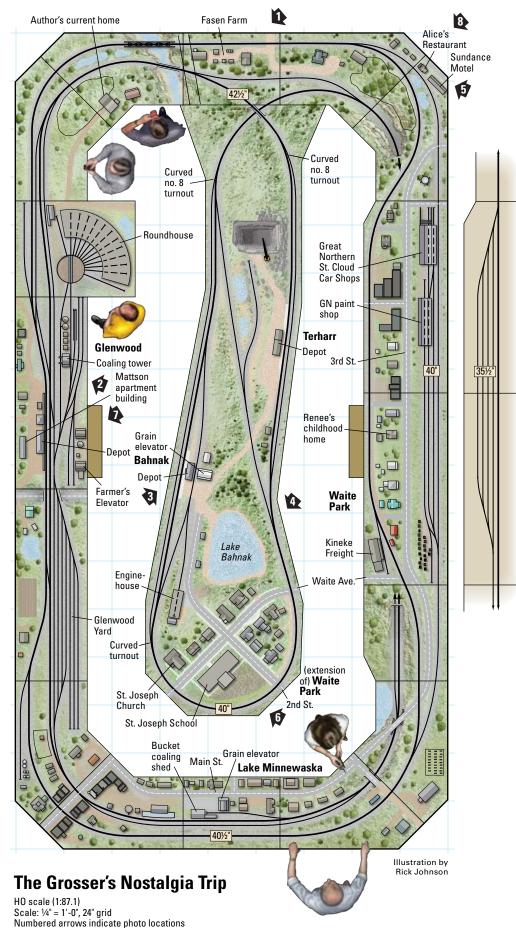
Expanding the railroad

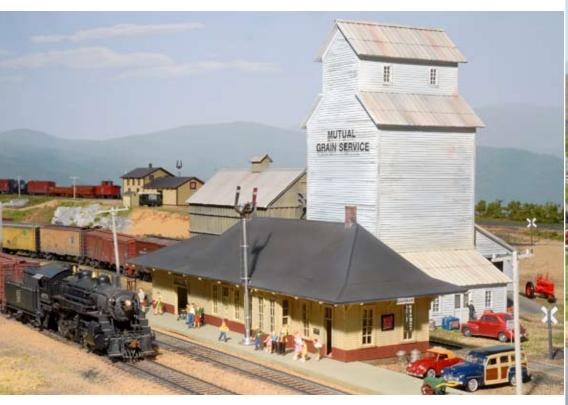
We began building our Nostalgia Trip in May 1996. Featured in the April 1998 issue of *Model Railroader*, the layout was originally designed to be sectional so that we could more easily transport it to shows and conventions.

By 2002 we'd stopped transporting the layout to shows and constructed a new building to permanently house the railroad. Because we no longer had to worry about regularly moving the railroad, we expanded the layout from 14 x 34 feet to 18 x 34 feet. This also allowed us to add a peninsula in the center, representing the fictional towns of Bahnak, Minn., named after Renee's sister, Donna Bahnak, and Terhaar, Minn. named after another friend that we knew back in Minnesota.

Even though we no longer take the layout to shows, we still enjoy sharing our railroad with visitors. We designed the room around the layout to be comfortable for a large group of people. Just like at a train show, we want our guests to be able to view each detailed scene on our Nostalgia Trip from as many different angles as possible.

2 Engines no. 4000, a 4-8-2, and no. 1017, a 2-8-2, take on coal at Glenwood. Ray Grosser scratchbuilt the coaling tower using plans from the Soo Line Historical & Technical Society.





3 A family waits at the Bahnak depot for Soo Line train No. 53. Renee Grosser scratchbuilt the depot, grain elevator, and most of the rest of the buildings on the layout.

Campers arrive for the weekend at Lake Bahnak while train No. 53 meets train No. 6, a local freight. The red enginehouse was scratchbuilt by Bob Hundman.



Like many modelers, Renee started scratchbuilding out of necessity. When she couldn't find model kits that resembled the structures that she wanted to model, she developed her own set of techniques that have helped her complete many superdetailed, award-winning models.

First she finds as many photos of a structure as she can. If the structure still exists, we'll take photos of all four sides and the corners. We'll also compile any dimensional data that we can, especially if the structure no longer exists.

Using the photos as a guide, Renee then sketches scale drawings of each side. These drawings provide templates for cutting the walls out of styrene and show the proper placement of the doors and windows.

Renee's preferred material is .060" thick styrene that she purchases in 4 x 8 sheets. She cuts out main pieces of the structure using a band saw then sands all the edges. She uses files for window and door openings.

With the quality and variety of commercially available window casings, siding, and doors, Renee rarely has to scratchbuild these details, which saves a lot of time. She also uses a lot of American Model Builders laser-cut shingles.

One detail that she includes that many modelers neglect is the metal flashing between the roof sections and roof and walls. For HO scale flashing, she cuts strips from aluminum foil that she then glues to the appropriate joint between wall or roof sections.

After a finished structure is painted and weathered, she mounts it to a 1/2" thick piece of Homasote using Liquid Nails. This helps make the walls look like they're resting on a foundation rather than bare earth when the finished model is installed on the layout. – R.G.



The new section, like the rest of the railroad, represents the plains of Minnesota in 1954. We are very careful to make sure that all of our structures, automobiles and vehicles, and other details are appropriate to that date.

An accurate roster

The Soo Line was near the end of its steam-to-diesel transition in 1954, so we can run some of our favorite steamers as well as first-generation diesel power.

Before factory-painted Soo Line models became available, I painted my own Soo Line F3s and other diesels. I have a large collection of brass steamers including at least one of every Soo Line engine ever modeled. We run all the

Not all the buildings are northern prototypes. Although it fits the layout's setting, the motel is based on a structure in Kentucky.







locomotives on the layout. Renee and I worked hard on our model railroad and think that's the best place to display such fine models.

I've also taken care to accurately represent Soo Line's rolling stock roster. I've built many resin car kits sold by Dennis Storzek as well as Des Plaines Hobbies Soo Line grain cars. I also built eight passenger cars using car sides sold by the Soo Line Historical & Technical Society [See the SLH&TS Web site at www.sooline.org. – *Ed.*]. Two of the cars on the layout are completely scratchbuilt:

a wood baggage car converted for tool storage and a gondola used at the cinder pit in Glenwood.

Hometown scenes

We've done our best to make the scenery on the layout look like the northern plains. The maximum grade on the layout is less than 1 percent. Along with commercially available scenery products, such as ground cover from Woodland Scenics, water effects made with Enviro-Tex, and tall prairie grass by Noch, we used some natural materials.

Much of the ground cover includes real dirt and gravel that we brought back with us from trips to Minnesota.

Railroads are significant to both of us. Renee grew up in Waite Park, Minn., across the street from the Great Northern Ry.'s St. Cloud car shops where her father and other relatives worked. As a boy in Glenwood, Minn., I saw many Soo Line steamers firsthand. My father was a rear brakeman on the Soo for 47 years, and our house was 300 feet from the depot.

Both towns are represented on the layout, including the yard at Glenwood



and the car shops in Waite Park. When we can, we include models based on actual structures from 1954. A few of the houses are based on photos of some of our friends' homes and businesses from other places.

Scratchbuilt structures

I consider the scratchbuilt structures to be the highlight of the layout. Although we didn't have space to model everything in the two towns, we did our best to capture some of the favorite scenes from our childhoods.

Renee scratchbuilt most of our structures from photos and any available dimensional data, and her skills are extraordinary. (See "Scratchbuilding tips" on page 68.) Along with the structures on our layout, she has built more than 200 models for others. She has won many National Model Railroad Association awards for structures and scenery.

Some of the structures were built from plans provided by the SLH&TS. These include several depots as well as the roundhouse and the McHenry two-pocket coaling tower at Glenwood Yard.

Train No. 53 heads past St. Joseph School and St. Joseph church. Both the school and the church are based on prototypes in Waite Park, Minn., which is Renee's hometown.

Originally Renee and I started scratchbuilding because we couldn't find kits that looked like the buildings that we remembered or wanted to model. We do have some kit-built structures on the layout, but all of the models are superdetailed or modified to fit a specific location. These include many of the bridges





and the buildings in the fictional town of Lake Minnewaska.

Running the railroad

Since we designed the layout mainly for display purposes, it features a two-track main line that supports continuous running. That way we don't have to worry about the trains as we talk to visitors or answer questions. Although we don't hold any formal operating sessions, there are some locations that would support some switching work should a visiting operator like to give it a try.

We run the railroad using a Digitrax Digital Command Control (DCC) system. Although we usually use only two DT-400 throttles, the layout has had as many as four operators at once running trains. Except for the turnouts at the yard in Glenwood and Waite Park, which are connected to control panels, most of the turnouts are also operated with DCC. The

7 Engine no. 473 switches cars at Glenwood Yard. The brown building behind the Glenwood depot is a model of the Mattson Apartment House where Ray grew up. The layout was designed in sections so that it could be easily moved. No longer a traveling railroad, it's housed in a newly constructed building on the Grosser property.

walkaround operation offered by DCC is a great way to run a model railroad.

Another feature of DCC that has added to the realism of the railroad is sound. All of our steam and diesel locomotives are equipped with SoundTraxx sound decoders.

Moving on to O scale

Even before this layout was completed, we started work on an O scale model railroad, also based on the Soo. Housed in an old barn on our property, this layout provides a place for me to run some of the O scale equipment that I've built over the years. It will also be a showcase for Renee's modeling efforts in this larger scale.

We've enjoyed building our model railroads and sharing them with others. For both Renee and I, this hobby has been a great way to celebrate some of our favorite memories. GMR

>>Meet the Grossers



Residing on a farm in central Kentucky, Ray and Renee Grosser got back into model railroading in 1990. Both are accomplished modelers and have built several model railroads together. Ray is an National Model Railroad Association master model railroader and Renee has won many NMRA awards for her models.

In 2002, after years of taking their layout to shows and conventions, the couple and 24 of their friends raised a new building to permanently house their Nostalgia Trip.

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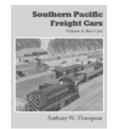
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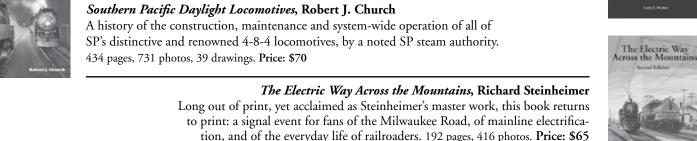


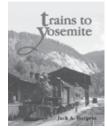
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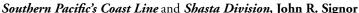
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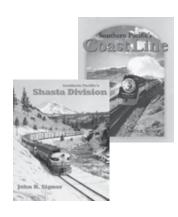
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Freelancing in the northland

Though fictitious, the HO scale Bona Vista RR operates like the real thing

By Gerry Leone
Photos by the author

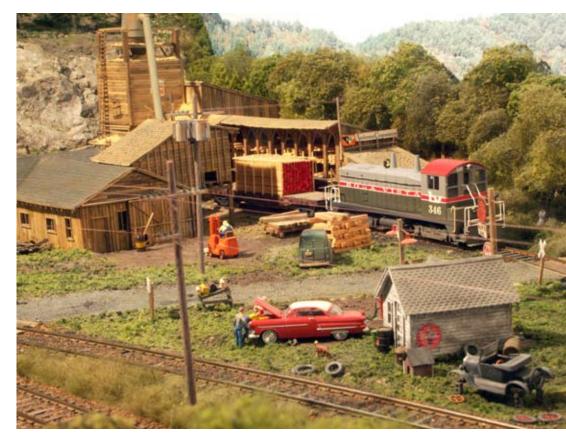
In a time when more and more hobbyists are modeling specific prototypes, I've taken the railroad less traveled (apologies to Robert Frost) and have gone the freelance route with my HO scale Bona Vista RR (BVRR). Though freelancing may not be the choice *du jour*, I find that it gives me the freedom to create my own plausible railroad from scratch and design my own world in a prototypical manner. It's sort of the ultimate "what-if" scenario.

No, the BVRR doesn't follow the Union Pacific's timetable. Nor does the trackage represent Santa Fe's Carlsbad District. And the towns aren't based on recognizable landmarks. That's not to say that the layout isn't realistic. To the contrary. The Bona Vista could have been the real world had Mother Nature chosen to follow my lead.

The story behind the BVRR

It's 1953, and somewhere in the northern wilds of Wisconsin and Minnesota a short line manages to exist serving small industries in remote communities. The

Bona Vista 2-8-0 no. 28 leads a way freight over Wallace Lake on Gerry Leone's freelance HO scale layout. The model railroad is set in the forests of northern Wisconsin and Minnesota and features hundreds of hand-made trees.



railroad has three divisions (only one is modeled, two are return loops) and several interchanges with larger railroads, but it subsists mostly due to its own good will, personalized service, cut-to-the-bone rates, and loyal customers.

Although the railroad just purchased its first diesel locomotive, an Electro-Motive Division SW7, the BVRR keeps costs down by buying second-hand locomotives and freight cars. The short line knows that a new coat of paint and a little elbow grease can create a good image even on run-down equipment.

The railroad's daily operations are relaxed because there's little outside traffic on its out-of-the-way trackage. There are no timetables.

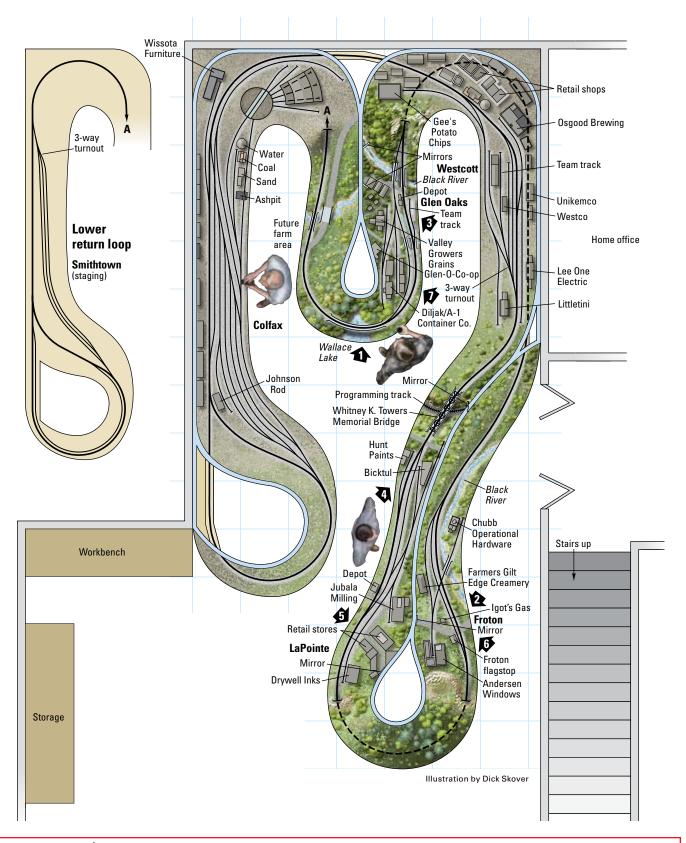
That's the philosophy behind the Bona Vista: almost, but not quite, in its

In 1953, railroads throughout the country were in the midst of the steam-to-diesel transition, and the Bona Vista was no exception. Here, SW7 no. 346, the only diesel on the railroad's roster so far, switches Andersen Window.

own little world. Admittedly I've stretched the fabric of plausibility at times, but then isn't that what we do with no. 6 turnouts and 30"-radius curves anyhow?

New interests, then a new house

This layout is the third incarnation of the BVRR. The first two, built in a South Minneapolis attic in the late 1970s, were great exercises in learning what I liked about this hobby (scratch-



>>The layout at a glance_

Name: Bona Vista RR Scale: HO (1:87.1) Size: 14'-6" x 30'-0" Prototype: freelance

Locale: northern Wisconsin and Minnesota

Era: 1953

Style: walkaround Mainline run: 200 feet Minimum radius: 30"

Minimum turnout: no. 6 (mainline), no. 5 (spurs)

Maximum grade: 1 percent Benchwork: L-girder

Height: 49" to 57"

Roadbed: cork over 5/8" plywood

Track: code 83 flextrack

Scenery: hardshell and foam insulation

Backdrop: 1/8" painted hardboard

Control: Digitrax Digital Command Control

building, scenery, and operating) and how not to design a layout (spaghettibowl track plan and 36"-deep scenery).

The name Bona Vista was a tongue-incheek moniker I'd given to a college garden apartment that looked out on the undersides of car bumpers. I figured (mistakenly) that if *buena vista* means "good view," then "bona vista" must mean "lousy view." The name has followed me around ever since.

After building those first two layouts, my head got turned by the opportunity to form a weekend rock band and relive my youth. The next two decades were filled with saloon smoke rather than locomotive smoke.

When I finally came to my senses, my wife and I had the basement-less house, where we then lived, knocked down and replaced with a new one that included a basement. Four months later, I added electrical circuits, hung drywall, and installed a drop ceiling in the basement.

I started work on the current Bona Vista RR on April 24, 2000, when I built the first L girder.

A one-man band

The first two BVRRs also taught me that I'm a lone wolf by choice. I build alone and I operate alone.

But I didn't know if I would stay that way. I concluded that the track plan should be designed to be operated solo most of the time, yet it should be designed to accommodate extra operators if some friends suddenly showed up on the doorstep wanting to run trains.

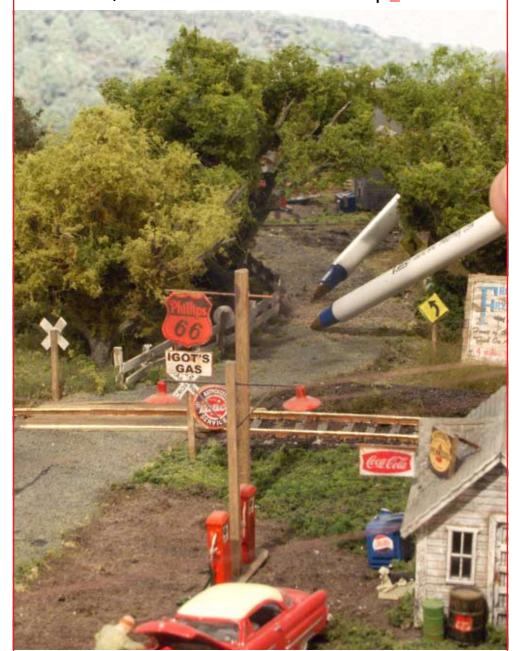
In addition, I wanted as long a main line as possible. It's not that I particularly like long trains. Rather, I wanted the luxury of putting "spaces between places" on the layout. I wanted to feel like the train was somewhere but going somewhere else.

Those spaces give the layout a sense of focus, too, because they serve as negative view-blocks – they spotlight what's there and focus a viewer's attention. The spaces between places also meant that trains would pass through scenes only once.

Though I enjoy switching locals, I found it too easy without the occasional interference of other rail traffic. Somehow a provision to accommodate mainline trains had to be built in.

My solution was a stacked, loop-toloop track plan. Adding a long main line between the loops would mean having a

>>Mirror, mirror on the backdrop_



Taking a page from the late John Allen, Gerry placed mirrors against the backdrop to give the illusion that the scenery goes on farther than it actually does. So far, Gerry has five mirrors on the layout.

John Allen, the "Wizard of Monterey," used mirrors effectively on his famed HO scale Gorre & Daphetid layout, so I thought I'd try his technique on my model railroad.

At Froton, I had a road that ended at the backdrop – or so I thought. Thanks to a cleverly placed mirror, hidden by a tree canopy, I was able to suggest that the road continues to the other side of the layout. Because the road and mirror meet at a 90-degree angle, the illusion is virtually undetectable.

There are five mirrors on the layout, and I plan to add more. I've found that front-surfaced mirrors, where the light doesn't have to pass through the glass first, work better than the rear-surfaced kind. With front-surfaced mirrors you can bring scenery directly up to the reflective surface without the telltale gap of the glass thickness. -G.L.





3 A handful of passengers look on as gas-electric no. 51 eases up to the platform at Glen Oaks. Once the passengers have boarded, the self-propelled car will proceed south to Smithtown.

near-constant grade, but because it was 1 percent or less, it wouldn't be serious enough to affect performance. I found I could build five towns and a small yard, yet keep those coveted spaces between places I envisioned.

The double loops mean I can set a through freight off on its own (I've nicknamed them "drones") while I operate the way freight. The drone then traverses the layout from top to bottom and back, giving me the sense that more of my little world is alive than just what's in front of me. It also gives the way freight operator the fun frustration of having to clear the main occasionally.

Finally, the loop-to-loop design was less daunting for me to build than a double-deck or mushroom layout. I feared I'd be staring at plywood far too long with either of those approaches.

I did, however, make some concessions. First, to accommodate the long main line I had to add a tunnel, an uncommon feature on Midwestern railroads. I later discovered this was a concession well worth making. The hidden trackage adds an element of time passage that wouldn't happen if the train were always in clear view.

The second concession was aisle width. I willingly traded wide aisles for more scenery. The Bona Vista's 24" minimum aisle clearance is admittedly tight when several people are visiting the layout, but it's more than adequate when I'm alone, which is the majority of the time. It's also a good incentive to watch what I eat!

Smaller can seem larger

In a hobby where illusion is everything, one more principle guided my

Timely, personalized service is what the Bona Vista is known for. Today, SW7 no. 346 (Gerry's master model railroader number, see page 85) is busy spotting cars at the Bicktul Co. in LaPointe.

layout design: relative sizes. To create the illusion of a larger layout and longer main line, I run short trains and model smaller structures. Sure, I love scenes where huge factories dwarf the trains that serve them, but you won't find them on the Bona Vista.

I keep way freights to a maximum of eight cars, while through freights can be as long as 12. Running short trains allows me to keep passing sidings short, the towns small, and spaces between places large. As a result of such downsizing, the layout feels bigger than it is.

Likewise, having smaller industries means I can either put more of them in a given space (as I plan to do with my "big city" of Westcott, named for former *Model Railroader* editor Linn Westcott). Or, I can use my spaces between places principle on the town level to make it appear that the industries are more spread out. I've even kept certain scenery elements, such as trees, shorter.

The nuts and bolts

I built the layout on L-girder benchwork, using Hydrocal and paper towels over crumpled newspaper wads for scenery. I experimented with extruded-foam insulation as subroadbed in Glen Oaks, but I found the wheel noise to be excessive and annoying. Subroadbed around the rest of the layout is all 5/8" plywood.

I made the backdrops from curved 1/4" hardboard. Where the backdrops are teardrop-shaped, I wrapped the hardboard around 15" cardboard concrete footing forms. In hindsight, this was my biggest design flaw. The teardrop-shaped backdrops make photography in those areas extremely difficult. I'll eventually replace them.

After painting the backdrop with a roller, I used a Wagner paint gun to spray the lower third of the backdrop with a mixture of sky blue and white, giving the illusion of atmospheric haze. Finally, I used a spray adhesive to mount commercial photos in place on the backdrop.

5 Vintage wood and brick buildings line Neener Street in downtown LaPointe. Gerry elevated the downtown area four inches higher the surrounding terrain so it would be closer to eye level.

>> It's not just a dummy track_



Where does that track beneath the bridge go? Nowhere. It's the programming track for Digital Command Control-equipped locomotives.

Programming tracks for Digital Command Control locomotives don't always have to be empty sidings or located in a hidden staging yard. I placed a track in the valley below the Bona Vista main to suggest that there is another railroad passing through the area, or so it looks.

To wire in my Digitrax DB150, which doesn't have dedicated programming terminals, I inserted a double-pole double-throw switch into the unit's output wires. One side goes to the main line, the other to the programming track. Thanks to this "one or the other" approach, I'll never program all of my locomotives to address 24 again! -G.L.





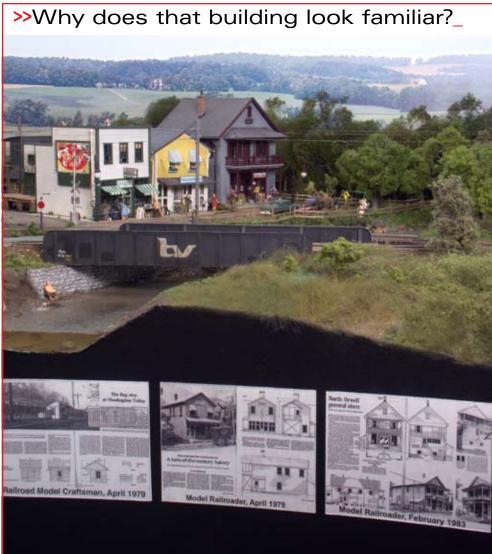
All track is Atlas code 83 flextrack; the turnouts are by Walthers. I discovered too late that although the rail itself is the same height between the two brands, the ties are not. Consequently, I had to shim all of the turnouts with .020" styrene strips.

Once I'd installed the track, I randomly mixed Polly Scale Roof Brown, Railroad Tie Brown, Southern Pacific Gray, and Grimy Black on a cardboard palette for use as tie paint. I sprayed the mainline rail with a mixture of Polly Scale Rust and Grimy Black; I painted the spurs Rust.

The two return loops mark the highest and lowest points on the layout. The upper loop and Colfax yard are 57" above the floor; the lower loop and Smithtown (hidden staging) are 49" high.

Colfax Yard's two ladders are controlled with diode routing wired into twin-coil switch machines. All other turnout points on the layout are moved by hand and frogs are electrically switched using a double-pole double-throw slide switch actuated with a push rod. [See the "Easy turnout controls" article in the May 2003 issue of MR – Ed.]





Many of the buildings on Gerry's layout were built from articles in the hobby press. He mounted copies of each story on the fascia by the finished structure.

Whenever I host an open house, I often have more questions than mouths to answer them with. Many of the questions are about the structures, several of which were built from articles in the hobby press.

To help respond to those "is this a kit?" questions, I used my computer to scan the opening two pages of the article I followed to build each structure. Then I added the magazine name and publication date.

The printouts are about 4" wide. Before attaching them to the fascia, I spray the front of the printouts with adhesive and then apply acetate. The latter protects the sheets from damage should visitors rub against them passing through the aisle. – *G.L.*

6 Mechanics tending to the 1953 Ford Victoria at the 66 station pay little attention to Bona Vista no. 22, seen here switching cars at Froton.

Operation for one – or more

With my layouts of the 1970s, I moved from the thumbtack method of car forwarding to car cards. But with this layout I immediately adopted computerized switch lists.

After investigating the alternatives, I settled on *Ship It!* from Albion Software. It's somewhat complex to set up (thank goodness for the users' group on Yahoo!), but once that's accomplished, generating switch lists is no more difficult than hitting a button on the computer. As I

have it set up, the program generates yard and engineer switch lists for four trains per day (two through freights and two way freights). The computer remembers where everything is, what items industries use and produce, how often they need and load materials, and which cars are available. It even allows for the existence of the offline industries in the

Having finished up its switching for the day, Bona Vista 0-8-0 no. 24 and a bobber caboose wait between assignments on the siding next to Diljak/A-1 Container Co. Bona Vista's other two divisions (Black River and Smithtown, which only exist as the return loops).

Since there's no timetable, the layout is easily operated by one person. After I build the through freight in the yard and

set it in motion, I assemble the way freight. Next I use Westcott's switch engine to pull that town's outbound cars and set them out for pick up. Finally, I start the way freight on its way and work each of the towns around the layout. These jobs could be easily split among four or more operators, when and if that





Railroad Association's Achievement Program. In 2002 I halted all work on the layout and devoted the next three years exclusively to getting my master model railroader certificate. I'm proud to say that I became MMR no. 346 in January 2005.

Now, finishing the layout's scenery is my top priority. I've already begun fleshing-out the Colfax Yard area, and the farm area across the aisle won't be far behind. My biggest challenge will be the layout's largest city, Westcott. Though the track is in place, few of the structures have been completed. Raggedy old buildings from the previous two versions of my layout continue to serve as standins until the development starts and the final structures are in place.

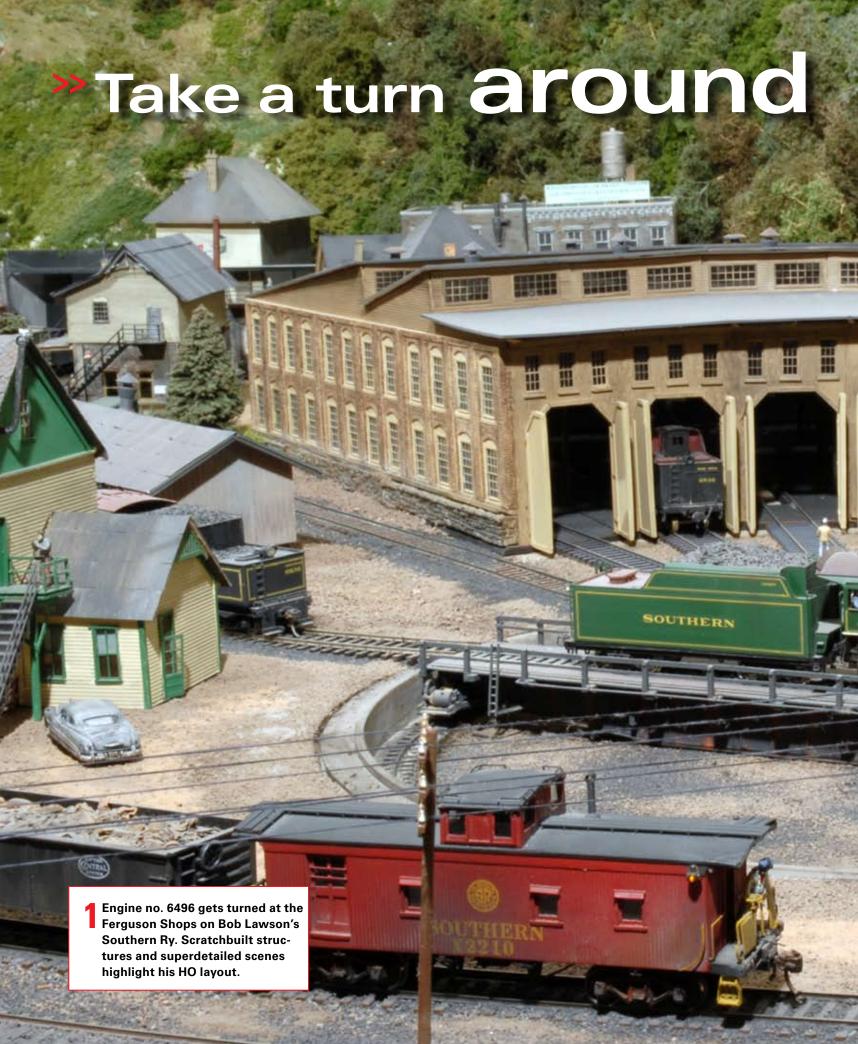
So many vistas still lie ahead. And no one's happier than me to say that they all appear to be *buena vistas*. GMR

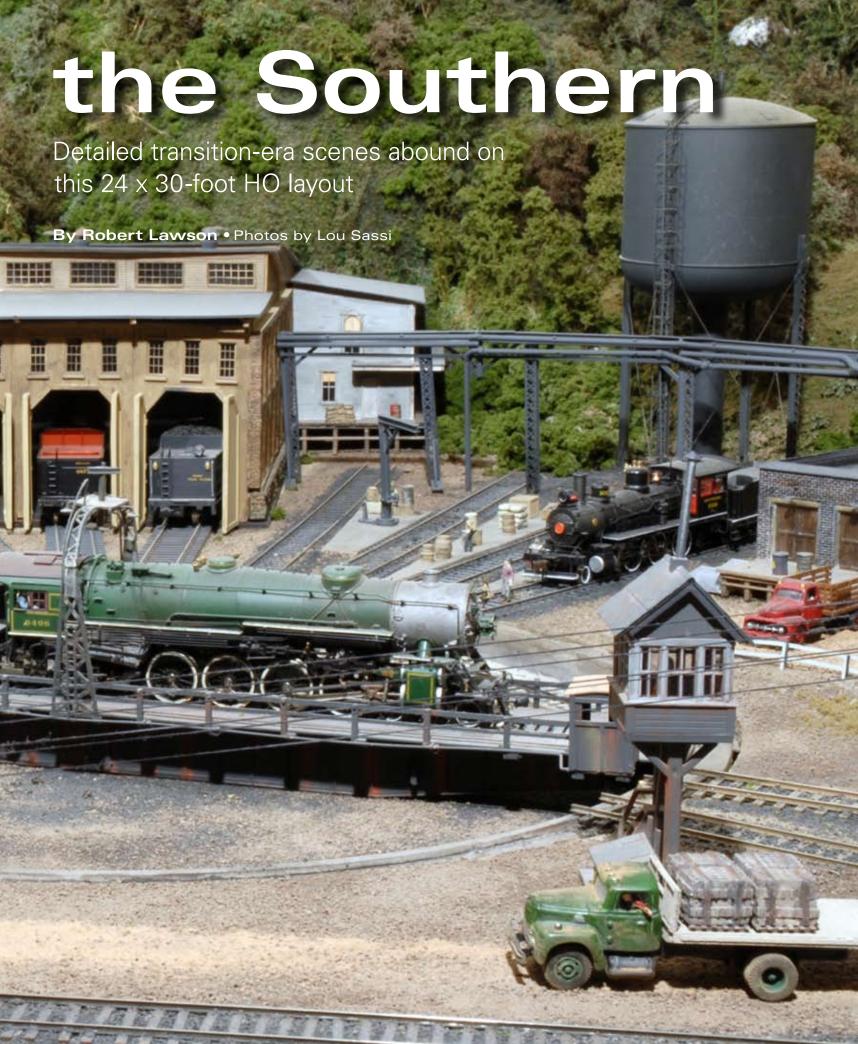
>>Meet Gerry Leone_



Gerry Leone is a senior writer for a Minneapolis advertising agency. Besides working on his layout, Gerry edits the National Model Railroad Association Thousand Lakes Region's newsletter and serves as deputy chair of the organization's national membership services and promotion department. He's authored more than two dozen articles for model railroad publications, including "Easy window treatments" in the September 2007 issue of *Model Railroader*.

Gerry and his wife Renay – who's a master gardener and quilter – have been married for 22 years and live in suburban Minneapolis.







Known as the "Rathole"

division, the Cincinnati, New Orleans & Texas Pacific was once a strong subsidiary of the Southern Ry., especially in the era I model, the post-World War II economic boom of the late 1940s and early 1950s. Centered around Danville, Ky., where the CNO&TP met the Southern's line to St. Louis, my HO Southern Ry. lets me celebrate the heyday of my favorite railroad. I've always been a Southern Ry. fan, and the railroad has played an influential role in my life.

I went to college to become a mechanical engineer, specifically to work for the Southern Ry. After a stint during the 1960s working for the Southern's mechanical department, I went to work for the Southern Iron & Equipment Co. (SIECO) designing freight cars, such as the Thrall-built all-door boxcar. Following this period I worked as an architect and builder. My experience in the rail-

road and building industries made me a better modeler, which was especially helpful when I built the layout of my dreams at my home in Danville, Ky.

The expanded Southern

When construction began in 1992, I planned to use only part of my home's three-car garage to house the layout. However, the garage soon became the "train building" and was dedicated to housing my model railroad.

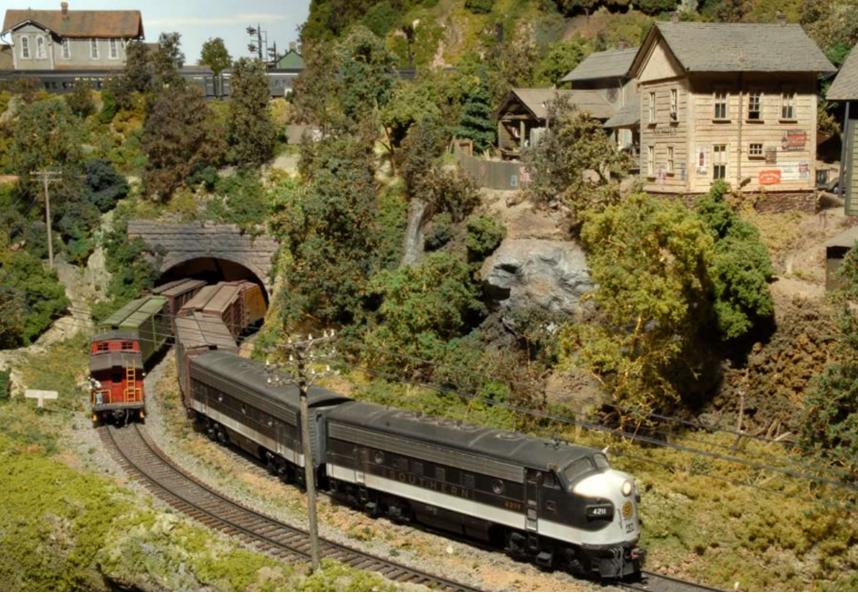
At the time when my layout appeared in the August 2003 *Model Railroader*, I'd completed the area around Danville. Since then, I've fully scenicked most of the railroad and also made some modifications. I've changed the orientation of the roundhouse and turntable at the Ferguson Shops in Somerset.

I've also added more industries, including a lot of the coal mines typical

2 Led by 2-10-2 no. 5225, a train of perishable freight in PFE reefers speeds towards Chattanooga. Bob scratchbuilt the Weissinger Coal Co. in the background.

of the area. One of the mines above Danville is actually N scale, including the track running into it. This N scale line, which I operate using an auto reverser, makes the scene appear much deeper than it actually is.

The layout would be fun for a formal operating session, but there aren't many model railroaders in this part of Kentucky [However, there are some great layouts. See "Sharing the hobby" on page 92. – *Ed.*] I didn't want the railroad to collect dust until I found enough operators to fill a call board. Therefore I designed the track plan so that I could easily run it myself. The five mainline loops allow continuous running.



Since I live out in the country and have some additional space available, I've built a 30 x 30-foot addition to the train building. I've begun construction on two more benchwork sections. These will represent Chattanooga and Cincinnati. My ultimate goal is to model the entire main line of the CNO&TP.

As a final touch to dedicate the new addition, I built a replica of a heavy-weight observation car platform that I use for a back porch, complete with a *Queen & Crescent Limited* drumhead. It's fun to sit back, relax, and imagine that I'm riding down the main line.

A transition-era roster

I model the steam-to-diesel transition era. That way, I can have F units in twotone paint running alongside steamers in Virginia Green.

Although I've bought some imported brass locomotives, I also have a lot of

plastic ready-to-run engines. The variety of models currently available has meant that I've had to make few external modifications to my fleet.

The same holds true for my freight and passenger cars. Although I don't add extra detail parts, I do weather all my equipment and make sure that my cars are equipped with metal wheels, operating couplers, and weights that follow the National Model Railroad Association (NMRA) recommendation.

For me the most exciting modification that I make to any of my locomotives is to add a sound decoder. It adds an entire new level of realism to the models.

Removable scenes

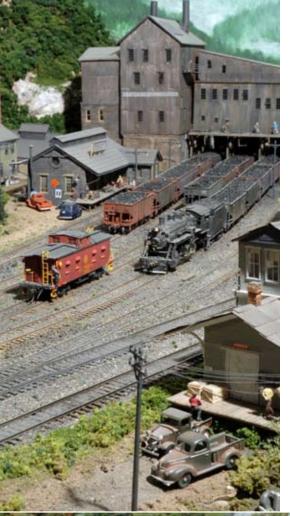
More than 30 of the scenes on my layout are individual dioramas, ranging from 12" x 12" to 30" x 48" in size. The dioramas are attached by a couple of screws in the benchwork, making them

Flying extra flags, F7 no. 4211 passes a local freight heading into Danville. Bob models the steam-to-diesel transition era.

easily removable. After applying some extra ground cover, the seams of each scene are invisible when the dioramas are in place on the layout.

The base for these dioramas, as with most of my scenery, is ½-pound density foam in 2", 4", and 6" thickness. I use Hydrocal for additional scenery contours and scenic the layout using every commercially available ground cover material. I also use real dirt from my yard.

I'm a big fan of the diorama approach to building a layout. First, it makes a layout easier to move should you need to relocate. I had the unpleasant task of having to cut apart an earlier O scale layout back in 1972 and learned my lesson. Also, working on a diorama allows



you to focus on a single scene, working through to its completion.

I've removed many of my dioramas and taken them to train meets where I've shared them with other modelers. I like to give modeling clinics, including one on building dioramas.

Superdetailed structures

For more than 25 years, scratchuilding structures has been one of my favorite parts of the hobby. My experience as a building contractor and architect have helped me complete structure building projects relatively quickly.

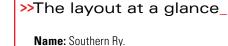
- Hoppers line the tracks at the Elliot Mine's coal tipple. All the buildings are scratchbuilt, and the entire scene is a removable diorama.
- 5 A local train stops at the Houstonville depot. The train, trestle, and mine in the background are N scale to provide the illusion of distance.

I work from prototype photographs for any scratchbuilding project. Working from prototype measurements, as well as footprint requirements on the layout, I start by making a scale drawing of the structure on ruled velum.

All of my scratchbuilt structures are constructed from a variety of materials, including styrene, wood, and plaster. For example, I built the large Ferguson Shops roundhouse based on photos of a Chicago & North Western prototype. The structure was close in appearance to steam-era roundhouses used by many railroads including the Southern. The walls and their double-hung windows matched plaster wall sections that I'd purchased from a vendor who had gone out of business. I purchased most of that vendor's remaining stock and have used these as masters to cast plaster walls for many of the structures on the layout.

There are some craftsman kits from Fine Scale Minatures and others on the layout, but I've done my best to disguise their kit origins. Along with modifying rooflines or window arrangements, I never use the decals that come with a kit. Instead I'll design my own signs that I'll then send to my friend Mike Tylick. He turns my drawings into custom decals, which he'll then send back to me.

As with diorama construction, I've given many clinics on structure building at NMRA meets. Many modelers are



Scale: H0 (1:87.1) Size: 24 x 30 feet Prototype: Southern Ry.

Locale: central and eastern Kentucky **Era:** 1945 through the early 1950s **Style:** walk-in with one duckunder

Mainline run: 425 feet Minimum radius: 30"

 $\label{eq:minimum turnout: no. 8 with some no. 6} \label{eq:minimum turnout: no. 8}$

Maximum grade: 1.5 percent

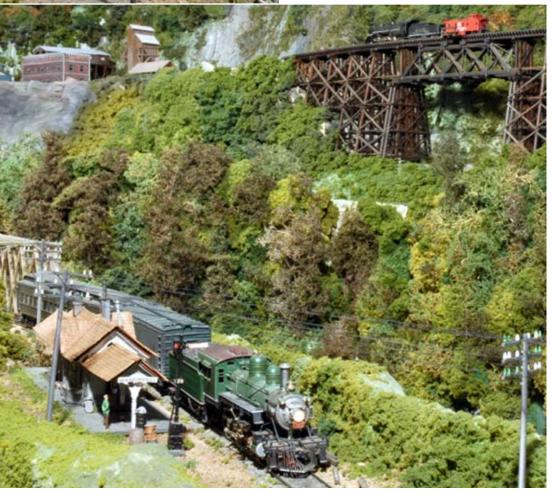
Benchwork: L-girder **Height:** 42" to 54"

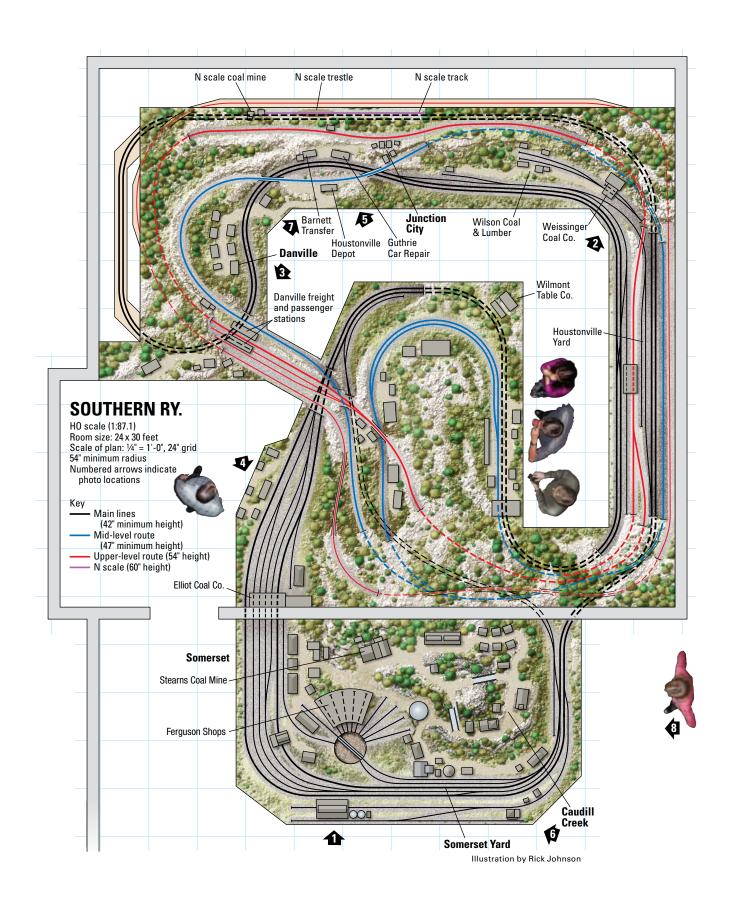
Roadbed: Homasote on 3/4" plywood Track: code 83 and some code 70 flextrack Scenery: Hydrocal over carved foam and

screen

Backdrop: painted drywall

Control: Digitrax Digital Command Control





intimidated by scratchbuilding and kitbashing, but I really like showing them that by making a few modifications, such as adding custom decals, a few extra details, or adjusting a structure's footprint, it's not that hard to turn a kit into a structure all your own.

Second home, second layout

In addition to the layout in Danville, I'm working on another one, also based on the CNO&TP, at my second home in Cincinnati, Ohio. I've built a separate 30 x 52-foot layout building there.

Although that model railroad follows the same prototype and era, there are some notable differences. That layout's setting is focused on the Chattanooga

6 Bob's layout features dramatic mountain scenery. The Southern's Ferguson Shops and yard at Somerset, Ky., are in the foreground. The Claudhill Creek mining community extends up the hillside.

>> Sharing the hobby_

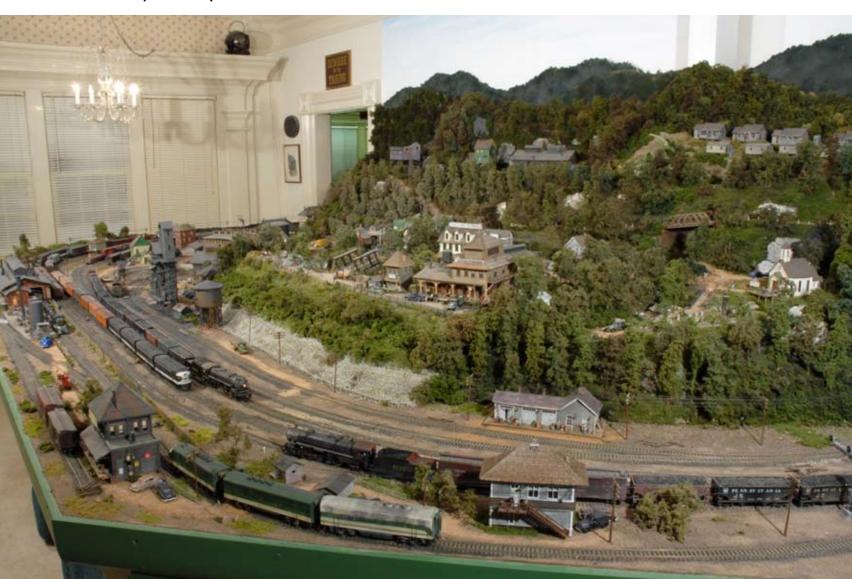
My new layout in Ohio will let me experience the fun of running a model railroad with a group of operators. I'll assign several different jobs and we'll run the railroad as realistically as we can. But I've also found other ways to enjoy a model railroad with others.

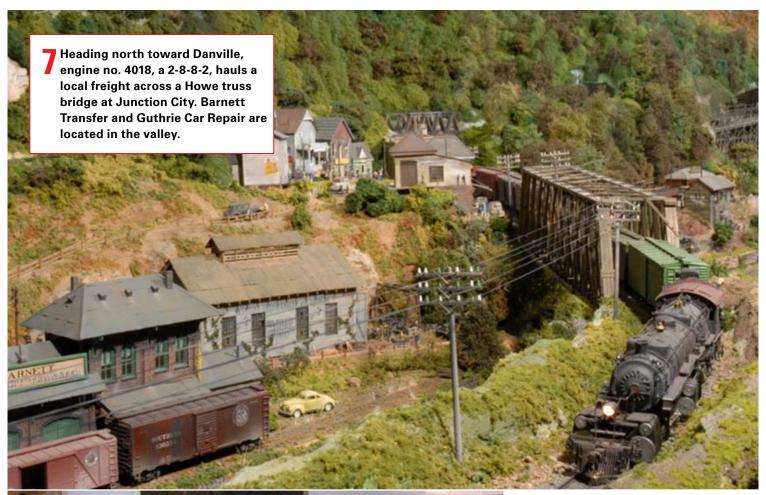
Although I don't have regular operating sessions on the Kentucky layout, I do host groups interested in model railroading. The groups usually number about 60 people each, and they come from other parts of Kentucky and from the Cincinnati area. We'll have a barbeque and tour two or three layouts.

Usually, these groups visit my good friend and neighbor John Bowling's Louisville & Nashville layout. [See the August 2007 issue of *Model Railroader. – Ed.*] Ray and Renee Grosser's Soo Line layout (page 64) is also located in the area. Now that they no longer take their layout to shows, it has its own dedicated building. And of course the groups are invited to tour my Southern model railroad. After seeing my layout, any interested visitors are invited up to my workshop on the upper floor of my train building for an impromptu clinic on my favorite modeling techniques.

I enjoy attending model railroad meets and one of my favorites is the National Narrow Gauge Convention, especially since I can find products from smaller manufacturers, such as rubber rock castings from Cripplebush Valley Models.

Whether at an operating session or a clinic or just having some barbeque and talking trains, one of my favorite parts of the hobby is interacting and sharing knowledge with fellow model railroaders. – *R.L.*







Bob built a 30 x 30-foot addition to his train building. He already has the benchwork in place.

end of the line, so I'm modeling mainly urban scenes.

Since there are more modelers in the area, my Cincinnati layout allows me to concentrate more on developing a railroad that's geared for operating sessions. Currently I'm installing an operating signal system. Many of my friends in Ohio have helped me with

electronics and wiring, while I've scratchbuilt many structures for their layouts in return.

My Southern Ry. has allowed me to relive fond memories and, through careful historical research, create railroad scenes that might have been. When I watch a train run through a finished scene, I'm reminded of a comment that my friend and mentor Howard Zane once said, "I'd like to be that little HO figure sitting on a porch in 1950, watching trains go by." GMR

>>Meet Bob Lawson



An active model railroader for more than 50 years, Bob Lawson switched from O scale to HO in 1972. After earning a degree in mechanical engineering, he worked for the Southern Ry. designing freight cars. Following his railroad career, he worked in construction. Currently he has homes in Danville, Ky., and Cincinnati, Ohio, where his family operates a children's learning center.

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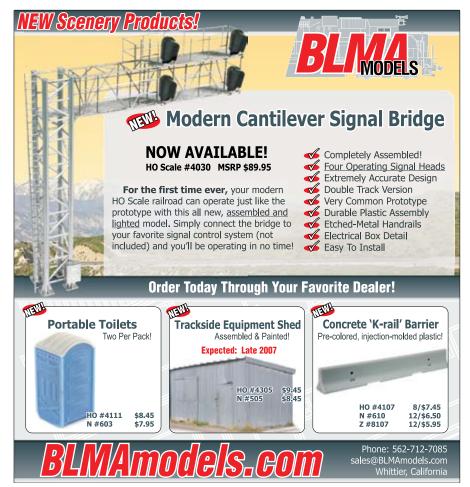
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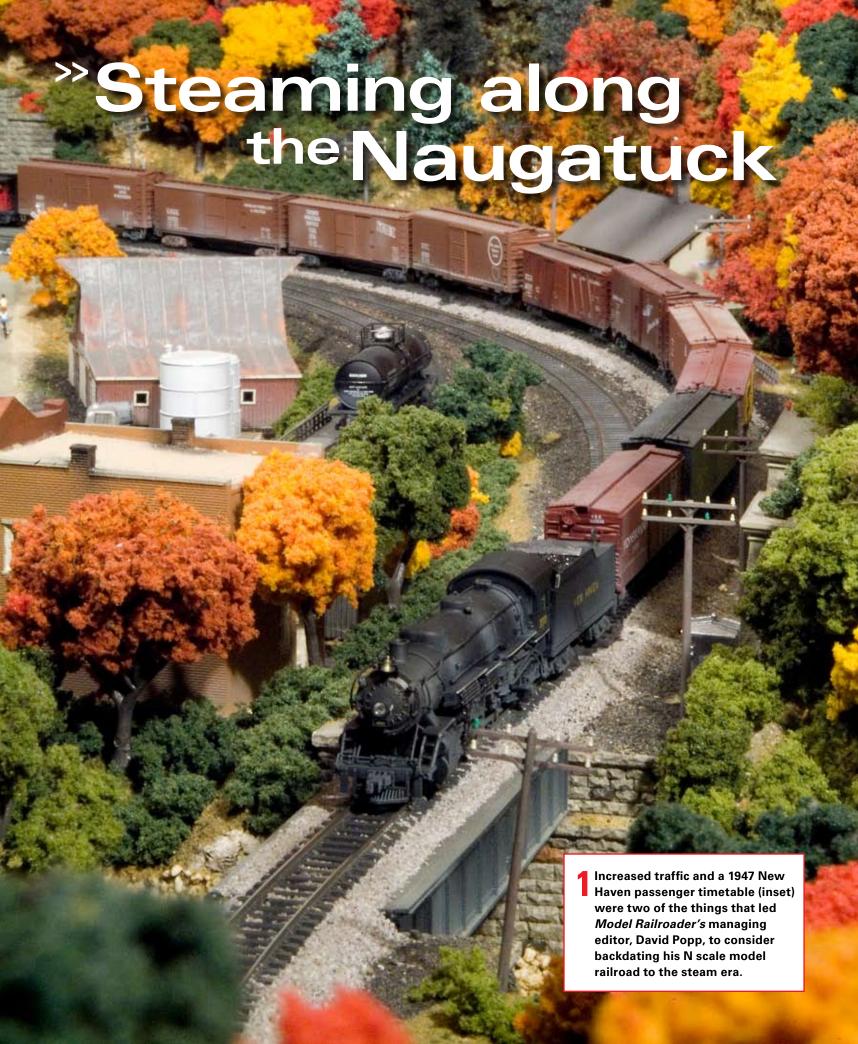
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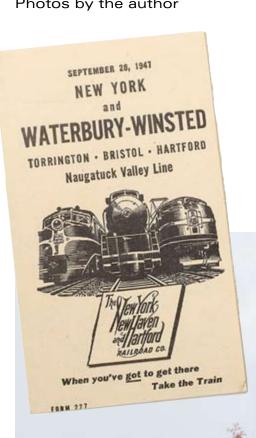


A7AHT



Prototype research and a pop song prompts a look at backdating this N scale layout

By David PoppPhotos by the author



"Give me steam!" That catch phrase from one of pop star Peter Gabriel's hits has been my anthem for the past several months. Every time I've considered either adding on to my existing N scale layout or building a new one in a different scale, snippets of Gabriel's driving, soulful *Steam* thump through my head.

Peter Gabriel's song, and several other things besides, seem to be calling me to take a closer look at a new modeling interest. With that in mind, I decided to explore what my October 1959 New York, New Haven & Hartford layout (*Model Railroader*, April 2006) would look like as a steam-era model railroad set 10 or 12 years earlier. To get a feel for what my railroad might become, I picked up a handful of steam locomotives and a few passenger cars and tried setting them around the layout.

That got me into the spirit of things, so I made some temporary changes to the layout, adding water columns and a few other steam era details. While I was at it,

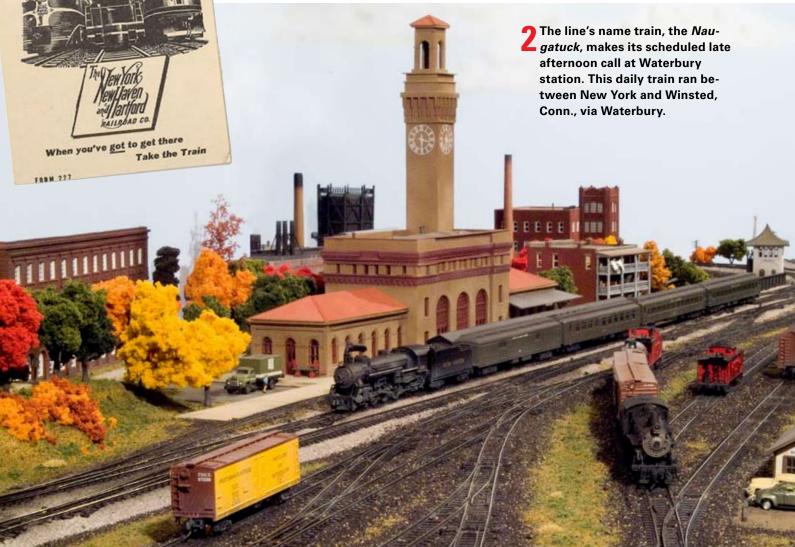
I quickly kitbashed the covered waiting platform for the station tracks at Waterbury, Conn., which was a key feature of the station in the 1940s. To round out the temporary backdating project, I removed all the colorful boxcars and diesel engines, telltale signs of the McGinnis period of the mid-1950s, and stored them for a bit to get a feel for the steam era.

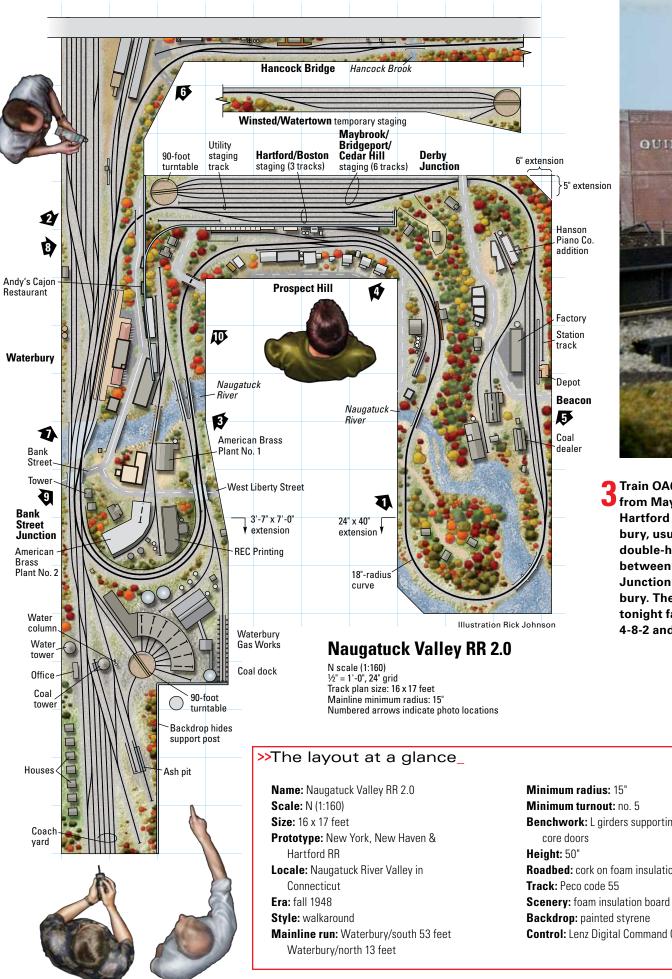
I was intrigued by how the locomotives, passenger cars, and detail changes looked – enough so that I decided to explore the steam theme further. Perhaps my Naugatuck Valley was destined to become a steam railroad after all.

All curves are not equal

While I liked the look of the equipment, especially when photographed, and was excited about the prospect of modeling the New Haven in the steam era, my grand experiment hit a couple of stumbling blocks in the early running. Both had to do with the existing layout.

My immediate concern was curve radii. I'd originally built the layout for







Train OA6, running from Maybrook to Hartford via Waterbury, usually requires double-heading between Derby Junction and Waterbury. The honors tonight fall to an R-1 4-8-2 and a J-1 2-8-2.

Benchwork: L girders supporting hollow-

Roadbed: cork on foam insulation board

Backdrop: painted styrene

Control: Lenz Digital Command Control



four-axle diesel road switchers and 40-foot boxcars, since that was the bulk of what ran on the Naugatuck line in the late '50s. Even the Budd Rail Diesel Cars (RDCs) used for commuter service were often operated singly. By itself, an RDC looks acceptable on tight radius curves, and since I'd needed the layout to be as compact as possible, I was willing to make the tight-curve compromise. My minimum radius was 10".

Once I'd tried running steam locomotives and passenger cars on my right-of-way, however, I wasn't at all happy with that compromise. If steam was going to be here to stay, I knew I'd need to make some changes, so I started looking at ways to rework the tightest curves on the existing layout without causing too much damage to the railroad's finished scenery. This unearthed my second problem.

Also a design issue, the second problem ran far deeper than tight curves. I knew the New Haven ran a lot more traffic through Waterbury a decade earlier than what I was currently modeling, but I really had no clue as to exactly how much or how it moved. That had not been the case when I'd originally designed the layout, for I knew exactly



A class F-5 Consolidation switches the Firestone plant in Prospect Hill. Its train, HDX1, is the southern turn out of Waterbury each morning.

how the Naugatuck line ran in the late 1950s. I'd made my operating scheme first, and then I designed the layout to accommodate it.

My 1959 Naugatuck layout operates well, but in its current configuration, the layout can't handle any more traffic. So, before I started to rework any sections of the layout or purchase any more steam locomotives, I hit the books to piece together what I could find on the Naugatuck Valley Line in the 1940s. The study was most illuminating.



Looking for "Aha!"

When you put together a puzzle, you always seem to have a few pieces that don't fit anywhere, but they come up again and again. Eventually, however, you get that "Aha!" moment where those pieces (as long as they haven't been lost under the table by this point) suddenly make perfect sense. That's pretty much how my research for my Naugatuck steam project worked out.

I'd collected an assortment of materials and documents several years ago when I set out to build the 1959 version of my Naugatuck Valley layout. Once I'd started toying with the idea of modeling

steam, I dug them out again, and that's when the "Aha!" moment hit.

There were actually three important pieces to the operating scheme puzzle. They included a 1947 passenger timetable, a 1948 copy of the New Haven's "Arranged Freight Train Service" book, and a 1991 back issue of the New Haven Railroad Historical & Technical Association's publication, the *Shoreliner*.

The 1947 timetable and the '48 freight service book worked together to give an accurate, if sterile, picture of passenger and freight service on Naugatuck line. The service book was especially helpful because it contained scheduled freight

movements for the entire system, as well as car blocking and connecting trains for freight movements and less-than-carload-lot (LCL) service.

The prized puzzle piece turned out to be an article by T.J. Donahue called "Bank Street Junction, Waterbury 2nd Trick – A Fond Remembrance." The article had run in issue 2 of the 1991 Shoreliner, and I'd used its supporting photos and illustrations when I'd built the Waterbury section of my layout. It was the story, however, that proved to be the most useful piece this time around.

Mr. Donahue had worked as an operator at Bank Street Tower in Waterbury

Train HDX11 was a late-morning/ early afternoon local that ran between Cedar Hill Yard and Waterbury. The locomotive would be serviced in Waterbury and then used to take train ND2 back to Cedar Hill in the evening.



during 1947, and his story explains what working a typical 2nd shift at the tower was like. In the article he mentions each of the trains he encountered by symbol and number. Having the '47 timetable and the '48 freight service book handy, I looked up each train as I read the story. The result was an amazingly detailed picture of a typical afternoon and evening working on the Naugatuck line. It added the life-component to the railroad that I couldn't get from the New Haven documents alone. From there, I applied what I knew of Mr. Donahue's 8-hour shift to piece together the remaining 16 hours of the day and develop an operating scheme.

>> Weathering N scale steam engines_



I've weathered a lot of model railroad equipment, but until I was preparing this article, I'd never worked on steam locomotives. Fortunately, I knew right where to turn – John Pryke's article "Realistic weathering for steam locomotives" from the August 2002 *Model Railroader*. John's story provides clear instruction to achieve a good finish, and he lists all the paint colors he uses in both Polly Scale and Floquil.

To paint a steam locomotive's running gear and drive wheels, they need to be in motion while you airbrush them. On HO scale engines, this can be as simple as clipping test leads to the tender pickups and then holding the running model while you paint it. N scale locomotives, being much smaller, make the project a little more tricky because you can't really hold them without painting your hands or smudging the painted surface.

As shown in the photo, I improvised a powered-locomotive painting stand by clamping two pieces of Kato Unitrak to the floor of the spray booth. I left a gap between the track sections big enough for the drive wheels to hang in the open. The locomotive supports itself by the lead truck and the tender.

To paint the model, I first placed a drop of Atlas Conducta Lube on the tread of each drive wheel. This forms a film that keeps paint from adhering to the metal. Next, I clipped test leads from my power pack to the track under the tender. I then set the throttle to about 25 percent and sprayed the moving drive wheels and running gear. You don't want the drivers spinning too quickly, or they will throw paint everywhere. It took just three passes to get an even finish.

When I'd completed all the weathering coats, I cleaned the wheels by running them on a paper towel soaked with rubbing alcohol. – *D.P.*

In hindsight, I find it amusing that I had all the parts for a late-'40s steam-era operating scheme already. I just hadn't looked at them in the right context.

Operating details add flavor

Prototype details add life to model railroad operation. In my research I found a lot of great tidbits for a steam-era, late-1940s operating session. For example, New Haven Class R-1 and R-3 4-8-2s were the main freight power on the line, but the locals used smaller engines, typically K-1 2-6-0 Moguls or larger class F-5 2-8-0 Consolidations. These are important facts to know for making locomotive assignments, as well as for determining what engines I'd need to acquire for a New Haven locomotive fleet.

Locomotive usage is another important detail. As an example, the locomotive that came into Waterbury with train HDX11, the afternoon local from Cedar Hill, Conn., was sent out on DN-1, the early evening train back to Cedar Hill. And OA6, the train from Maybrook, N.Y., to Hartford via Waterbury, typically required double-heading from Derby Junction through Waterbury as far as Terryville, Conn. The second engine would run light (without cars) from Waterbury to Derby Junction to meet OA6.

Knowing something about the trains themselves is also important. The Naugatuck line's hotshot train, ANE1, was the Hartford and Waterbury section of the *Speed Witch*, a high-profile Boston to New York express freight. Mr. Donahue's article explained that everything else was kept out of ANE1's way until it was safely in Bridgeport, Conn., where its cars were added to the *Speed Witch*.

Train HDX2, the local that served customers in Waterbury, Naugatuck,





Local HDX3 switches JDH Metals on the line to Winsted. This train was typically powered by a class F-5 2-8-0, affectionately called a "Bull Moose" by the employees.

Watertown, and Waterville, was called the "Jitterbug" because of its hectic schedule. The Jitterbug left Waterbury around 8:20 a.m. and worked its way south to Naugatuck. There it turned around and worked its way back up the line, passed through Waterbury, and then took the branch west to Watertown. The train turns around once more and then works the industries back down to Waterbury.

The line had one name train, Nos. 153 and 158, the *Naugatuck*. This train ran from New York all the way up the Naugatuck Valley Line to Winsted, Conn. The Bank Street Tower operator would need to hold the Jitterbug (returning from Waterville) out of the way until train No. 158 was clear of Waterbury station.

Waterbury-to-Boston train no. 136 pulls into Waterbury station fresh from servicing in the coach yard. The train will board passengers and be on its way at 4:55 p.m. In 1948, the New Haven ran one daily passenger train in each direction between Boston and Waterbury.

So how much more?

The bottom line is that by backdating the Naugatuck, traffic levels would more than triple what I run in my 1959 setting. "How much more?" on page 104 shows the main freight and passenger trains needed to simulate the line in 1948.

Freight operation isn't all that dissimilar from what I have in my 1959 session – there's just more of it. Two trains arrive in Waterbury each day from Cedar Hill instead of just one. In turn, Waterbury sends two trains back to Cedar Hill. Also similar, a train from Hartford makes a stop in Waterbury on its way to Maybrook, N.Y. Later in the evening, its counterpart stops in Waterbury on its way to Hartford, again delivering and picking up cars.



Something different, however, is the Bridgeport-to-Hartford train that drops off and picks up cars in Waterbury in the middle of the night. Its counterpart is ANE1, the Hartford-to-Bridgeport-via-Waterbury section of the *Speed Witch*.

A 1948 session has four turns that originate in Waterbury in the morning, as opposed to three in 1959. The turns are locals that switch the line south to Naugatuck, west to Watertown, north to Winsted, and east toward Hartford as far as Plainville. And, there's a local switcher that serves industries around Waterbury, similar to the River Job in my 1959 operating session.

Burgeoning passenger traffic

The biggest differences between the 1948 and 1959 Naugatuck traffic come from the passenger schedule. There are 24 passenger trains that originate, terminate, or pass through Waterbury during a typical day. Some, like the seven-times-daily Waterbury-to-Bridgeport and three-times-daily Waterbury-to-Hartford commuter trains, could be just two trains with the same consists

that shuttle from Waterbury to staging and back again.

Others require more equipment and thought. The New York-to-Winsted Naugatuck consists of a Railway Post Office (RPO), a baggage car, and several coaches. Like the commuter trains, the Naugatuck could use the same train set in both directions. Likewise, trains 151 and 152, the Hartford-to-New York-via-Waterbury run, could also use just one train set. Both the Naugatuck and the Hartford train set out one or more headend cars at Waterbury, which requires some station switching.

Train No. 131 from Boston to Waterbury would need its own consist, including an RPO, baggage car, and several coaches. This train lays over in Waterbury for about four hours before returning as No. 136 later in the afternoon. Its consist was moved to the Waterbury coach yard between runs.

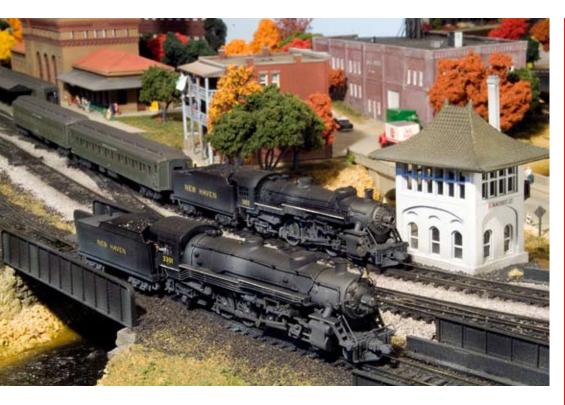
There are some interesting nuances that come up in the passenger operation as well. The commuter runs from Waterbury to Winsted were handled by bus during the week, but on Sundays certain A K-1 2-6-0 Mogul returns to Waterbury after completing switching work in Waterville. This train (HDX2) was called the "Jitterbug" by crews because of the train's hectic daily out-and-back schedule to several towns.

trains ran to Winsted and back with coaches only. This would again involve switching moves at Waterbury to remove or add the head-end cars.

The Naugatuck Valley 2.0

Once I had a rough operating scheme, it was clear that the project would require more effort than simply widening a few curves. I would need to make some major changes to the layout to accommodate steam locomotives, passenger cars, and all the new traffic. Looking to strike a balance between causing as little damage to the existing layout as possible and completely scrapping the entire thing and starting over, I first adjusted the operating plan.

No amount of revision short of building a new layout could equip my



9 As a passenger at Waterbury in 1948, you had plenty of trains to choose from to connect with the rest of the New Haven system. Here, commuter train 469 passes Bank Street Tower on its way to Bridgeport, as R-1 no. 3301 waits for the yardmaster to call it into the yard to couple onto train ND2.

existing railroad to handle 24 daily passenger trains and 15 daily freights. In 1948 the Naugatuck's main line was still completely double tracked from Waterbury south to Derby Junction and east to Hartford, making it easy to accommodate higher traffic densities. However, I like running a single-track railroad, so I chose not to double-track the main. This meant some of the trains would have to go. In the end, I pulled a third of them – all were commuter runs.

My reworked track plan for the Naugatuck in the steam era is on page 98. Starting in the main staging yard in the middle of the layout, I expanded the edge of the benchwork 5" into the aisle to add four more staging tracks and a 90-foot turntable. The outer six tracks represent all off-layout destinations south of Waterbury, including Maybrook, N.Y., New York City, Bridgeport, Conn., and Cedar Hill Yard. Since all trains have to pass through Derby Junction to get to

those locations, I simply use that name for the yard. The turntable is for turning passenger locomotives.

The inner three staging tracks represent Hartford and Boston. I left the runthrough track as a utility track that can be used for either location. It allows for display running.

The curve leading north from staging into the town of Beacon has been widened from a 10" to a 15" radius. To accommodate the change, I've added 6" to the front of Beacon from the original plan. This not only gave me larger curves, it also solved two other past problems: extending the passing siding to hold a complete freight train and moving the station from the siding to the main line. I've also added two more industries to the town and a station house track.

I added 2 feet to the end of the Beacon peninsula. This gave me the space to increase the curve to a gentle 18" radius, and it doubled the distance between Beacon and Prospect Hill, making the timetable more realistic. It also provides the opportunity to model the New Haven's tracks along the Naugatuck River – a view often seen in photos of the prototype.

In the revised plan, Prospect Hill remains largely unchanged. This area was completely rebuilt when I added the Waterbury section, so it already has gentle curves and upgraded trackwork.

>> How much more?

This chart provides an overall look at freight and passenger traffic in and out of Waterbury, Conn., on the New Haven's Naugatuck line. The comparison is between 1959, the year I currently model, and 1948, my target year for steam.

1959 freight traffic

2 daily inbound

2 daily outbound

3 turns originating at Waterbury

1 local switch job

1948 freight traffic

5 daily inbound

4 daily outbound

1 express outbound

4 turns originating at Waterbury

1 local switch job

1959 passenger traffic

4 daily round-trip commuter Waterbury to Bridgeport 1 daily round-trip commuter Waterbury to Hartford

1948 passenger traffic

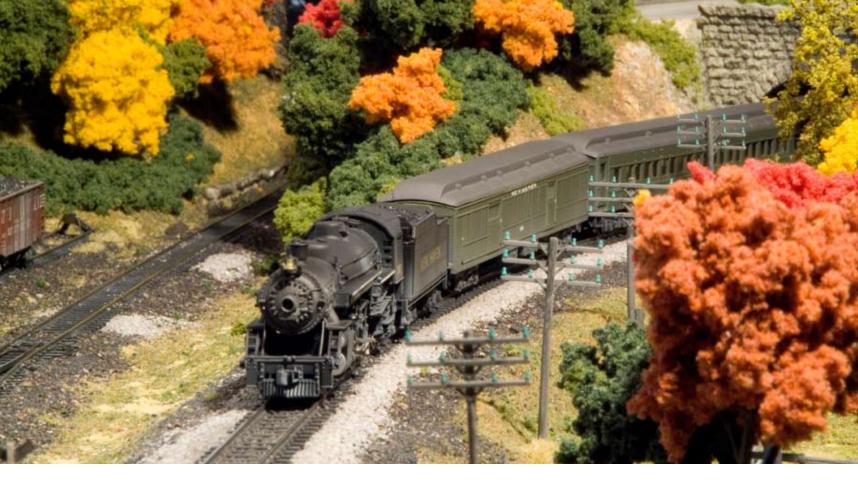
7 daily round-trip commuter Waterbury to Bridgeport 2 daily round-trip commuter Waterbury to Hartford 1 daily round-trip New York to Winsted, via Waterbury 1 daily round-trip New York to Hartford, via Waterbury 1 daily round-trip Boston to Waterbury, via Hartford

Daily totals (inbound and outbound)

1959: 12 trains 1948: 39 trains

Big changes at Waterbury

The revised plan would call for the biggest changes at Waterbury, requiring the addition of an engine terminal and coach yard, so I drew a 3½ feet wide by 7 feet long extension to that peninsula. To expand the mainline curves to my new 15" minimum radius, I cut the main at the Naugatuck River and removed the existing trackwork. Like at Beacon, here too I was able to correct an earlier error – the new plan places Bank Street Tower where it



should be, south of Bank Street. The double-track main would move about 2 feet outward as well, making room for two more industries south of West Liberty Street.

The passenger yard and locomotive terminal are all condensed from the original. The coach yard has three tracks and uses the two mainline tracks as a runaround. I've included a seven-stall roundhouse and a 90-foot turntable. The ash pit, coal tower, and water column fill out the rest of the servicing area. I've also included the yard office and the water tower, which sat outside the yard across from the roundhouse. Houses overlooked the yard from a low hill, so I placed a row of homes to add some scenic interest.

Though I have a picture of it, I'm still not exactly sure where the Waterbury Gas Works was located. I do know it wasn't where I placed it on the plan. Still, it's a good traffic-generating industry, so I included it, sandwiching it in behind the roundhouse. I've toyed with splitting the scene by running a styrene view block between the gas works and the roundhouse. It would be similar to the one I used behind the Waterbury station. If I didn't have a basement support post to work around, I'd have placed the gas works behind the yard instead.

Moving north, I've included a simple four-track staging yard representing the Winsted and Watertown branches. I've sketched about a dozen ideas for the Winsted branch but have yet to like any of them well enough to build them.

Ready for steam?

I must admit, it would be really great to see double-headed 4-8-2s leading OA6 up the Naugatuck River Valley each session. It would also be fun to watch the vardmaster and his assistant trying to keep up with all the traffic coming in and out of Waterbury Yard - regardless of which 12-hour session we run (midnight to noon or noon to midnight), the work would be non-stop. And, anyone running either HDX1 (the turn to Naugatuck) or HDX2 (the Jitterbug) would have to keep a timetable glued to their hand to stay out of the way of all the daytime passenger train traffic. Also, I'd need to add two new operating positions to manage the coach yard and service steam locomotives.

But as exciting as the operating prospects are, the project also has some serious challenges to consider. The modifications to the layout would take several years to complete, although admittedly, once the benchwork is in,

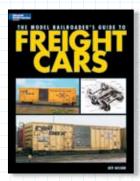
Following a true 1947/1948 timetable, David's operating schedule would require 24 daily passenger trains. Many of those trains would be commuter runs, using a 4-6-2, a baggage car, and two coaches.

the trackwork could be operational fairly quickly. About 80 percent of my car fleet would have to be replaced – most of the cars on the layout are too new for 1948.

By far the biggest hurdle would be the steam locomotives themselves. Though many of the common wheel arrangements owned by the New Haven are available, most would require heavy detail work to pass for their prototype counterparts. And I'd need a lot of locomotives. The only diesel regularly on the Waterbury line at this time was an Alco S-2 yard switcher – steam engines did everything else.

From everything I've seen, the Naugatuck Valley Line in the steam era has a lot of potential – even preparing the models for the photos proved to be a lot of fun. However, considering the sweeping revisions necessary, I'm not sure I'm going to take the plunge and backdate the layout. In the mean time, Peter Gabriel can keep singing his song. GMR

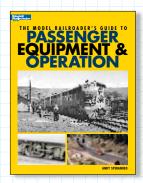
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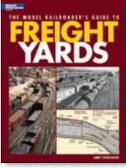
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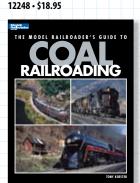
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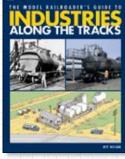
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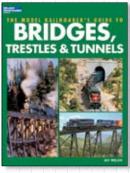
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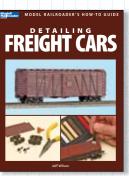
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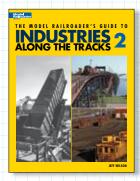
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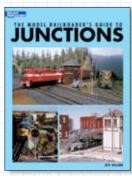
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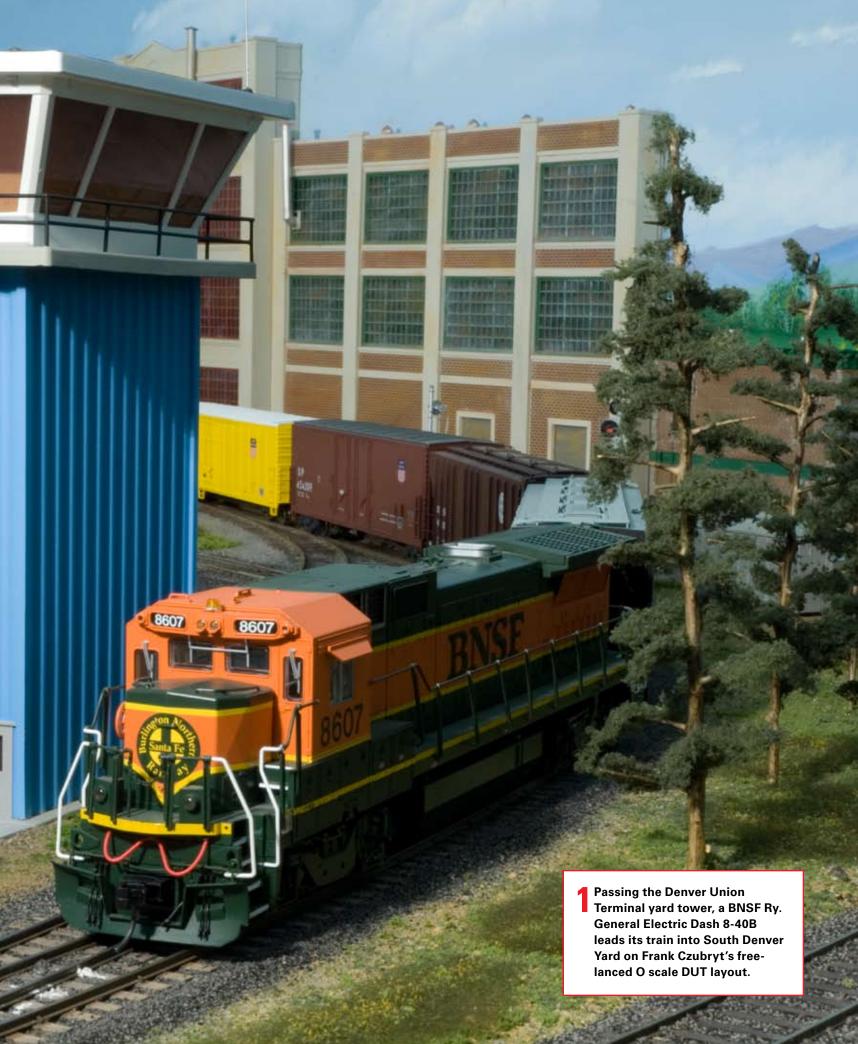
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*Modern times in O scale

Frank Czubryt's Denver Union Terminal RR features today's diesels and up-to-date rolling stock

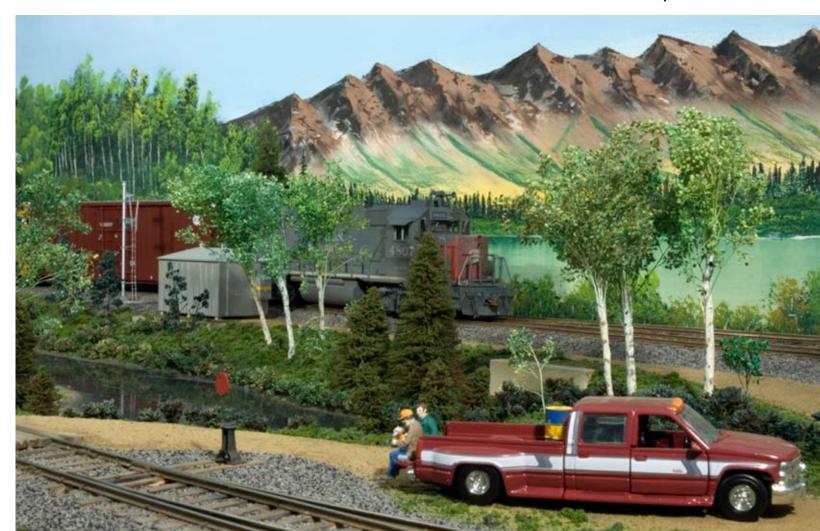
By Lou Sassi • Photos by the author

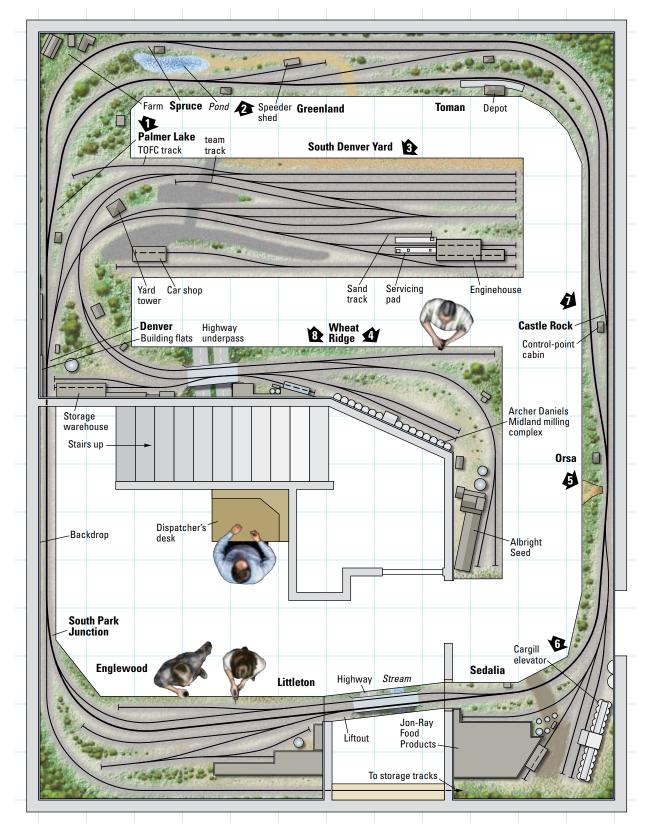
Frank Czubryt was introduced to model railroading at the age of five when his grandparents gave him a Lionel train set. A few years later he received an American Flyer set, which held his interest until he was 14. Then after saving enough money from his allowance, he purchased an HO scale Varney "Dockside" locomotive at a local hobby

shop. To that tiny 0-4-0T steamer he added enough rolling stock, track, and scenery to start a 4 x 8-foot HO layout. As construction of this first endeavor in model railroading continued, Frank filled the rest of his free time by railfanning around the area.

In 1963, a close friend showed Frank his own layout, which is what Frank says

2 As a maintenance-of-way crew takes a tailgate lunch, Southern Pacific GP38 leads a northbound train through Control Point (CP) 48 at Spruce. Frank took landscape painting classes from Bob Ross of Boston, known for his how-to programs on public television, so he could paint his own Colorado mountain backdrops in oils.





Denver Union Terminal

Illustration by Rick Johnson

O scale (1:48)
Layout size: 24 x 32 feet
Scale of plan: ½" = 1'-0", 24" grid
Numbered arrows correspond to photo locations

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A Denver & Rio Grande Western GP35 switches in South Denver Yard. Notice the blue flag on the car shop track in the distance. It means that cars on that track can't be moved or even coupled onto, to protect the workmen repairing damaged rolling stock.

>>The layout at a glance_

Name: Denver Union Terminal

Scale: 0 (1:48) Size: 24 x 32 feet Prototype: freelance

Locale: Denver to Palmer Lake, Colo.

Period: 1980s to present

Style: walk-in
Mainline run: 96 feet
Minimum radius: 48"
Minimum turnout: no. 6
Maximum grade: 1 percent

Benchwork: grid Height: 46"

Roadbed: HomaBed on plywood **Track:** code125 flextrack with handlaid

turnouts

Scenery construction: foam insulation board Backdrops: drywall and Masonite hardboard Control: North Coast Engineering Digital

Command Control

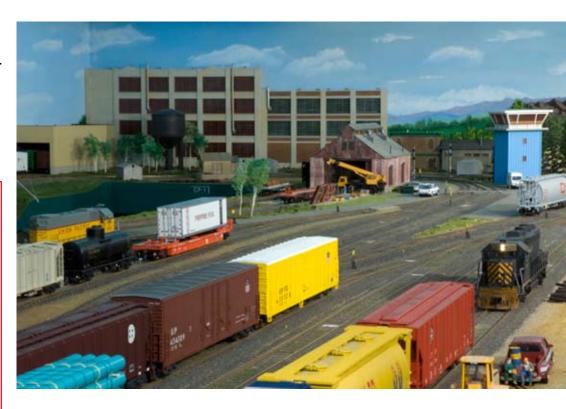
really hooked him on the hobby. He expanded his original 4 x 8 to 14 x 24 feet, and that HO railroad soon evolved into a freelanced New England-based line called the Greylock Terminal.

After a few years of modeling standard gauge Northeastern railroads, Frank decided to switch to narrow gauge.

In the same basement area, he started building an HOn3 rendition of the Denver & Rio Grande narrow gauge around Chama, N.M., set in the late 1800s and early 1900s. That endeavor was shortlived, however, as Frank decided to change scales.

Moving up to O scale

Keeping to the Rio Grande theme and turn-of-the-last-century period, Frank began modeling in O scale. He managed to finish the yard and mainline track for his On3 layout, along with several structures and some scenery. Then, however, he started a model railroad



>> Coloring ties and rails_

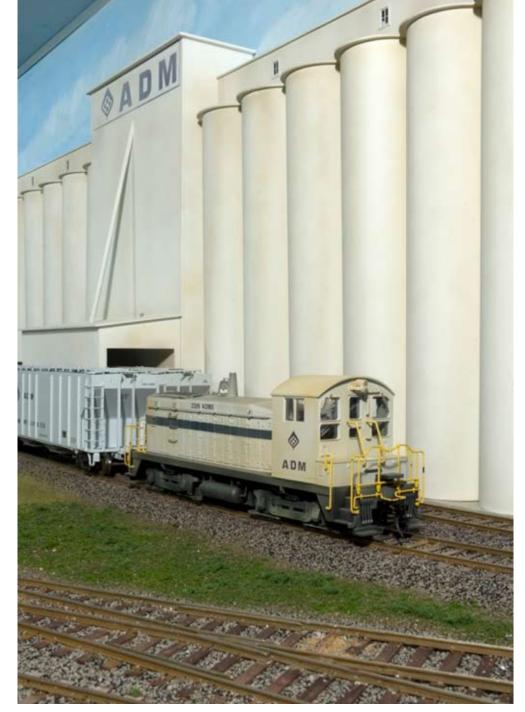


Frank developed a painting technique to blend the wood ties of his handlaid turnouts with the plastic ties of Old Pullman O scale flextrack.

The dark brown plastic ties of Old Pullman flextrack don't match the basswood switch ties in Frank's handlaid turnouts. To achieve a uniform tie color, he first paints both the wood and plastic ties with a mixture of Floquil Antique White plus a little Earth, blended to resemble natural wood. He brushes this mixture to avoid spraying toxic paint fumes in his basement.

With all the ties painted a light wood color, Frank waits for the Floquil to dry thoroughly. He then stains the ties with a mixture of black and brown shoe dye. Since all the ties have the same paint finish, they all take the stain about equally well.

To finish up, Frank brush paints the sides of the rails with a mixture of Floquil Rail Brown and Rust. – L.S.



On the branch line at Wheat Ridge, the Archer Daniels Midland Co.'s own SW7 switches grain hoppers at the company's elevator. Frank painted the ADM switcher and covered hopper cars himself.

fame.) He also painted some additional stretches of backdrop at this point. The shape of the new layout would be the same as the old one, so the fluorescent lighting Frank had already installed would do the job.

Rising anew

Frank used Old Pullman code 125 flextrack and handlaid turnouts. He cut switch ties from basswood that matches the height of the flextrack ties. He glued those switch ties in place with white glue and hand-spiked the rail in place; he glued down the flextrack with contact cement. Frank came up with an effective way of coloring the flextrack's plastic ties to match the wooden ties of his handlaid turnouts. See "Coloring ties and rails" on page 109.

There are two bridges on the layout. One is a conventional highway overpass on the branch line, but the other is a double-track girder bridge over a river that serves as a lift-out for entry into the railroad room.

Modeling buildings and cars

Among the layout's structures is a station that serves as a railroad museum, representing the re-purposing of old railroad buildings sometimes seen today. Frank built a couple of the large mill buildings from modular kits and used a few other structure kits here and there. Except for these, Frank scratchbuilt the majority of his buildings.

Most of the rolling stock is from Frank's favorite western railroads, and he's chosen cars appropriate for the industries his railroad serves and appropriate for its modern era.

Although Frank enjoys weathering cars with combinations of drybrushing, powdered pastels, and oil colors, he's put a lot of them in service right from the box to get the railroad running. With the major layout construction complete, he plans to go back to rework his out-of-the-box rolling stock. The weathering of his car fleet is therefore a work in progress.

hobby shop using the old "Greylock Terminal" name. With that business to run along with his day job, construction ceased on Frank's model railroad.

In 1989 Frank decided to close Greylock Terminal and, along with his brother Henry, start a new business called Berkshire Valley Lines, manufacturing O scale products (www.berkshirevalleyinc.com). With Henry's help in the new business, Frank found he once more had time for layout building.

Origin of the DUT

Having always liked western railroading, Frank wanted to include motive

power and rolling stock representative of several of his favorite lines, including the Atchison, Topeka & Santa Fe, Burlington Northern, BNSF Ry., Denver & Rio Grande Western, Southern Pacific, and Union Pacific. That led to the concept of a terminal railroad set along the Colorado Front Range, which he called the Denver Union Terminal Ry.

Frank proceeded to strip his old On3 layout down to the benchwork. He then raised the benchwork 6" so his new scenery would better blend with backdrops he'd already hand-painted. (Frank had gone so far as to take oil-painting classes from Boston's Bob Ross, of PBS

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- Giving the DUT line a taste of the old West in modern times, a cowboy drives cattle through a culvert under the roadbed as an Atchison, Topeka & Santa Fe Super Fleet GE unit rumbles overhead.
- At Sedalia, an SP Geep switches
 Jon-Ray Food Products, and also
 has work to do at the Cargill
 elevator at the left. The elevator is
 one of Frank's scratchbuilt structures. The photos of another
 elevator and hopper cars on the
 backdrop make this industrial area
 appear busier and more extensive.

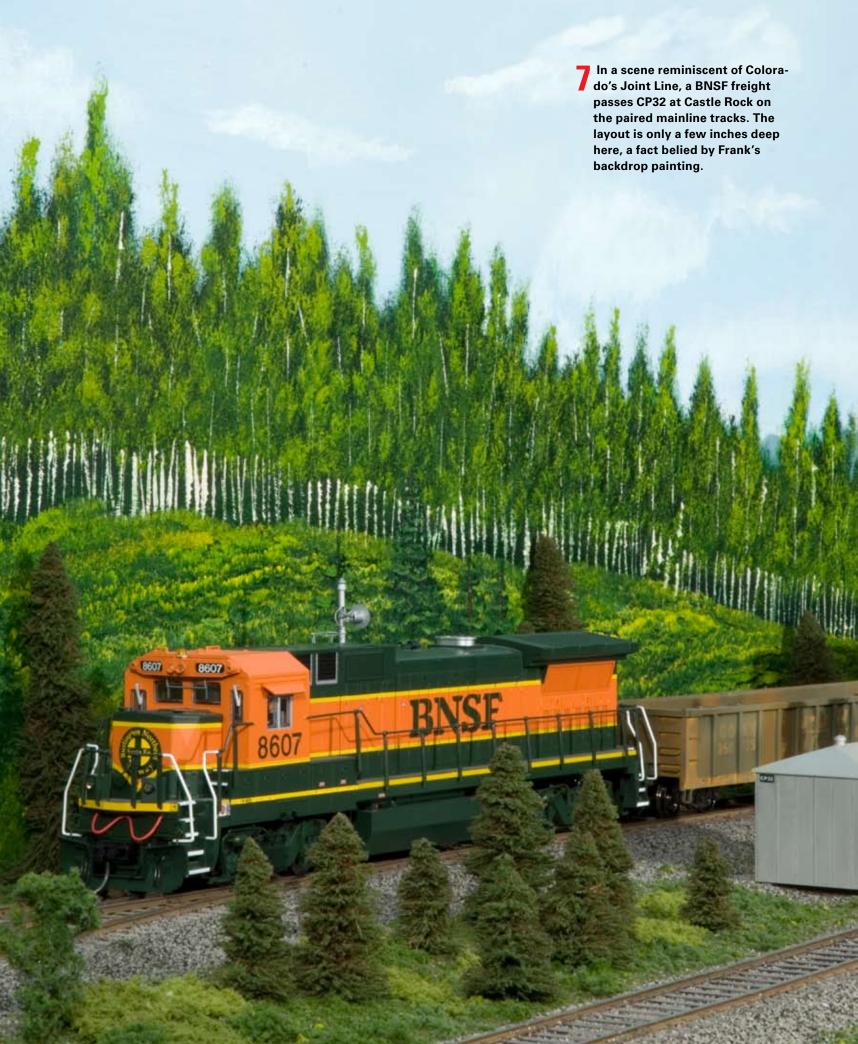
Control and operation

For power and control Frank uses the North Coast Engineering Digital Command control (DCC) system. He has three cabs for the layout, but several members of his local model railroad club have their own NCE cabs. The result is that Frank does't have any shortage of cabs in his operating sessions.

All Frank's locomotives have sound decoders, and he plans to add sound effects to several of the buildings as well.

The signals and mainline turnouts are controlled from a Centralized Traffic

Control panel Frank built. Engineers on road trains can operate by signal indication as the dispatcher routes them between main tracks and controlled sidings. The train crews and dispatcher use hand-held radios when verbal communication is necessary.





Also at Wheat Ridge, a Union Pacific GP15-1 passes the ADM flour mill and syrup loading spot. The DUT's Wheat Ridge Branch serves several industrial tracks from a connection out of South Denver Yard.

Frank makes up switch lists in advance of each operating session. His lists are copied from forms used when he was working for the railroad (New York Central, Penn Central, and Conrail), and they show each car's origin and destination. Every siding on the layout is identified by a number, another prototype practice. Cars placed according to the numbers will be delivered to the correct location, and the numbers serve to reference the location of every car.

Trains run according to a sequence to minimize congestion. A typical session lasts two to three hours, and keeps the dispatcher, seven two-person crews, and a yardmaster/branchline engineer busy for most of that time.

A rewarding project

Frank feels that by setting goals for his railroad he's been able to accomplish a

lot, and finds working to accomplish goals is rewarding in itself. By the time the Denver Union Terminal was nearing completion, he was already planning to go back and make some changes around Littleton. One of those changes was to add another storage track beside the existing track at that station.

Frank says, "Boy, all of a sudden I was measuring and planning a whole new area that earlier I hadn't thought was feasible. It's going to take some work, and the existing stub track will become the lead for a new staging area."

He's planning to drop the track 9" to a point near a duckunder and install a four-track staging yard. Having a new goal to achieve gives him motivation to keep improving the DUT. In the meantime, he and his friends will continue to operate and enjoy what is already an O scale masterpiece. GMR

Author and photographer Lou Sassi is a frequent contributor to both Great Model Railroads and Model Railroader, and the author of several Kalmbach books including How to Build and Detail Model Railroad Scenes.

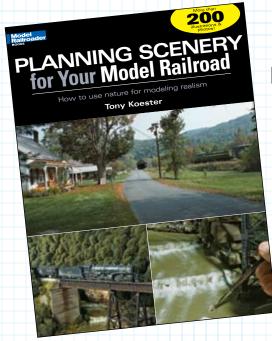
>>Meet Frank Czubryt



Here's Frank seated at the DUT Centralized Traffic Control dispatcher's panel he built himself.

A model railroader for 44 years, Frank lives in Adams, Mass. After high school he worked for a local electronics company, but soon left for a position with the New York Central RR. Frank continued with the railroad as it became the Penn Central and ultimately Conrail, and retired in 1992 with the rank of track foreman and 25 years of service. His other hobbies include railroad photography and oil painting.

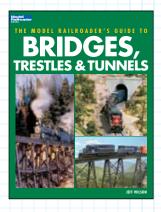
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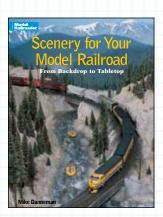
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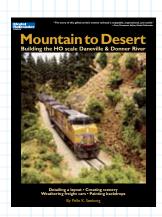
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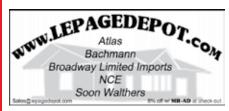


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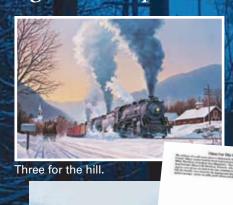
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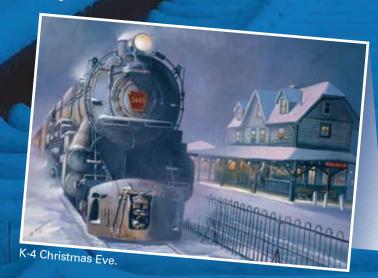
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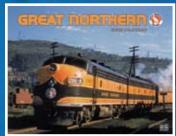
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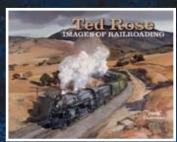


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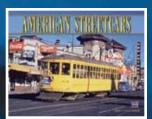
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