

# Model Railroad Planning

2022



**Page 8:** Expanding an O scale Civil War military railroad

EDITORIAL

**5** **ConSidering S Scale**  
Tony Koester//

**6** **Reader Forum**  
Sharing comments and questions

**8** **Expanding the USMRR Aquia Line**  
An O scale masterwork depicting the Civil War era  
Bernard Kempinski//

COVER STORY

**18** **CP Rail in Vermont**  
Modeling the prototype with acceptable compromises  
Neil Schofield//

**24** **Rebirth of the Gorre & Daphetid**  
A full-size tribute to John Allen's masterpiece  
Randy Decker//

**30** **Modeling a compact engine terminal and yard**  
CGW's Rochester, Minn., facility is an ideal candidate  
Jason Klocke//

**36** **Modeling a Mountain State coal hauler**  
C&O and NYC's jointly owned Nicholas, Fayette & Greenbrier  
John Montagna//

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**On the cover:** Neil Schofield models CP Rail in verdant Vermont in the era when bright red Montreal Locomotive Works diesels, represented here by Rapido RS-18 models, ruled the roster; see page 18. Photo by Neil Schofield

**46** **The Durango & Silverton has a new home**  
An On3 masterpiece is moved and put back to work  
Scott Kremer//

**54** **From large scale to an N scale switching layout**  
Bigger isn't always better  
Brian Rudko//

**60** **From demolition to discovery**  
Modeling an unknown part of a known prototype  
James McNab//

**66** **The "accidental" mushroom layout**  
The rewards were well worth the extra effort  
Mark Dance//

**72** **Virginia & Truckee in the transition era**  
A proto-freelanced HO track plan  
Byron Henderson//

**76** **A compact storage for rolling stock**  
A storage cart keeps cars organized and accessible  
Tom Klimoski//

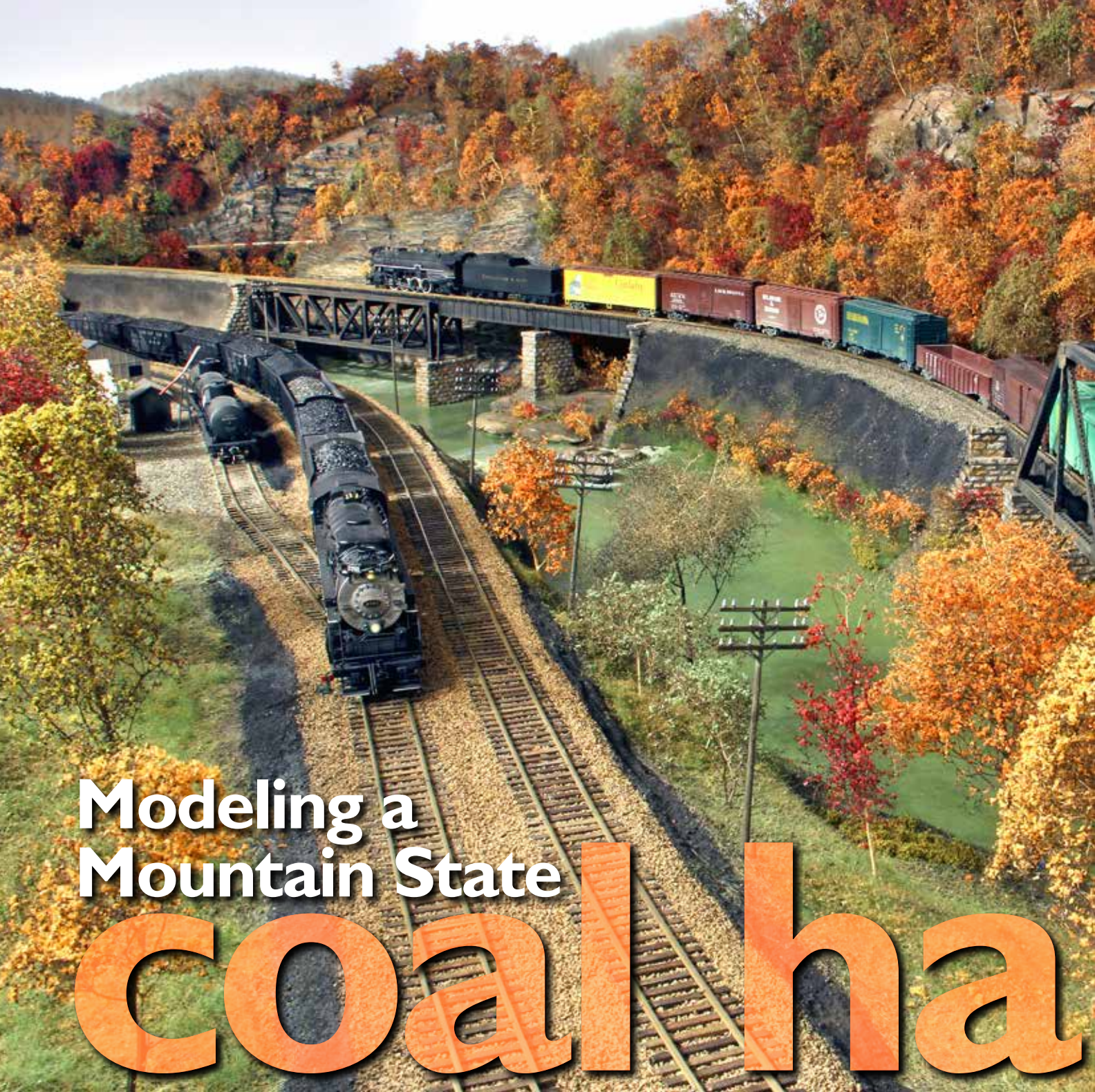
**78** **Exploring the potential of S scale**  
It may literally be a sight for sore eyes  
Brooks Stover//

PLANNING TIP

**85** **Modeling hand brakes**  
Lance Mindheim//

REAR PLATFORM

**90** **Putting our railroads into a larger context**  
Tony Koester//



# Modeling a Mountain State

# COALha

C&O's and NYC's jointly owned Nicholas, Fayette & Greenbrier

**By John Montagna**

Photos by Brent Dolan except where noted

**M**y father had purchased Lionel O gauge equipment three years before I was born and built a permanent setup in our basement, so I grew up with model trains. Our locomotives were a Chesapeake & Ohio diesel switcher and the ubiquitous Lionel Lines Berkshire. I was convinced that 2-8-4 represented a New York Central locomotive, thus the origin of my love of both the C&O and NYC railroads.

My earlier modest layouts, although totally freelanced, definitely had a C&O flavor, with tracks running along the bottom of gorges and heavily forested mountainsides. Upon my retirement, I finally realized my chance to build a large layout and decided to concentrate on a specific prototype in HO scale. I vacillated between the C&O and NYC.

Then I came across a description of the Nicholas, Fayette & Greenbrier in West Virginia. The NF&G was a jointly



| The showcase of John Montagna's HO scale layout is the Gauley Bridge area. The high cliffs are depicted in the background as well as the combination truss and girder bridge. Here the mountains rise to the ceiling.

### Givens and druthers

Armed with this information, I developed a list of what John Armstrong referred to as "givens and druthers." Givens are unchangeable factors affecting layout design, like the shape of your space; druthers are features you want to have. It's amazing the degree to which a 24 x 42-foot space can shrink when one considers everything desired in a layout. My list of requirements included:

- Multi-use space housing the model railroad, a 7.1-channel audio surround-sound system with large screen TV, train display cases below the layout, and a workshop/tool room;
- Multiple operational capabilities, including point-to-point operation between the C&O interchange at Meadow Creek and the NYC interchange at Swiss with Rainelle in the center, and continuous-run capability for entertaining guests;
- C&O double-track main line plus multiple-track staging representing a large coal yard (Thurmond, W.Va.);
- Large-radius curves of 40" minimum on the C&O main line to accommodate H-8 2-6-6-6 locomotives, full-length passenger cars, and large visiting-road engines;
- 30" minimum radius curves on the NF&G main line to ensure proper operation of brass C&O H-class 2-6-6-2s and K-class heavy Mikados;
- Several signature scenes based on the NF&G;
- Scenes for key locations such as the area near Gauley Bridge and the ferroalloy plant at Alloy, W.Va.; and
- Handlaid track, if only because I love the look of stained ties and have always admired the work of the old masters.

### Construction challenges

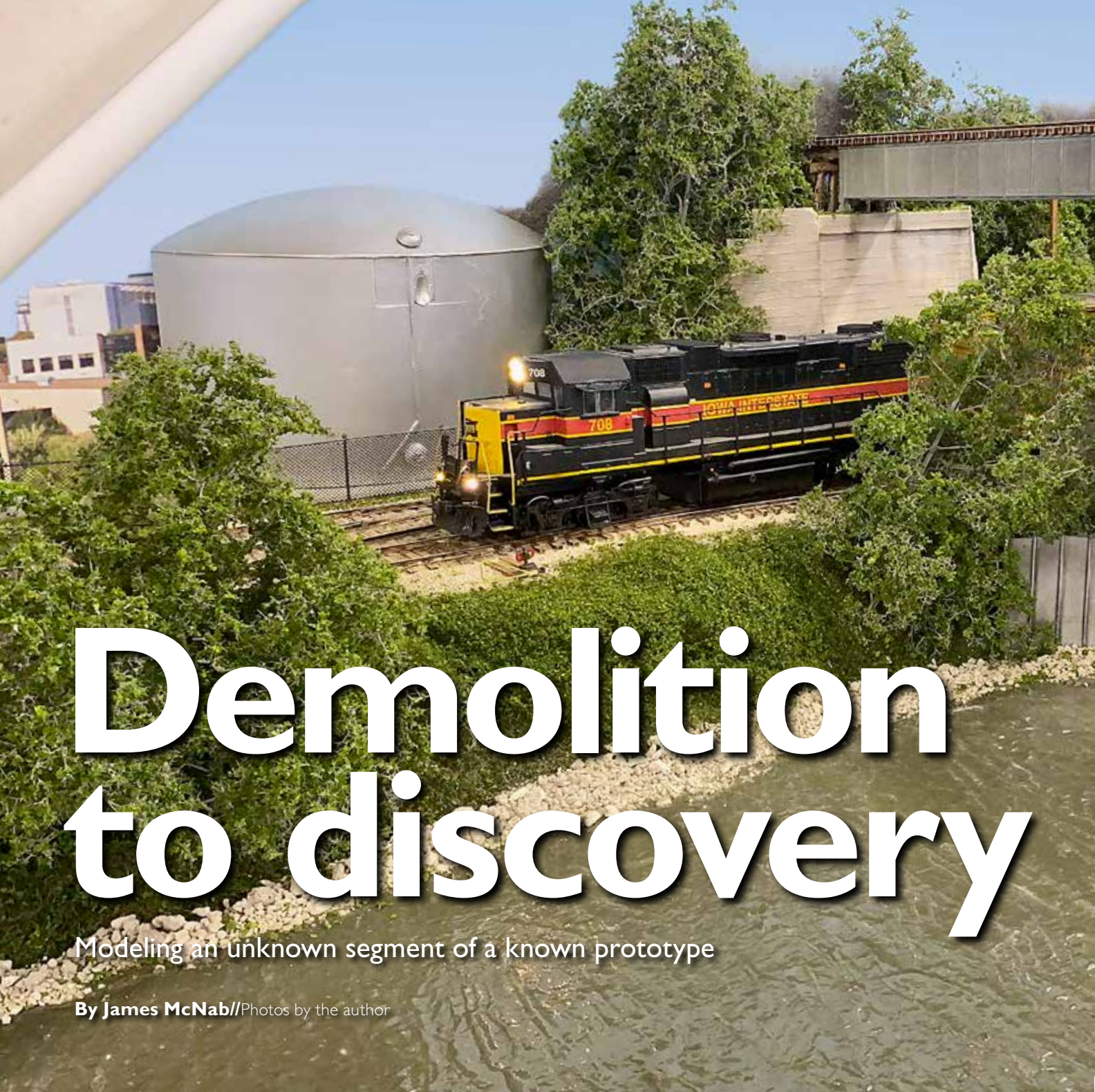
Unless one has complete control over new building construction, fitting a model railroad into a basement has its challenges. In my case, our basement was partitioned into four rooms, two of which were finished. Fortunately, when we bought our home, my wife and I agreed that I could do as I wished with the basement.

I found the existing partitions to be of use, as I could make each room represent a separate area of the NF&G without modeling the transitions in

owned coal-hauling operation between the C&O and NYC, interchanging with the parent roads at Meadow Creek and Swiss, W.Va., respectively. Eureka!

Setting out to plan this new empire, I re-read classic books such as John Armstrong's *Track Planning for Realistic Operation* and acquired newer publications such as Tony Koester's *The Model Railroader's Guide to Coal Railroad* and *Planning Scenery for Your Model Railroad* [all of which are available on the Kalmbach Hobby Store website,

KalmbachHobbyStore.com – Ed.] I also delved through the dozens of articles from *Model Railroader* that I had squirreled away in a filing cabinet. But the crux of my research was the C&O Historical Society's publications, *Side Track Record/Charts Nicholas, Fayette & Greenbrier Railroad* and *Chesapeake & Ohio Operations on the Nicholas, Fayette & Greenbrier Railroad*. The Internet also served as an excellent source of NF&G photos and historical maps of the area.



# Demolition to discovery

Modeling an unknown segment of a known prototype

By James McNab//Photos by the author

**A**ll it took was less than a day to destroy eight years of work on a model railroad. The main sewer line from our house had collapsed, requiring our entire basement to be dug up and reconstructed. That meant that my HO scale Iowa Interstate Grimes Line layout had to get out of the way.

The timeline didn't afford me the opportunity to salvage what I'd built. All of the railroad ended up in a trash can on the curb.

It hurt to lose a layout that I'd spent most of the past decade planning, constructing, and operating in such a short period of time. I took comfort in the fact that the Grimes Line had become relatively well known in the hobby press, including being featured in *Great Model Railroads 2015* and as an exclusive layout visit for Model Railroader Video Plus. Although it took some time to realize it, I was fortunate to have had the Grimes Line for as long as I did.

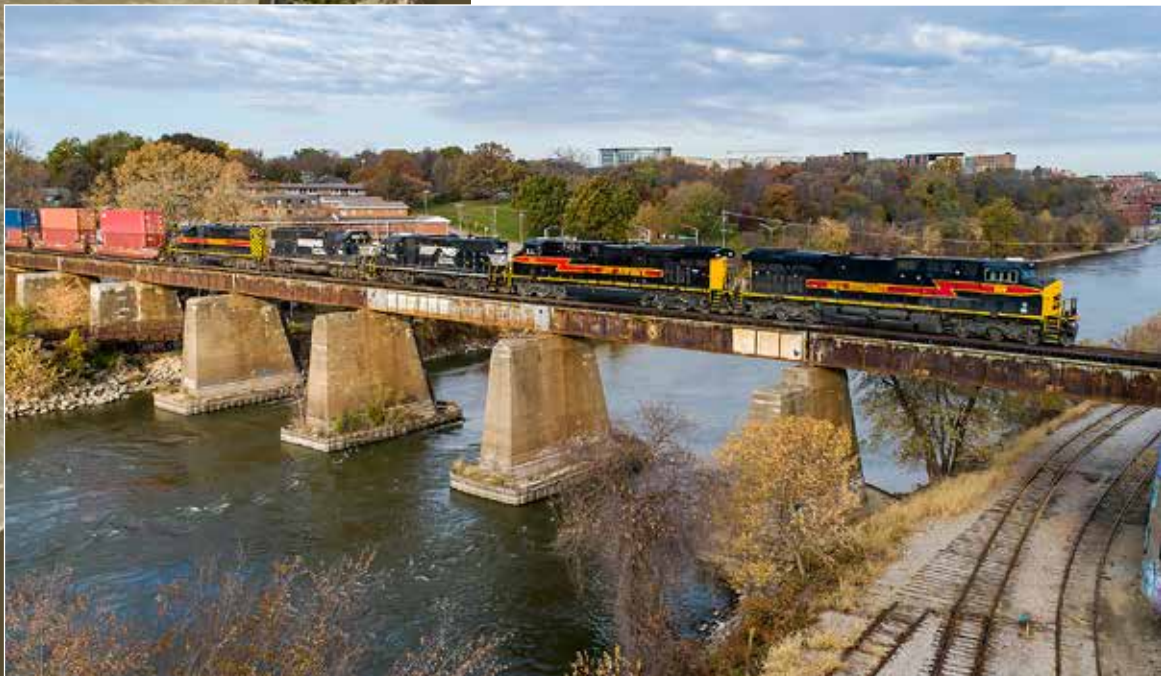
So I turned my attention to the next great layout adventure in our basement. Like many modelers, I'd squirreled away concepts, sketches, and plans for other layouts that could provide a replication of prototype procedures and practices while being visually distinctive. Turns out I didn't have to travel far to find both.

## The railroad out east

The Iowa Interstate (IAIS) RR is unique among regional lines in that it's



**I** GP38-2 no. 708 pauses at the north end of the The Hills Line as the Iowa Interstate main line crosses overhead. The prototype photo shows a multi-unit IAIS consist, including run-through power from the NS, crossing both the Iowa River and the Hills Industrial Spur in Iowa City. The Iowa Interstate's deck-girder bridge over the Iowa River can rightly be called the signature scene of the entire prototype. Prototype photo by Frank Grizel



the only one that directly interchanges with every Class 1 railroad in North America. Those online interchanges also include several Class 3 short lines, most notably the Cedar Rapids & Iowa City Ry. The CRANDIC is a former interurban line that provided passenger and freight service between its two namesake eastern Iowa cities. Passenger service ended in 1953, but the CRANDIC continues to this day to provide industrial switching and interline transfer services, primarily

for the large agriculture businesses in and around Cedar Rapids, Iowa.

The CRANDIC was one of the founding partners of the Iowa Interstate in 1984, and that relationship has grown over the years. As its customer base in Cedar Rapids continued to increase, the CRANDIC was looking to focus more on terminal switching and less on long-haul traffic. That led to trackage and haulage rights for the IAIS over portions of the CRANDIC, and culminated in 2012 when the IAIS

leased an eight-mile segment of CRANDIC track connecting Iowa City to the town of Hills, Iowa. Formally, this segment became the IAIS Hills Industrial Spur, but is better known as The Hills Line.

The Hills Line is a former Rock Island branch that the CRANDIC purchased in 1980 to preserve service to the local industries. Since a respectable customer base was still located in and around Iowa City, and CRANDIC crews were based some 25 miles away



An Electro-Motive Division F3 A-B-A consist crosses the White River northbound toward Gosport, Ind., on Roger Nulton's Monon layout. The Fs were produced by S Helper Service, whose tooling was recently bought by ScaleTrains.com. Roger Nulton photo



A New York Central Mikado crosses the bridge east of Angola, N.Y., on Gaylord Gill's Buffalo & Chautauqua RR. River Raisin Models imported the brass locomotive and 175-foot pin-connected bridge. The freight cars are American Models products, the row house is a Lehigh Valley Models kit, and the car is by M-2 Models. Gaylord Gill photo, smoke effect by Brooks Stover

But when these linear differences are compounded in length, width, and height, the volume of an S model is 250 percent that of an equivalent HO model. This substantial increase in volume, and the accompanying increase in mass, results in improved electrical reliability. Locomotives are heavier and their wheels' contact patches on the rails are increased due to the wider rail heads and wheel treads. Dirty track is less of a problem.

It also means that there's generally more room inside S locomotives for Digital Command Control (DCC) decoders and larger speakers. An increasing number of S modelers are realizing the size lends itself to battery-powered locomotives.

The increase in mass also contributes to tracking reliability. Though quality trackwork is always important, S trains are relatively more forgiving in

this area. The increase in mass is also evident in both the stability of the trains as they roll down the track and the sounds the rolling wheels make.

In addition to operational reliability, the larger models also offer the opportunity for exceptional detailing that's sturdier than on smaller models. For operators, the larger rolling stock means easier-to-read car numbers and easier-to-see couplers. Cars can be easily uncoupled with much less likelihood of causing a derailment. On the workbench, every part and fastener is easier to see and handle. In short, the larger size of S makes it ideal for aging eyes and hands.

It's a bit less tangible, but the size of S models gives them a level of visual presence that smaller models just can't match. They can be appreciated from farther away, and when you get up

close, you can enjoy the increased level of detail. Of course, these attributes translate into other parts of the layout, including structures and motor vehicles, as well. It's hard to sense this presence in photos, but if you've ever seen an S layout, you know what I mean. This up-close visual presence also makes S scale an excellent choice for a smaller shelf or switching layout.

With today's high-efficiency can motors, in all but the largest S locomotives the maximum current draw does not exceed 1A. The same 1A decoders commonly used in HO can be used in S. It follows that S modelers use all the same DCC systems that are commonly used in HO.

While the focus here is on standard gauge, there is significant modeling being done in S scale narrow gauge. Sn3 is the largest of the narrow gauge communities, but there are some modeling Sn2 and Sn42. And whether standard or narrow gauge, S models are unique simply because of their less-common size, something that most S modelers find appealing – an S scale model is something a little different.

The exact number of S modelers is hard to determine. Surveys have suggested that something less than 5 percent of modelers name S as their primary modeling interest. Nonetheless, there's an active and engaged

National Association of S Gaugers (NASG) with just over 1,700 members. The National Model Railroad Association (NMRA) has set standards for S the same way it has done for other popular scales, and there is an NMRA S Scale Special Interest Group (SIG).

### Wheel profiles and track

There are two fundamental approaches to enjoying scale modeling in S that are distinguished by the wheel profiles used. The two profiles are generally referred to as “scale” and “hi-rail.” There are NMRA/NASG standards for both styles of wheels, “S Standard Gauge” and “S Hi-Rail” (or “S Deep Flange”), respectively. Both wheel profiles can be used in the sprung trucks available in S scale. Importantly, this hi-rail profile shouldn’t be confused with the wheel profiles on S toy trains like Gilbert’s American Flyer, which many folks not familiar with S do.

Great-looking and great-running layouts can be built using equipment with either wheel profile, but the decision of which profile to use must be made early for two reasons: First, while on some equipment it’s easy to swap wheelsets, on some models like steam locomotives, it’s difficult or impossible. Second, the type of track and turnouts that can be used is different for the two wheel profiles, primarily due to the configuration of turnout frogs.

Turning to track, there are now three track systems commonly used by S modelers. The first is flextrack and turnouts made by Tomalco. Track, turnouts of several sizes, and a selection of crossings are available with code 70, 83, and 100 rail. For reference, code 100 rail in S is equivalent to 115-pound rail. Tomalco flextrack is made for them by Micro Engineering, but they jig-build their turnouts with the rail attached to the ties with adhesive. These typically require regauging and spiking, but the result is a great-looking and smooth-running track system. This track can accommodate only locomotives and rolling stock with wheelsets that meet NMRA “scale” wheel standards, because hi-rail wheels won’t pass through the turnouts, and the flanges may foul the spike heads.

The second option for track is one of the ready-to-run track systems by Fox Valley Models (FVM, code 138) or American Models (AM, code 148). For reference, code 138 in S is exactly proportional to code 100 track in HO. Both companies offer no. 5 turnouts,



One of the things Brooks likes most about modeling in S is that you can get up close and personal with the models, both in person and when photographing them. This is an S Helper Service Consolidation detailed to match the prototype. The boxcar was built from a urethane kit by Smoky Mountain Models. Can you tell the engine and cars all are fitted with hi-rail wheels?



Bob Frascella models the Delaware & Hudson. The lead locomotive is an American Models Alco RS-11 that Bob modified by installing correct draft gear boxes and couplers, along with modifying the fuel and air tanks to match the prototype. The trailing unit is a Lionel General Electric U33C modified by permanently attaching the swinging pilots and installing scale wheels and couplers. Both engines retain their factory paint but were equipped with Digital Command Control and sound. Bill Lane photo



Bill Lane prepared this S scale Norfolk Southern Pennsylvania RR heritage unit from a Lionel S scale model. All that was required was to swap in scale wheelsets (available from Lionel) and install scale couplers. The paint and details on this DCC- and sound-equipped road unit are stock. Bill Lane photo