



1. Modeling in a larger scale meant a smaller roster and more time to focus on details and even animation in the form of wood hoppers that dump “coal” (actually black aquarium rock).

Adapting to a larger scale

Some challenges come with change

By Jeff Kraker//Photos by the author

Back in 2010, I needed to make a change in my life regarding model railroading. I had an HO scale layout [See “Less space, better railroad” in the May 2010 *Model Railroader* – Ed.] that was mostly finished and operating well. All the aspects of building a model railroad that I really enjoyed were done, and I was hosting operating sessions.

This may sound like an ideal situation. But as one who enjoys the process of building a model railroad, I found myself drawing a lot of “what if” track plans.

A segue to a larger scale

I had actually started the “what if” planning a couple years before I tore out my HO layout. My original intention

was to stay in HO scale. While I was considering what I might do if I were to start over, two things captured my attention. One was the growing popularity of On30 (O scale, 30” gauge). The other was a little narrow gauge railroad set in rural West Virginia called the Mann’s Creek Ry, which I came across while doing some research for a project on my HO layout.

As if by fate, Sam Swanson's article on building an On30 model of a Mann's Creek hopper car appeared in the March-April 2009 issue of the *Narrow Gauge and Short Line Gazette*.

As a fun diversion, I tried building a model of a Mann's Creek hopper in On30 as a display piece. I really enjoyed building that hopper from scratch. When it was finished, I started to toy with the thought of changing scales and gauges, which turned out to be exactly what I needed. I decided I would jump in feet first and build a new layout, in a new scale and a new gauge, based on the Mann's Creek.

Doing something totally new was a great way to breathe life back into my hobby. My interest in O scale model railroading went way back to my childhood when my dad took me to see a local model railroad club layout.

Although I enjoy operating model railroads, for me, building railroad models is as much and maybe a bit more rewarding. O scale is an ideal size for anyone who likes to take detailing up to the next level. It's also really hard to not notice the effect that the increased mass has on how much more prototypically the models operate compared to those in smaller scales.

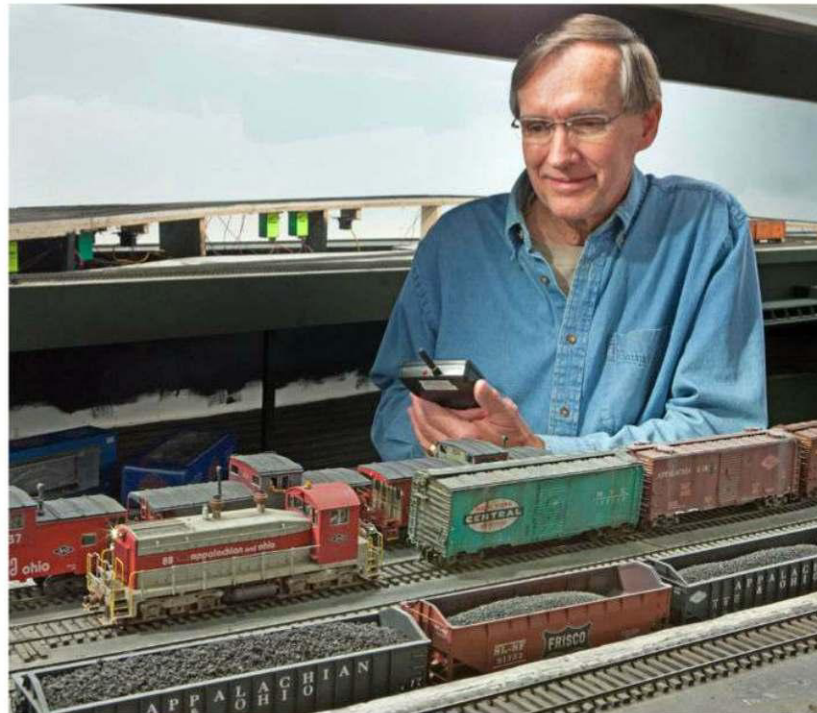
But when I changed from HO to O scale, I found it wasn't as easy as just buying and building bigger trains. I had a lot to learn.

Becoming narrow minded

I've always had a passing interest in narrow gauge. By building in On30, essentially O scale models running on HO gauge track, I got the advantages of building in O scale ($\frac{1}{4}$ " to the foot, 1:48 proportion) yet having slightly smaller trains that would fit better in my smaller room. I liked the unique character of narrow gauge railroads and the remote locations they often operated in. While I did start planning in On30, I decided along the way to change to On3 (O scale, 3 foot gauge).

The National Model Railroad Association (nmra.org) has standards for narrow gauge, but they mostly apply to the larger Colorado narrow-gauge lines. I was going to do a smaller mining railroad, and there would be some advantages to breaking the rules a bit. I used the Internet to network with other On3 modelers to learn as much as I could about minimum radius, turnout size, grades, clearances, etc. I was thus able to define some personal standards that would ensure what I was going to build would run well.

I purchased a few pieces of equipment to use as a reference, along with



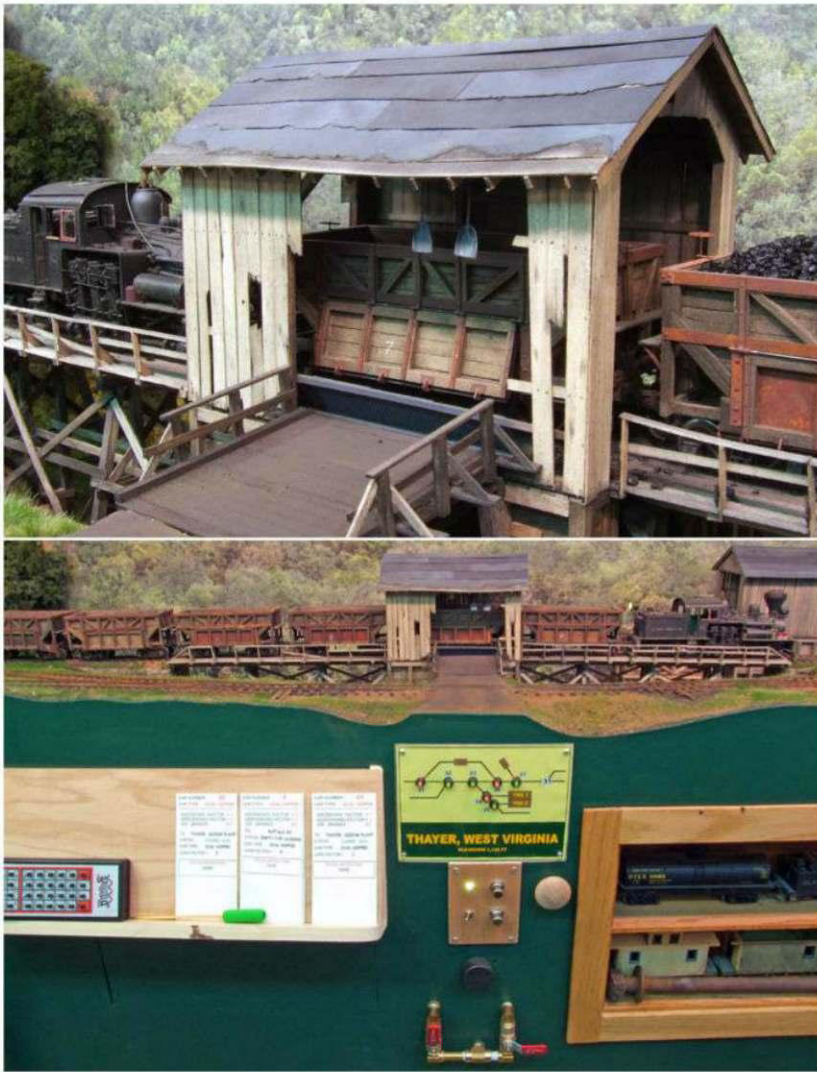
Jeff asked veteran modelers David Stewart (top) and Gary Freseman to test his theory about how long it takes to make a runaround move in O and HO, respectively. He found that modelers tend to run their locomotives at the same actual speed regardless of scale. Top photo by Bob Sobol

the one hopper car I'd scratchbuilt. I also purchased a few pieces of flextrack to help me figure out things like track spacing and how turnout frog number (sharpness) affected the clearance point of rolling stock that was spotted on sidings.

One of the lures of narrow-gauge railroads is that many of the lines employed steep grades, and the

Mann's Creek was no exception. The railroad had 5 to 6 percent grades on the main line, and I wanted to duplicate them. I used the sections of flextrack to do a grade test, not only to see what my locomotives could pull uphill but also to see what they would do traveling downhill.

An inherent problem with many model locomotives is that they buck



2 and 3. Animation includes side doors on Jeff's hopper cars that are opened by tiny electric motors to dump "coal" into the tipple chutes. Jeff built a shelf for sorting waybills and a switch control panel. Below that is a panel with pushbuttons to open and close hopper doors. The wood knob is pulled out to deliver a puff of compressed air to the shed to "blow down" the hopper cars.

going down steep grades, a problem that seems to be exaggerated in models of geared steam locomotives. Sometimes the bucking can be corrected, but it's good to know if it can be fixed and how much work that entails before you have the layout built and the grades can't be reduced.

Once I'd established my standards, it was time to get out some paper and see what I could fit into my 9'-3" x 22'-0" space. I've been building HO layouts for more than 30 years, and it was easy for me to estimate what would fit in an area.

"Seeing" in O scale was a bit more difficult. O scale is almost twice as large in every dimension as HO, so to help me visualize what would fit on my

1:48 railroad, I just compared it to a similar scene in HO. For example, my coal dump trestle is 2'-0" deep and 10'-6" long, which translates to 1'-0" deep and 5'-3" long in HO scale. That's pretty small!

This method isn't an accurate way to scale track plans, because there are track spacing differences and aisle widths don't change. But it did help me get a feel for how much railroad I could expect to fit in a specific location.

I toyed with the idea of actually modeling the Mann's Creek in On3. I even drew up a few plans. But in the end, I decided to freelance a railroad based on the MC; I call it the Slater Creek Ry. By freelancing, I was able to alter scenes to better fit my small

space. Moreover, I could include some industries other than those related to hauling coal or lumber to provide some extra operations. I could also build some rolling stock that the MC never had.

O scale is not just twice HO

It's important to understand that 1:48 structures aren't only twice as wide and long but also twice as high. The height factor didn't seem important until I built my first structure mock-up and placed it on the layout. Only then did I notice that O scale structures can become a visual and operational obstacle that has to be allowed for in the planning stage. A structure placed between the operator and the train may create the same effect as a train going into hidden staging, rendering it invisible. A big depot or industry that is two or more stories tall and a few feet long can block a lot of view. Uncoupling rolling stock and maintaining track can be impossible.

Trains and scenery can also become obstacles. Trains spotted on near tracks can block access to those behind them. Trees can also be an issue, maybe even more so than structures: They're often much taller than structures and tend to be somewhat fragile.

However, having models twice as tall can be an asset when you want to hide an opening in a backdrop where the main line disappears off the layout, especially if the track elevation is around chest level. Creating mock-ups of sections of the layout can help you understand how different track elevations with bigger models may make some track designs unworkable.

Operating speeds vs. scale

Once construction of my new layout progressed to the point it could be operated, I noticed another effect of switching in a bigger scale: It takes longer to do a given operation.

While performing a few simple switching moves, I noticed what time it was when I started to operate as well as when I finished. I was shocked at how long it had taken. At first, I chalked it up to the fact that I was operating a geared steam locomotive, which by its nature runs slowly. However, I dismissed that theory when I noticed that I hadn't been running the O scale locomotive any slower than I would have run my HO trains during switching maneuvers.

It was that moment that I conceived a new theory about switching speeds



4 and 5. The Mann's Creek company store was three stories high. Jeff replaced it with a similar but shorter two-story structure. Size remains a concern in O scale when the benchwork is high: These photos show the smaller replacement store in HO scale (top) versus the same structure in O scale (bottom).

locomotive around to the other end and coupled up.

I also asked local modeler Gary Freseman to repeat these tests on his HO layout, which had a siding that was the same length as David's in HO scale feet. Last, I built an N scale version of the same runaround track. I set up the N scale version during one of Gary's operating sessions and had some of his operators perform the same maneuver in HO and N scales.

On our website

Watch a video of the operating hoppers on Jeff's On3 layout. Find the link under Online Extras at www.ModelRailroader.com.

When I compiled the data from the tests, I discovered that my theory was correct: Most model railroaders operated a locomotive at the same actual speed regardless of the scale. The data showed that as the scale of the trains increased, the speed at which someone operates the locomotive gets closer to scale speed. Of course, the inverse is also true. On David's O scale layout, a simple runaround maneuver took almost 2 minutes to perform, but only about 30 seconds on the N scale version. Also, when I converted the times to scale speed, the locomotives in N scale were performing switching maneuvers at an average speed of 60 mph!

Knowing that changing to larger scales means it will take longer to

perform switching maneuvers can be valuable when deciding if we want to scale up or not. It may seem like not being able to fit as much railroad in your space when switching to a larger scale can be bad. But if you consider that you don't need to include as much yet can still maintain the same length of operating sessions, the change may not be as bad as first thought. Also, by not having to build as much railroad, you don't have to purchase, build, or maintain as much, either. When you don't have to have as much stuff, you can spend much more time enjoying what you do have.

Animation

The Mann's Creek operations were simple: pick up loaded coal hoppers at the mines, haul them down the valley, dump the loads, and return the empties to the mines. To re-create this operation, I exploited another advantage of modeling in a larger scale: the ability to easily add animation.

My On3 hopper cars use small motors mounted under the center slope sheets to turn a crank arm connected to the doors, allowing the doors to open and close. The motors receive power through contacts under each truck. By using a set of jigs I designed, I was able to quickly scratch-build 17 hopper cars from basswood.

Animating the hopper car doors eliminated the unrealistic need to remove fake loads, which would have been required if the doors were not operable. Moving heavy, loaded cars also adds some real-life drama.

A simple track plan

I wanted to keep the On3 track plan simple for several reasons. First, I wanted the scenes to have as little track as possible. Narrow-gauge railroads weren't known for sprawling yards and towns with a high density of sidings. By keeping the track to a minimum, I've increased switching operations: I don't have a track for every car spot, which means that some sidings serve multiple purposes, and many switching moves require moving one car to pick up or spot another car.

I don't have any yard tracks for car storage, but I've included a siding that can be used to store a few cars by the dump trestle. Otherwise, rolling stock remains in the last place it was unloaded. This enhances operation, because sometimes a specific car must be retrieved so it can be put on a train to be delivered to its loading destination.

Being able to spend more time building rolling stock, structures, and

Learning points

- Modeling in a larger scale not only permits but also almost demands more detail.
- The smaller layout that often results from modeling in a larger scale usually translates to fewer models, allowing more time to be devoted to each one.
- Animation may be more practical as a model's size increases.
- Larger-scale structures may become obstacles to viewing the railroad as well as to reaching in to uncouple cars.
- Freelancing a model railroad has not gone out of style and allows more creative freedom without unduly compromising realism as long as one doesn't venture too far from reality.
- The same switching move usually requires more time in a larger scale.
- A narrow gauge railroad can provide the opportunity to model unique equipment and operations.

scenery was another reason to keep the plan simple. I wanted to focus on constructing models and scenes with greater levels of detail without feeling overwhelmed by having too much to do. I planned on scratchbuilding just about everything, and if I had too much to build, experience tells me that I could sink into a funk and withdraw from working on the layout.

Last, I don't like to have to maintain a lot of railroad. Everything one builds is only new once, and over time the layout will need work. It's easy to cram in a lot of railroad, but someday it will almost all need maintenance. I have enough stuff in my life that I need to maintain. I want to keep my hobby a hobby.

The track plan itself draws a lot of inspiration from the Mann's Creek Ry. The MC unloaded coal in bins that were covered with a shed. During World War II, the demand for coal increased, and old mine sites were being strip-mined to retrieve coal that wasn't practical to be mined using tunnels. The strip-mined coal was loaded into dump trucks and either transferred to the railroad at a transfer tipple or, if the strip mine was close enough to the sizing plant, it was just trucked directly to it. To allow the dump trucks to dump at the sizing plant, an opening was created in a side wall of the dump house, which allowed



6. Company houses between the aisle and the tipple at Ridgeview W. Va., made it difficult to reach in to uncouple cars. Jeff solved this problem by providing an 8"-high platform for operators to stand on.



7. Rugged terrain typified the prototype Mann's Creek Ry. as it climbed out of the New River gorge. Jeff's Slater Creek features this challenging landscape, including several switchbacks.

the trucks to dump into the same bin as the railroad.

By orienting the track at the dump trestle so the operator is standing on the mountainside looking down at the creek, I was able to have the dump-truck opening in the side of the shed face the operator, giving a very clear view of each hopper car as it unloads.

I included two staging areas. The lower staging yard simulates general freight that has to travel down to the Chesapeake & Ohio for transfer to or from the standard gauge. Upper level staging consists of a track with a siding and another separate track. These tracks simulate an extension of the main to reach new coal deposits and provides places for track-maintenance equipment and loads to go.

A change for the better

I've been very happy with my switch from HO to On3. Modeling a backwoods narrow gauge railroad has kept train sizes to a practical level for a small room like mine. The increased size of the models has been exactly what I was looking for to satisfy my detailing itch. Modeling in narrow gauge allows for a lot of uniqueness in the equipment, and the rugged scenery and operating conditions that narrow gauge railroaders experienced have been fun to re-create. **MRP**

Jeff Kraker is married with two grown children. He designs process plants and equipment for the oil seed industry at Crown Iron Works. Jeff also likes to fish and play the guitar.