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Model Railroad Hobbyist magazine™

Front Cover: What makes model railroading such a fascinating hobby? The trains *move!* Charlie Comstock perfectly captures this motion as 2-8-0 number 29 rumbles down the track on his new Bear Creek & South Jackson layout.

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Publisher/Editor
Joe D. Fugate

Columnists
Ryan Andersen, New media
Charlie Comstock, Building layouts
Bernard Kempinski, N scale
Lew Matt, Narrow gage and shortlines
Marty McGuirk, Prototype modeling
Tim Warris, Trackwork

Special Correspondents
Jim Duncan, Layouts and operations
Byron Henderson, Layouts and track planning

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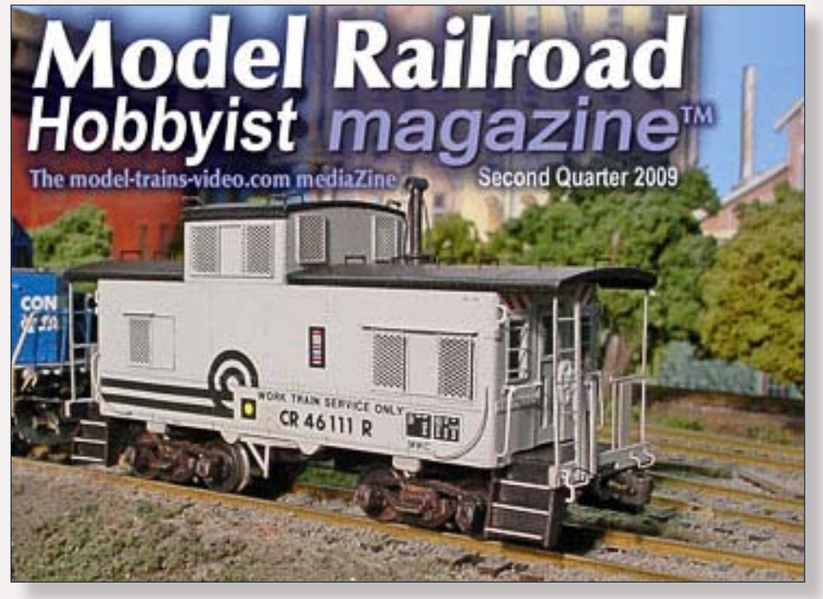
- Superdetail a Conrail resin kit caboose
- Part 2 of Track Planning on computer using 3rd PlanIt
- Getting started in DCC
- USRA hopper history
- Build your own manual turnout throws
- Another layout track plan by Byron Henderson

... and lots more!



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– Jason Shron, President, Rapido Trains Inc.

PUBLISHER'S EDITORIAL: It moves!

Musings from the MRH founder

About the Publisher

Joe Fugate is the featured expert in many Model-Trains-Video.com videos, and he's also the founder and publisher of ***Model Railroad Hobbyist Magazine***.

Joe has been a model railroader since 1967, when he saw his first copy of ***Model Railroader*** Magazine. Joe currently models the 1980s Southern Pacific in HO scale. Joe's background is in computer software and database design, and he's also been a professional magazine publisher for science-fiction games.

The trains move ... and with MRH, we finally have a publication that can show it!

Motion. That's what makes model trains such a fascinating toy for youngsters – the trains move and they do fun, interesting things!

And that same thing is what makes Model Railroad Hobbyist so special!

What better marriage than to combine the compelling movement aspects of model railroading with a publication that can *actually show that movement?*

How MRH came to be

My background is in computers – and since my start with computers in the 1970s, I've often wondered why the computer interface couldn't be more visual.

Naturally, I was thrilled with the release of the Macintosh in 1984 and its visual user interface that's now part-and-parcel of any modern personal computer. Is it any wonder I also bought my first Mac in 1984?

The Mac spawned desktop publishing in the late 1980s, and I started my own publishing business in 1985 for science fiction roleplaying games. We did all our magazine production and pasteup on Macs.

Our publications were well-received, but things changed in the role-playing hobby such that I shut down my publication business and moved on by the early 90s. Things were changing again with my discovery of the World Wide Web in 1993.

I'm primarily a visual guy, so the cool visual capabilities on the internet really fascinated me. And by the turn of the new century, I could see digital imaging – and especially digital video – was coming like the proverbial freight train.

In late 2003 I formed my own video company (Model Trains Video) and started making model railroading how-to videos.

I wanted to learn the ropes of professional digital video production, and learn it I did! By 2008 I have produced 8 hour-long DVDs for the hobby.

In 2005 I worked with Kalmbach, doing some video work for them. They saw some of my how-to videos and liked them, so we framed a deal to distribute some of my how-to videos through *Model Railroader's* web site. At first, we both were thinking some sort of downloadable video approach.

That's when the phone rang and MR told me their latest brainstorm – how about putting the video clips inside a PDF?

I knew PDFs could include video clips, but I had never thought of putting the video clips into the PDF in the way the *Model Railroader* guys suggested. Their idea of doing a static how-to PDF with still photos you can click on to watch a video clip of the step is darn clever.

If you haven't seen one of *Model Railroader's* video PDFs, you owe it to yourself to go buy one just to see what you're missing. They're pretty cool.

Still, I found the distribution numbers on these video PDFs to be less than what I'd hoped for (maybe I was being too optimistic), but I couldn't help wonder if there wasn't a better distribution model for this material. With reservations, I terminated my Kalmbach video contract in the fall of 2007 and noodled on the distribution problem some more.

I had come across Bob Connolly's book *Dynamic Media* – and after some study of this book, everything jelled! Why not do a totally free rich media PDF for model railroading that is supported by advertising?

From there I started formulating what such a publication would look like.

I knew we should start from the very beginning and design a document from the ground up that was intended to be read on a computer. A warmed-over print document slapped into a PDF format just wouldn't do.

This meant the document's orientation should be landscape, not portrait – so the whole page fits on the computer screen. It also means the document should go full screen, just like PowerPoint does, to maximize the use of the screen real estate.

Further, the page background should be toned down and the "ink color" should not be black but instead a dark grey. This creates a page with less contrast and less eye strain, making it far more comfortable to read on a computer screen.

Of course, we should leverage the fact we're running on a computer. That means we can make the content interactive, just like the web!

As to the business model side, having a well-done publication available to download for free over the internet makes all kinds of sense to me. If the content is compelling, it seems that advertisers get the best possible vehicle since it has the widest possible distribution potential. The whole free to consume but ad-supported model worked for television – why not for a publication available via the internet?

And so here we are. Issue 1 of Model Railroading Hobbyist magazine is finally launched!

What's in this issue

We have a great line up of material in this issue. You may also notice there's a lot of Charlie Comstock in this first issue.

To a large part that's because Charlie is one heck of a good model photographer (remember I'm a visual guy), and he's local to me, making it easy to work together to set the standard on what articles could be in the first issue.

As a great example, you'll want to view Charlie's Tom Miller layout article to get some idea of what we hope to offer in our future layout articles.

One of the progressive aspects of our publication is you can leave immediate feedback or post questions on any article. Make sure you check it out!

Finally, remember to check out the ads, some of them are surprisingly fun and informative! ☑

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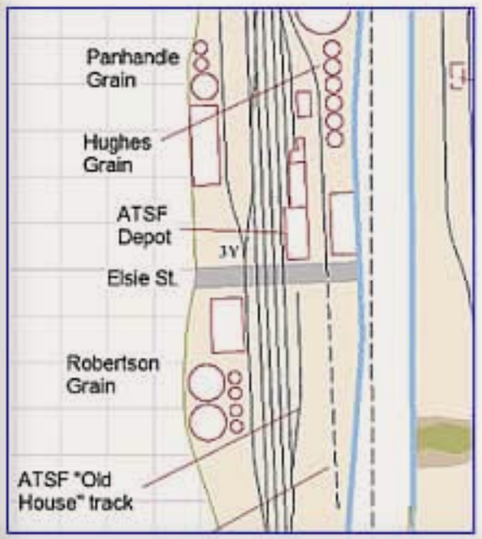

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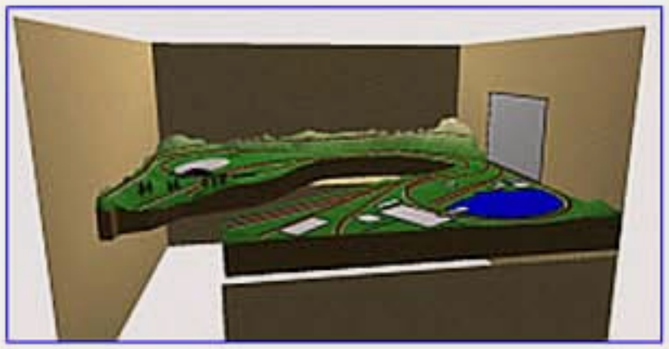

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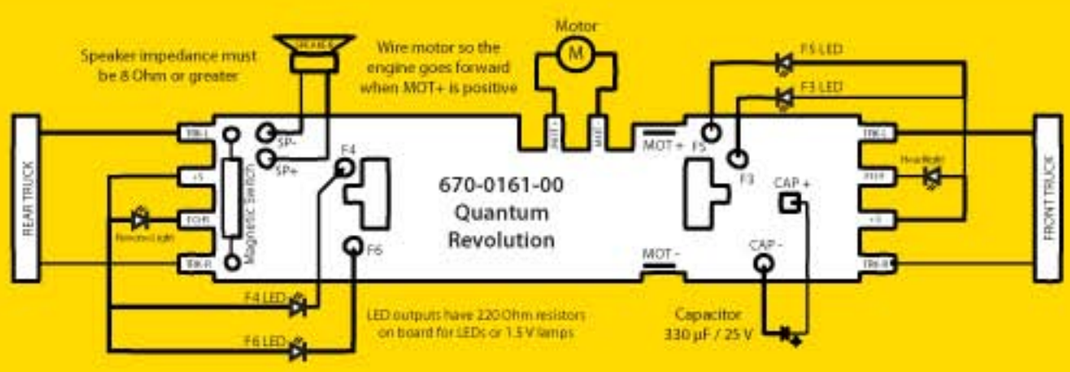

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The story behind the Bear Creek & South Jackson

by Chip Engelmann

ARTICLE SUMMARY

Award-winning model railroad photographer Charlie Comstock's current under-construction layout, the third Bear Creek & South Jackson, has a fascinating history. We delve into Charlie's journey that resulted in this great example of 1950s-era layout design.

Photos and diagrams by Charlie Comstock

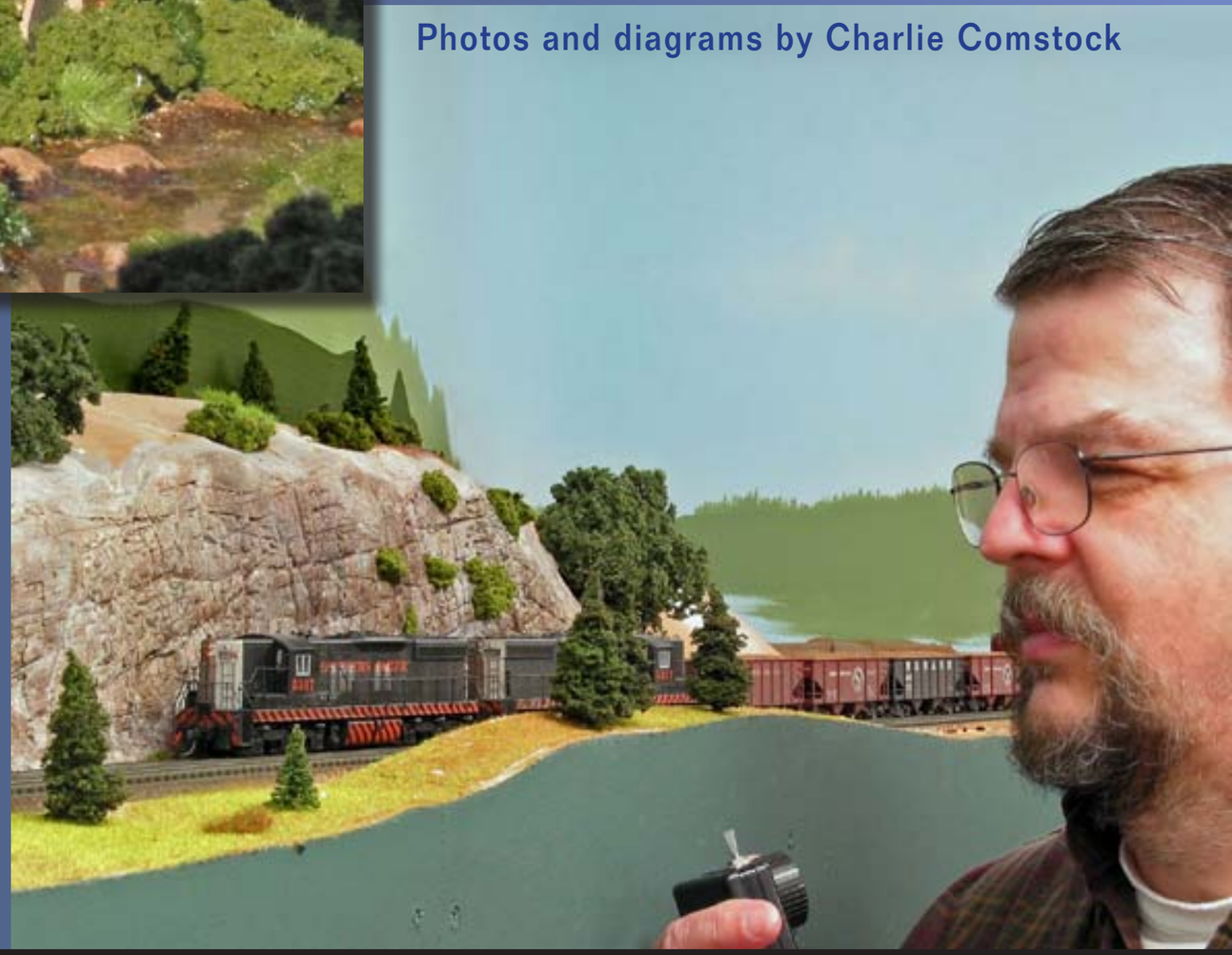
Charlie Comstock is a fountain of information. Kalmbach's ***Model Railroad Planning 2003*** featured the development of Charlie's latest layout track plan for his third Bear Creek and South Jackson. ***Model Railroader*** (April 2007) also published Charlie's article demonstrating the use of outdoor scenery as a backdrop for model railroad photographs.

Model railroading is a hobby with two separate aspects for Charlie.

First, people drive from miles around to operate his layout on a regular basis. The operating sessions are organized and well-structured – just like everything Charlie does.

The second aspect of the hobby is model railroad photography. Charlie's work won ***Model Railroader's*** Photography Contest grand prize in 2000.

Video, evidently, may become a third aspect of the hobby for Charlie. He jokingly cautioned against buying a video recorder as they take a lot time from working on a layout.



"When I was three I liked to go walkabout. There were train tracks in the neighborhood – we lived in Massachusetts at the time. I escaped one day, found the tracks, and went walking down the middle of them ..."

Charlie is articulate and measures his words. He conveys his thoughts with precision. That same precision manifests itself in his layout design, his operating sessions, scenery, and photography as you can see in the following pages.

Chip: As we began talking, you spoke of a significant railroad incident which happened when you were three years old. What was that?

Charlie: When I was three I liked to go walkabout. There were train tracks in the neighborhood – we lived in Massachusetts at the time. I escaped one day, found the tracks, and went walking down the middle of them.

A handcar crew found me and pulled me off the tracks and a few minutes later I have the vaguest memory of something big and black thundering by!

The crew took me down to the grade crossing and I rode home in a police car. They let me blow the siren, then I think I pestered them quite a bit to let me do it again but they wouldn't let me.

My reward for all this was that my parents cut my bedroom door in half horizontally and put me in "jail." I think I took my screen off my window and climbed out but I'm not sure about that. I remember being very indignant about being in jail.

My mother told me later that those tracks were mostly not used but there was a bridge out and the mainline freight traffic was being routed across these lines. There were quite a plethora of trains at this time.

Chip: You have had 3 versions of the Bear Creek and South Jackson and the layouts have grown but your vision is strong and constant. You really know what you want to do. How did that vision come about?

Charlie: I don't think that I had a "vision." It was more fortuitous situations and building upon what I had. Once you start acquiring stuff there's a bit of momentum involved.

Before the 4 x 8 Bear Creek and South Jackson I was mad about California narrow gauge. I had plans of building an On3 of the South Pacific Coast, but the track plan was multi-level and involved a bunch of exotic construction to fit it in the garage space available.

After looking at it for a while I started thinking: "You know, this is going to be an awful lot of work." I had never built a model railroad to any degree of completion up until that point. I thought I should tackle a starter project.

I shifted to back to HO because it's hard to bend On3 equipment around an 18" curve. How much [On3] railroad can you put on a 4 x 8?

There was a hobby shop in Sunnyvale, California, that had a 3-times-around layout and had quite a bit of 3rd dimension scenery. I remember looking at the trains going round and round and round in the old 1950's style design with tunnels and the train would come popping out who-knows-where. I thought you could get a lot more railroad in with a twice-around than a once-around.

The first Bear Creek and South Jackson was a starter layout designed from the get-go for mountainous terrain. I built a 'model of the model' before I built it. I used foam core and clay to mock things up on a track plan I had printed out, and that gave me a 3D idea of what it would look like.

Chip: You said you built upon what you had. You "acquired stuff and it gained momentum." The designs look totally consistent as though they were meant to be that way. At what point did it click for you?

Charlie: I'm not sure there was any one point at which it clicked. I knew I liked switching. Well, I thought I liked switching. I never had a real layout at home before so I put a bunch of switching on it, but I didn't get it quite right.

I had the leads off the main line to get to the spurs in South Jackson. They were disjoint from the passing siding of the runaround and it was impossible to switch them without tying up the main. That wasn't a big problem until I started running with other people.

There was a Tuesday Night group I became involved with and I started hosting that occasionally. It was wired with cab control for two, but you couldn't have someone running on the mainline when someone else was switching the towns. The mainline was too short for a train that was orbiting to give the local any time to get stuff accomplished.

FIGURE 4: One great way to visualize your layout design and discover any design issues early is to build a small model of the layout. Charlie Comstock built this model to check out a 4x8 layout design idea, using a scale of one-half inch to the foot.

There were some other things I found out from that layout. When it was first built, the access to the branch line and the far side of the runaround was easy to work because you could see it. On the far side of the layout away from the control panel, when I put the row of hills down the spine of the layout, suddenly I couldn't see whether the train was clear of the turnouts so I could back the train up.

I couldn't see the clearance point of the turnout that went up to the area that was originally supposed to be a mine. It actually became an oil field and eventually went on to become access to the Jallen Branch. I had an electromagnet that I couldn't see that forced me into walk-around control. I couldn't use my MRC power pack any more. I needed a tethered throttle. It just sort of evolved.

When I started building the second layout I wasn't really keen on inventing things all over again. I had buildings, locomotives, and rolling stock – so the second Bear Creek extended what I already had. I hadn't planned it that way. I thought I'd make [the 4 x 8] nice and pretty with furniture grade plywood on the fascia and that was going to move into the house. The garage would become available for building the On3 [layout] I wanted.

Somewhere along the line I decided that building another HO layout would be better. Through the Layout Design Special Interest group I met Joe Fugate who I knew was looking for operators. I started going down to operate on Joe's layout and that introduced me to the concept of formal operations.

I knew then that I wanted something to operate on and I knew that I wanted a single track main line with opposing trains. I didn't want a four track racetrack like the Pennsy and I wasn't interested in double track operations. To me following signals up the track gets really boring.

I experimented with layout software to try to incorporate the 4 x 8 layout I already had into a larger design, but none of them worked out very well. I sold the 4 x 8 and pretty much started from scratch on the new layout.

At Joe's sessions, which are track warrant controlled, there are lots of interactions between the crews and the dispatcher and also a certain amount of interaction between the crews. Sometimes it was "professional" and other times it took the form of good-natured ribbing when somebody would mess up. I wanted THAT: the ability to have people come over [to operate on my layout].

The story behind the Bear Creek & South Jackson, page 3

I was a little fortunate that through the Layout Design Special Interest Group's email list I met Don Mitchell who took pity on a newbie track planner. I sent him some track plans and he made some suggestions. I sent him some revised track plans and he sent me some more suggestions.

The original plan for the garage was kind of a "spaghetti bowl" that quickly got discarded and turned into a double-decker twice around – close to six scale miles of mainline. Some of the access would have been tough and inter-deck clearances were not great in places.

How could I get a single track mainline in the space I want on each deck, and still have a run that's long enough to be worthwhile? I was aiming for at least five scale miles of mainline.

About then I read in the magazines about Tony Koester's Nickel Plate Cloverleaf layout and about Bill Darnaby's Maumee Layout in which the layout *is* the helix.

The layouts gain elevation until it comes back to where it started, following the walls and along the peninsula, only now it's high enough that it becomes a second deck and goes around again. You wind up with a double decker but there's no disjoint helix to go from one deck to another.

I wanted to do this, but there wasn't enough room going around the walls to get enough elevation change to [reach] a second deck without a 3% grade – and no flat spots for towns.

Now I thought "I have one place where I can bring a peninsula out." It was a little tricky because there really wasn't enough room to have the track to get to the peninsula from both sides. I read in *Track Planning for Realistic Operation* [by John Armstrong] about the space saver wye. Instead of the two legs going out and forming a "Y", a crossing is placed before they join together at the wye tail track.

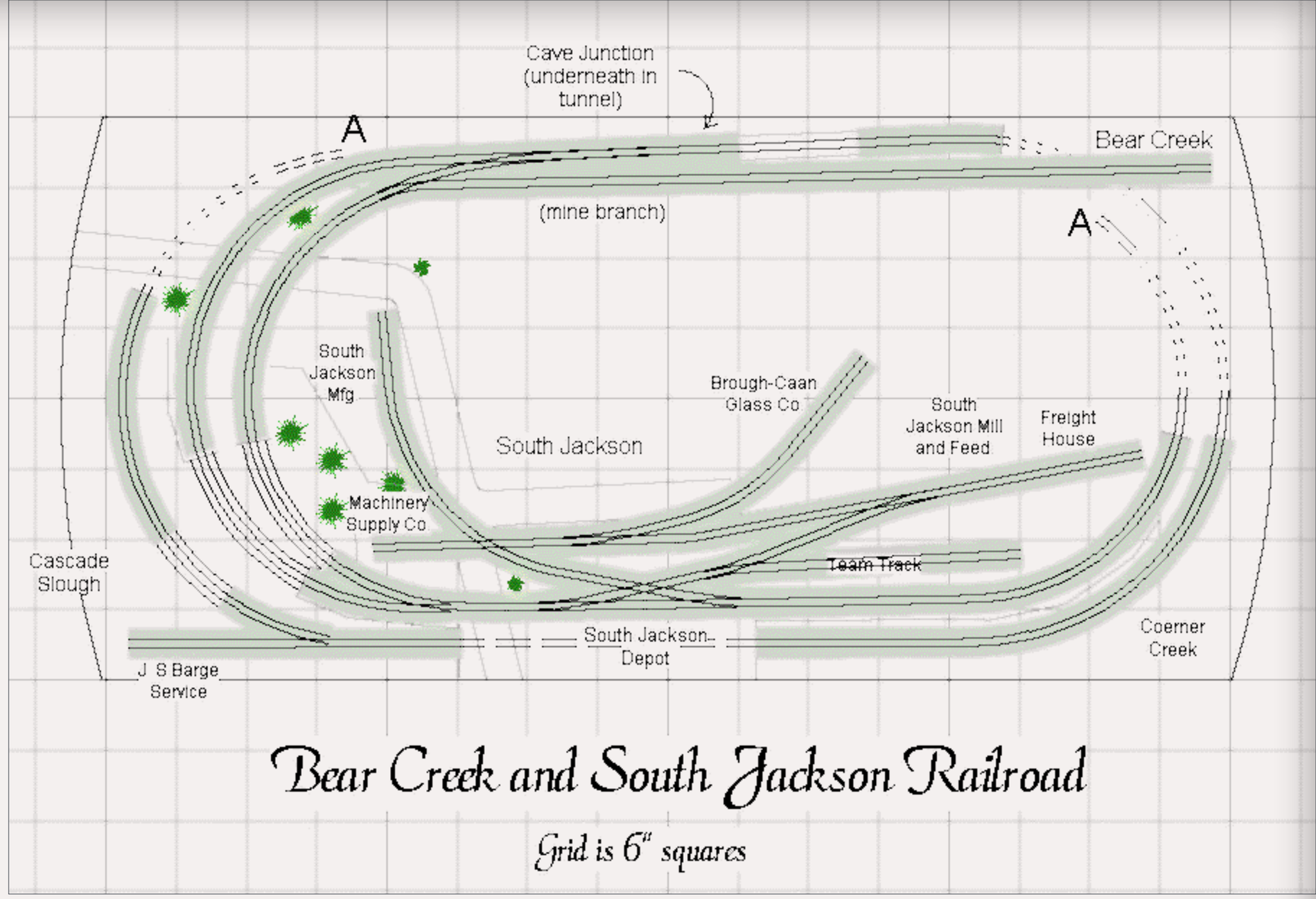


FIGURE 5: This is a rough track plan of the 4x8 BC&SJ layout. It's a twice around with about 5" of vertical separation between South Jackson and Cascade Slough. The mine branch later became a branchline leading to Jallen.

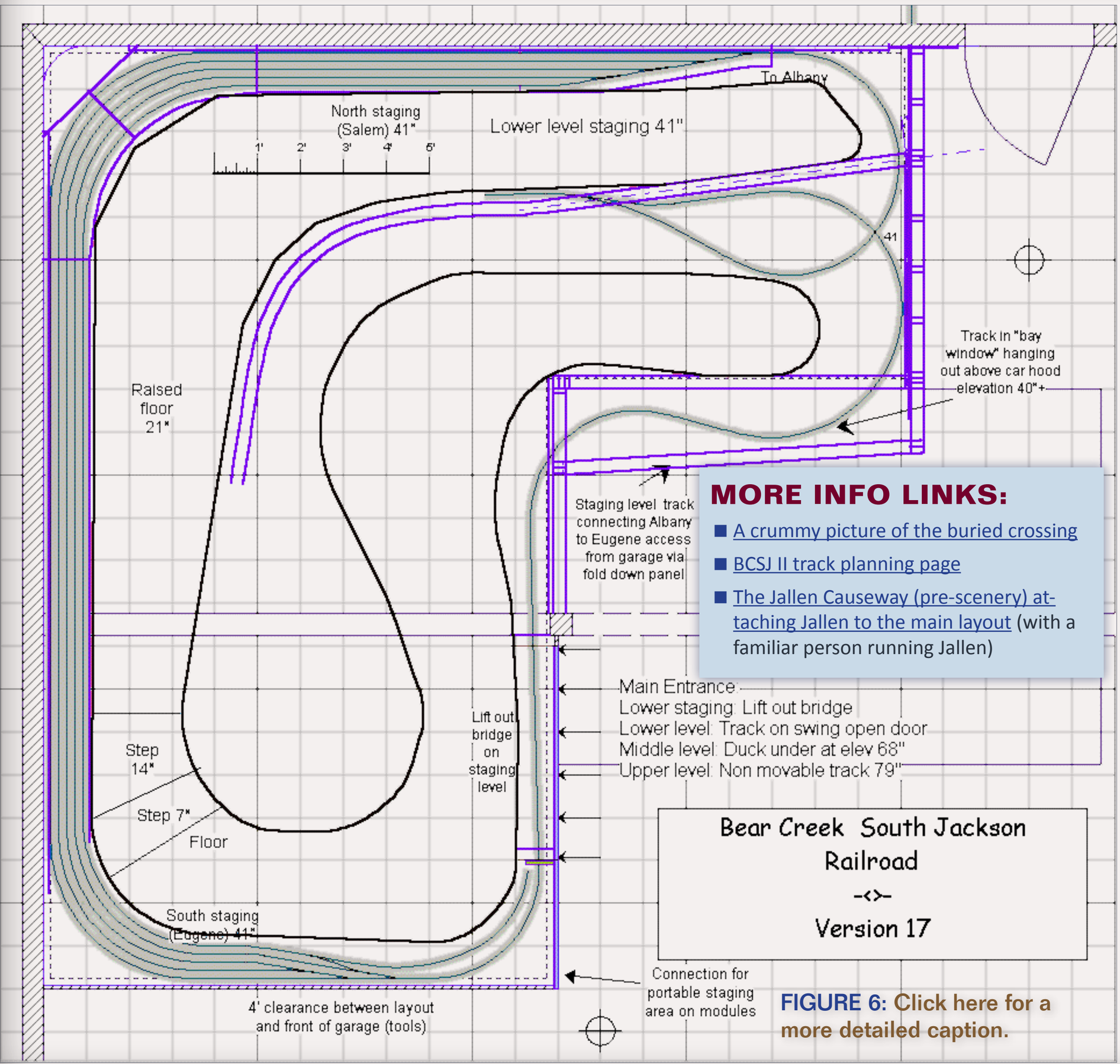
I used that to bring the track out on the peninsula. I needed to have track coming from both directions on the lower deck for staging purposes. It became a giant reverse loop.

On the higher decks I didn't need to have the tracks crossing each other at grade, as bridges put one track above the other. There was just enough room with the minimum radius to bring the track out on the peninsula.

I ran this idea past Don Mitchell who, to my surprise, blessed it and thus was born the concept for the second Bear Creek. It actually worked!

I stole some extra space from the garage hanging about two feet over the hood of the car. That extra two feet allowed me

The story behind the Bear Creek & South Jackson, page 4



MORE INFO LINKS:

- A crummy picture of the buried crossing
- BCSJ II track planning page
- The Jallen Causeway (pre-scenery) attaching Jallen to the main layout (with a familiar person running Jallen)

FIGURE 6: Click here for a more detailed caption.

to fit two 30-inch turn back curves in the width of the peninsula.

The original plan called for a double-decked mushroom configuration. One side of the peninsula would be on a raised walkway and the other side would be on the floor. The main yard was going to be the top most deck at 80 inches off the floor – which was made possible because there is 10' 6" ceiling. That meant I had to have a raised platform for people to run that yard.

Bear Creek was originally supposed to be just a crew change point but because I wanted to operate, there really wasn't any place else to switch trains. Bear Creek got fatter and became a real live yard.

I ended up having to do something no prototypical railroad would do and stuck a double slip switch where the trains coming off the main would meet up with switch lead. Most prototypes don't use a double slip switch because they typically have more space than a modeler does. (Not to mention their reputation for being maintenance nightmares for the track gang! – Author) By putting one in the yard, I was able to extend the classification tracks by a foot and a half to two feet.

I wanted to run long 30-car trains. Some people don't regard that as long, but a 30-car train coming past at 15 scale miles per hour takes a while and does a credible impression of being long.

Chip: What did you learn from the second Bear Creek that you applied to the third?

Charlie: I learned some lessons about multi-deck construction and visibility issues. Working on a lower deck with nothing above it's very easy to lean over and get a helicopters view.

If you've got the main track a foot in from the bench work edge and there's track behind it with a train trying to do some work. People cannot see when the train is clearing the turnout fouling point and they can't see which way the turnouts are set.

I had been scratch building switch stands at that point so that you could just grab and flip the target. That became interesting because you couldn't see where the switch stands were when a train's in front of them. You'd be there reaching over the train trying to find the switch stand and once you felt the target you knew which way the turnout was thrown, but it was a little on the difficult side.

You put the top deck over it and you can't see [any of the back tracks] anymore.

I learned a lot about building scenery on the second Bear Creek. I went from chicken wire covered with plaster – like I did on the first Bear Creek – to using the extruded pink styrofoam. I'd put that in place and cover it with Sculptamold, and then paint and ground foam for the final coat.

Chip: Is the third Bear Creek a multi-deck layout?

Charlie: It depends on how you define a deck. If you define a deck as quote "a visible scene" then it is multi-decked only on the branch line.

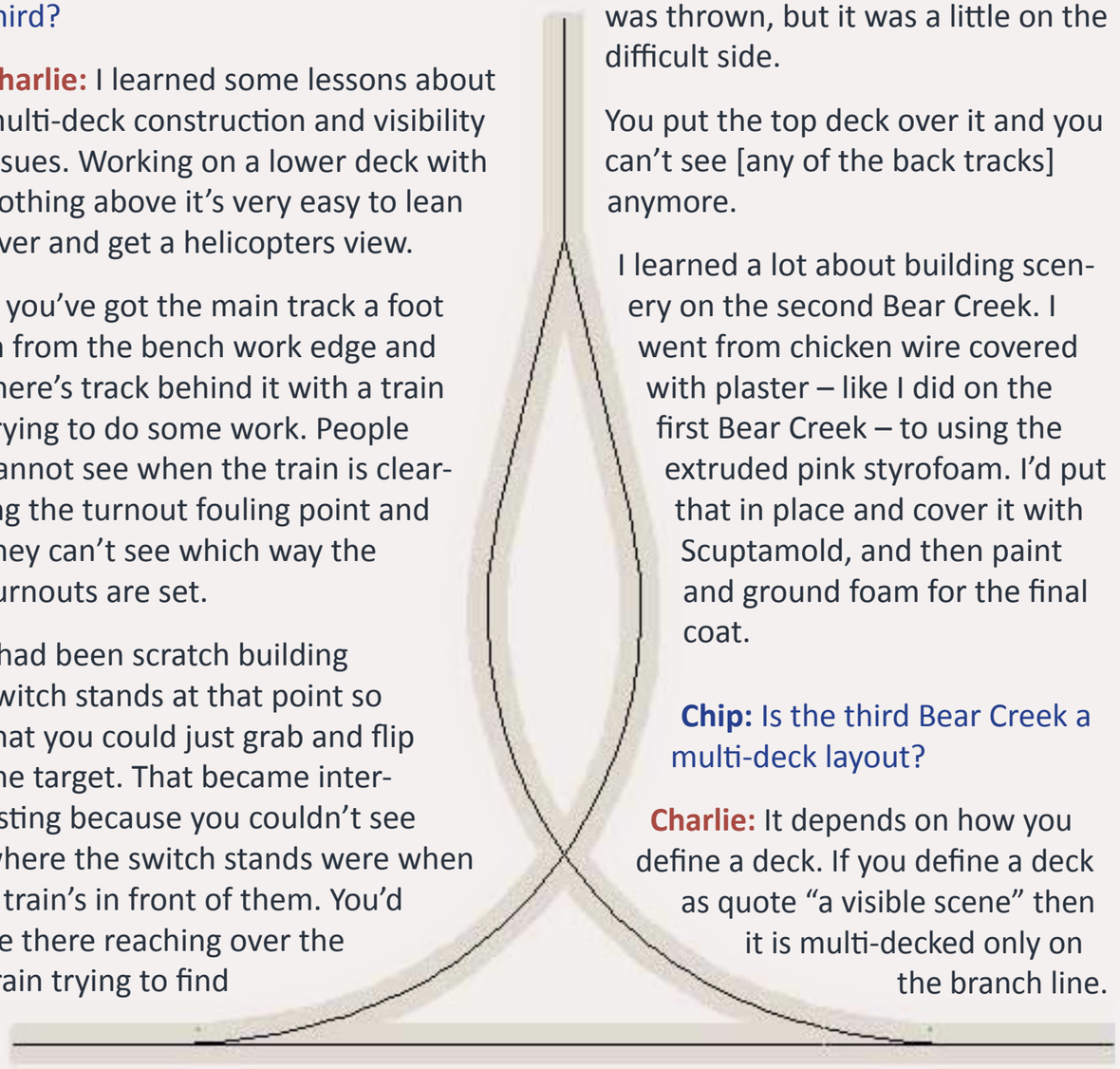


FIGURE 7: Space saver wye. This configuration of a wye uses an extra crossing to greatly decrease the width of the wye tracks. It does require more space for a tail track. I borrowed this idea where the peninsula connected with a wall on the second BC&SJ.

> **"I like running trains, but I like scenery too. I've certainly taken enough pictures of trains. Pictures of model trains look better on scenery than they do on bare plywood ..."**

But the center peninsula has a staging layer underneath it so that *is* multi-level. When you leave staging you need to go through a two stage helix to the "land of the living."

Don Mitchell collaborated with me on that track plan. In fact we ended up writing "Fine Tuning for Layout Operations" as an article for *Model Railroad Planning 2003.*

It was suggested [by Don] that staging should be run uni-directionally: basically on a "balloon" loop or a reverse loop. Trains entering staging would come in on the same track and go around in the same direction. You no longer had trains in staging facing in opposite ways. Instead there was a fairly interesting junction at the top of the helix that would vector trains off to the right place on the layout.

Chip: Sam Posey states that model railroaders are either operators or they are scenery men. Obviously you design your layouts for operations yet to look at your photos it is hard to tell the model from the real thing. Are you an operator or a scenery man?

Charlie: Yes. [pause] Well, I like running trains but I like scenery too. I've certainly taken enough pictures of trains. Pictures of model trains look better on scenery than they do on bare plywood. [laughs].

For me running trains around the room in a circle doesn't make it. I want to operate a railroad; that means taking cargo from one place and sending it to another and hopefully getting paid to do it.

That means a freight forwarding system, a network of trains that are capable of moving cargo (not all trains go to every place) so there is a need to hand cars from one train to another. You wind up with a yard for classification where you build and break down trains. You handle block-swapping with trains that are passing through going to various destinations.

Chip: In a previous conversation you mentioned that some of your photos on your website are staged.

Charlie: That's true, especially on the older layout, the Bear Creek #2.

A number of the pictures involved carefully setting up the camera and adding a backdrop that really didn't exist. I have a 4 x 8 sheet of plywood that I painted blue and put some sky on. I would even put in some extra foam and extend the scene with a forest.

The picture that won the 2000 [*Model Railroader*] photo contest had a lot of the trees in the background just sitting on a piece of foam. Because the camera has such a restrictive viewpoint you can't look beyond the picture. You can't just look to the left of the picture or the right of the picture; the picture is what you get.

Having that set-up just doesn't work [for operations]. There were times when I had the aisle-ways of the Bear Creek #2 just plugged up with scenery props (see figure 9).

There are really two kinds of pictures. There are the ones where you are go-

The story behind the Bear Creek & South Jackson, page 6

FIGURE 8: This scene normally ended just behind the Bear Creek Salvage building. By propping a piece of pink foam behind it I gave this scene more depth for the photo.

ing gang-busters trying to make the most realistic-looking pictures – you're not worried about whether it is real or not. It's sort of the Hollywood approach where what you see in the movies is not at all what is really there.

The second approach is to try to make the normal scenery be what you'd see if you were walking through the aisle [of the layout] or running a train through it, making that look as good as possible. That involves clever backdrop painting, skillful use of textures and colors, and also having the scene lit right.

Chip: Do you design your layout with scenes in mind? Do you look at it from an artist point of view as well as an operational point of view?

Charlie: I try to but the primary goal of the design was to come up with a design that would be interesting to operate. For me that means a single-track main line and that means substantial distance between towns. It means that when you are standing in front of one town you can't just look and see the next town.

For example, if you are standing in front of Bear Creek Yard you're not going to get a good view of Oakhill. If you are standing in front of Oakhill you're not going to see Mill Bend at all. This enhances the realism when you are running.

When you're running a train for real, you're out in the middle of nowhere and you can't just look down the line and see what is happening in the next town.

That dictates the footprint for the layout. After that I'm thinking in terms of "where can I plant scenes?", "How can I break things up?" A railroad that is comprised of a set of vignettes, separated from each other by some sort of scenic element, will seem bigger and seem longer.

A tunnel is one way to do that. A bridge will do that. A big cluster of trees will do that. A town will break up the track.

At the same time you can't afford to make everything just super interesting. If you go out in the real world there is a lot of boring sameness running down the track. Yeah, you see telephone poles. Yeah you see trees, but they are not super-special.

Every town doesn't have a cathedral in it and every curve that a railroad follows in the mountains doesn't have a "Rooster Rock" on it.

I'm looking for ways I can incorporate "the usual" with a sprinkling of the unusual. Luckily I have a big-enough basement, where on the 3rd version of the Bear Creek, I'm able to do some of that.

I'm not really much on the business of modeling vignettes by bring the backdrop to the aisle and having another completely disjoint scene on the other side of it. That seems a little artificial to me.

Chip: What advice do you have for the new person designing their first layout?

Charlie: I suggest, despite the fact that newbies typically have unbridled enthusiasm, that they restrain themselves instead of rushing to build the "layout of their dreams." They will probably discover that their dreams are in the process of changing. Until you've built a large layout you have no idea how much work is involved, so I'd suggest starting gradually with a smaller layout, a 4 x 8, or a shelf layout.

It helps you learn the skills you need: the track-work, the wiring, getting locomotives and cars to run reliably, the scenery, and the structure building. You start learning what you like about [model] railroads.

I'd also suggest that you try to hang out with a bunch of other model railroaders – especially those people that have layouts. If you get an opportunity to operate on a layout, I strongly suggest that you accept the invitation! In fact, you should seek this out.

That's a complete other dimension of the hobby. They may discover that they like operating in a prototype manner or they may discover that it doesn't do a thing for them. In which case their layout will probably be a railfan layout – you put a train in orbit to admire your super-detailed train running through super-detailed scenery: Nothing wrong with that!

Try to build up knowledge. Don't just jump in and try to go for it right away. What you like is going to be changing. You might not even know what you like up front but as time goes by, if you still like the hobby, you'll have a much better idea of what you want.

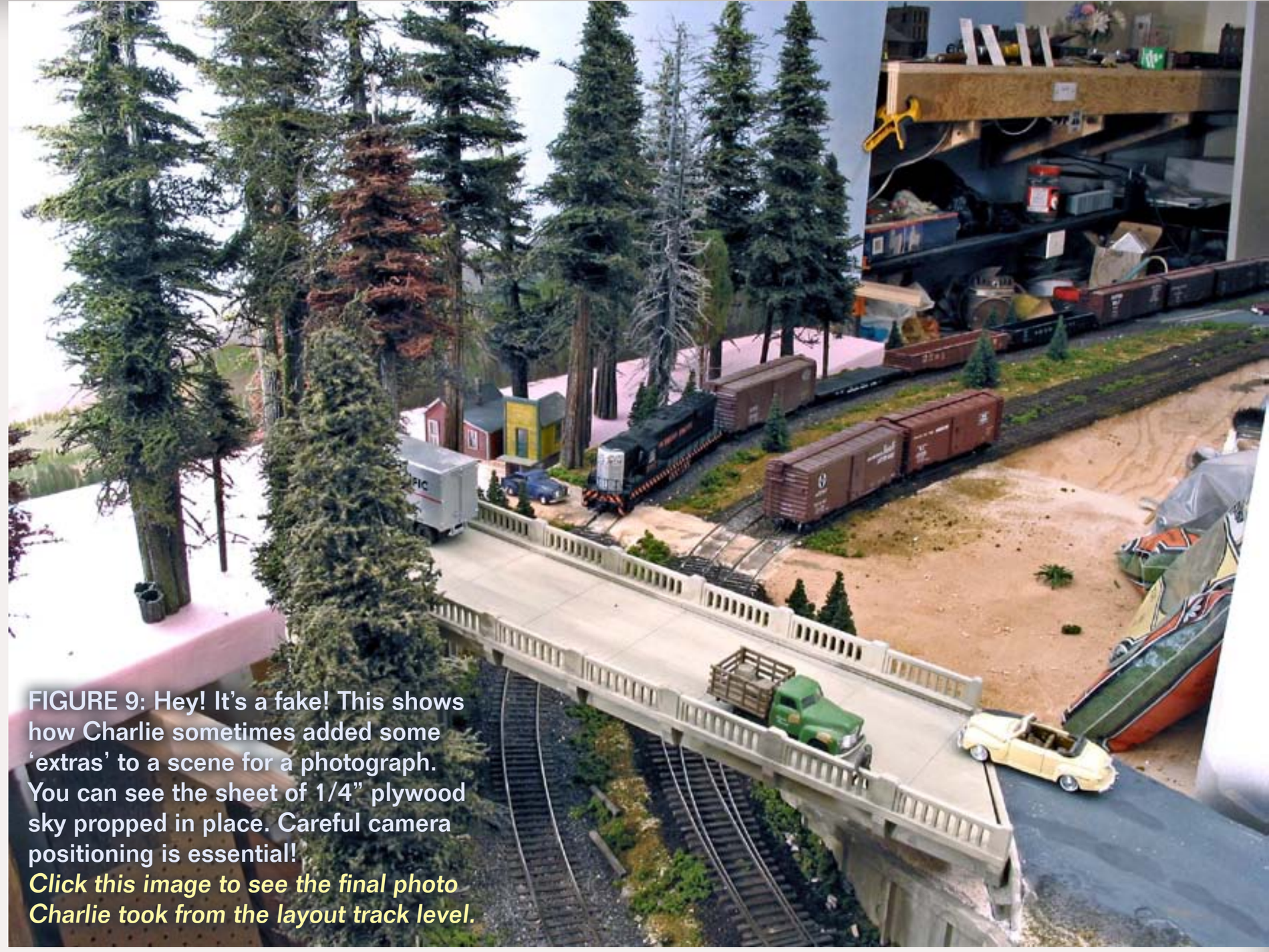


FIGURE 9: Hey! It's a fake! This shows how Charlie sometimes added some 'extras' to a scene for a photograph. You can see the sheet of 1/4" plywood sky propped in place. Careful camera positioning is essential!
Click this image to see the final photo Charlie took from the layout track level.

You'll build a layout that will be more satisfying to you – instead of getting a layout half-built and coming to the conclusion: "Boy, why was I building THIS?" Otherwise you risk losing interest in the hobby and walking away or just being dissatisfied with it for a long time.

Sometimes it's better to take what you've done, say "Oops!" and tear it out to start over again. You can usually re-use most of the track. The trains themselves are re-usable. The buildings are, too. If you are not happy with what you are building don't be afraid to change. There's no such thing as a lifetime layout: there's only the layout you are building right now.

Chip: You've mentioned several times that you designed the layouts for operations. Do you operate by yourself or do you see operations as a team sport?

Charlie: I think that operating *is* a team sport. One of the nice things about it is getting a bunch of guys into the train room with you, or going off

FIGURE 10: Dry ice fog on the Jallen causeway. Good fog images require long camera exposures and a bit of luck. Click here to see this scene without fog.

to somebody else's train room, and running trains. I mean it can be as simple as two or three guys running on a small railroad. Or it could be as complicated as 20 or more guys in a basement with a dispatcher and freight-forwarding system – you know, a formal operation plan.

Hanging out with a bunch of other train guys trying to operate a railroad is just a blast! People mess up and you razz them unmercifully for that, but you know it is in the spirit of fun.

I like to run with two man crews on my railroad. You have an engineer who's driving the train and you have a conductor who handles the paperwork and talks to the dispatcher. The engineer looks at the locomotive and track and does the front-end "Brakie" jobs – throwing turnouts as the train comes to him, while the conductor watches the rear of the train and handles the rear end "Brakie" details.

If you are stuck in the hole someplace waiting for another train to come by, or maybe the dispatcher is just mad at you for something, then you have somebody to talk to. It's just a lot more fun when you have people to share it with.

I do very little running by myself. Most of the running by myself is either testing or getting set up for the next real ops session.

Chip: I can't end this interview without asking the one question my wife wants to know! How did you do the fog shot on layout #2.

Charlie: I did a lot of fog shots. I was using dry ice to make the fog. The technique for that is to put hot water, as hot as it comes out of the faucet, in a saucepan then I throw in a couple chunks of dry ice. It starts bubbling like crazy and fog comes boiling out of it. I stand on a chair or something so I am over the layout. Fog is heavier than air so it falls down like a waterfall. I then sort of dribble the fog all over the layout to create that effect.

The other thing that you need is a relatively long exposure camera. When I was doing the fog shots I was using a film camera with ASA 64 tungsten slide film.

Using f32 for depth of field means I was running in the 30 second to one minute range, and that's a pretty long exposure. That means you don't see the fog coming down in a column. It kind of gets all smudged together [in the image because of the long exposure].

The other thing you need is a remote control for the camera. The camera I had was a Canon and it had an infrared remote on it. I'd have one hand holding the fog over the layout and the other hand holding the remote and pointing it at the camera sitting on a tripod. I'd get maybe two pictures or three pictures on a pan of dry ice. It's

The story behind the Bear Creek & South Jackson, page 9

"... despite the fact that newbies typically have unbridled enthusiasm, I suggest that they restrain themselves – instead of rushing to build the "layout of their dreams." They will probably discover that their dreams are in the process of changing. Until you've build a large layout, you have no idea how much work is involved."

— Charlie Comstock

sort of hit or miss. You have no idea of what you are getting.

If you have a digital SLR, then I recommend the lowest ISO number that it has which would be 50 or in some cases 100. Stop your lens down to as small a hole as you can get: f22 or f32. That will boost your exposure time. If you are not up to at least 15 seconds at that point, you'll need to get a neutral density filter so that you can make the exposure longer. In shorter exposures it's just not going to look right. The fog will look really uneven.

You need to take a lot of pictures to make this work. You should have a minimum of direct light on the scene. If you have a bunch of fog and a bunch of sharp shadows it looks kind of weird. I bounced a lot of light off the ceiling when I was taking those pictures. Of course the standard rules for scene composition apply, too. ☑

Charlie Comstock is a modeler with an eye for detail second to none. We look forward to seeing more of his work in Model Railroad Hobbyist, as well as in the other hobby publications!

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Modeling the Steel Business

– by Ken Larsen

Photos by the author
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From my earliest days of model railroading, I have always been a big fan of steel mills. Why? Because their high volume of both inbound raw materials and outbound finished product make them more rail-centered than almost any other type of facility.

In this article I discuss what makes iron and steel manufacturing a great candidate for modeling; I examine the key issues of planning a steel mill-based layout; I provide examples of two drastically different A

It was recently brought to our attention that Ken Larsen (somewhat innocently) included several select pieces on Steel Mill modeling in this article that are © copyright John Glaab, and did so without John's express permission.

John called us to notify us of this oversight and when we asked what recourse he would like us to take, he requested that this article be removed from our magazine.

We apologize for any inconvenience this may cause our readers, but we cannot ethically or legally publish material that carries a copyright without the author's permission. We know Ken Larsen did not intend to do harm to John Glaab (Ken even mentioned John's name in his references), but that does not relieve the need to obtain permission for the use of this material under copyright when it forms a core portion* of your article.

If you want to visit John Glaab's Peach Creek Shops web site, you can find more information on Steel Mill modeling. John is also working on a book on modeling the steel business.

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APPENDIX: Resources

One-Stop Shopping for Steel Mill Models & Literature:

Peach Creek Shops of Laurel, MD, *has a comprehensive stock of everything related to steel mills and model railroading. Walthers, Heljan, Kibri, and State Tool & Die Co. are a few of the kit manufacturers carried; also a complete line of the larger-sized Plastruct™ tubing and special shapes not found in other hobby shops. For further information, send SSAE to:*

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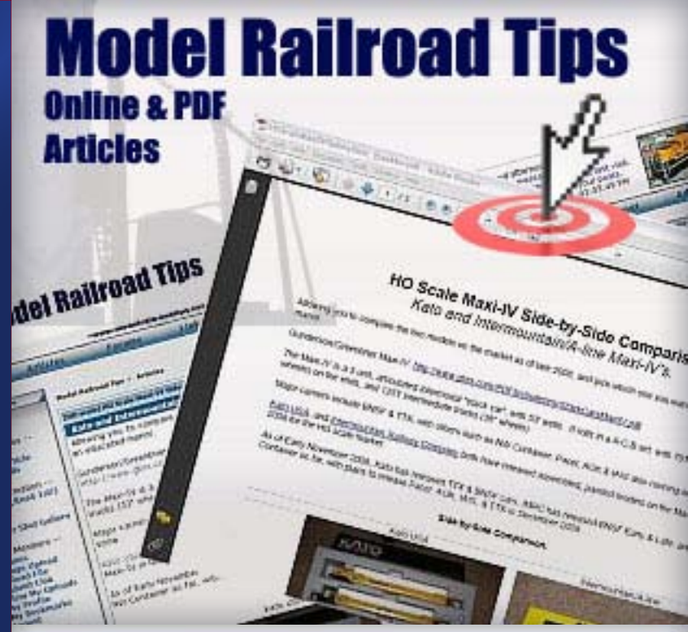

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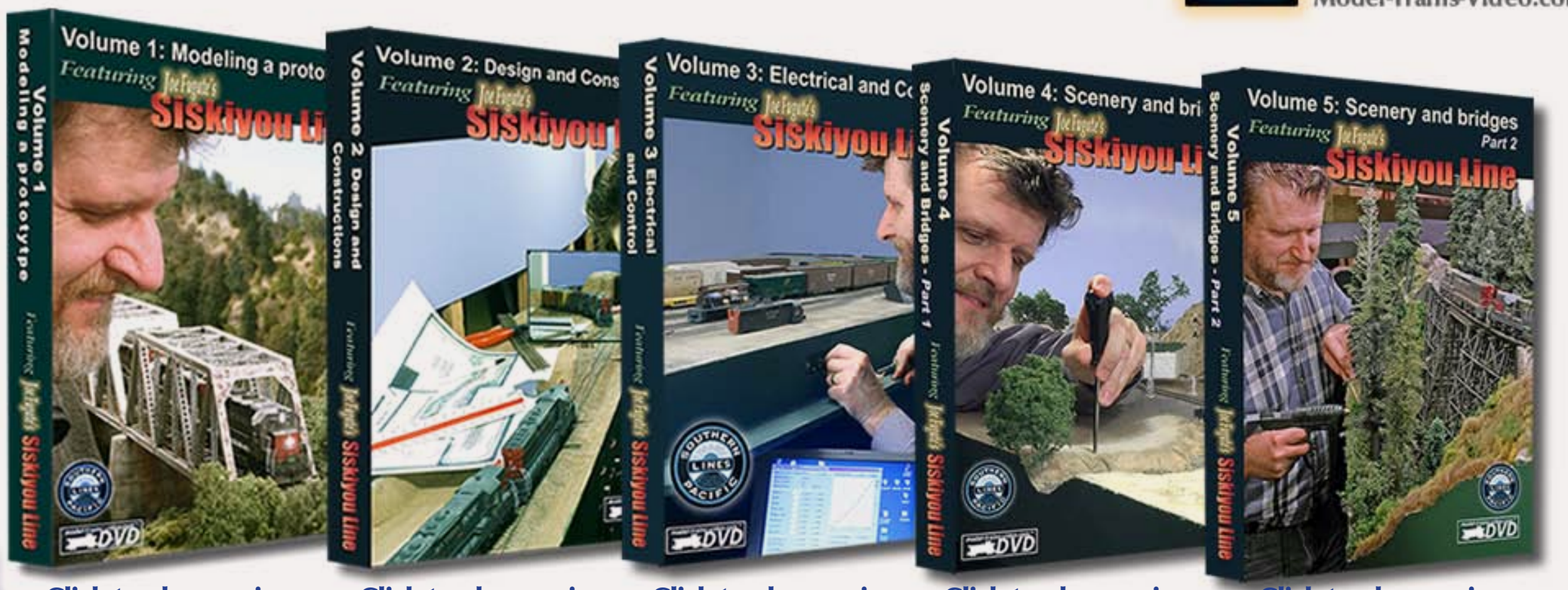

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NEW! Also available as downloadable video for as little as **$1.99** per chapter

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"Amazingly well put together DVDs ..." – Ryan Andersen, *Model Railcast Show* (modelrailcast.com)

N Scale decoder installs

– by Denny Turani

From this ...

... to this!

Today's moden loco designers can get N scale locos to operate very nicely — in large part because they literally fill the loco shell with the motor and cast weight.

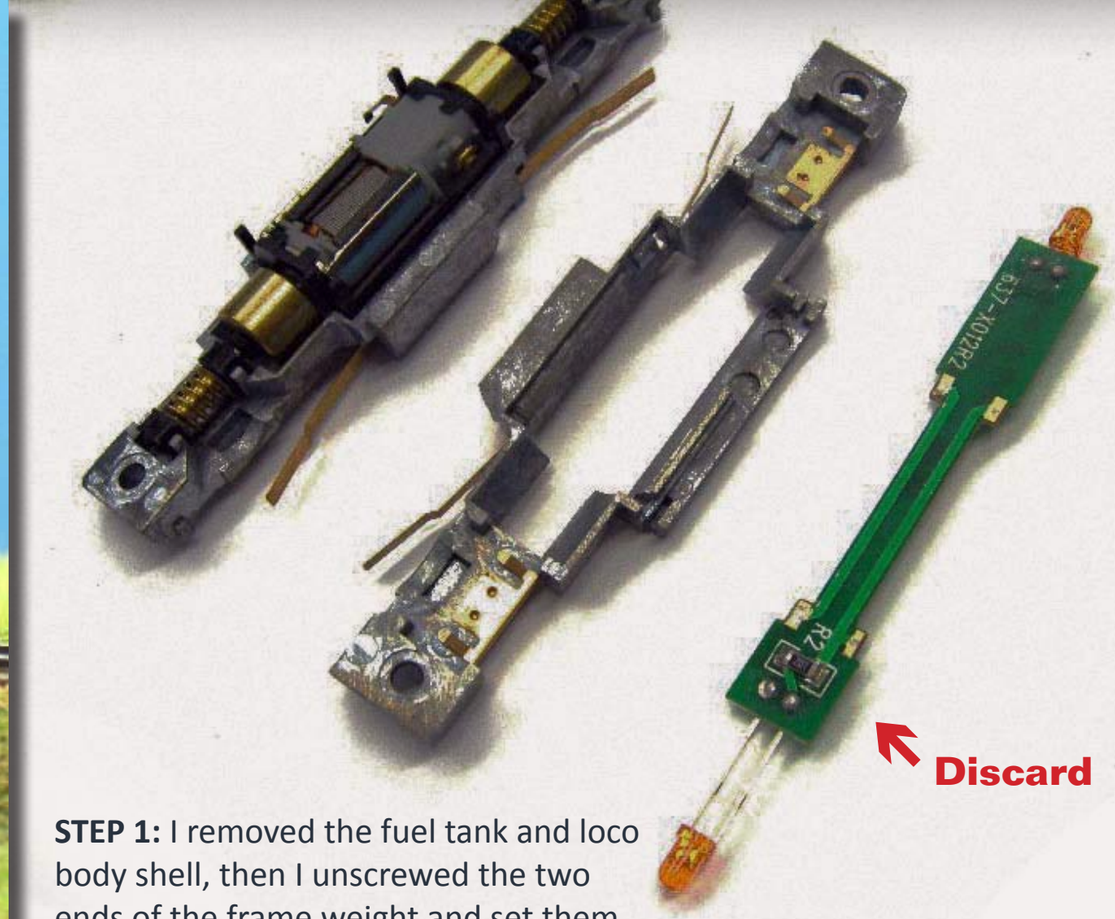
But with DCC coming on the scene, the problem in N scale becomes: *where then do you put the decoder?*

To address this challenge, we've asked experienced N scale modeler Denny Turani to present some of his N scale decoder installs for *Model Railroad Hobbyist* readers.

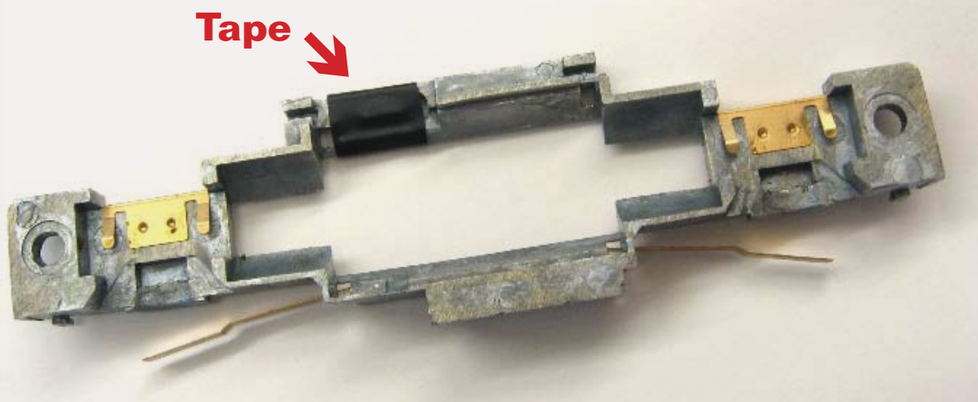
Denny covers three different decoder install examples, moving from very simple to more complex.

We're delighted to also offer a modeling railroad publishing first here on the pages of MRH — for each finished decoder install, you can rotate the finished model (minus the shell) a full 360 degrees with your mouse, allowing careful study of the decoder install! – *J.F.*

Atlas EMD GP9:
How to install a drop-in DCC decoder



STEP 1: I removed the fuel tank and loco body shell, then I unscrewed the two ends of the frame weight and set them apart. This allowed me to remove the original PC board and discard it.



STEP2: I put some electrical tape on the area of the frame near the motor contact strips, to isolate the motor from the frame. With DCC, the motor *must be electrically isolated* from the frame since the motor must now get its power through the decoder.

STEP3: I replaced the PC board with an Train Control Systems ASD4 drop in decoder: a perfect replacement for the Atlas board! Next I tested the decoder on the programming track. Everything went smooth, so I put the shell and tank back on and I was ready to fine tune CVs and run my Geep!

Atlas EMD GP9: TCS ASD4 drop-in DCC decoder

3D Click-n-Spin

Here is Denny's finished GP9 drop-in decoder install. Click the image above with your mouse and then drag to see one of this issue's featured *3D click-n-spin* images.

Spin the loco and study the install from all sides to see how it the loco looks with the Train Control Systems ASD4 decoder installed.

Decoder installation in N scale locos can be tricky because of the small size and lack of space. Decoders shaped to match the loco circuit board are an ideal solution since you simply replace the loco board with same format decoder. – *J. F.*

You can get your ASD4 decoders from these MRH sponsors:

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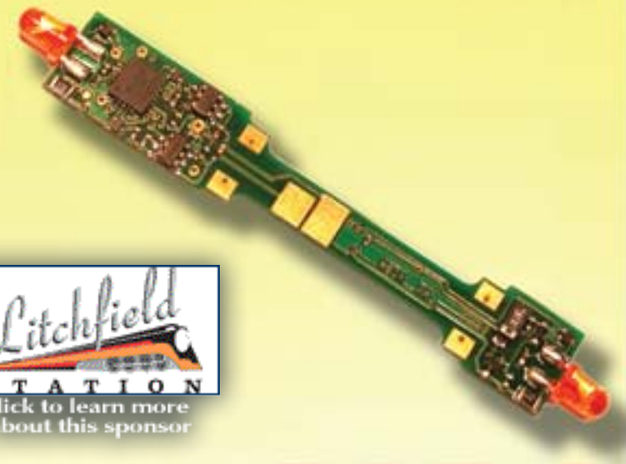


If you sell DCC products and a clickable link to your website is not shown above, click here to learn how to get included!

ASD4

Denny Turani has been a model railroader since the early 1980s. He started with N scale and except for a short period when he converted to HO in his teens, he's always modeled in 1:160 proportion. Being from Italy, Denny built European style layouts before finally modeling a US prototype in 2006. He's currently building a walkaround layout representing a portion of the SP Coast Line as it was in the early 1970s. He's also an active member of FREMO, a european modular organization focused on realistic operations. Denny is a system administrator for a Norwegian multinational company in Italy.

LifeLike EMD GP20:

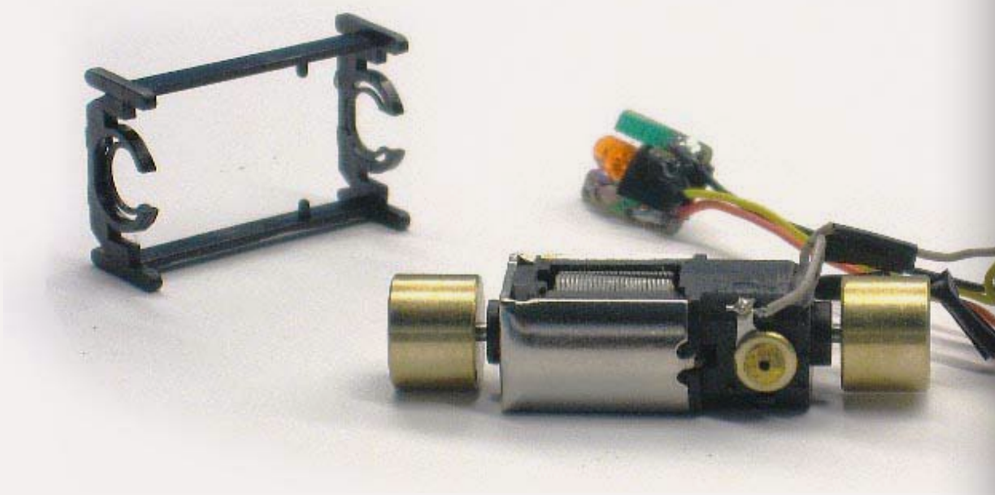
Installing a decoder in a loco that's not DCC ready

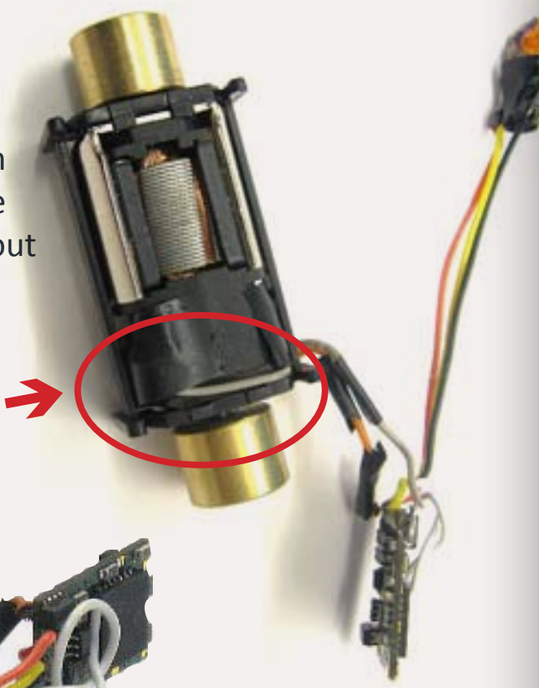
LifeLike manufactures this fine GP20 model, often sold at very cheap prices: I got mine for $30. However, the loco is not DCC ready in that it has one motor pole touching the metal frame.

DCC installations require the motor to be completely insulated from the frame to avoid damaging the decoder. The GP20 provides the modeler with the worst scenario. No need to worry, with a little work is possible to isolate the motor and convert this engine to DCC.

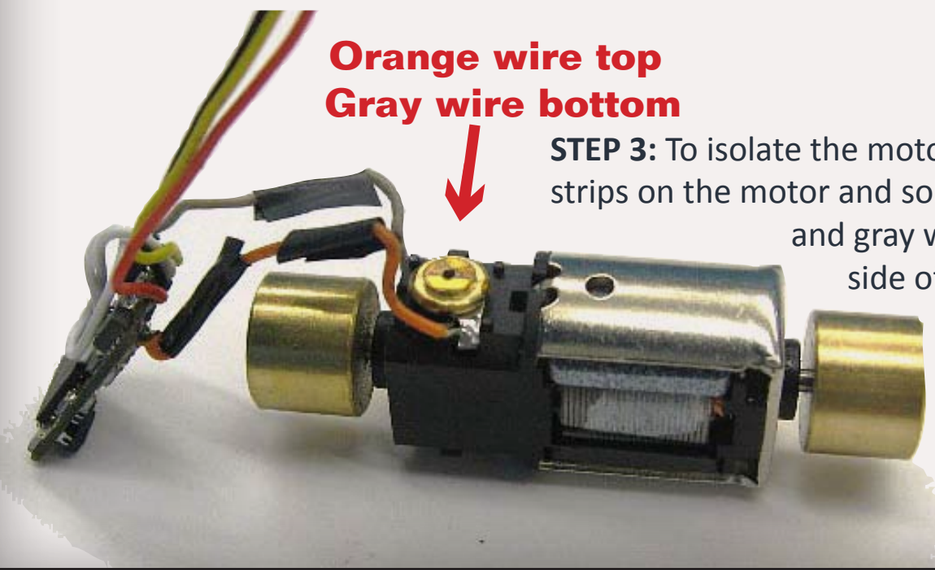
I used a cheap Digitrax DZ123 wired decoder for this project. I had to remove the shrink wrap, or the decoder won't fit. I had to give up on the rear LED, since the decoder needs to go where the rear light PC board is located.

STEP 1: First I completely disassembled the loco. I removed the tank, shell and trucks. I unscrewed the frame and removed the PC boards, motor and gears. I also disassembled the motor from its own plastic frame.

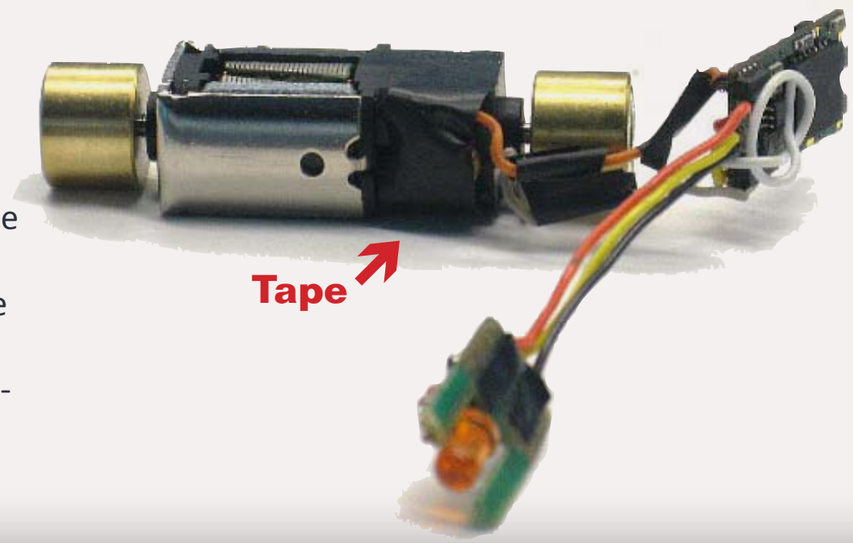




STEP 2: I had to file a notch in the motor to allow one of the decoder's wires to pass without interfering with the shell.



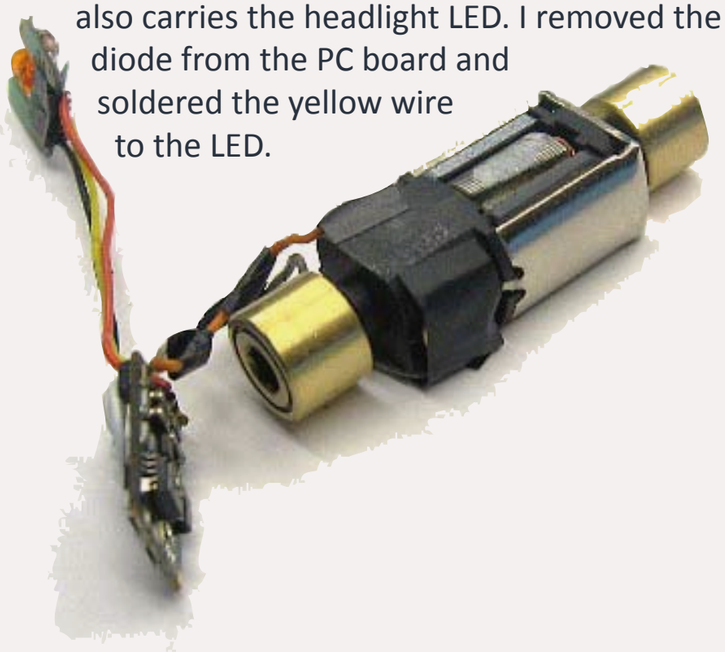
STEP 3: To isolate the motor I trimmed the contact strips on the motor and soldered the decoder's orange and gray wires on them (orange on one side of the motor and gray on the other side). Next I put some tape over the contacts to prevent them from accidentally touching the frame.



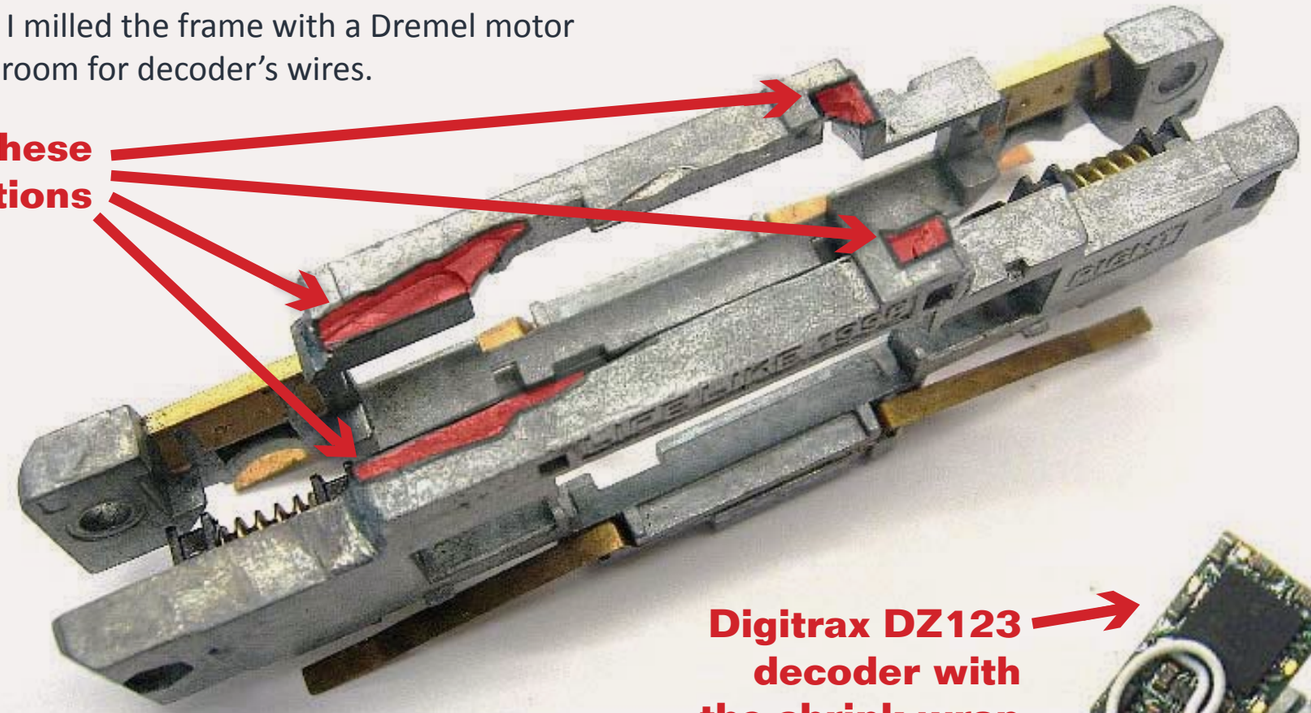
N Scale decoder installs, page 4

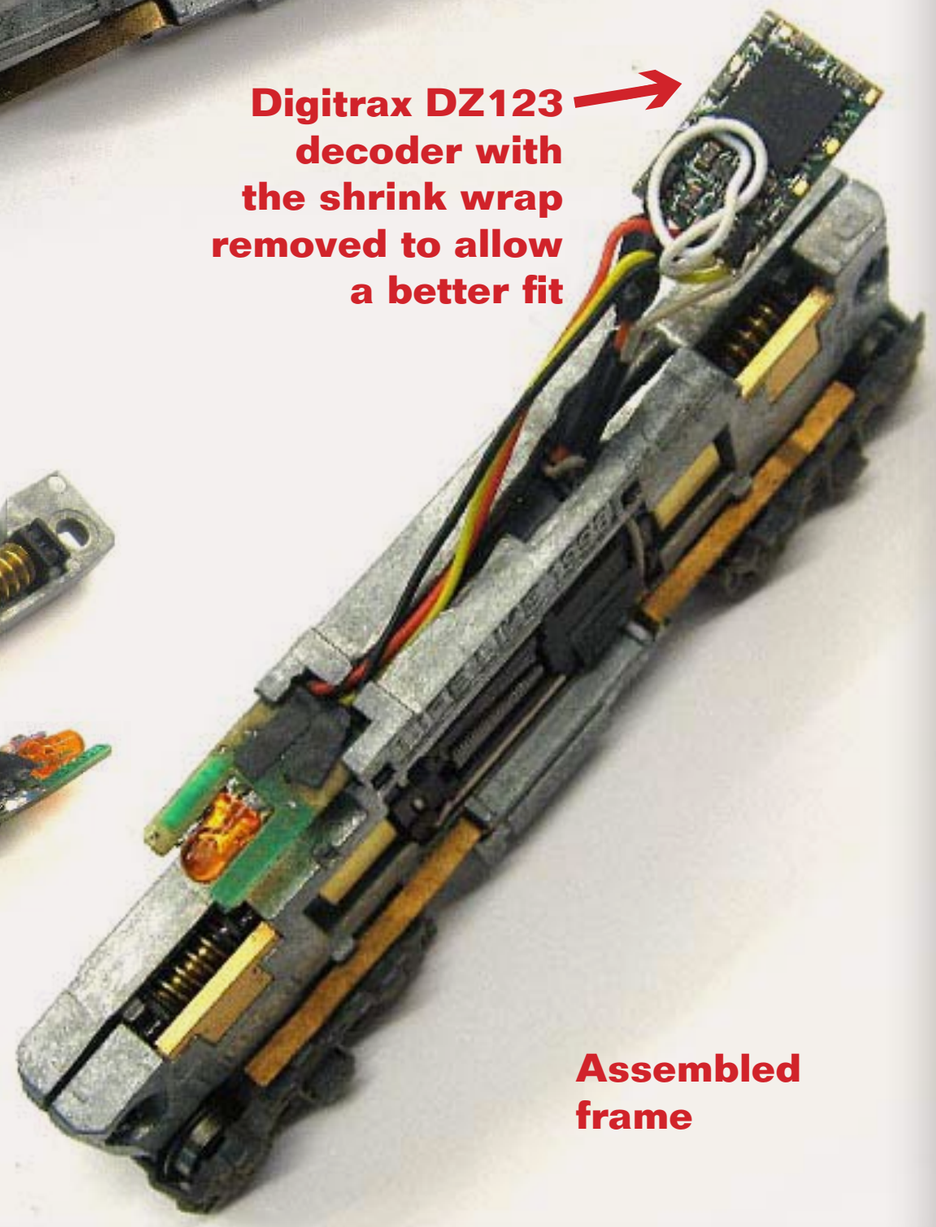
Contents Index

STEP 4: I then soldered the black and red wires to frame contact plates on the front PC board which also carries the headlight LED. I removed the diode from the PC board and soldered the yellow wire to the LED.

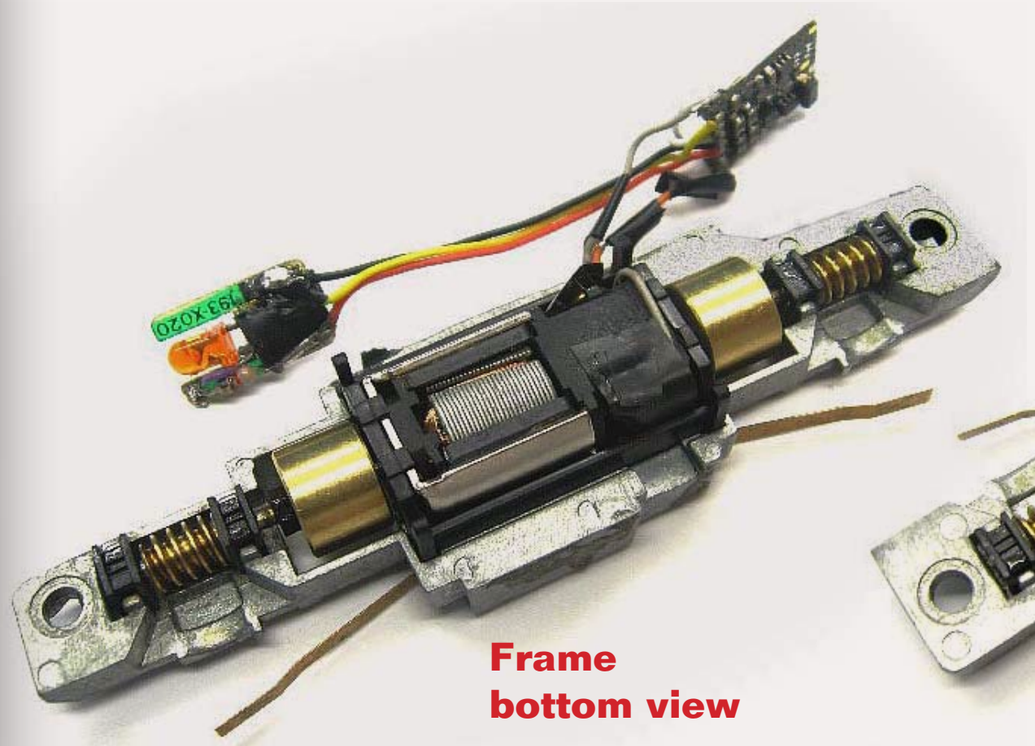


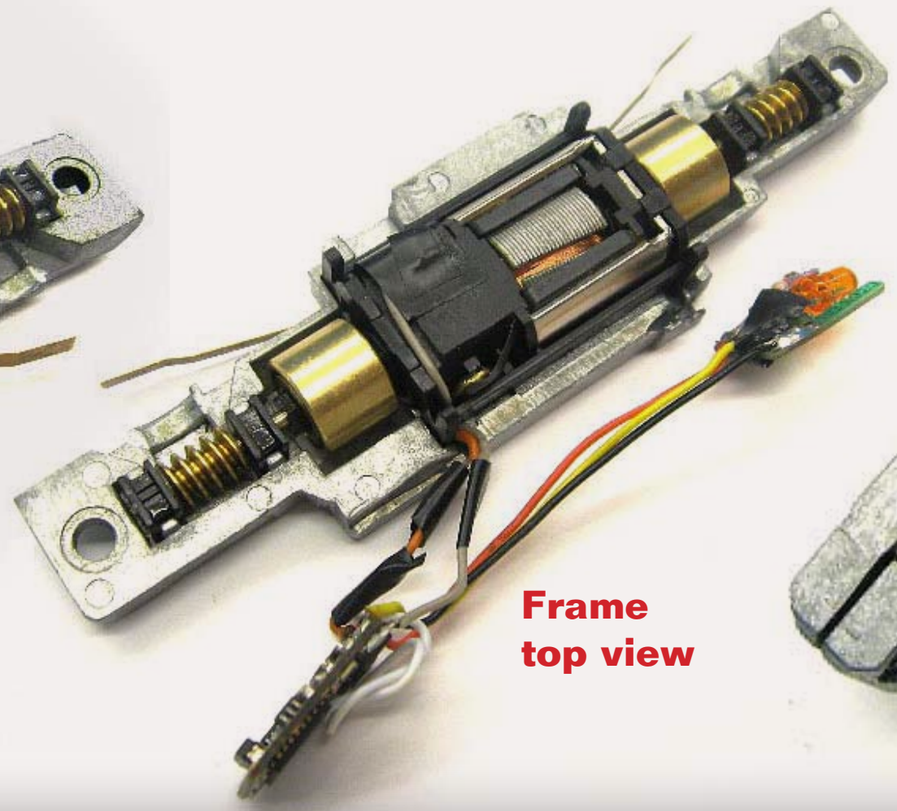
STEP 5: Then I milled the frame with a Dremel motor tool to make room for decoder's wires.



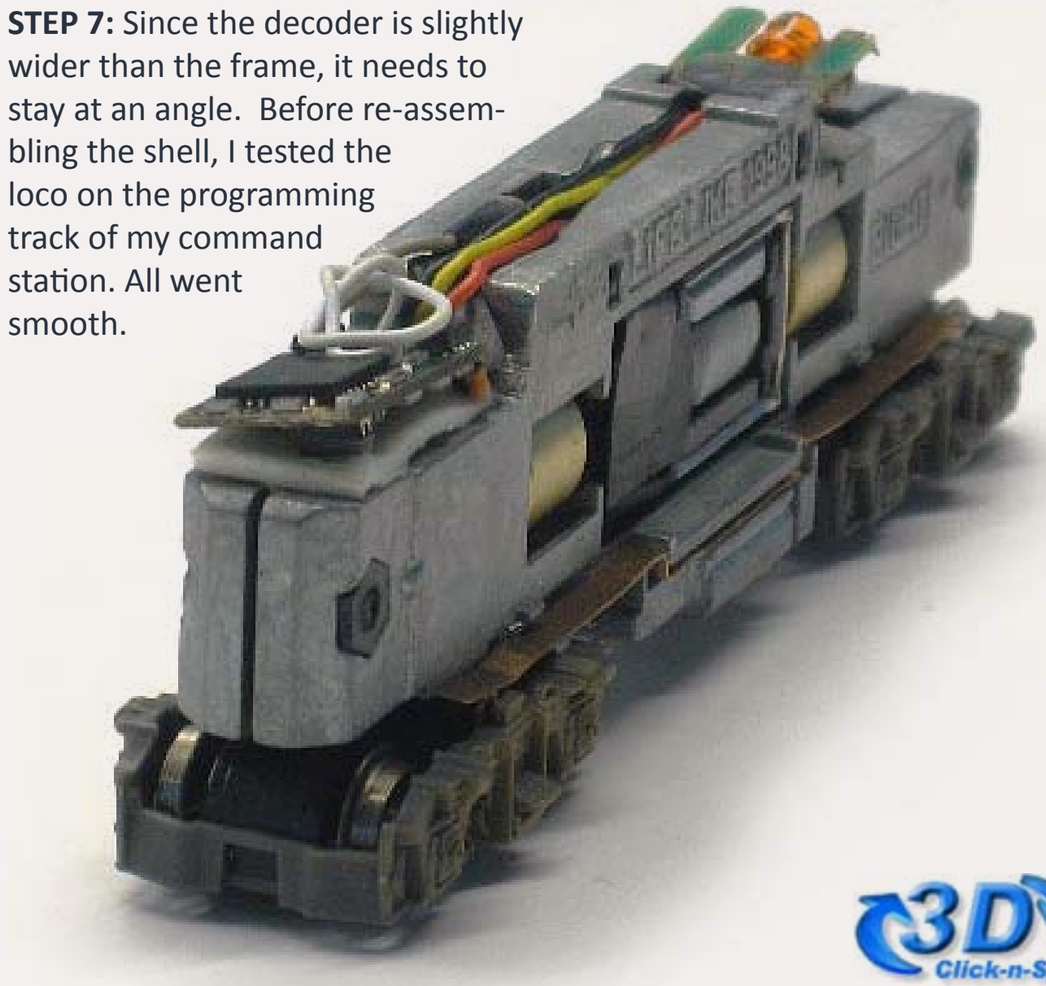


STEP 6: Next I re-assembled the motor in the frame carefully arranging the decoder's wires in order to keep them from interfering with both the motor and the frame.





STEP 7: Since the decoder is slightly wider than the frame, it needs to stay at an angle. Before re-assembling the shell, I tested the loco on the programming track of my command station. All went smooth.



STEP 8: I then put some tape to firmly hold the wires in place and put the shell and tank back on.

The reassembled LifeLike GP20 on the layout

InterMountain Tunnel Motor: Installing a hard-wired DCC decoder

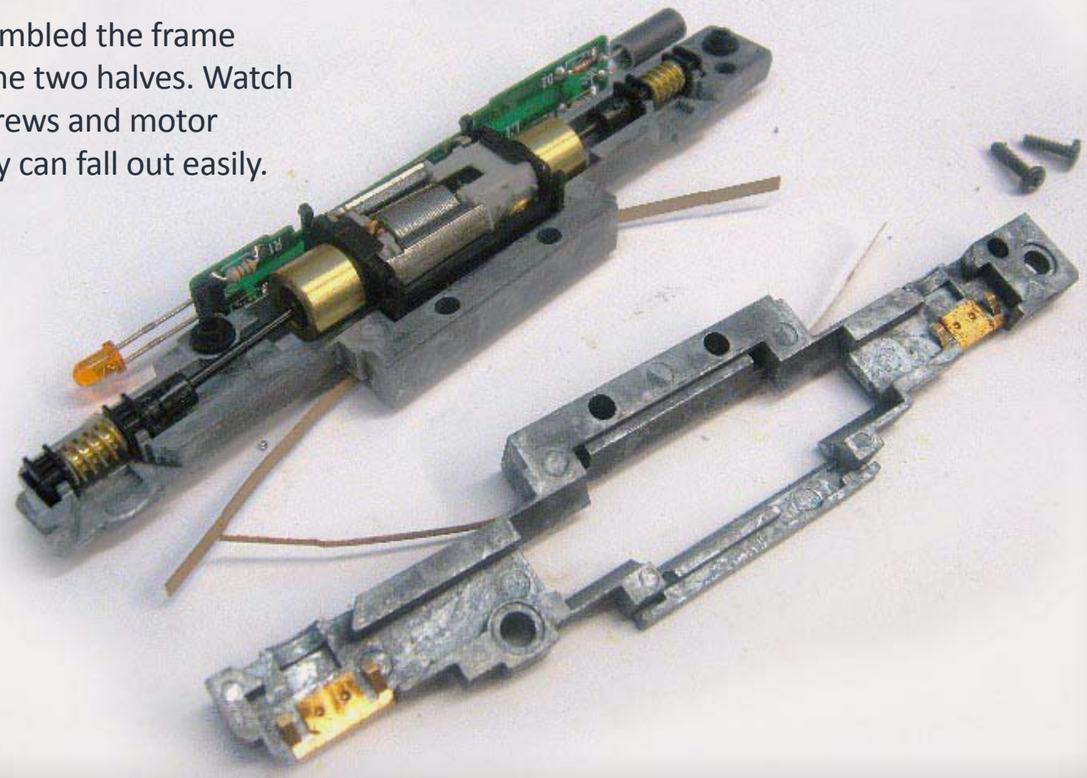
InterMountain Railway's Tunnel Motor models (SD40T-2, SD45T-2) are fine models. NCE produces drop in decoders (N12A0e), however they don't have Back-EMF. Decoders without Back-EMF let

InterMountain locos run fairly smooth - but adding back-EMF yields very smooth running down to crawling speed.

STEP 1: I removed the fuel tank and the shell.

STEP 3: I cut the end tail off the rear end of the PC board like shown here. I won't use the rear light so I'm not concerned about re-installing the LED.

STEP 2: I disassembled the frame and separated the two halves. Watch out for gears, screws and motor drive shafts: they can fall out easily.



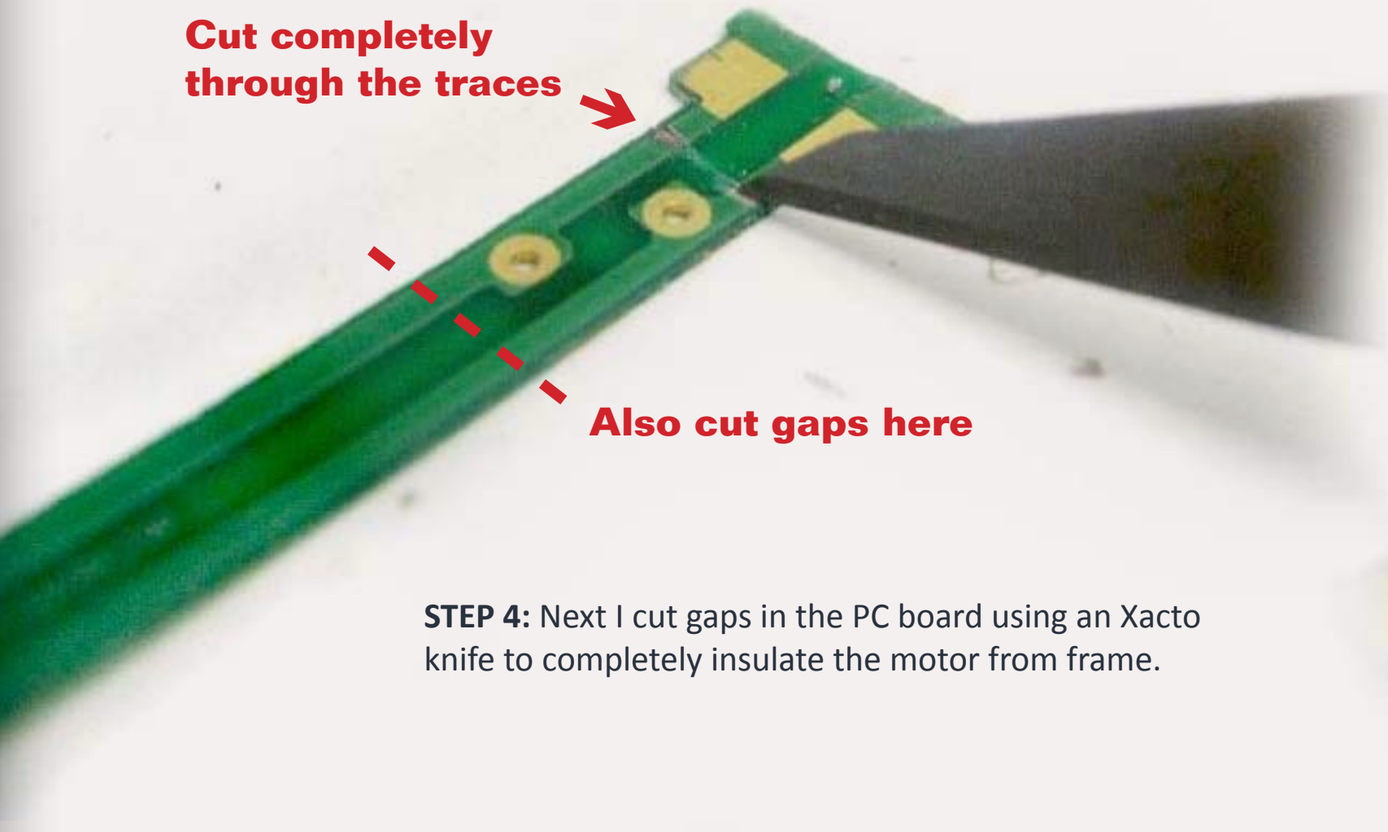
I tried to fine tune CVs, following NCE's advice but I wasn't too satisfied with the results. Those DCC decoders are OK if you just want to run trains, but I wanted something that lets me do very slow switching moves in yards.

I opted for a wired decoder and I chose a Zimo MX620. While this decoder isn't cheap, it makes the Tunnel Motor locos run exceptionately smooth at very slow speed. Any Back-EMF equipped decoder should work similarly.

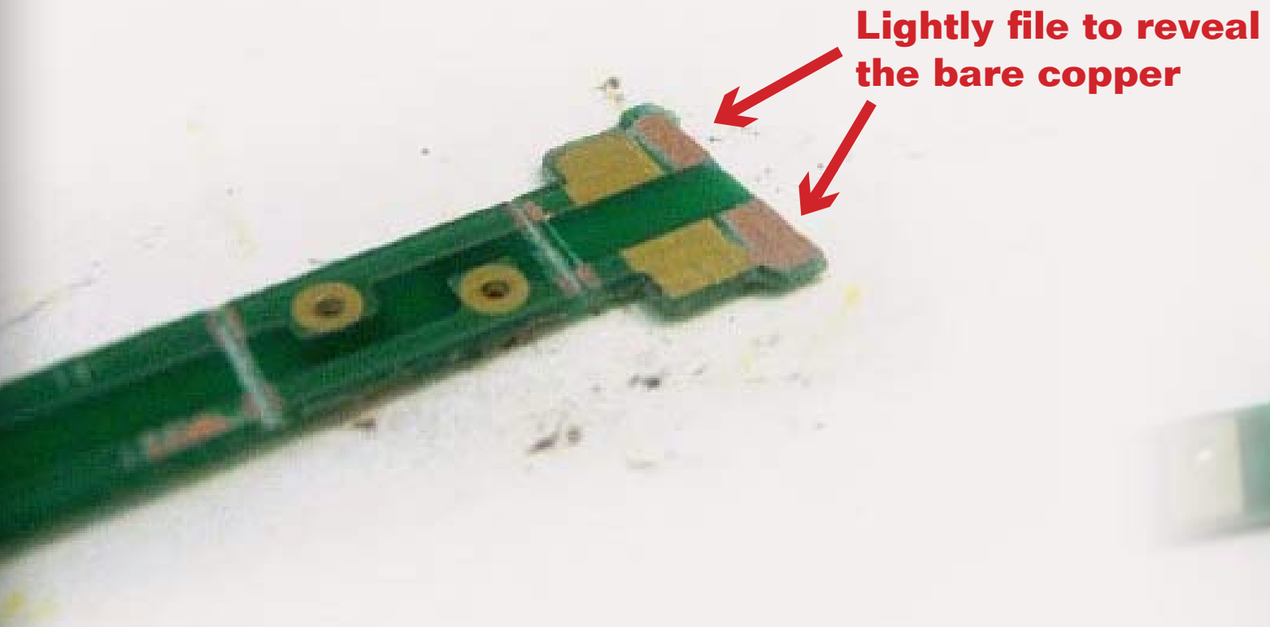
Here is how I installed mine. (NOTE: On another Cotton Belt Tunnel Motor loco I installed a Digitrax DN163 wired decoder following the same steps and it works great, too.)

N Scale decoder installs, page 7

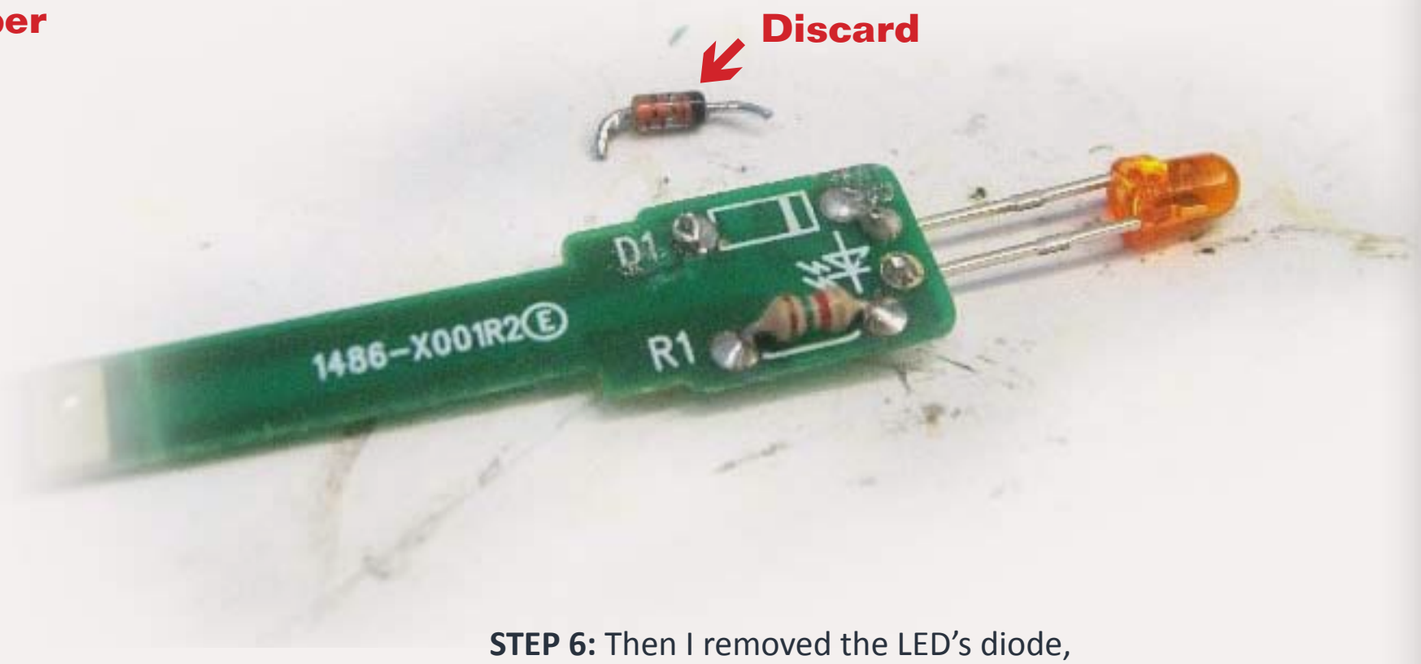
Contents Index



STEP 4: Next I cut gaps in the PC board using an Xacto knife to completely insulate the motor from frame.

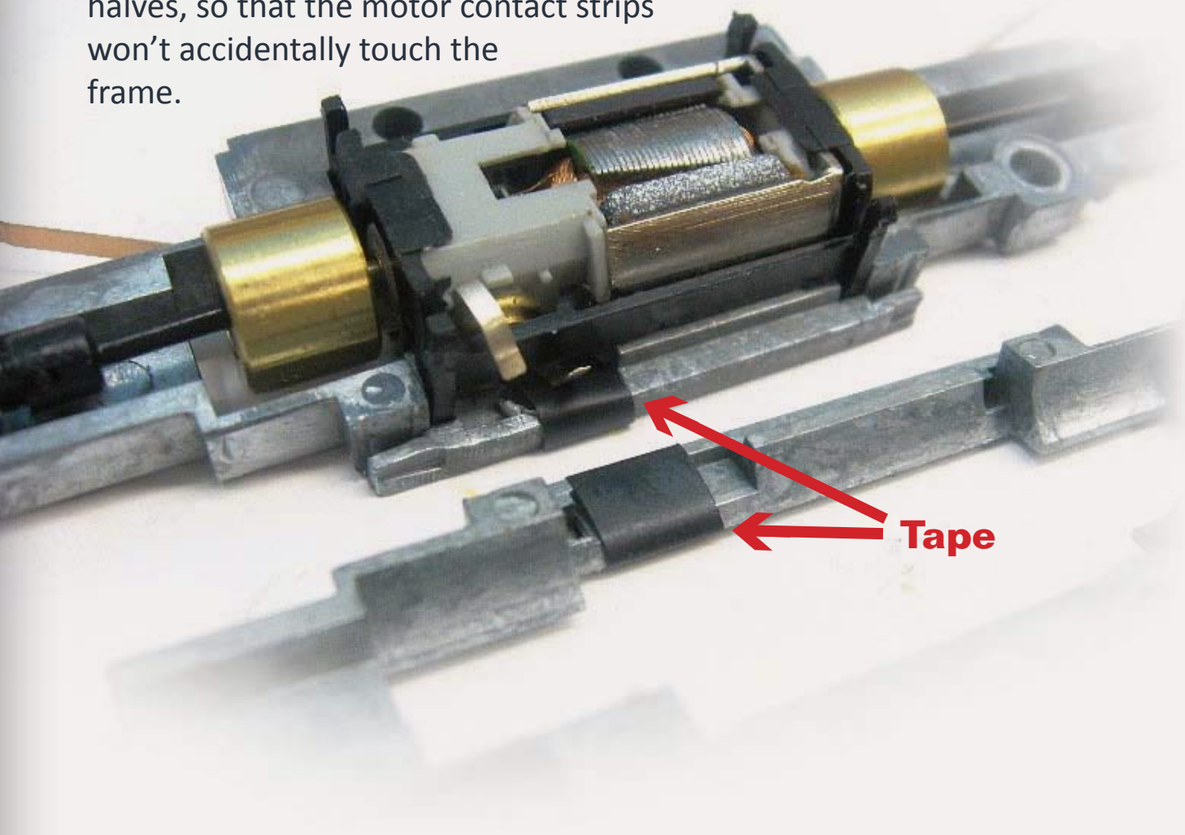


STEP 5: With a small file, I removed some of the contact strip covering to expose the bare copper. I'll use these two plates as the location where I will solder the decoder wires.

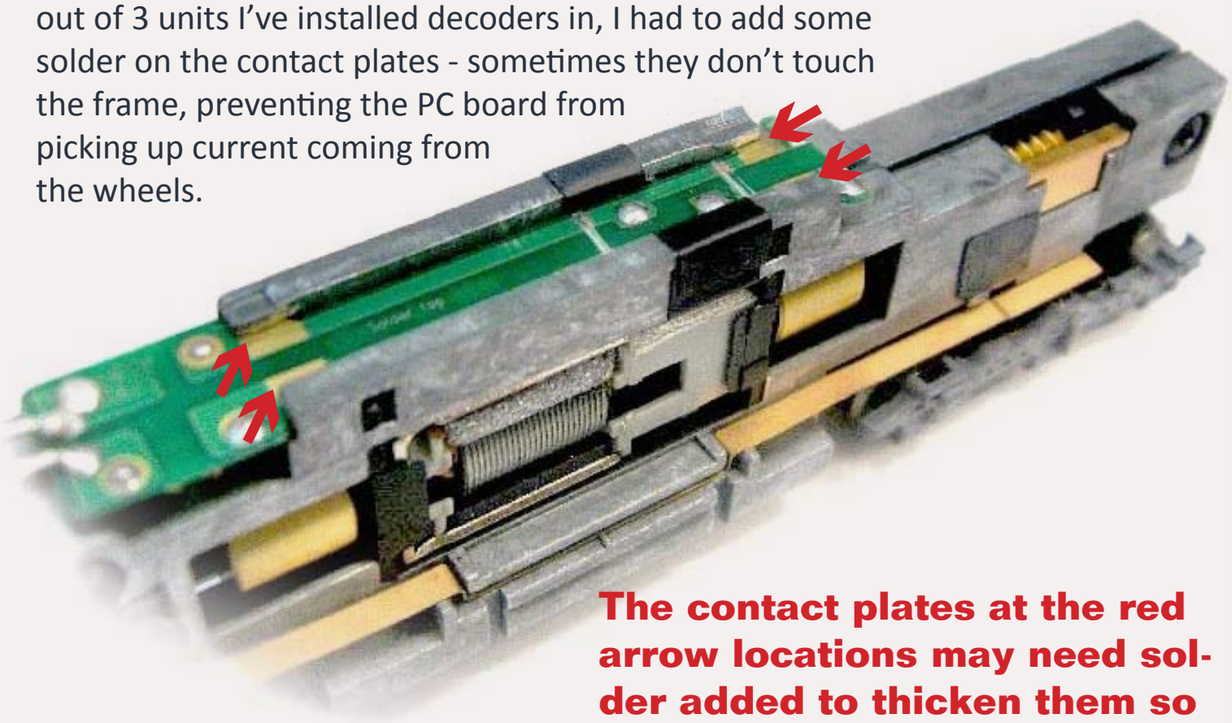


STEP 6: Then I removed the LED's diode, since it's not needed with DCC.

STEP 7: Then I placed strips of tape on the frame halves, so that the motor contact strips won't accidentally touch the frame.

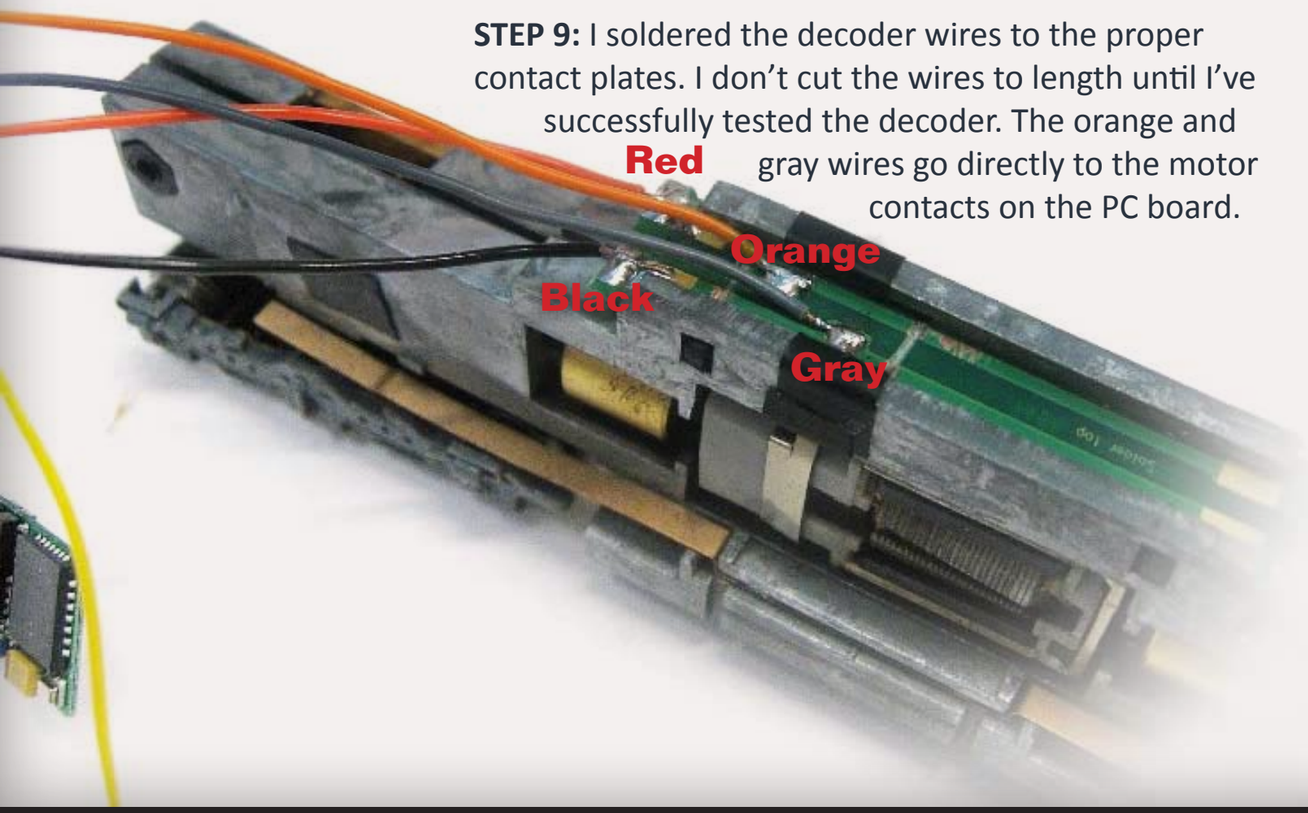


STEP 8: I re-assembled the frame – I've found out that in 2 out of 3 units I've installed decoders in, I had to add some solder on the contact plates - sometimes they don't touch the frame, preventing the PC board from picking up current coming from the wheels.

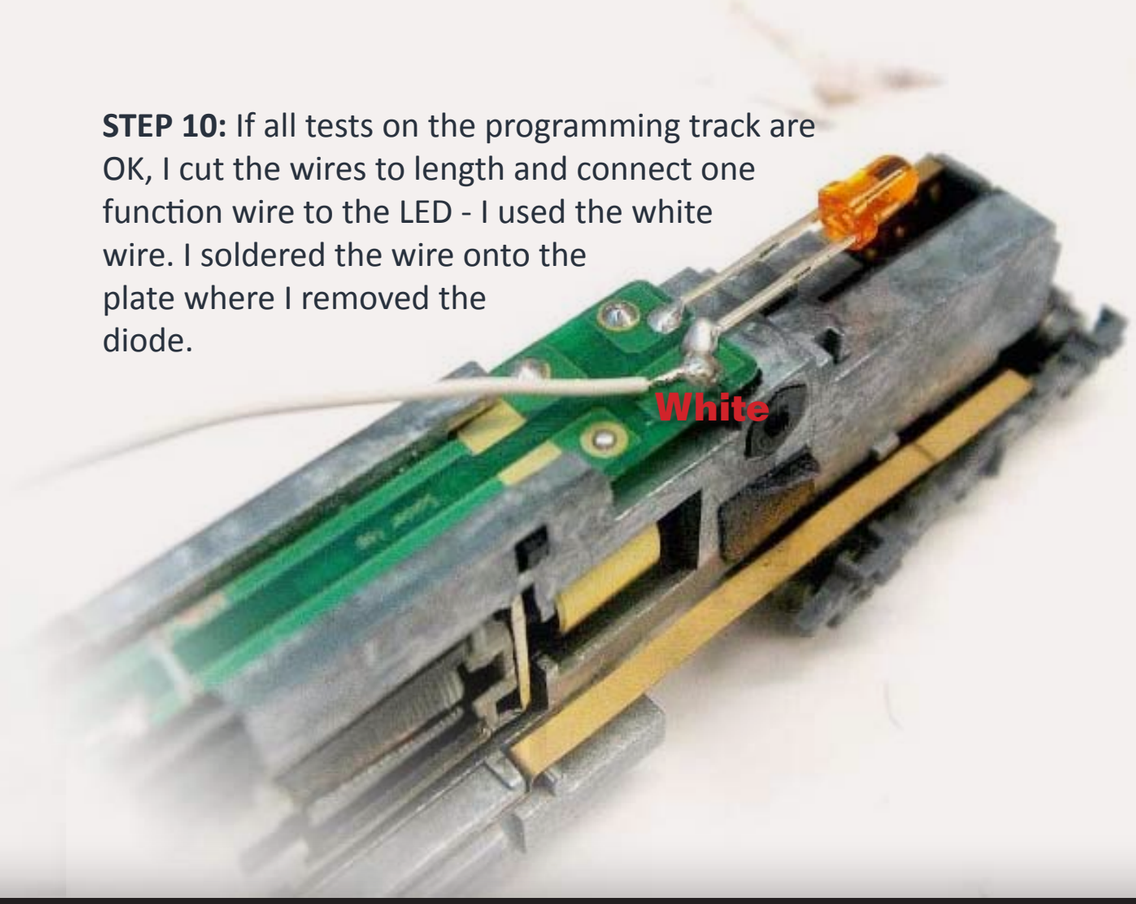


The contact plates at the red arrow locations may need solder added to thicken them so they make good contact

STEP 9: I soldered the decoder wires to the proper contact plates. I don't cut the wires to length until I've successfully tested the decoder. The orange and gray wires go directly to the motor contacts on the PC board.



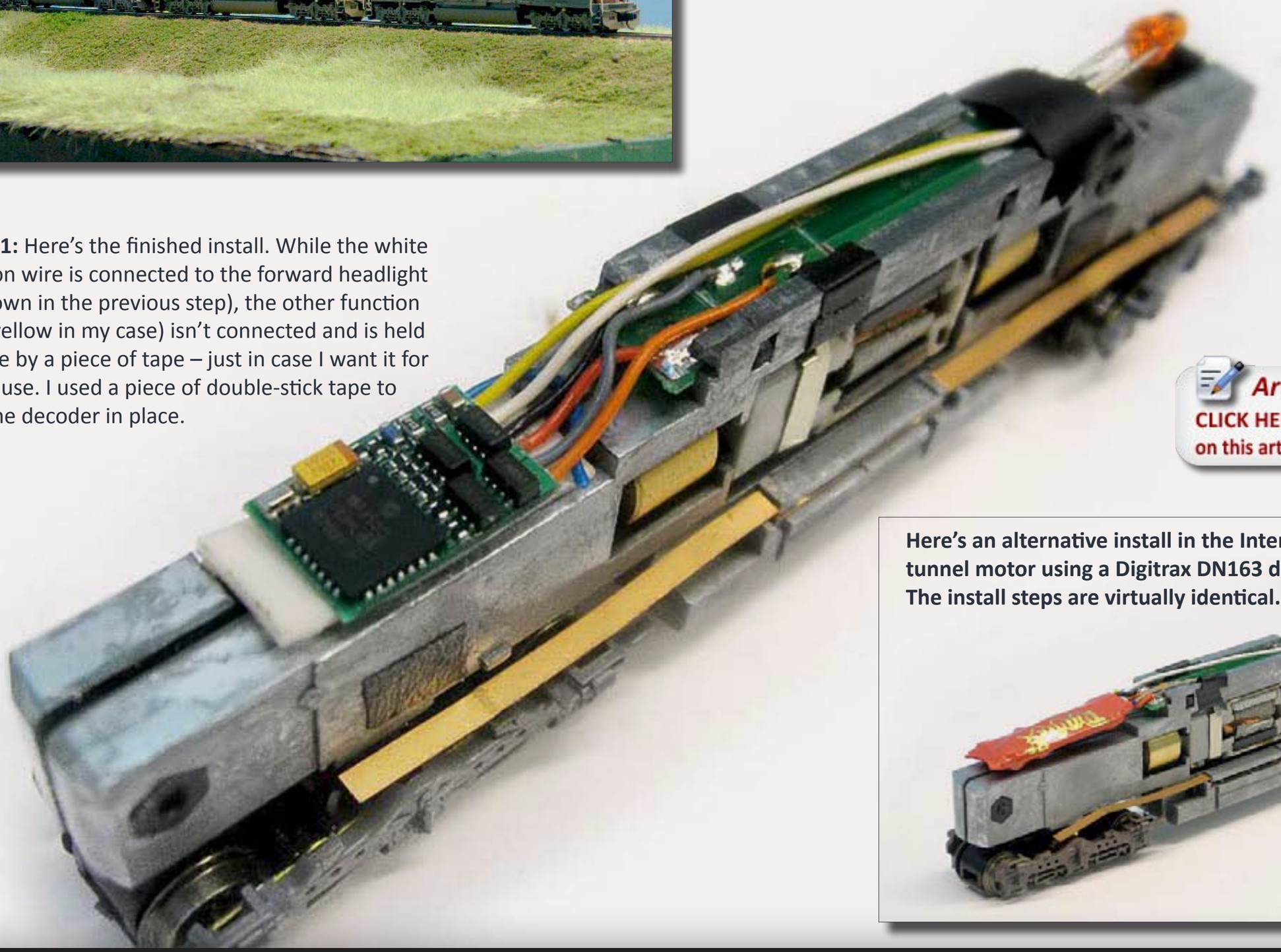
STEP 10: If all tests on the programming track are OK, I cut the wires to length and connect one function wire to the LED - I used the white wire. I soldered the wire onto the plate where I removed the diode.



The reassembled Intermountain tunnel motor running in a consist on the layout.

The finished Zimo MX620 decoder installed in an Intermountain N scale tunnel motor. See the next page for a *3D click-n-spin* image of this install.

STEP 11: Here's the finished install. While the white function wire is connected to the forward headlight (as shown in the previous step), the other function wire (yellow in my case) isn't connected and is held in place by a piece of tape – just in case I want it for future use. I used a piece of double-stick tape to hold the decoder in place.



Article feedback!
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Here's an alternative install in the Intermountain tunnel motor using a Digitrax DN163 decoder. The install steps are virtually identical.

Finished install of Zimo MX620 decoder in an Intermountain N scale tunnel motor. ☑

N Scale decoder installs, page 11

Powerful new curve radius insights for any scale

– by Joe Fugate

Photos by the author

FIGURE 1: Here's one of the big problems a with a curve that's too sharp - poor coupler alignment. These cars can't couple automatically since the jaws don't engage. This article presents some new curve radius insights that came out of a discussion on the Layout Design Special Interest Group forum. Armed with these new insights, you'll be able to confidently select a minimum curve radius for your layout that works like expected with no nasty surprises. And best of all, these new guidelines work for any scale!

How sharp is too sharp?

We all know how it works: you pick the smallest possible curve radius so you can get more layout into your space.The tighter the curves, the more you can fit into your space, right?

But it doesn't take long to discover that using too tight of a curve radius makes your equipment perform badly. Some of your longer equipment may not run at all on a curve radius that small.

If things do run on that small radius curve, they may still look ridiculously toy-like. Or even if things look reasonably realistic on the curve radius you're using, you may still find things won't couple properly. How annoying!

We're going to examine some great new curve radius guidelines that came out of a discussion on the Layout Design Special Interest Group forum around curve radius. You can find a brief summary of these guidelines on the LD SIG's wiki.

As you may have guessed if you've been in the hobby very long, increasing your curve radius just enough so the equipment stays on the track is only part of the picture.

Your equipment may run fine on a sharp radius curve but look extremely toy-like in the process. To improve the look of your equipment on a curve, you'll need to increase the radius.

But there's a trade-off of course: the larger your minimum radius the less layout you can fit into your space.

Once you're using curves broad enough that your equipment both runs well and looks great – there's another major consideration to be aware of: your equipment may still not couple reliably on the curve.

To get reliable hands-off coupling, like in a yard that's built on a curve, you may need to broaden the curve still further.

The Curve Radius Secret

Is there some way to easily understand *when* to use a given curve radius on a track plan? Is it possible to easily know the absolute minimum curve radii to use for good tracking, good looks, and good coupling – so that we can still fit as much trackwork into our space as possible?

The answer is a resounding ***yes!***

It turns out that by looking at curve radius as a *ratio of equipment length*, it's possible to develop some universal curve radius guidelines around reliable tracking, visual realism, and reliable coupling.

As a bonus, these guidelines apply to all scales, since they're a ratio of equipment length to curve radius!

Let's take a look at these guidelines and then run some tests with actual equipment to see how well the guidelines hold up in actual practice.

NMRA RECOMMENDED PRACTICES?

As you might expect, the National Model Railroader's Association (NMRA) has recommended practices for curve radius.

Refer to NMRA RP 11 for these guidelines. RP 11 is decades old, somewhat general and subjective. Each scale has its own set of recommended radii values presented in table form.

I find the mathematical symmetry of the new guidelines presented here makes them easier to remember. With these guidelines I feel like I understand the tradeoffs better, too. ■

FIGURE 2: While these 80-foot passenger cars may track okay on a 19" radius curve, they look totally toy-like and ridiculous with their extreme overhang and offset. To pick the proper curve radius, this article discusses how to determine a ratio of your rolling stock length that meets your desired performance needs.

Curve radius insights, page 2

FIGURE 3: Curve Radius Guidelines

Ratio	Guideline description
2.0 x	Some equipment may track reliably, but 2x is generally considered pushing it.
2.5 x	Most equipment will track reliably if everything is of similar length.
3.0 x	All equipment should track reliably; coupler performance adequate if altered to allow 50% car width swing.
3.5 x	Equipment will look less toy-like when viewed from *inside* the curve.
4.0 x	Equipment will look less toy-like when viewed from *outside* the curve.
5.0 x	Most reliable coupling on curves with body-mounted couplers and near-scale draft gear boxes.

How the ratio guideline works

Using the curve radius guidelines in the table above, let's see how these ratio-based guidelines work.

The curve ratio is a factor of the rolling stock length. For instance, I measure my HO 40 foot box cars and I find they're 43 scale feet over the couplers – or 5.9 actual inches (150 mm).

If I take 5.9" and multiply it by 2, I get 11.8". I round to the nearest inch – 12" in this case. My 40 foot HO box cars should just barely track on a 12" radius curve (but that's pushing it).

Computing the other values gives me the following (rounded to the nearest inch):

HO 43 foot cars

- 2.0x 12" radius
- 2.5x 15" radius
- 3.0x 17" radius
- 3.5x 21" radius
- 4.0x 24" radius
- 5.0x 30" radius

In other words, my 40 foot HO box cars ought to track reliably on a 15" radius, and should track quite nicely on a 17" radius curve.

Further, the cars will look reasonably relistic when viewed from the inside of a 21" radius curve, and look good when viewed from the outside of a 24" radius curve.

And lastly, 40 foot HO box cars with body-mounted couplers should couple completely hands-off on 30" radius curves.

Truck-mounted (talgo) couplers or draft gear boxes modified to allow extra coupler swing fit the 3.0x rule rather than the 5.0x rule. However, truck-mounted couplers also can be a problem – see the truck-mounted couplers sidebar for details.

Let's examine these guidelines more closely using some actual equipment. While we're using 40 foot, 50 foot, and 80 foot HO cars, these same ratios should apply to any scale.

We'll start by looking at the 40 foot cars.

FIGURE 4: We're using these HO cars to do our equipment tests. In the picture going clockwise we have: Walthers 83 foot passenger cars, Athearn 53 foot outside-braced box cars, and Athearn 43 foot box cars. All cars have body-mounted magnetic couplers, although the Walthers passenger cars have special draft gear boxes that allow the couplers to swing up to 50% of the car width.

TRUCK-MOUNTED COULERS

Mounting couplers on the truck rather than the car body seems to solve some of the curve-related coupler reliability problems. And that's true, truck-mounted couplers do allow cars to couple more reliably on far tighter curves.

However, try backing a long train with all truck-mounted couplers. The couplers transfer lateral pressures to the wheel flanges, causing the the trucks to roll down the track at a slightly canted angle-of-attack.

As a result, the wheels find every flaw and imperfection in the rails and tend to derail. Most modelers prefer body-mounted couplers as the all-around best option for most reliable tracking. ■

Curve radius insights, page 3

FIGURE 5: Getting the cars on the track takes some care, and the flanges rub against the railheads with noticeable friction.

FIGURE 6: The cars track without friction at this radius, proving the 2.5x radius guideline works well in predicting car tracking behavior.

FIGURE 7: The cars roll freely at the 3.0x radius of 17”. The cars couple with a bit of coaxing to make sure the couplers are aligned.

FIGURE 8: As predicted, the cars look reasonably realistic on the 3.5x radius curve when viewed from the inside of the curve.

FIGURE 9: Once again as predicted, the cars look realistic at the 4.0x radius curve when viewed from the outside of the curve.

FIGURE 10: As the 5.0x guideline suggests, the coupler alignment on a 30” curve essentially matches that of straight track with 40 ft boxcars.

FIGURE 11: Here’s a side-by-side comparison of a 3.5x radius curve when viewed from both inside and outside the curve.

FIGURE 12: Viewing from the inside makes the curve appear less sharp – a handy trick when you know a curve will only be viewed from the inside.

50 foot cars

FIGURE 13: At the 2.0x radius, the cars track on this curve with some difficulty and the slightest lateral pressure pops the wheels off.

FIGURE 14: The 50 foot cars track much better on the 2.5x radius, rolling more freely, although coupling needs some help.

FIGURE 15: The cars roll quite smoothly on the 3.0x radius as predicted, although visually the curve still looks somewhat sharp.

FIGURE 16: The 3.5x radius curve, when viewed from the inside, looks reasonably realistic and gentle.

Curve radius insights, page 6

Contents Index

FIGURE 17: As predicted, the 4.0x radius curve looks prototypically realistic when viewed from the outiside of the curve.

FIGURE 18: For all practical purposes, coupler alignment on the 5.0x curve for the 50 ft boxcars matches that of straight track.

FIGURE 19: On the 2.0x radius curve, the 50 foot car coupler jaws do not align and can only be made to couple with much effort.

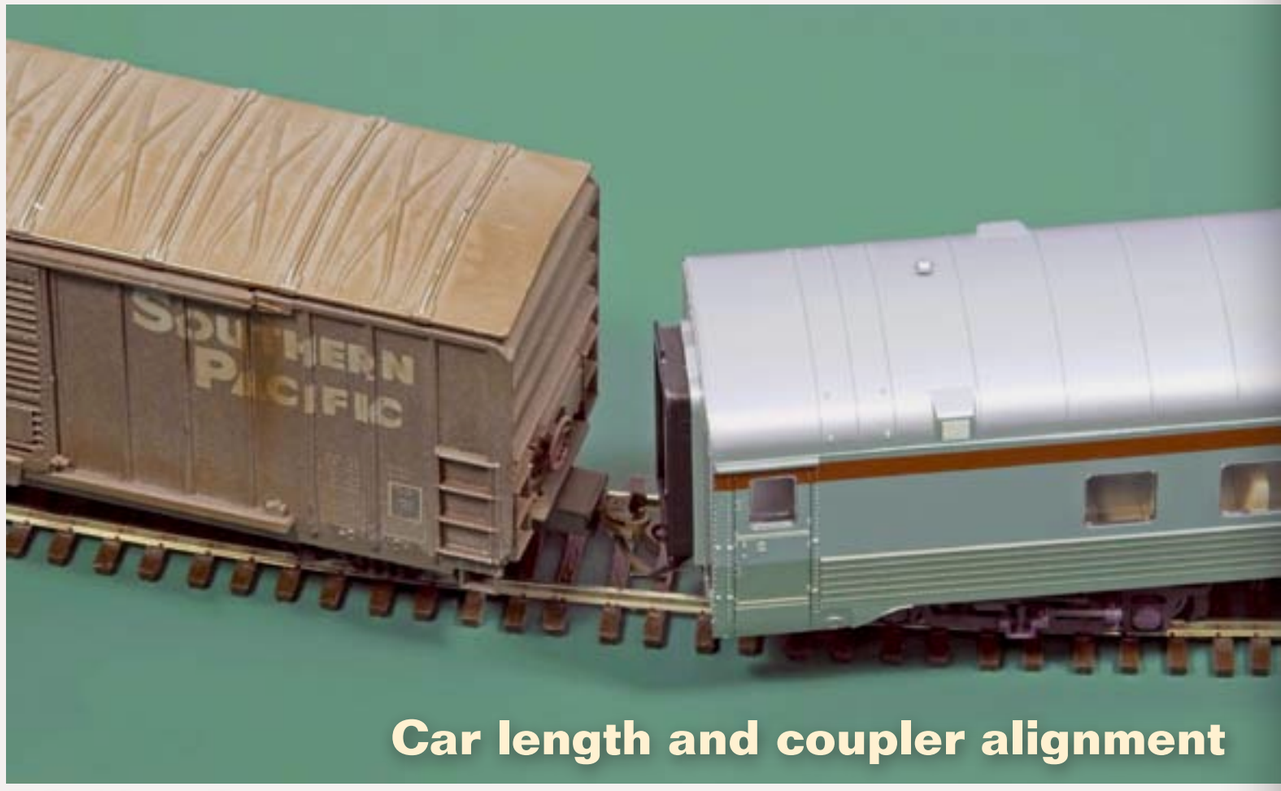

FIGURE 20: The coupler jaws completely miss each other when you mix a 50 foot and an 80 foot car on a 23” radius curve (50 ft = 3.0x, 80 ft = 2.0x).

80 foot cars

FIGURE 21: These 80 foot cars just barely stay on the track at the 2.0x radius, and fortunately there's no underbody detail in the way of the truck rotation. Most commonly, the trucks hit underbody detail or corner steps when the curve radius becomes too sharp. Also at this radius, the cars will not couple (the diaphrams are in the way).

FIGURE 22: At the 2.5x radius, the cars finally will couple. They also track reasonably well at this radius, but they look totally unrealistic.

FIGURE 23: Once we reach the 3.0x radius, the cars roll very freely, with no tracking problems, although the overhang is still excessive.

FIGURE 24: Upon reaching the 3.5x radius, the 80 foot cars look noticeably better when viewed from inside the curve.

FIGURE 25: At the 4.0x radius, these 80 footers start to look more realistic, just as predicted by the guidelines.

FIGURE 26: Consistent with the 5.0x guidelines, the coupler alignment on a 58” curve essentially matches straight track for these 80 footers.

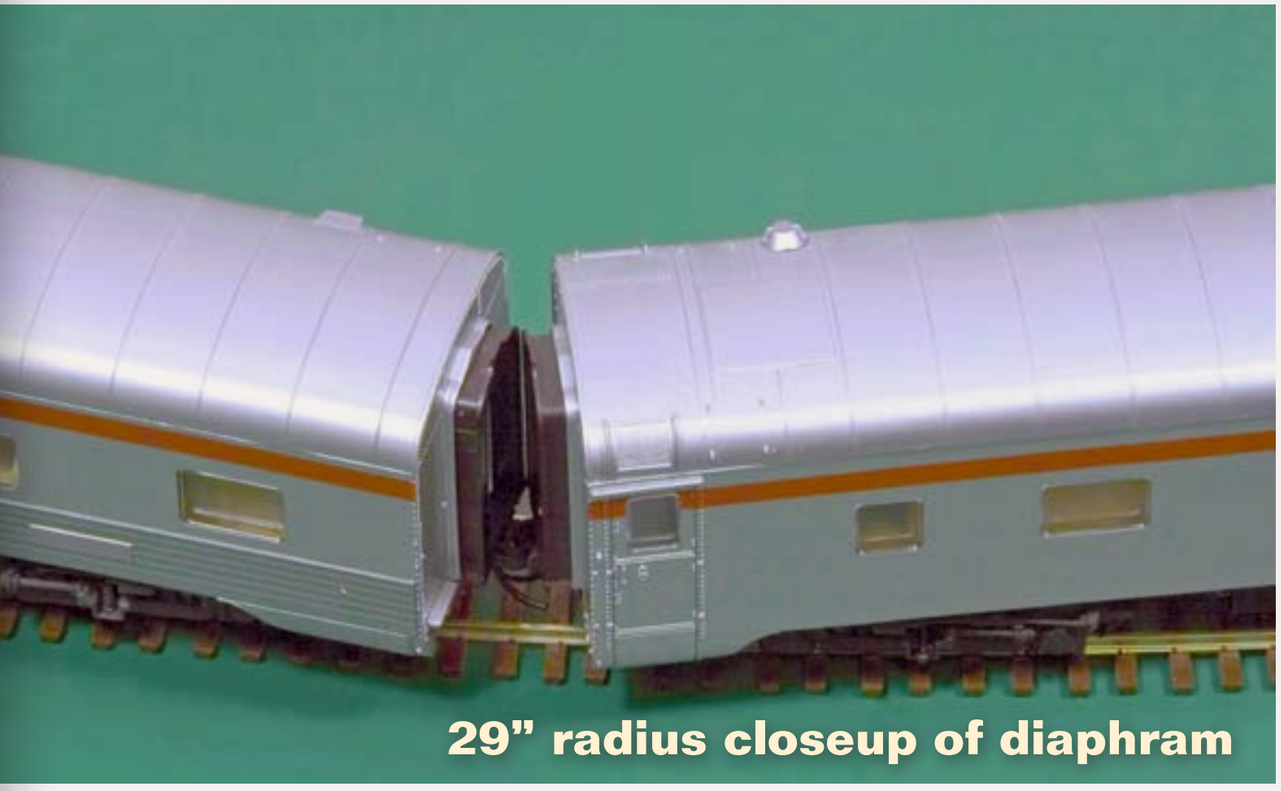

FIGURE 27: With passenger cars, we also need to get the diaphrams to line up. Obviously, it isn’t going to happen on the 2.5x curve.

FIGURE 28: The 5.0x curve diaphram alignment looks far better, but it’s still not perfect. Even 58” model curves are much sharper than the prototype.

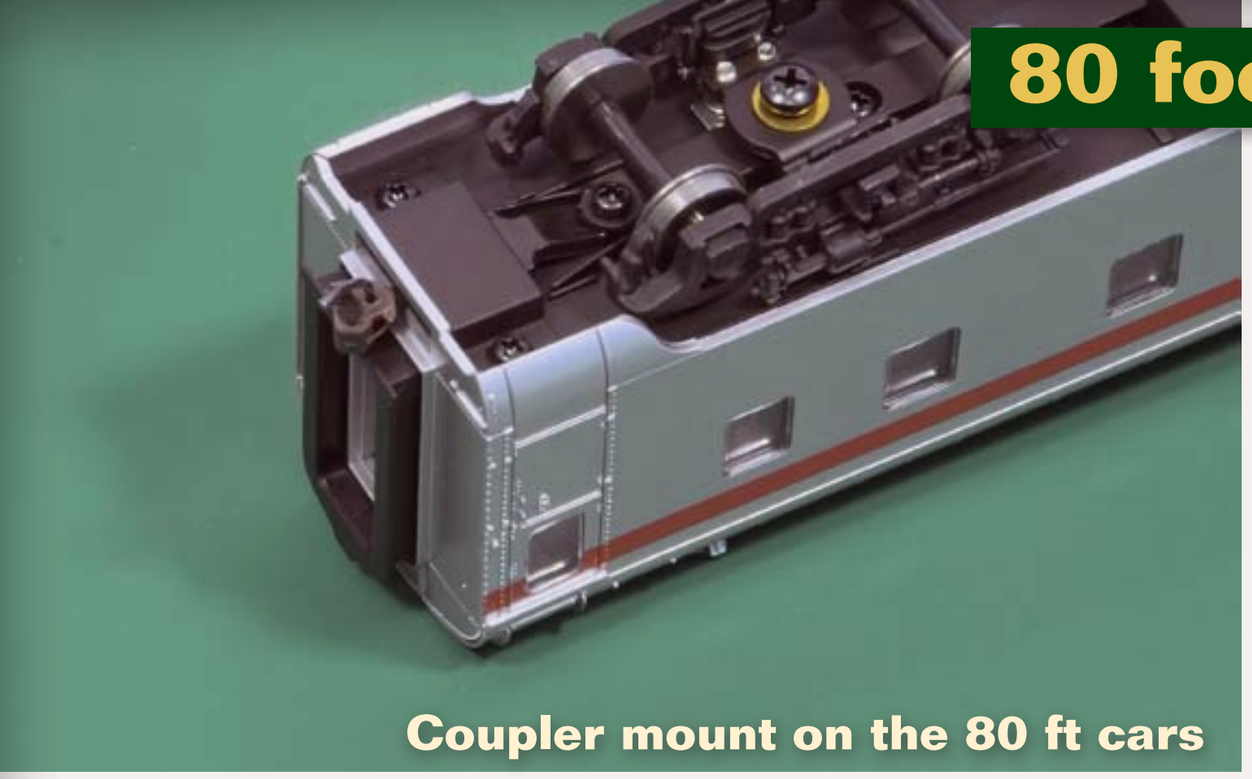

FIGURE 29: Walthers has designed the coupler draft gear on these passenger cars to swing wide, which makes the car coupler alignment more forgiving on sharper curves. While the couplers do perform better than expected on tight curves, the diaphrams do seem to be hampered by prototype curvature limitations (see figure 28).

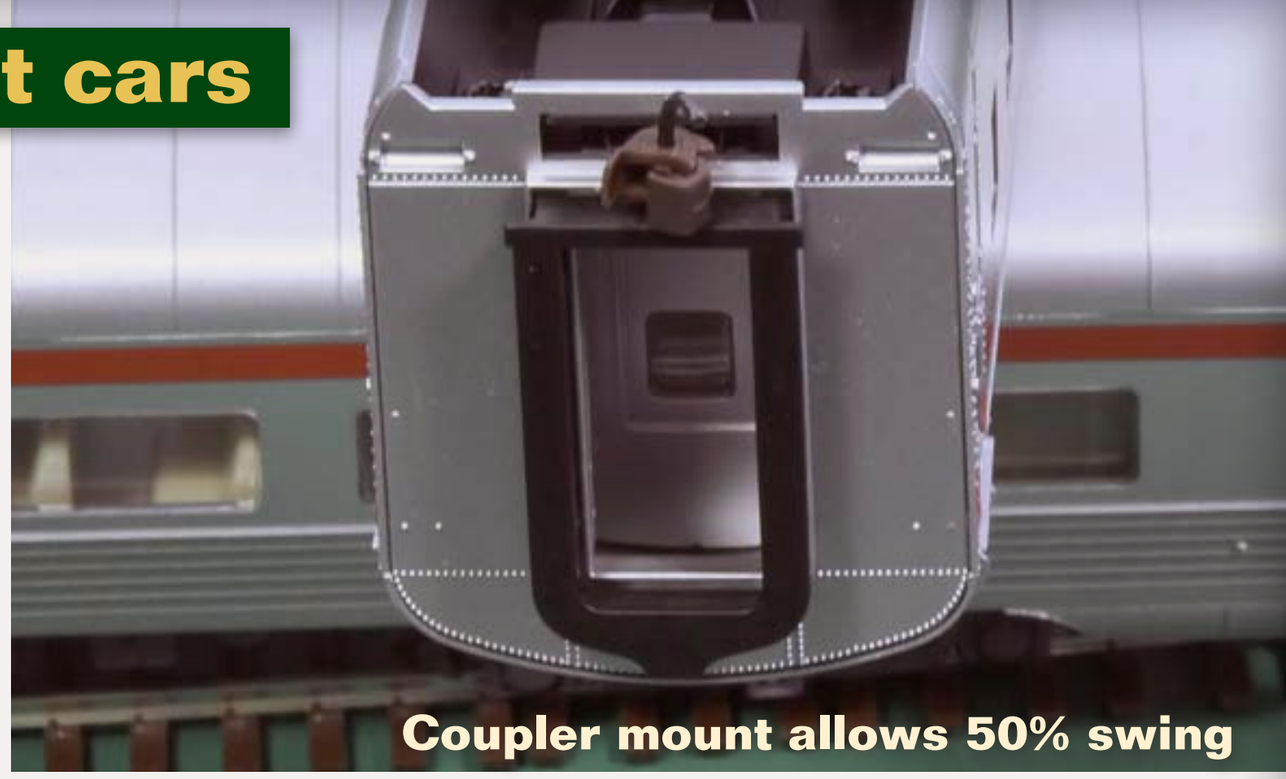

FIGURE 30: This photo shows the slotted coupler shank opening that Walthers designed into these 80 foot passenger cars. By allowing the couplers to swing up to 50% of the width of the car, these cars will couple down to 3.0x curvature with minimal coaxing. Below 3.0x, coupling becomes dicey, especially with shorter rolling stock (see figure 20).

Conclusions

From these actual equipment experiments, these ratio curve radius guidelines do an admirable job of predicting rolling stock performance on various curves.

As long as underbody detail or corner step detail doesn't get in the way, there's not much to prevent rolling stock from tracking down to 2.0x with few issues.

At 3.0x, you can expect everything to track reliably, and in some cases with a little coaxing, couplers may also work well. Mixing different rolling stock lengths, however, starts to introduce new problems.

To be sure couplers will work okay (with a little coaxing), you should use at least 3.0x of the longest rolling stock you plan to run. In HO with 80 foot cars, that's a 35" radius. Now we know why 36" is such a popular minimum radius in HO!

If you need to shave a few inches off these guidelines, you should experiment to see what the actual values are for your specific equipment.

Especially with locos, you should do some tests to be sure. But these guidelines often get you pretty close.

A question I've seen posted online lately has been what kind of curve radius the GE 44 tonner can run on. With these guidelines, you can predict pretty closely once you know the length of the loco.

The GE 44 ton loco measures out to 33'-5", or about 4.6" in HO. With this information, we can predict the following curve radius limits for this loco:

GE 44-ton loco

- 2.0x 9" radius
- 2.5x 12" radius
- 3.0x 14" radius
- 3.5x 16" radius
- 4.0x 18" radius
- 5.0x 23" radius

While the loco may be able to negotiate a 9" radius, we now know enough to stipulate that the 40 foot box cars will need a 12" radius or greater.

Armed with these new guidelines, now you can determine the best minimum radius for your track designs with confidence! ☑

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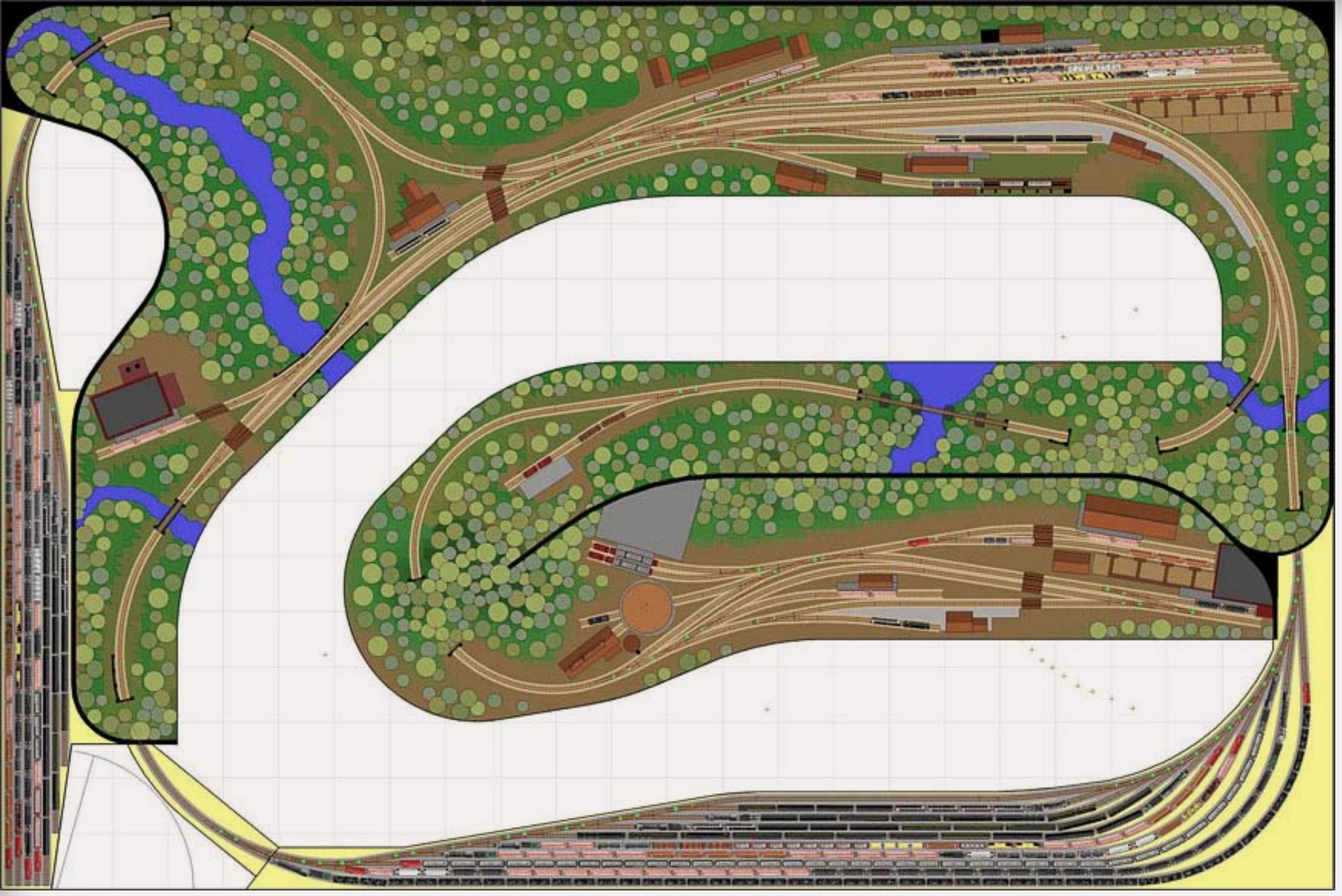


FIGURE 1: Track plan drawn in 3rd PlanIt by Peter Lloyd-Lee, and featured as part of the PLL collection on the Train Player web site. Peter's track plan demonstrates a great eye for detail and also illustrates the superb plan rendering capabilities of the 3rd PlanIt program.

Track Planning on Computer Using 3rd PlanIt

PART 1: Learn the basics of using this popular track planning software

— by Ryan Boudreaux

I have always enjoyed drawing maps. Even as a youngster I can recall creating treasure maps in art class, drawing in the trails, highlighting the mountains, filling in the water, and then of course the most important **X** marks the spot. Here's where you can find the hidden treasure! I liken these old treasure maps to another kind of map - the track plan.

A track plan is very similar to a map in that it highlights in varying degrees the landscaping and geography of the layout. Is that area covered in forest or is it just a grassy plain? You can also place the water elements like streams, rivers and lakes.

You locate the roadbed and track, as well as the automobile roads winding and crossing the track at grade. Plus you start to see where to locate the industries and structures along the right of

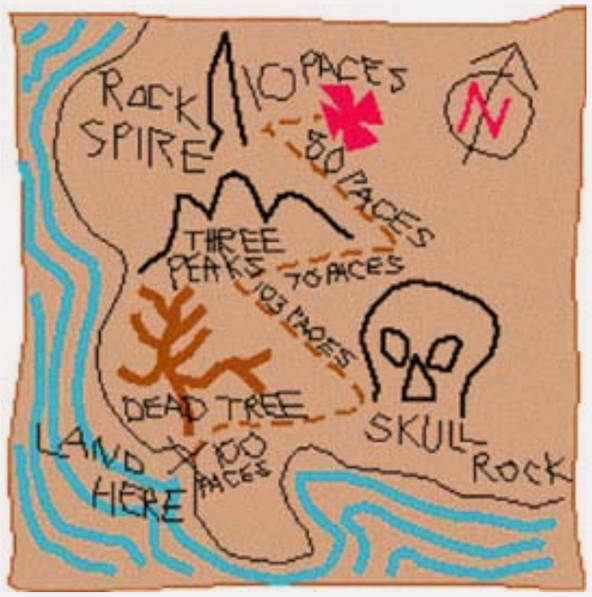


FIGURE 2: Ryan says, "I have always enjoyed drawing maps. Even as a youngster I can recall creating treasure maps in art class, drawing in the trails, highlighting the mountains, filling in the water, and then the most important X marks the spot, where the hidden treasure was to be found! I liken these old treasure maps to another kind of map – the layout track plan."

way. The track plan can show all this – and more.

Now my comparison of the track plan being viewed as a map is similar to lessons I learned years ago in my restaurant management days with goal setting.

When setting goals you want to start with the end result in mind. Meaning, your end result or ultimate goal is where you want to be, and getting there is the working part.

Your completed layout is the end result, your ultimate goal; it is how you want the layout once it is completed. To get to the end result you have to work back from that ultimate goal and this is where you find the path back to the beginning.

Lets get started making a plan, and find that hidden treasure of a model railroad layout at the end of the path.

To help set up the ground rules in this tutorial I will be working under the following layout design strategy:

- Scale is HO
- Minimum mainline curve radius is 32"
- Mainline Track is Atlas code 100 flex, spur and industry track is Atlas code 83 flex
- Turnouts are Atlas code 100 on mainlines and Atlas code 83 on spur and industry sections.
- Minimum turnout size is #4 for spurs and industries, and #6 for mainlines
- The railroad is a generic East Coast line and will be running through a combination of scenic rolling hills, flatland, and some shoreline.

In addition to showing you a particular way to create the track plan drawing, I will also demonstrate various tips that highlight the tools, features, and tricks within 3rd PlanIt as we go along throughout the tutorial.

Where do I start?

Have you ever heard the saying plan your work and work your plan? Well, now is the time to start creating your masterpiece.

I will guide you through the various steps to getting started with track planning utilizing 3rd PlanIt Track Planning Software, version 7.10.006, which is created and distributed by El Dorado Software ©1999.

Here are some points to consider before you begin any track plan no matter what computer aided drafting tool you use or track planning tools are available to you:

- Know what you are going to model, have an idea of the railroad or railroads you will want to display and run. In other words, do some research on the railroads you want to model.
- Does your railroad traverse the desert southwest and mountain regions, or does it run in the flat lands, or in rolling hills or a combination, with sea side or water locations as well. Determining the geographic location where the railroad operates will help later on in the design process.
- Is the layout going to be freelance or proto-lance, where you name your own railroad and location, or a combination using prototype operations and modeling with a freelance railroad?
- Also, are you one of those in the "bigger is better" club, or do you want a smaller and more easily manageable layout?

Your answers to these questions lends a hand in creating a better track plan. Having good answers in your back pocket, so to speak, gives you an advantage for finding the treasure of your dream layout. Now let's get on with making a "map" of your dream layout!

The Space – Room room everywhere?

One of the biggest hurdles in drawing a track plan can be the space available or the lack thereof, or it can be an issue of too much space. How do you decide on the right space or room allocation for a layout?

Besides getting appropriate blessings from the family on what area of the house that the layout is going to be located, it is a good idea to select a comfortable space.

"Comfortable" can be a dedicated "train room" that is only meant for the layout, or "comfortable" can be a common area of the house. Once you have selected the area for the layout, it's time to get started with the track planning.

Room and Space dimensions

You will want to get a tape measure that is longer than the length of the longest wall in the area you will be using as your layout space. Also, have a pencil and a notepad available, you will want to take the measurements of all wall lengths and note the length in inches.

As you take these measurements you might want to also make a quick drawing of the shape of the space as well. In this tutorial I will be demonstrating a square shaped room that is 192" long and 180" wide (16' x 15').

Once you have the measurements and shape of the layout space recorded it is time to start with creating the plan in the *3rd PlanIt Track Planning Software.*

3rd PlanIt – Let's go to the computer now!

By default *3rd PlanIt* starts up with the Layout Design Wizard (however sometimes this feature gets turned off).

We start our tutorial track plan using the Layout Wizard feature. The wizard asks a series of questions about the layout type and space requirements. The Layout Wizard movie button below shows the steps in setting up the track plan drawing.

If the menu screen does not show [Plan1] at the top (see figure 3), then you need to open a new plan first.

To create a new plan, from the **File** menu click on **New**. If the Layout Wizard does not open at start up, you can select it from the **File** menu and then click on **Layout Wizard…** as shown in figure 3.

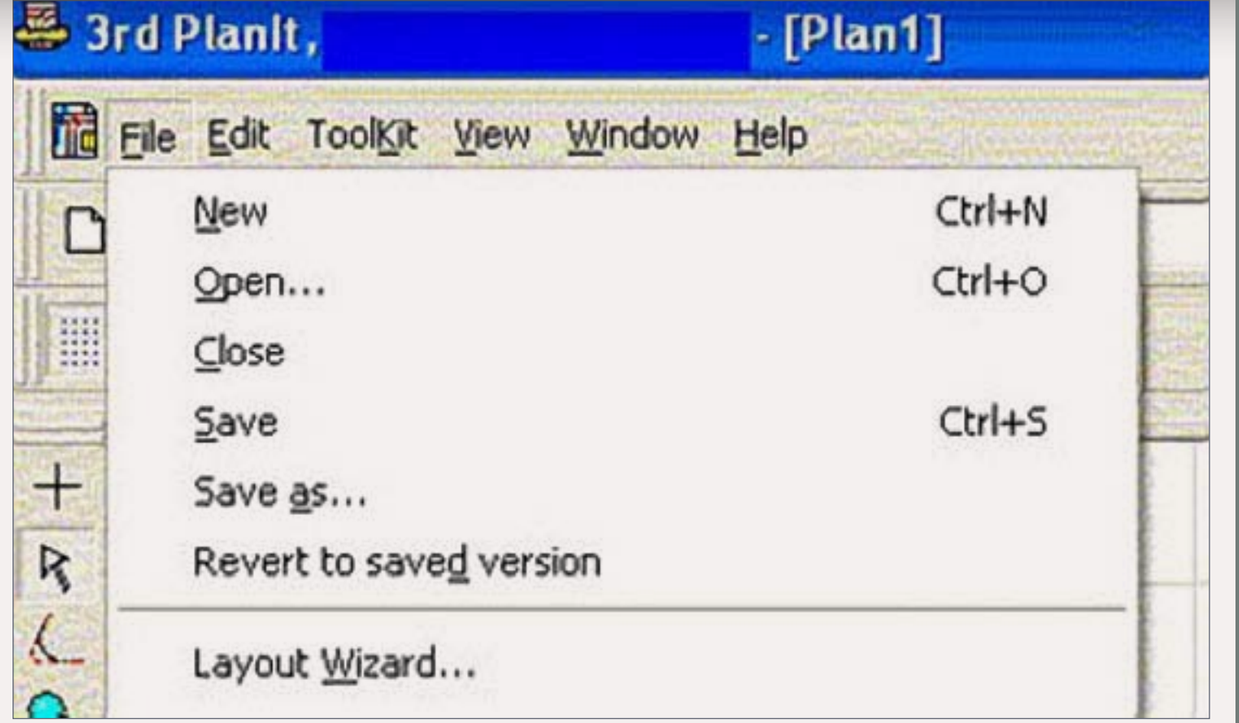


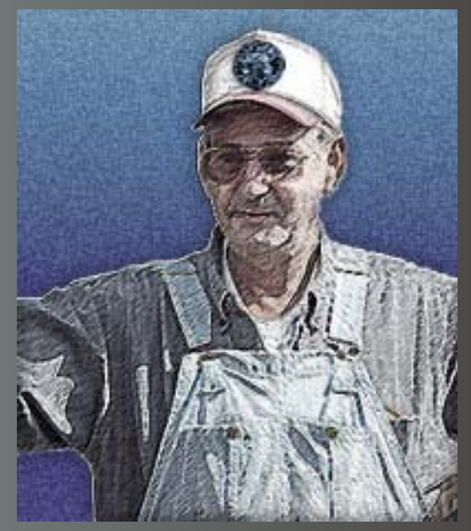
FIGURE 3: To select the Layout Wizard, select File and then Layout Wizard …

SPECIFICATIONS OF THE TUTORIAL LAYOUT

For reference sake, in this tutorial I will be creating a track plan with the following settings. I input these settings using the **Layout Design Wizard**:

Layout Plan: Rooms
Fractional Inches: 32 per inch (default)
Layout room overall shape: Square
Length of walls:
- **Horizontal:** 192”
- **Vertical:** 180”

Layers in drawing:
- **Track layers:**
  - Main track layer (default)
  - Track in tunnels (default)
- **Other layers:**
  - Room or module (default)
  - Benchwork (default)
  - Landscape (default)



The Old-Timer says …

As someone doing the hobby for nearly half a century, I still prefer paper and pencil over computers. I can fumble my way through sending email or finding a web page, but by the time I learned to use one of these track planning programs, I could be well into construction!

You young guys and your gadgets – you can't add two numbers together without a calculator.

Any more, I don't try to design every little detail in my layout plans. I just get a general idea of what will fit, then figure out the details on the benchwork by playing with some flex track and switches.

If you ask me, I think this computer stuff is way over-rated. ■

The **Layout Design Wizard** window now appears (see figure 4).

By default the **N-Track module** selection is highlighted, in this tutorial we will be using the **Rooms** selection for the next step. Click **Rooms** and then click the **Next >** button.

By the way, the **N-Track module** option is a N-trak group hobby standard defining module size, along with the position and elevation of tracks.

N-trak allows different N scale modelers to make modules and interconnect them to make a large layout. N-trak is popular at layout shows and conventions.

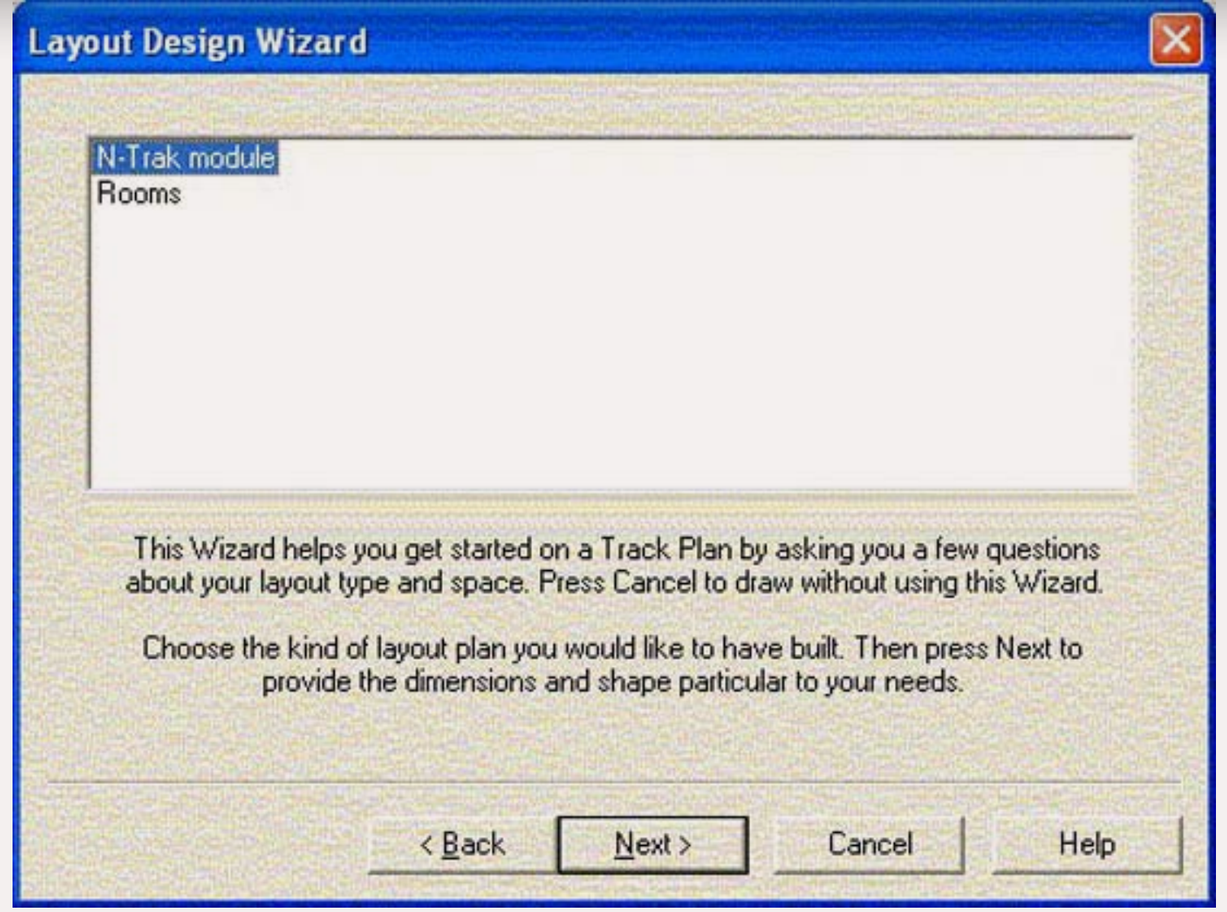


FIGURE 4:
Select the kind of layout plan you would like to build – in this tutorial we are creating a Rooms drawing so we click Rooms and click Next>.

The **Select Dimension Preferences** window appears (see figure 5) and you have the choice of selecting dimension intervals in feet or meters. We will select the default setting of **Fractional inches** and **32 per inch** and then click the **Next >** button.

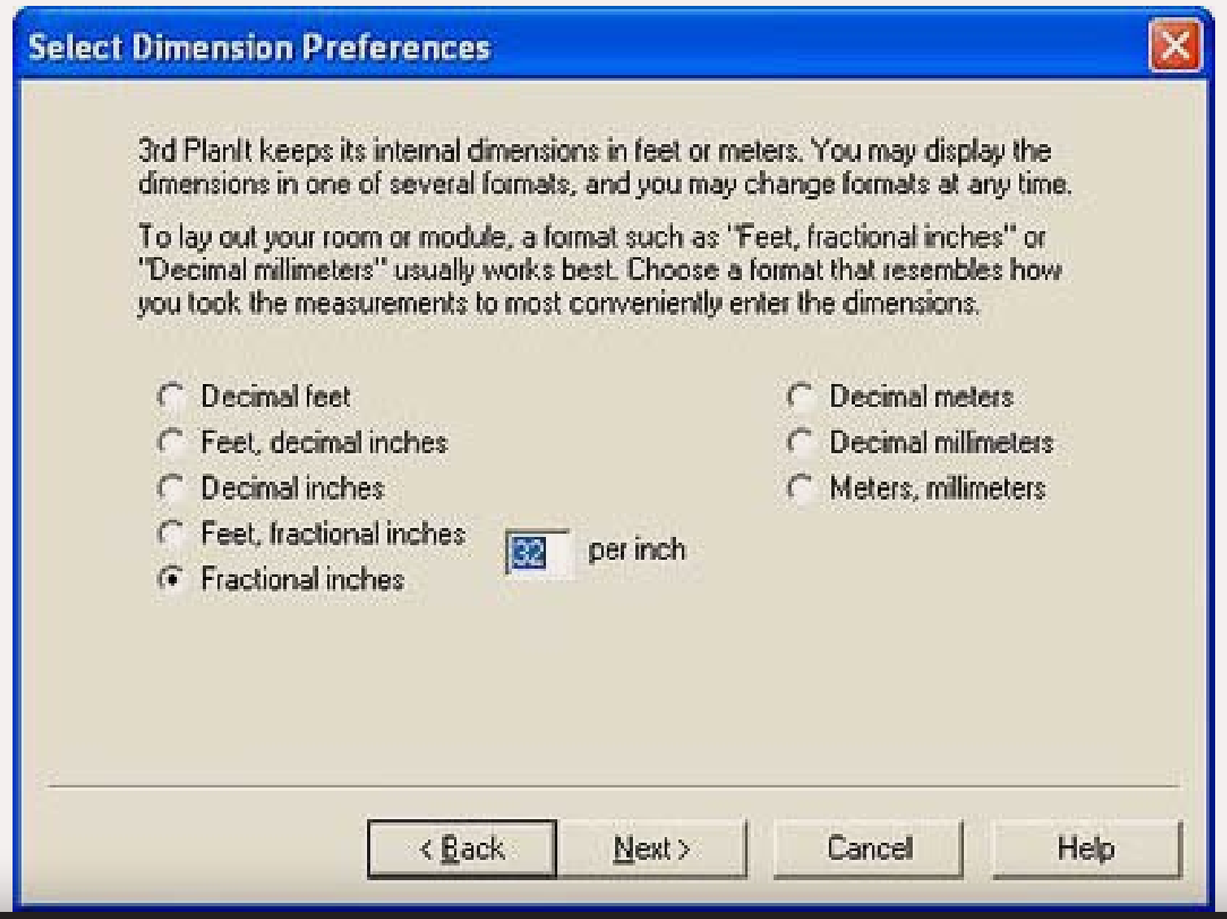


FIGURE 5:
Set the dimension preferences for your layout drawing here, we accept the default settings and click Next >.

The **Room Layout Wizard** window appears (see figure 6) and you have four options in selecting a room space shape, and they are: **Square**, **L-Shaped**, **Rectangle**, and **Alcove**.

We select the **Square** and then click the **Next >** button.

The **Room Layout Wizard** window (see figure 7) now asks for the dimensions that we took a while back when we measured the room and recorded our tape measure readings.

In this tutorial we set the horizontal length first to 192”.

Make sure the bottom line is highlighted in a light blue color, then input your measurements, in this case **192”** in the **Length of wall** input box, then click the red check mark.

FIGURE 6:
You select the general shape of the room space in this window. We select Square and click Next >.

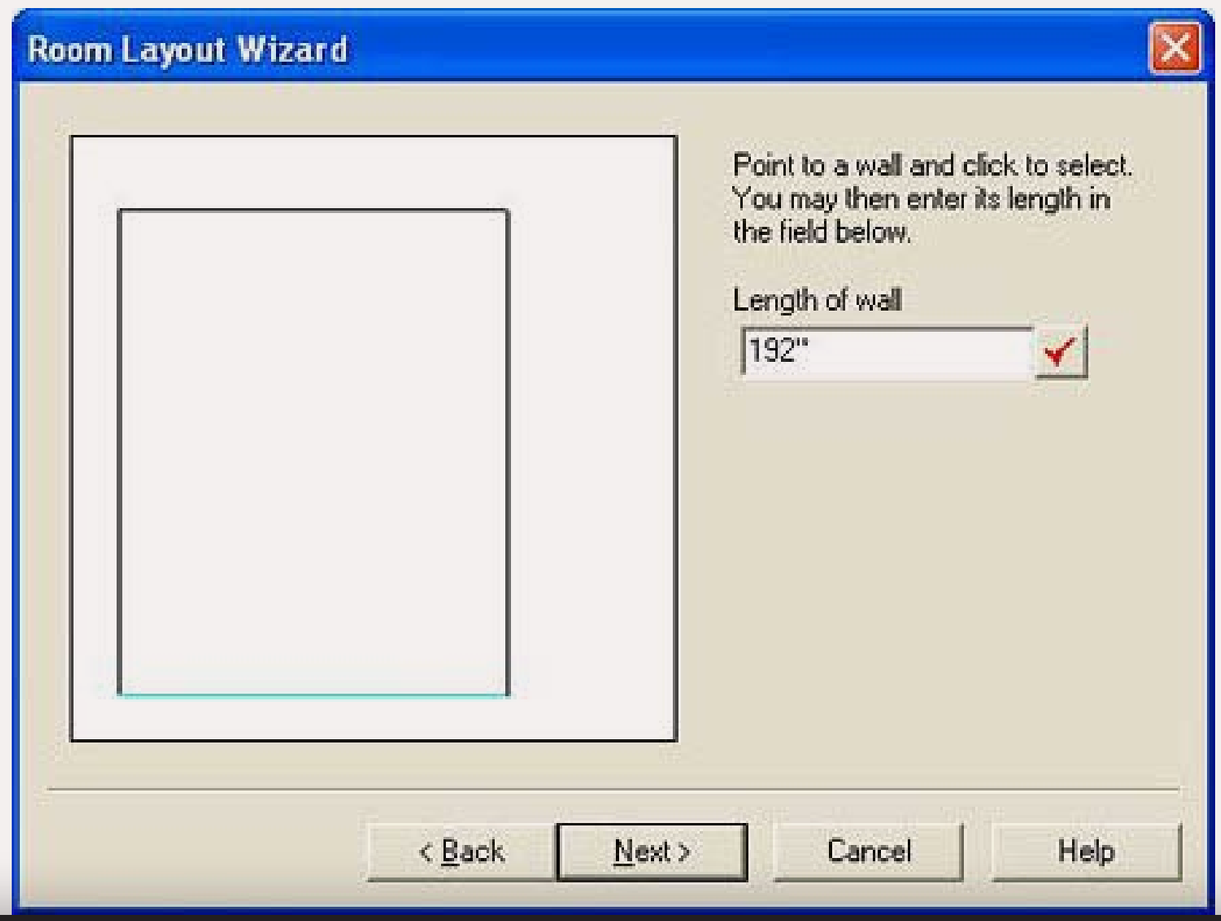


FIGURE 7:
Modify the wall lengths for the horizontal dimensions, 192” in this case.

Now move your mouse and click on either of the vertical lines making sure it's now highlighted in a light blue color. Then input **180"** for the **Length of wall** and be sure to click the red check mark again.

After you have made your modifications, the room should look like figure 8.

Click the **Next >** button. At this point we are almost finished with setting up the room. As the one last step we define the various layers that can be used in the drawing process.

By default the wizard gives us two track layers and three other layers. As you become better skilled at drawing track plans you can add more layers to aid in drilling down into more details, such as **Electrical** plan or **Backdrop**.

In Create selected layers in the drawing window (see figure 9) we accept the defaults, which are: **Main track layer** and **Track in tunnels**, as well as **Room or Module**, **Benchwork**, and **Landscape**. Other layers can be added in more advanced tutorial segments, but for now we take the defaults since that gives us a good base to start with in our track plan. Now click the **Next >** button.

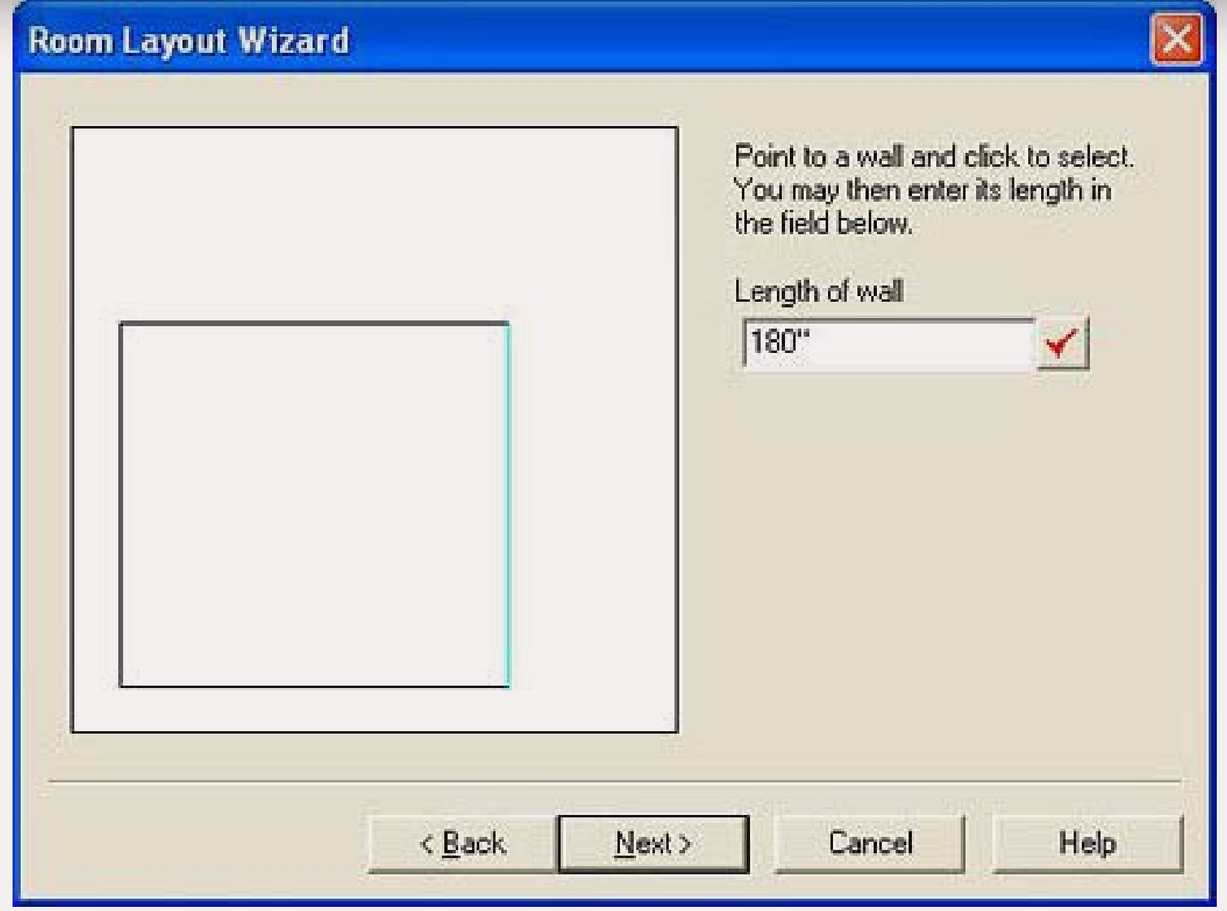


FIGURE 8:
Modify the length of the wall vertically to 180", then click Next >.

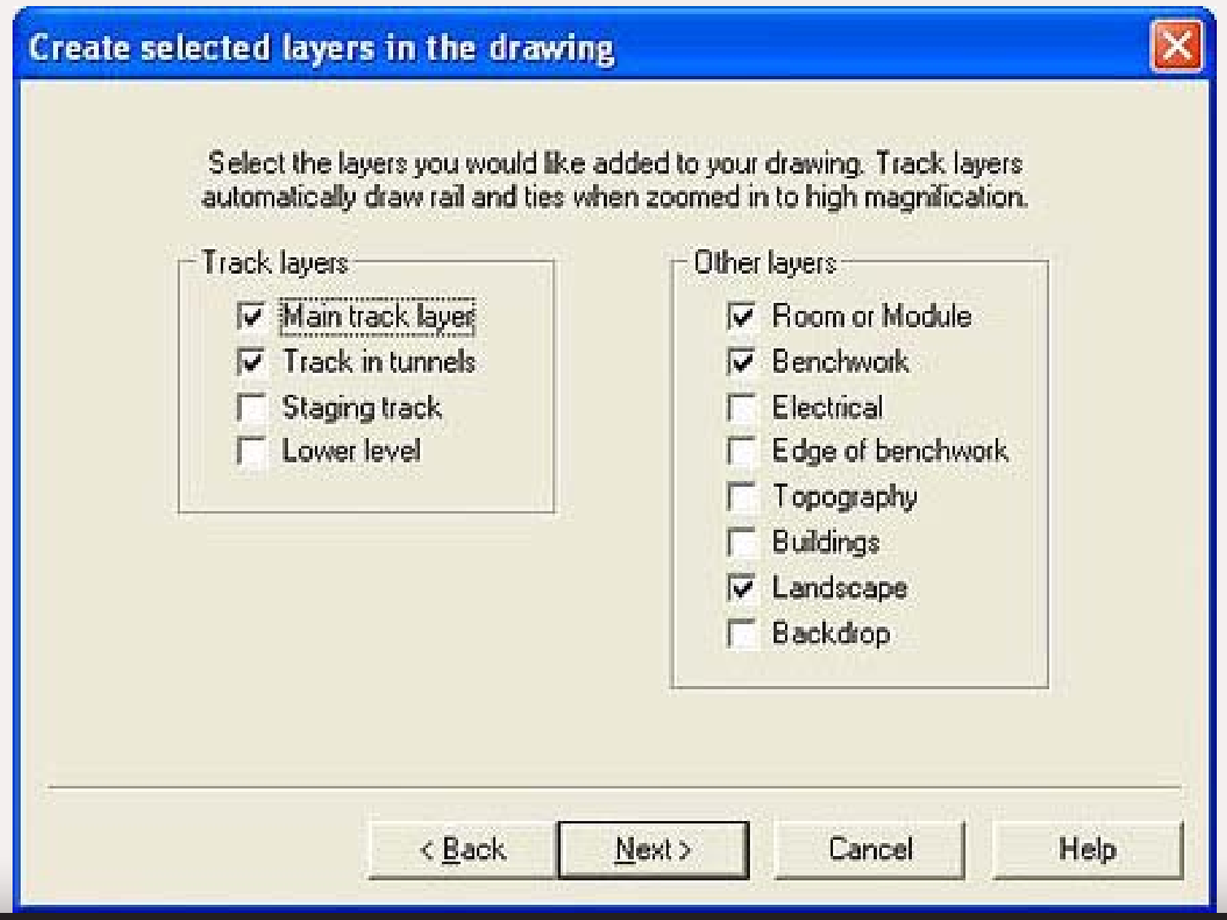


FIGURE 9:
Accept all the default layer selections, then click Next >.

The Confirm settings to create layout window appears (see figure 10), this is where you want to review and double-check what you have set up.

This is very important, because after we accept the settings we need to save the layout drawing as a room template (see the ***File Version Tip***, below).

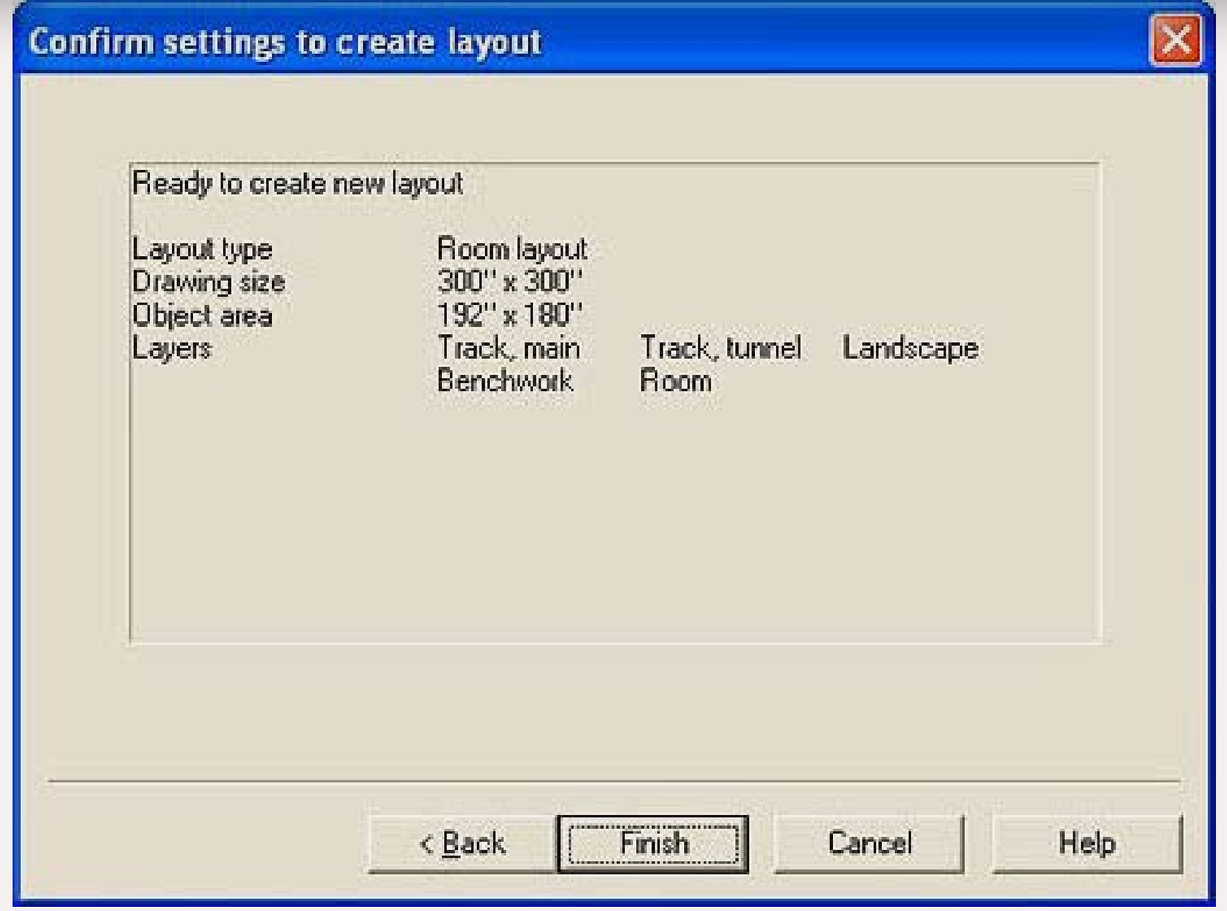
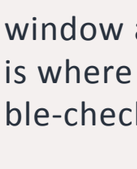


FIGURE 10: Confirm your layout drawing settings, then click **Finish**.



TIP – File Version Management

Now let's save this file as a template. Click on the **File** menu, and then click **Save as...** The Save as window will open (see figure 11); now let's name our file *RoomTemplate*.

Then click the **Save** button. At the top of the window you'll see the file name has been changed from **[Plan1]** to **[RoomTemplate.3pi]**. ■

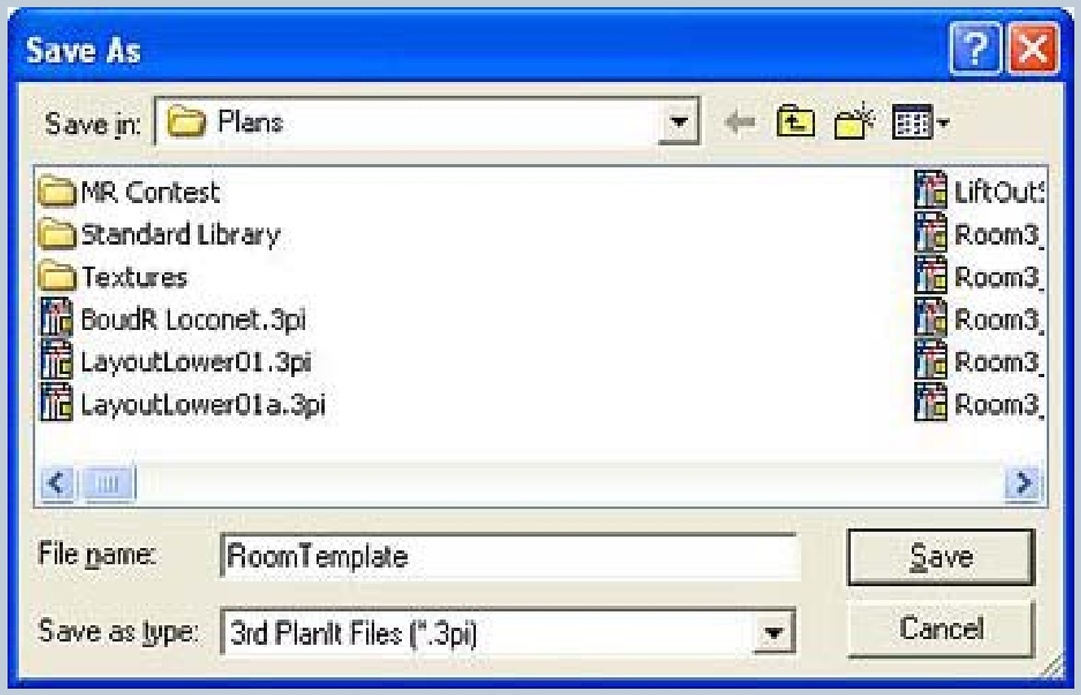


FIGURE 11: After clicking **Save as** ..., this dialog box comes up. We change the file name to *RoomTemplate* and then click the **Save** button.

The Junior Hoghead says ...

I may be new to the hobby, but I started using computers when I was 12 years old. Hey Old-Timer, wake up – it's the 21st century!

I like the idea of being able to try out different track designs with something like *3rd PlanIt* and then see right on the computer what things might look like before I *ever* cut that first stick of lumber.

But one thing I wonder: what's the best track planning software to use? This 3rd PlanIt stuff looks boss, but what about others? Maybe we can discuss this more on the comment thread for this article? ■

Once you feel comfortable that all your settings are accurate click the Finish button. Your first layout room is now defined and created (see figure 12).

Now, before we get started with creating a track plan, let's rename the file.

Click on the **File** menu, and then click the **Save as...** selection. The Save as window will open; now let's re-name our file *Layout01_020607* (see figure 13) .

NOTE: *Rename the file to anything that makes sense and is easy to remember.*

If you ever want to start over from scratch or create an alternative layout drawing, you can go back to your room template file and start immediately without having to go all the way back through the **Layout Wizard**.

This form of file version control is most helpful when you want to create iterations of your layout design and try out various ideas or evolve your plan with improvements.

Let's say you made significant updates to your plan, and you're ready to update the drawing. Go back to the **File** menu, and then select **Save as...** again, but rename the file something like *Layout01_mainline*, or *Layout01_LowerDeck_021707*.

I like to add the *date* to my file name so that I can track when various changes were made to my layout plan.

Also see the **File Save** demonstration video here.

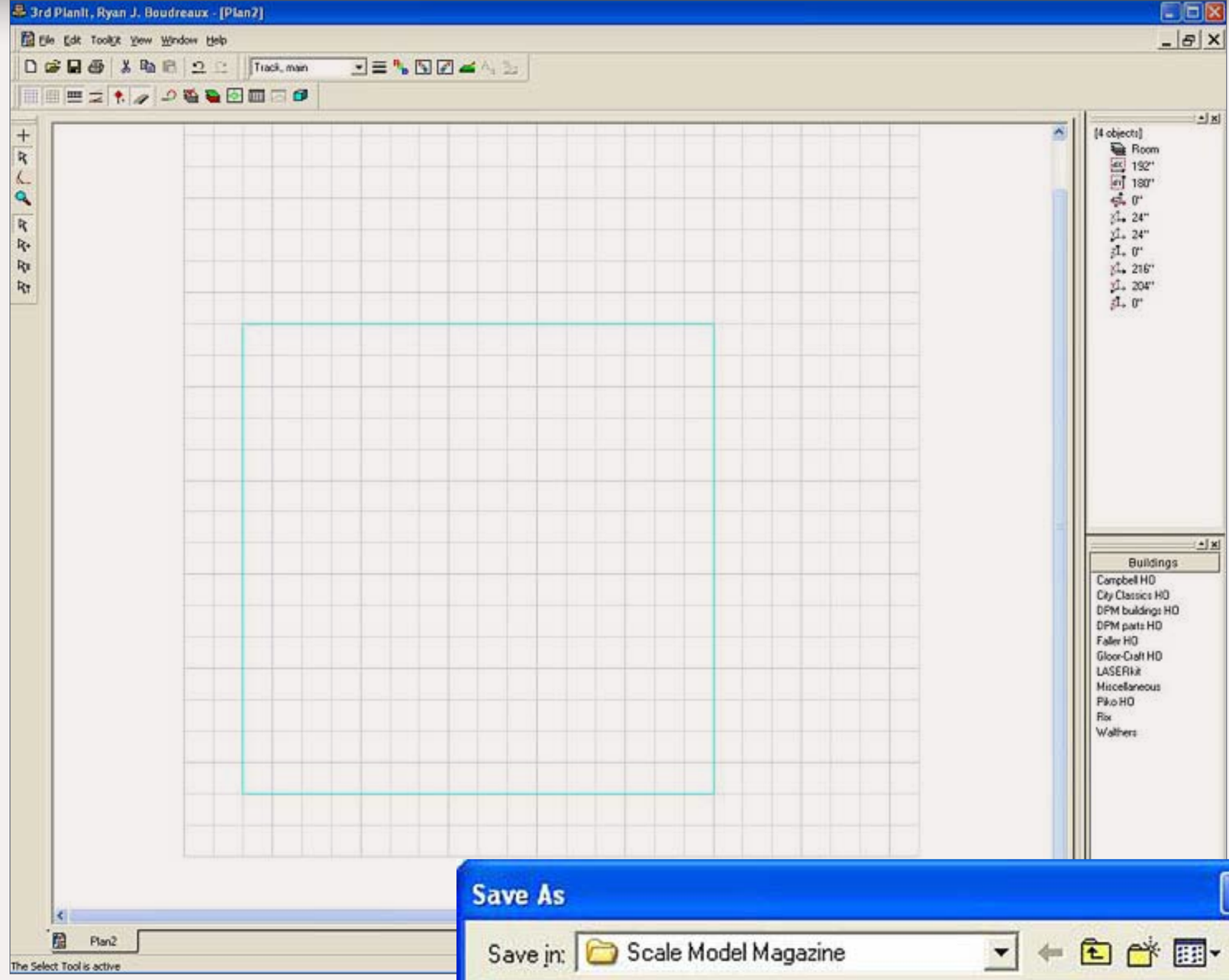


FIGURE 12: Congratulations, You have just created your first layout room drawing, and you're almost ready to start doing your track plan.

FIGURE 13: ▶ Using version numbers like "01" in your plan file name can help you easily track iterations of your layout plan.

Drawing the landscape mesh

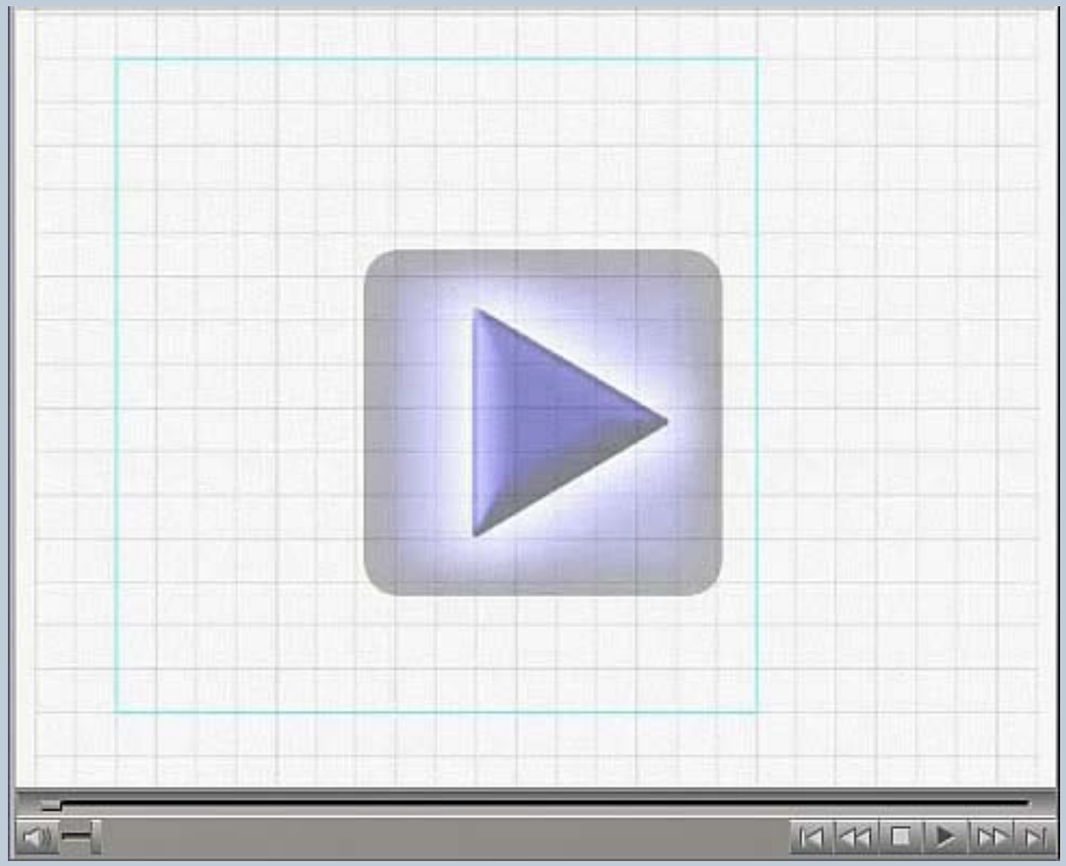
Now that we have created the room template and our first track plan file, let's get started with defining the landscape of the layout.

Is your layout going to be an around the walls design or an open table, or a combination of the two? In this tutorial I demonstrate an around the walls design with a middle peninsula area that can have a backdrop added later (in a future installment of this tutorial article series).

It is important to first note any windows, doors, or other obstructions in the room before starting with the landscape mesh.

We will place a doorway at the lower bottom left hand side of the room and it will be the typical 30" width. Of course you will want to make similar indications for your specific room when you are ready.

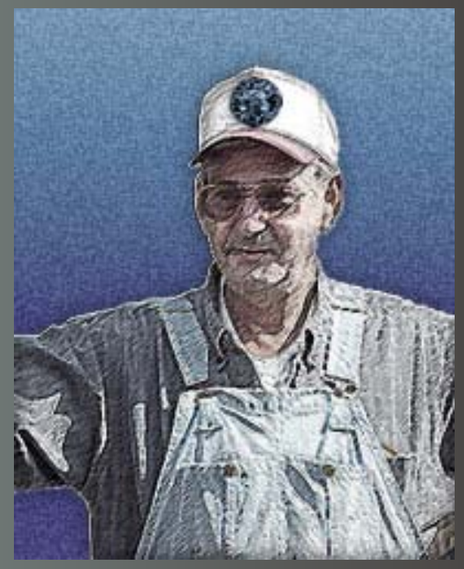
Click the Guides movie button below to see how I specify the door location and the guidelines for 30" spacing throughout the room – from there we can move on to drawing the actual landscape mesh.



Tip – Zoom Key

First, here is a little hot key (function key) trick to adjusting the zoom view. You just click the **F2** key on your keyboard.

The cursor arrow changes to a small magnifying glass icon with a + next to it. Watch the zoom key demonstration movie here on resizing your room view to see how it works. ■



The Old-Timer says ...

One thing that computer won't do for you, Junior Hoghead, is design your layout for you.

I bet that fancy program won't tell you if you have an imbalance between your yard tracks, your staging tracks, and your industry spots, for instance.

So get off that computer, Junior, and go get some real operating experience on a real layout!

Only *then* will you truly know how to do layout design the *right* way. ■

The landscape mesh determines the general top level benchwork area. In the around the walls example, my goal is to keep the width of the benchwork area to a maximum of 30" from the wall.

I also try to keep the aisles at least 30" wide in most places. You may have your own design standards, but we'll be using these standards in this tutorial.

To begin, select the **Draw** (see figure 14) tool from the toolbar on the left hand side of the window.

Then click on the Draw **Freehand Mesh** tool (see figure 15).

Follow the guidelines that we set up in the Guides video (previous page) to create the landscape forms for the layout.

The landscape area represents the whole of the benchwork top down level view, and this will serve as our guide for the rest of the layout drawing, this is where we will eventually add the track circles, straight track tangents, crossovers, and turnouts.

With the landscape mesh completed I save the file again under a new name, in this demonstration I call it *Layout01_Mesh*.

Once I add the track, I will rename the file again, for this tutorial I call it *Layout01_Track*.

Of course you can name the file anything you want, and the point here is to save a mesh only version of the drawing. This way you can always go back to the clean landscape mesh template and create a new track plan should you ever want to "go back to the drawing board."

The Landscape Mesh video (button in the lower right) shows you in detail how I have created the landscape area.

Drawing the track

With the landscape mesh/benchwork area defined , we're ready to start drawing our track.

Before we start with the circles (I will explain later why we start with just circles in our drawing), first let's look at the various track selection options that are available in 3rd PlanIt.

By default the **Library Toolbar** (see figure 16) is displayed on the right hand side of the 3rd PlanIt window and just below the **Object Data** window.

The **Library Toolbar** holds many objects that include **Buildings**, **Equipment**, **Landscape** forms, **Rolling stock**, and **Track**.

We're starting with the **Track** section of the **Library Toolbar**.

Before we start with drawing the track circles, watch the demonstration movie clip about the Track Library (button on the right).

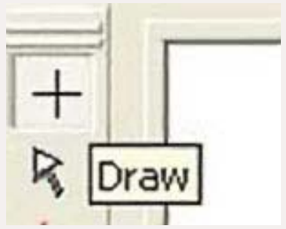


FIGURE 14:
Select the Draw tool.

FIGURE 15:
Select the Draw Freehand mesh tool:

FIGURE 16:
The Library Toolbar contains a large assortment of objects that can be added to your track plan drawing.

Tip – Practice makes perfect

You may want to practice the technique of drawing a landscape mesh a few times before you settle on a final version. The landscape mesh is one technique that takes a bit of patience and practice.

Once you get the hang of it though, you can create just about any landscape area with the **Freehand** mesh tool. ■

Track circles

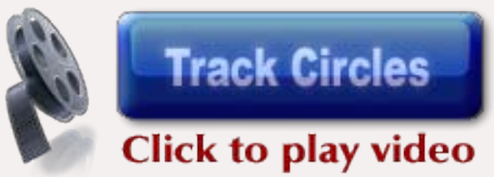
In this track plan tutorial I keep the minimum radius for all mainline tracks to 32”.

A favorite 3rd PlanIt trick of mine is to start with a series of track circles throughout the track plan – and from there define the mainline track.

Once I’ve created these track circles, I connect them up with various straight tangent line track segments.

With the mainline track defined, I add the spurs and industry sidings.

Be sure you are in the **Track, main** layer (see figure 17) and begin by selecting the **Draw** tool. Then select the **Draw circle** tool (see figure 18).



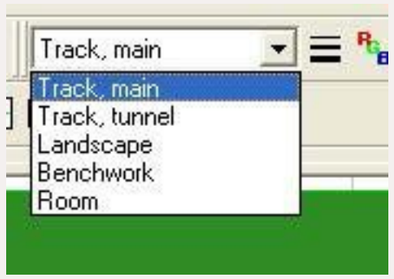


FIGURE 17:
Select **Track, main** layer.

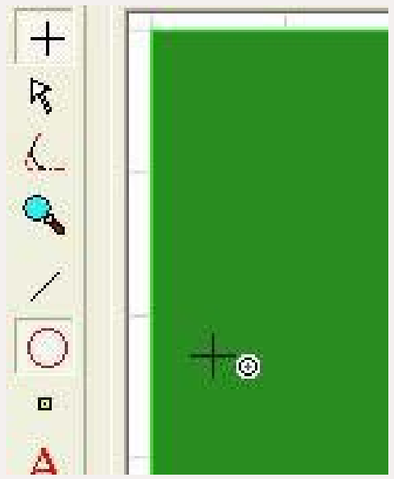


FIGURE 18:
Select **Draw circle** tool.

To create a track circle, move the cursor near the center of the drawing, hold down the left mouse button and drag until you create a 32” radius circle.

After you have one circle created, you can copy and paste more circles into the drawing and then move them into place as you need them.

For more details on how to create the track circles watch the demonstration movie clip below on Track Circles.

Straight track and connecting with easements

As we draw the straight track segments, we connect all the circles with the **Connect with easements** tool.

From the Tool Kit Toolbar on the left select the **Connect tool** (see figure 19). Then select **Connect with easements** (figure 20).

Next, connect the circles with tangent lines one at a time. In the Connect Track video below, I show you in just over a minute how the four circles get connected to form the main line track.

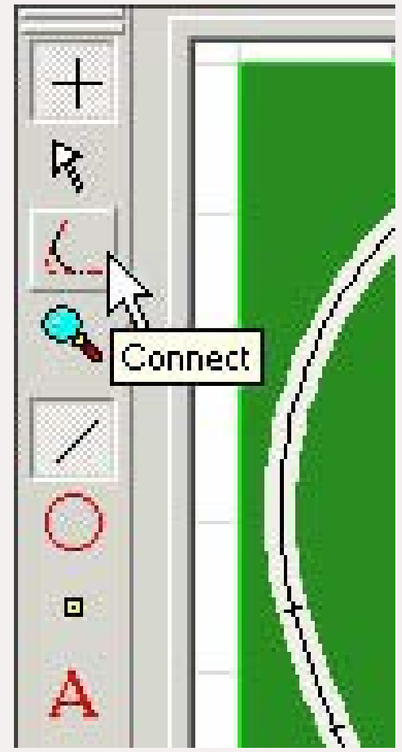


FIGURE 19:
Select the **Connect** tool.

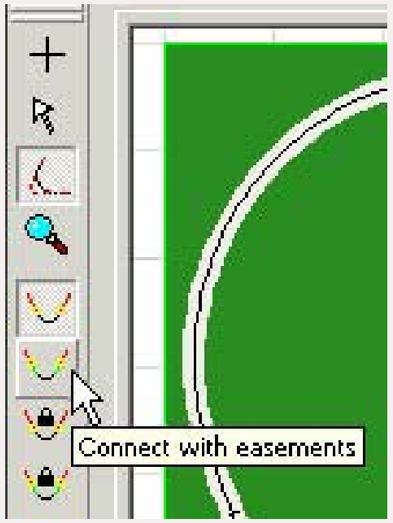


FIGURE 20:
Select the **Connect with easements** tool.

Turnouts

It's easy to add turnouts to your lay-out drawing; first we add a parallel line, then add a turnout and play with a few other tools that add track interest to any layout.

To add parallel lines select the **Copy Parallel** tool (see figure 21).

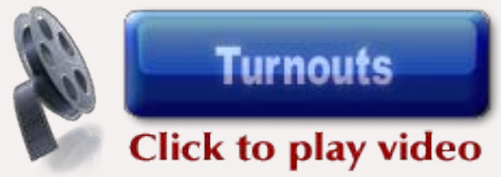
Then click on the straight track you wish to copy then drag and release the mouse near the original track. You will end up with a parallel line copied right next to the original line as shown in figure 22.

Now right click on the highlighted track line and select **Resize by factor…** then enter **0.5** and click **OK**.

Next select the **Connect** tool, then the **Connect with turnout** tool.

With the **Connect with turnout** tool positioned over the mainline track, click once, then drag the tool to the end of the parallel line and click again. This connects the parallel line to the main track with a turnout. See figure 23.

To view the entire processes of creating the turnout, watch the demonstration below in the Turnouts movie.



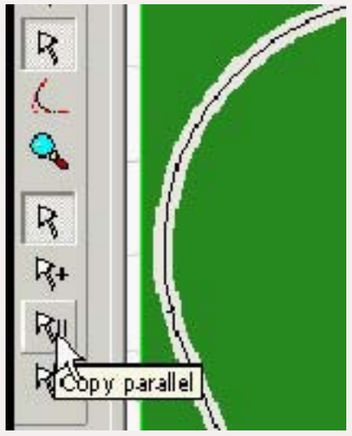


FIGURE 21: Select the **Copy parallel** tool.

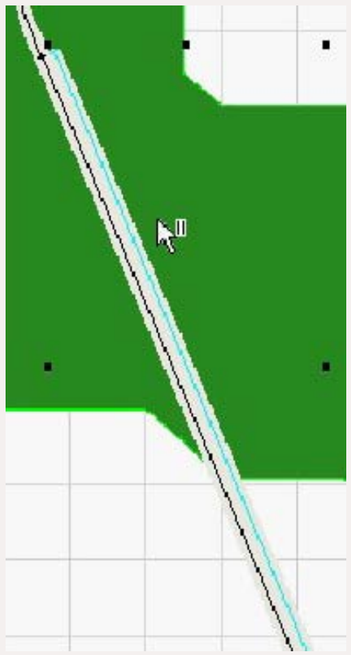


FIGURE 22: Creating a parallel line next to another track line with the **Copy parallel** tool.

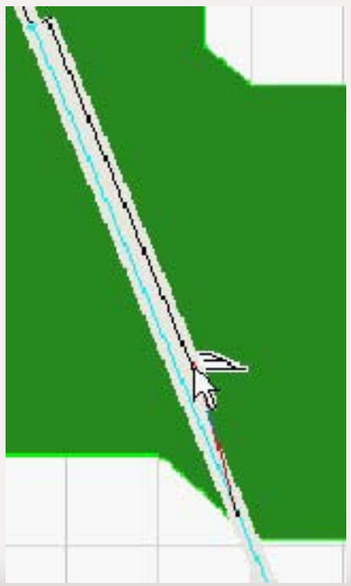
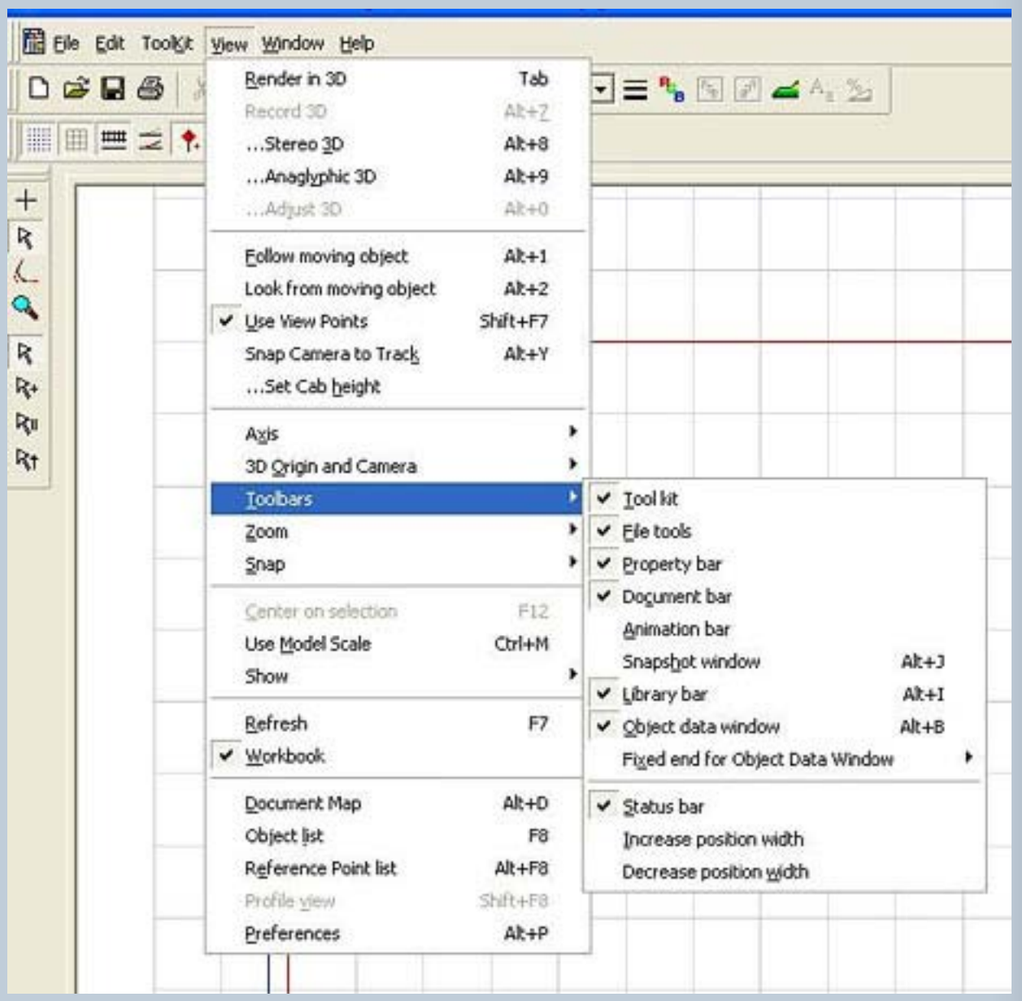


FIGURE 23: Connecting a parallel track to the main using the **Connect with turnout** tool.

Tip – Toolbars

To view the toolbars you have available and to add more toolbars to your 3rd PlanIt window from the main toolbar – select **View** from the pull down menu, then guide your mouse over **Toolbars**.

The toolbars sub-menu expands to show you all the available toolbars and any that are selected are marked with a check. ■



Practice makes perfect, and don't be afraid to start over with new room and landscape mesh templates that fit your own room. Remember, these give you the blank canvas in which to draw your dream track plan.

You are now well on your way to mastering the basics of 3rd PlanIt track planning software. And one step closer to finding the treasure at the end of your layout dream map!

The Sectional Builder

Using the Sectional Builder to add track to your layout is another great tool that helps in creating your drawing.

From the main toolbar click **ToolKit**, then click **Sectional Builder**, then the window in figure 24 opens up.

The Sectional Builder allows you to add sectional track from the Track Library one section at a time to the layout drawing. In this particular library I am using the **Atlas code 83** sections.

From the **Sectional Builder** click on the **Library** button and you can select from many scale track options.

In the HO Scale folder (see figure 25). the options are:

- Atlas 83
- Atlas 100
- BK Enterprises
- Marklin
- Micro Engineering
- Peco 75
- Peco 100
- Shinohara 70
- Shinohara 100
- Walthers 83

The other scales available in the Track Library folder are Gm, N, O, OO, S, and Z.

A great feature of the **Sectional Builder** (SB) toolkit is that you can move it and resize it as necessary.

Also notice that when the SB toolkit is open there is a red box now on the track. This indicates where the track section will be added. By clicking on any portion of the track in the drawing you can move the red indicator.

To learn how to add sectional track to your track drawing, view the Sectional Track video.

Running a virtual train consist

For some final fun, we add a short train consist with a diesel locomotive and various articulated rolling stock cars to the layout drawing.

Once I've dropped the locomotive and rolling stock onto a straight track segment, I couple of the loco to the cars and watch as it traverses the layout in 3D view.

See the demonstration movie clip on Virtual Consist.

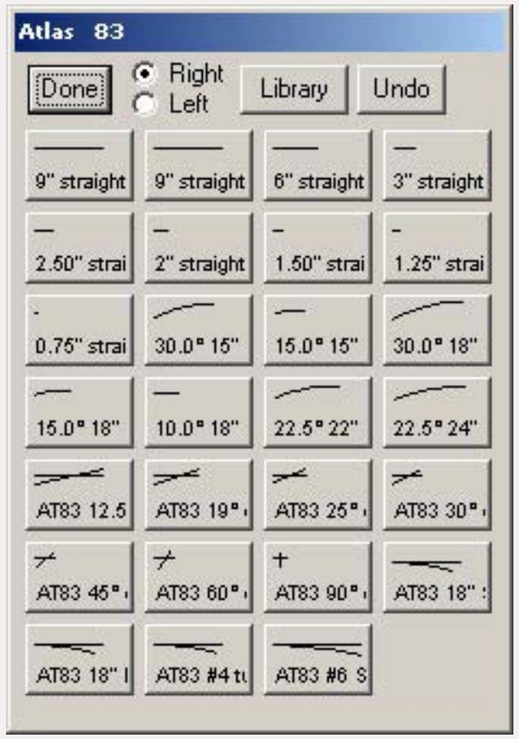


FIGURE 24:
The **Sectional Builder** window.

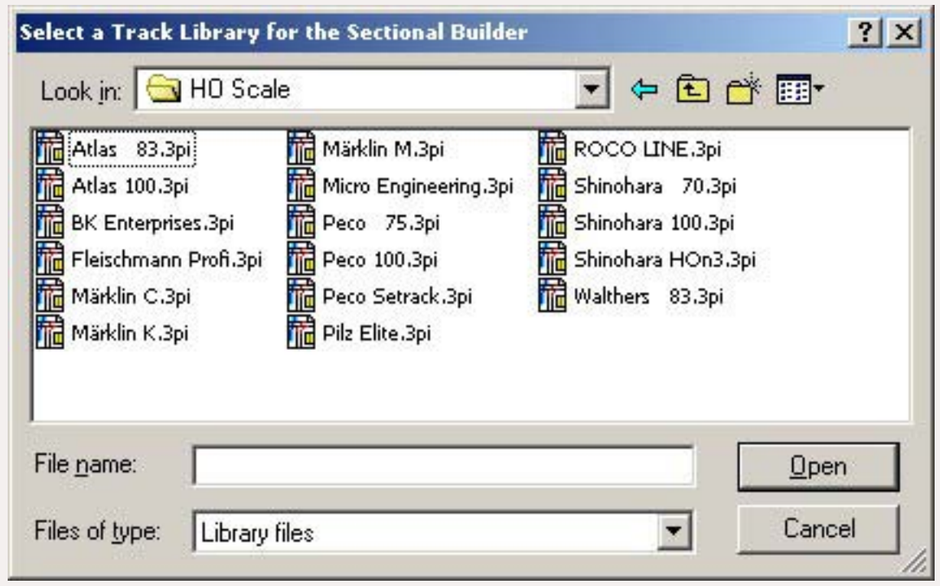


FIGURE 25: ▼
Notice the many sectional track options for HO scale in the 3rd PlanIt **Sectional Builder** track library.

Epilogue:

In the next installment of this series, ***Track Planning on computer using 3rd PlanIt – Part 2***, I demonstrate:

- Adding crossover sections of track
- Using the sectional builder in more detail
- Adding elevations to track sections
- Marking track segments as hidden track
- Dropping in buildings and structures to approximate industrial and city areas
- Viewing the virtual layout in 3-D with various viewing options.

I also show how to print your drawing at a 1:1 ratio. This makes transferring a plan to actual sub-roadbed material quite easy.

Links

Here's some online support links for 3rd PlanIt:

The El Dorado Software main page
http://www.trackplanning.com

The 3rd PlanIt main page
http://www.trackplanning.com/3pi.htm

The 3rd PlanIt Users Group on Yahoo
http://groups.yahoo.com/group/3rdPlanIt

The 3rd PlanIt Resources Website
http://3pi.info

The plans created in this tutorial are available for download on the comments thread for this article.

Also, if you have any questions on this tutorial, just post your question on this article's comments thread and I will try to answer it for you. ☑

Ryan Boudreaux got a boxed HO scale train set from his parents as a pre-teen and shortly thereafter his dad built Ryan a C-shaped 4X8 layout to get the trains off the carpet.

Ryan's current modeling passion is the Southern and Norfolk Southern, specifically the Piedmont Division. Ryan's layout, still in the early stages, combines a mix of prototype operation with freelanced locations and scenery.

Ryan works as an EPA contractor in the National Computing Center at Research Triangle Park, North Carolina.

3rd PlanIt – Comparing version 7 and version 8

Part 1 references an older version of the 3rd PlanIt Track Planning Software, version 7.10.006, created and distributed by El Dorado Software, ©1999.

In future tutorials, however, I'm using a newer version of 3rd PlanIt, version 8.06.000, created and distributed by El Dorado Software ©2008. The latest update of Version 8 is 8.06.000 as of August 11, 2008.

The techniques and procedures demonstrated here in Part 1 still work the same for the latest version, it's just that the graphic user interface of the program has a slightly different look and feel.

All of the techniques, steps, and procedures that I demonstrated here still work fine with the new version of 3rd PlanIt. I tested each step myself just to be sure!

Differences in Version 8

When creating the landscape mesh you will now need to round off the corners when drawing with the **Freehand mesh** landscape tool. Otherwise it produces an error message that the corners are to sharp, which takes a bit more practice to get it to draw correctly.

This makes sense too, because usually there are no sharp corners in scenery anyway. Typically fascia boards and backdrops are curved on layouts.

Version 8 has expanded the Library of track segments to provide more commercially available products.

For example, in the HO Atlas 83 library they've added 5 new bridge segments, including:

- 2 of the 18" Through Truss Bridges (593 & 594)
- Plate Girder Bridge (592)
- Deck Truss Bridge (591)
- Warren Truss Bridge (590).

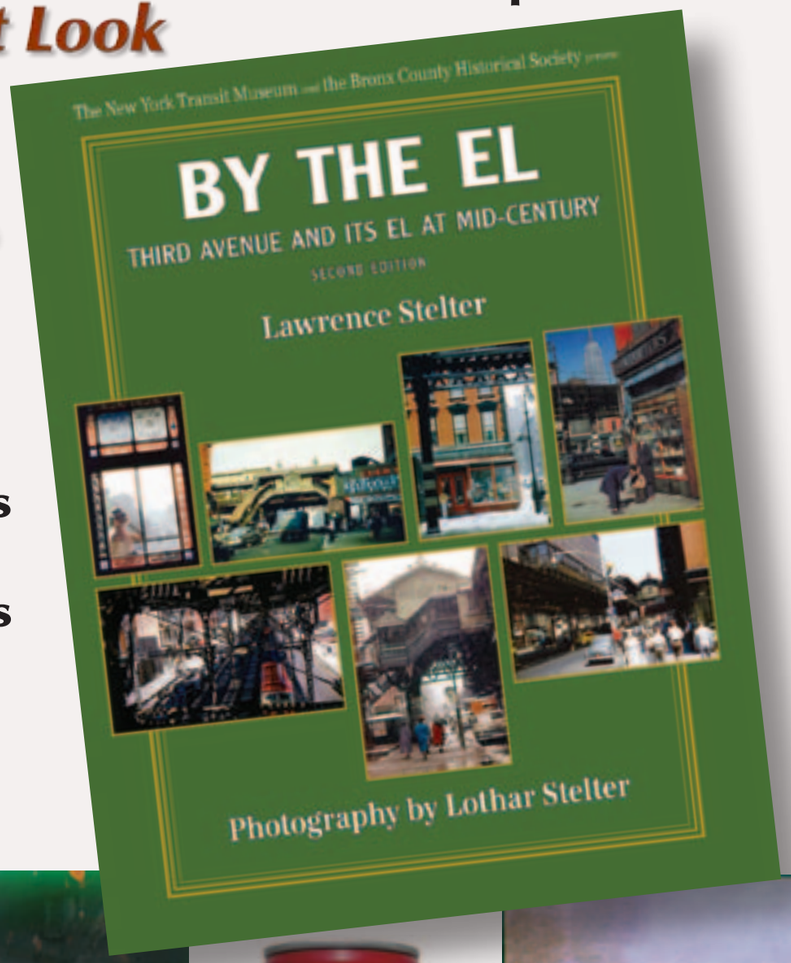
Version 8 has added a new menu item to the main toolbar: the **Action** item. **Action** rolls up many of the toolbar icons such as **Draw**, **Select**, **Connect**, **Modify Layers**, and others. I explore the new **Action** item in future installments of this series.

Finally, on the main toolbar menu of Version 8, the old **ToolKit** menu item is now listed just as **Tools**. ■

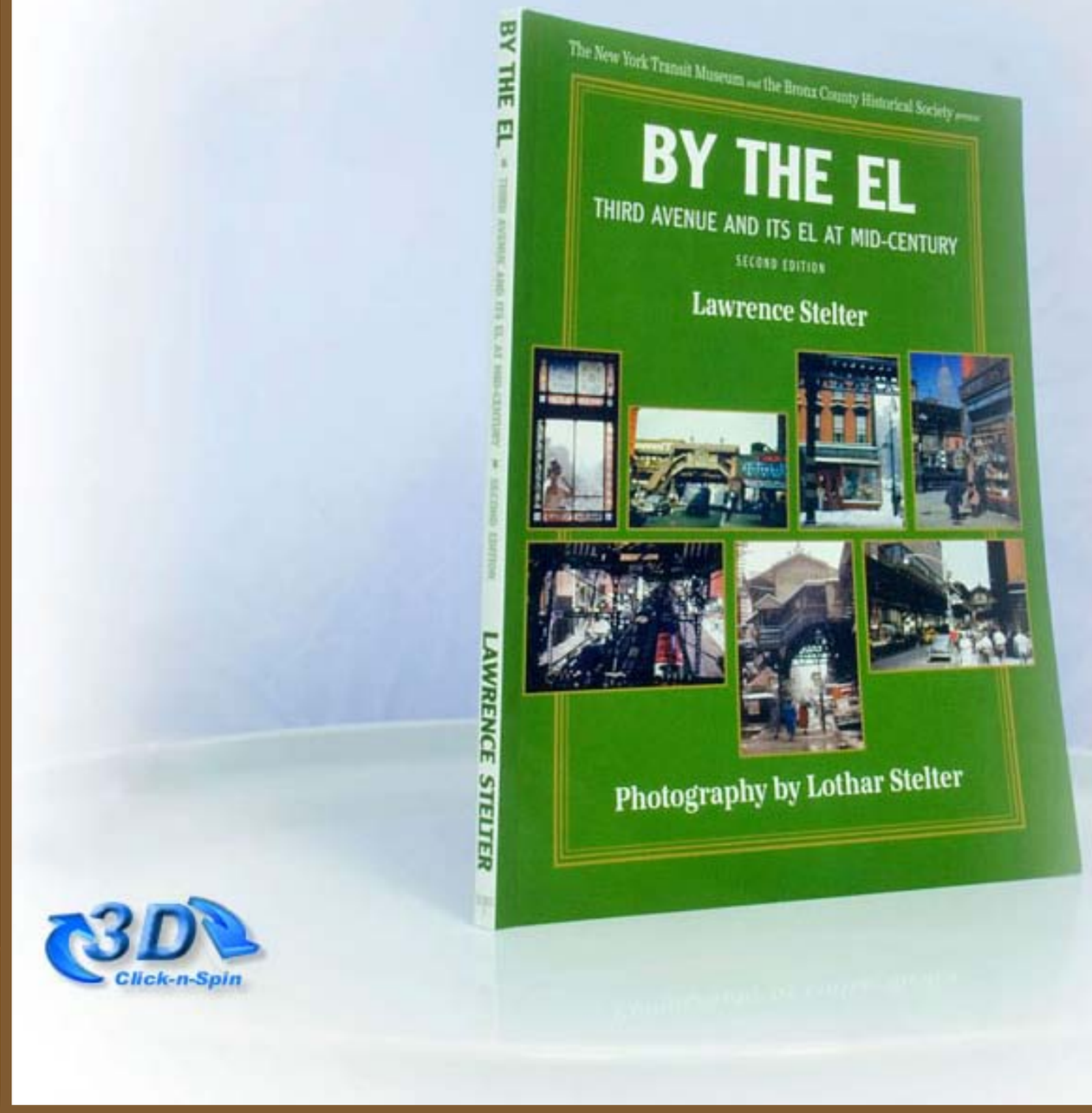
BOOK: By the El

MRH First Look

132 pages, paperback, $19.95
211 four-color photos (1950s)



Book has station diagrams of the entire system



Images from *By the El: Third Avenue and Its El at Mid-Century*, © 2007 Lawrence Stelter

From the book's marketing materials:
"*By the El* appeals to railroad and mass transit enthusiasts of all stripes ... it is endorsed by the New York City Transit Museum and the Bronx County Historical Society."
Visit http://www.bytheel.com for more.

Article feedback!
CLICK HERE for reader comments on this article ...

About our narrow gage and branchline columnist

Lew Matt began the hobby with American Flyer, experimented with O narrow gage using TT track/ mechanisms – then converted to O scale (On30) on his freelance Lancaster Oxford and Southern. Lew did all this while modeling the PRR in HO using the freelance Conestoga Valley, complete with heavy electrics and overhead catenary!

Lew is a published writer, photographer, and illustrator whose work has appeared in many model railroad hobby magazines.

THE LITE AND NARROW: The narrow gage rage

Ramblings on Narrow Gage and Branchline Modeling

Kitbashing and scratchbuilding used to be the only way to survive in narrow gage

Welcome to "The Lite and Narrow," a column devoted to your interests in narrow gage, short line, industrial lite rail and backwoods railroading.

Your comments, suggestions and additional input will determine the future direction and focus of this column. Together, we can explore some of the less traveled paths in this narrow gage milieu.

In On30, we can model using inexpensive off the shelf and ready-to-run Bachman On30 equipment or easily adaptable HO mechanisms adding kitbashed or scratchbuilt superstructures, or other scales that suit your fancy. The initial focus will be eastern U. S. railroading as interpreted through the medium of On30 trains.

In the future we can move our focus to the American west or where ever you want to go. As we develop contacts with the real minority narrow gage modelers, we can look at 7/8n, 3/8n, Nn, Zn, Fn and more.

We can also look to the live steam, garden railway and Meter folks; our friends across the pond, and those down under, to see what's narrowly happening in the rest of the world.

I live in southwestern Pennsylvania, and by a geographic coincidence, am in the epicenter of the east.

"Because of its compactness, ease of assembly and availability at reasonable prices, On30 has become an extremely popular gage ..."

New England, the Old South and Chicago are about equidistant from my abode. At present, most of my contacts for model railroading are within this circle.

For your benefit as readers, I would like to increase this information coverage to include the rest of the world, but to do this, I need your capable assistance. We can establish an information data base for narrow gage that lists railroad shows, SIG (Special Interest Groups) meetings, swap meets, module meets, narrow gage conventions and conferences, as well as individuals that are having an open house and welcome all comers.

We can do this by a list and links to web sites. Send me information using the the MRH email address lmatt@model-railroad-hobbyist.com or use the contact form on the MRH site and mention your note is to the attention of the *Lite and Narrow*.

Many of the narrow gage modelers of the baby-boomer era have picked O scale because it is handily large, easy to see the detail and easy to work on. Because of its compactness, ease of assembly and availability at reasonable prices,

Gage or Gauge?

Webster's lists both "gauge" and "gage" as correct, with the more modern usage being the simpler "gage". The NMRA in their more recent documents, have started referring to "narrow gage" rather than the more archaic "narrow gauge".

Experts in documents designed to be read on a computer screen recommend simpler writing conventions to make online reading faster and easier. So putting all this together, *Model Railroad Hobbyist* joins the trend to the simpler spelling "narrow *gage*". *– J.F.*

On30 has become an extremely popular gage, in fact it is now the fastest growing segment of the model railroad industry.

The "O" in On30 means O scale, ¼" = 1'=0", the n is for narrow gage and the 30 means the actual distance between the rails – 30 inches in this case.

In O scale, 30" is equivalent to HO standard gage track spacing. This allows a large scale operation in little more than the space required for HO operation.

This column will consistently refer to this scale/gage using HO track and mechanisms in O scale as On30, because the Nineteenth Century locomotive manufacturers and the modelers of the last and current century commonly referred to it as 30" gage. The designation of 2-1/2' gage is a fairly recent, forced "editorial" concept and is not used, but frequently ridiculed, by the larger segment of the hobby.

I got involved with On30 about 50 years ago as a result of reading an article in *Railroad Model Craftsman* (RMC) magazine. Up to that point, I was trying to model narrow gage in 17/64, O fine scale, using TT track and mechanisms. RMC's article caused me to have a BFO (Brilliant Flash of the Obvious); I was immediately captivated by the simplistic use of HO mechanisms that were a lot cheaper and more readily available than TT track and locos.

Several years later, my wife and I met Steve Fisher and his wife and became friends. Through Steve, I had the good fortune of becoming intimately involved with the Manchester Mini-Bunch (MMB), whose by-word was "cheap" railroading.

In those days, kitbashing and scratchbuilding were about the only way to financially survive in narrow gage. Since then, On30 has grown until now almost anything you want can be supplied reasonably priced in RTR (ready-to-run) format.

The MMB, an On30 module group, was influenced by innovative modelers like **Steve Fisher**, **John Weigel**, **Bill and Mary Miller**, **Roger Cutter**, **Bruce Saylor**, **Gary Cerrone** and others; geographically focused in north central Maryland, south central Pennsylvania, and saturating the geographic triangle of Philadelphia, PA to Baltimore, MD to Harrisburg, PA.

This concentrated physical presence was a prime catalyst and influence in developing the RTR aspects of On30. **Howard Zane** helped the cause by encouraging the MMB to set up their modules at his Great Train Show in Timonium Maryland, where the world could view, at first hand, some exceptionally fine modeling.

There were other On30 modelers building very credible models and train layouts in other parts of the country and we would frequently get together to exchange ideas and

Figure 1

Figure 2

FIGURE 1: On3 module built by Ted Bossler. Ted has 52 feet of point to point mainline trackage on several 2' X 4' modules depicting New England in the Fall.

FIGURE 2: On30 module by Steve Fisher. Church is a Thomas Yorke kit. The loco is a kitbash from and HO MDC climax by Gary Cerrone.

Figure 3

Figure 4

Figure 5

FIGURE 3: On30 module by Steve Fisher. Sleepy Creek Station built by Steve Fisher.

FIGURE 4: On30 module by Steve Fisher. Structure is scratchbuilt and the loco is a reworked brass engine.

FIGURE 5: On3 module by Gere Cornwall. "Before the storm at the Maple Creek Station." Structures by Gere Cornwall.

review each other's work at module meets and narrow gage conferences.

One of the oldest and largest narrow gage operating module (non) organizations is the Mid Atlantic Narrow Gage Guild's Module Meet held in Kimberton, PA every year (Kimberton is in juxtaposition with historic Valley Forge, just west of Philadelphia, PA).

I refer to this as a nonorganization as there are no officers, no dues and only one meeting a year. This is their 26th year of operating narrow gage modules. Contact Bob Beebe at http://midatlanticng.railfan.net.

Seventeen years ago, **Gary Kohler**, publisher of the *Maine 2 foot Quarterly magazine* (M2FQ) saw a need for physical contact between narrow gage modelers to exchange ideas and enthusiasm. Gary sponsors a meet in Washingtonville Ohio that brings 2', 30", 3' and Meter NG modelers together from all over the

FIGURE 6: On30 module built by Steve Fisher for the Manchester Mini-bunch. The loco is a reworked brass model by Steve Fisher, and Steve scratchbuilt the water tower.

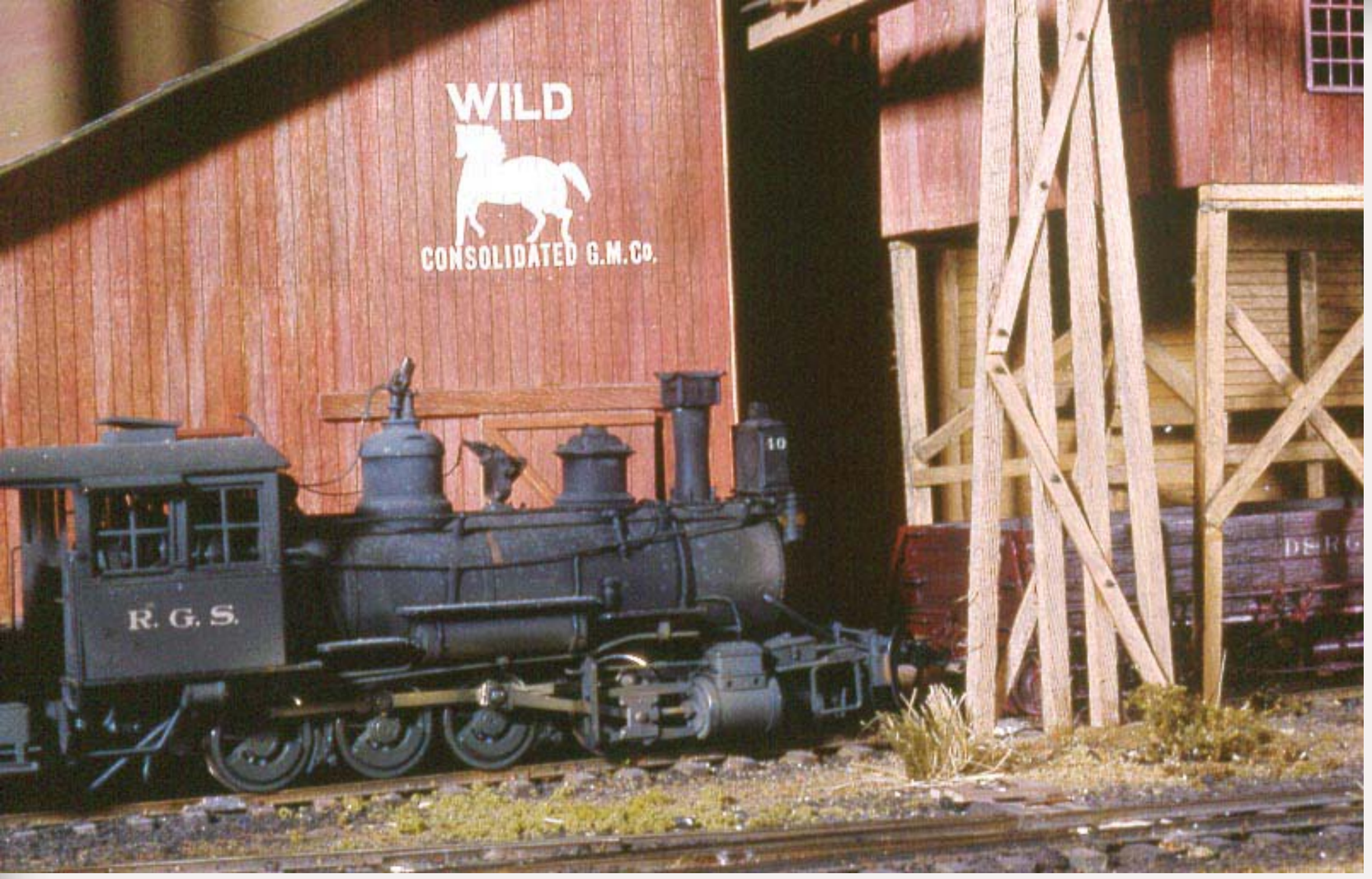


FIGURE 7: On3 module by John Hanson. The RGS loco is a brass model with details added. The structures are all scratchbuilt.

US and Canada to run trains and display their modules.

You will also find a smattering of live steam, large scale narrow gage and occasionally Nn30, using Z scale track and mechanisms, at these meets.

Collectively and individually, the MMB offered encouragement and support to Bachman to take the plunge into manufacturing in this scale and gage.

What started out as an experimental toy Christmas train, the Hawthorn Village specialty trains, advertised in the Sunday supplements to support the plaster and resin cast Christmas village scenes, turned into the dynamic NG model train industry we have today.

Thanks to Bachman for their tooling investment and merchandising courage, On30 narrow gagers have some of the finest locos and rolling stock available anywhere. Bachman chose to initially use the American Locomotive Company (ALCO) prototype 2-6-0 that looks very much like the 3 foot narrow gage 2-6-0's of the Waynesburg and Washington RR.

The decision was made to build these locos in O scale and operate on HO track – in other words, as On30 locos.

The prototype 2-6-0 was primarily a freight engine, and after 1920, was lettered for Pennsylvania Railroad. The "Waynie" engine was retired in 1934 and after several rounds of storage, restoration and display, wound up at the Greene Co. museum in Waynesburg, PA in 1974 and has resided there ever since.

The loco was restored again in 1978 and brought to steam. It was cos-

FIGURE 8: HOn3 module by Dick Sweigart. East Broad Top coal tipple.

Narrow Gage News

The Welsh Highland Railway Line (WHR) should be in complete operation by the Easter season of 2009, but the grand opening ceremony date has not yet been established.

The first mainline runs over the entire railroad are scheduled for the weekend of May 16 and 17, 2009, but trains will be reserved for supporters, staff, sponsors and volunteers.

Except for some charters, full daily service, open to the public, won't start until July and then will continue for the remainder of the season.

The Festiniog Railway will continue with its regular timetable throughout 2009. Two of the RRs locos will be overhauled this year, the Earl of Merioneth and the David Lloyd-George.

Both railroads will offer vintage locomotives and coaches as part of the regular railfan operation in 2009, and are open to the public. ■

metically restored in 2000 for display (without steaming) at the Historical Societies' functions. The Bachman On30 caboose and other freight cars released for individual sale have the Waynie as their prototype inspiration.

Bachman may not be the god of On30 modeling, but Bachman's Bud Reese, H. Lee Riley and Doug Blaine are the definitely the trinity gurus of this genre. Their design, manufacturing and merchandising concepts have introduced a wonderful catalog of engines, special motors and cars available RTR at affordable prices with details that rival fine brass.

The prototypes for the On30 equipment made by Bachman are American manufacturers, Baldwin, Alco, Lima etc., that supplied more than 50% of the world's narrow gage steam engines, and were producing them right up to the late 1940's.

Bachman's models follow the prototypes to the last detail and present the modeler with an engine suitable to use right out of the box, or kitbashed to one's heart's content! Extra detail parts are included with many of the engines to help you create a unique model.

With a stable of On30 NG engines from 0-4-0 up to 2-8-2, in DC and DCC with or without sound, almost any railway, domestic or foreign, can be modeled effectively right out of the Bachman box.

On30 railroading is not new. It has been a significant part of the model railroading hobby for quite some time. The first On30 model article, that I know of, was a construction article of an On30 mine locomotive that appeared in the January 1938 *Model Craftsman*, and **Hugh Boutell** wrote several articles, in the 1940's, about his fine scale 17/64 models that ran on HO gauge track.

Gordon North's model photos and writings on On30 appeared during the 1950's, and set the stage for what I think of as the modern era of this hobby segment. The first comprehensive On30 layout construction article was in the November 1962 RMC and was the narrow gage inspiration to me that encouraged me to redirect my focus.

RMC, under the able direction of **Bill Schaumburg**, continues to publish On30 construction articles, and deserves credit for their magazine's support of the early phase of this hobby segment.

Although **Dave Frary** and **Bob Hayden** worked in HOn30 to simulate Maine 2' NG, they had a considerable influence on the On30 movement. Their railroading showed what excellent details, geographic flavor and believable modeling excitement can be created in a freelance NG setting. (If I missed any-one in this abbreviated history, please let me know and I'll rectify the omission in the next issue.)

Modeling in any scale and gage requires a combination of adherence to real life situations and imaginative whimsy. In almost any model operation there is always a balance between what was done by the prototype and what we can do with the model.

Some modelers expect and demand absolute adherence to reality in scale and others are quite the opposite with unlimited freelancing. On30 allows for a great amount of latitude of freelance modeling by its very nature.

There are several SIGs (Special Interest Groups) for prototype narrow gage modeling and operation which may appeal to you. Whatever your predilection, this column will try to offer you something of value each month.

To achieve this, you must be willing to share your knowledge and information with your fellow modelers through this forum.

Take a look at http://www.pearce-dale.com/c&b/thirty.html to see a list of prototype railroads in the world that are 30" gage.

2009 EVENTS CALENDAR

Here are some up and coming activities in the eastern part of the country that I would like to attend in 2009:

January

24-25: Train Show in W. Springfield, MA
www.railroadhobbyshow.com

Jan 31, Feb 1: Train Show in Timonium, MD
www.gsmts.com

February

14-16: G Scale Meet, Scranton, PA
warriorrunlocoworks.com
email: wrunloco@aol.com

21-22: Spring Thaw in Allentown, PA,

March

26-28: 17th Annual NG Show, Washington, Ohio
www.maine2footquarterly.com

April

4-5: Train Show, Timonium, MD
www.gsmts.com

17-18: Mid-Hudson Meet (On30) New Paltz, NY

15-17: 26th Annual Module Meet, Kimberton, PA
http://midatlanticng.railfan.net

May

May 30: NG Meet, Warrior Run, PA
midatlanticng.railfan.net

June

27-28: Train Show, Timonium, MD
www.gsmts.com

July

5-11: NMRA Convention, Hartford, CT
hn2009.org/home.html

August

Family visit to Cass, West Virginia to see the herd of Shays operating there.

September

Nothing listed yet.

October

9-11: Fall Spectacular, EBT, Orbisonia, PA

10-11: Train Show, Timonium, MD
www.gsmts.com

30-31: Mid-Hudson Meet (On30) New Paltz, NY.

November

Nothing listed yet.

December

Open House of the Mon Valley Railroad Club in Morgantown, West Virginia. Dates to be announced. ☑

Me and #4

— By Eric Hansmann

I think I first saw this small narrow gauge loco in the late 1980s. I moved into the area a few years before and stumbled upon "Three Feet on the Panhandle – a history of the Waynesburg and Washington".

As I was into eastern narrow gauge railroads at that time, I was easily hooked on this local anomaly. Each year the Greene County Historical Society holds a harvest festival at their farm near Waynesburg. W&W #4 is there in a shed and it is usually pulled out into the sun for all to see for the festival. It was in decent shape then, certainly not polished, but decent shape.

About a decade later Jim Weinschenker called to see if I would like to help in some cosmetic upgrades to the locomotive. I jumped right in with the small team he had corralled for the project.

We worked over the summer cleaning, scraping and sanding down spots on the loco. Some cab windows were replaced and several parts of the loco were checked for structural integrity. Once all seemed to be in order, painting began on the boiler, cab and tender.

Some detail trim and lettering followed. The society had the headlight and bell locked away inside. These were also cleaned up and prepared for remounting. The job was complete in time for the harvest festival of 2000 and the locomotive made an impression on many visitors.

There are small community projects like this across the country. Getting involved in a cosmetic restoration is a matter of time, energy and old clothes to wear for the dirty work. The opportunity to get your hands onto a piece of history and stand where railroaders used to stand is getting rarer every day.

I can easily say that I helped to clean, prep, and paint this locomotive, but the memories I have are priceless. I was able to take several moments and imagine what it was like commanding this small beast.

I sat in the cab and leaned out of the window, and I imagined the loco barking

up West Union hill with a few coaches. I held a coal scoop and stood on the tender deck and wondered how the fireman stood in such a small area and kept balance as the loco lurched on the rough track.

As I cleaned rust off of the boiler, I thought of how many times an engine house crew wiped down the loco after a long day of work. It is this connection that fanned my modeling interest in this bucolic narrow gauge and other short lines of the western Pennsylvania area. So take some time and get involved with a local railroad preservation project.

It will offer a different perspective that may enhance your modeling skills and ideas. ■

Photos of the Waynesburg and Washington #4 were taken by Eric Hansen during the restoration of #4 in 2001.

Charlie Comstock is ...

Up the creek

A regular report on the construction of a 1950s-something layout

Serendipity

Sometimes good things happen even when they're not planned in advance ...

This is the first of a series of columns about the evolution of my Bear Creek and South Jackson Railroad. Expect some factual information, some speculation, and a good bit of USDA certified prime malarky.

Be careful what you ask for! You might get it. When we moved into our new house almost 5 years ago (guess it isn't so new anymore) I had asked for and been approved for a large train room.

Large turned out to be almost 1100 sqft. "Wow!" I thought, "I can't wait to get started on construction." The house and the track plan had been evolving with each over the last year and once the obligatory 'honey-do' was handled it was time to start construction.

Walking into a large new train room is an interesting experience. There's excitement in the air, but also a sense of "Oh Lord, what am I getting myself into?" when the magnitude of the project goes from being an intellectual affair on paper to experiencing just how big the project really is.

I'd contrived to pack the entire Mill City area, an L-shaped chunk of the previous BC&SJ about 10' x 14' into a moving company warehouse while the new train room was under

The Lite and Narrow column, page 7 - Up the Creek column, page 1
Contents Index

What's here...

- Be careful what you ask for!
- Walking into a large new train room is an interesting experience...
- Layout lighting was an issue I had to deal with.
- By March 1, 2004 benchwork had made it up the grade to Oakhill on the upper deck...
- When I disassembled the previous BC&SJ most of the wood, track, and turnouts were saved
- Operation on the Bare Creek would get considerably more interesting if South Jackson wasn't the end of the line...
- What, I thought, if I build Siskiyou staging first?
- Another trip to the recycle bin found the east end throat from Salem staging on the old layout complete with ladder turnouts still attached
- I certainly hadn't planned it that way...
- It turned out that having a yard at South Jackson provides a good place to meld mainline and the Deschutes branch line traffic.
- Horace Fithers, vocal resident of all three Bear Creek & South Jackson layouts opines...

Figure 1: Mill Bend in February of 2004

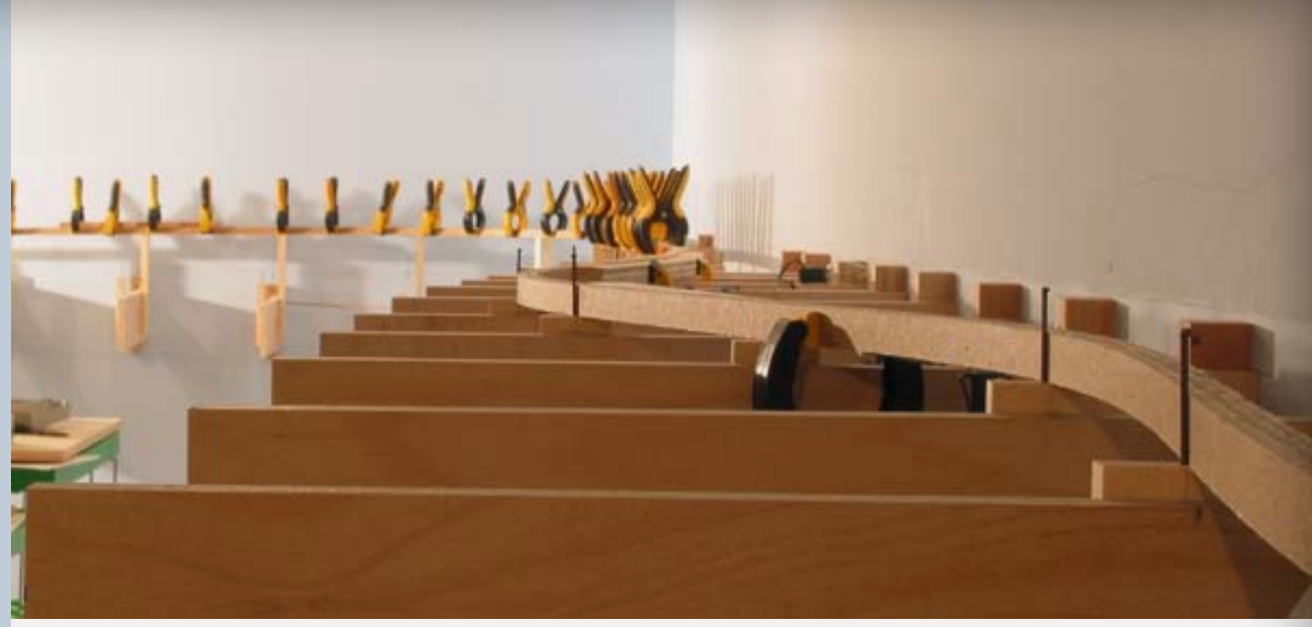


Figure 2: Splines to Oakhill

construction. With great good luck it actually fit through the doorway into the new train room (phew!).

After building some benchwork supports, perching Mill City on them and hooking up a power pack, the BC&SJ was back in business with a loco shoving a couple of cars around in the town of Mill Bend (renamed because the new layout doesn't model the Santiam River). All this happened during the Christmas season of 2003/2004.

Benchwork quickly progressed around the walls with masonite spline roadbed snaking its way along on top.

Layout lighting was an issue I had to deal with. The train room had seven 100-watt incandescent bulbs in the ceiling but the lighting level was pretty dim. So I spent some time mocking up benchwork and lighting, especially lighting for the lower level Deschutes branchline.

I elected to follow Joe Fugate's lead and use small (25 watt) utility bulbs on 24" centers building a lighting valence above the upper deck and embedding lights in the upper deck benchwork above Redland.

The lighting experiments showed the light level to be a bit dim but workable and construction continued.

Later I'd decide the light levels were inadequate. More on that later.

By March 1, 2004 benchwork had made it up the grade to Oakhill on the upper deck where a run around track was hastily installed and down to Redland on the branch line.

In the past I've been willing to quickly cobble track together to improve

The track plan for the third BC&SJ was originally presented in Kalmbach's Model Railroad Planning 2003 *article "Fine Tuning a Track Plan for Operation" cowritten with Don Mitchell.*

Figure 3:
Layout lighting experiments

Figure 4:
Jallen at the end of Redland

operation while waiting to do the 'real thing' later.

While ugly this has the advantages of letting me see how the operations will work and allowing time to think about what trackwork changes would benefit the operation.

Since I hand lay turnouts and special work in my final trackwork I'm not keen on a 'build it then tear it apart' cycle using the scratch build trackwork.

Using recycled trackwork and plywood from the previous layout I threw together a tiny staging area just east (left) of Mill Bend dubbing in 'Stagebrush' (if you couldn't tell I like corny names).

The initial trackwork in Redland was more scrap box trackage. My good buddy (and crusty yardmaster) Terry Roberts laid out the first pass of tracks in the 'land down under' generally following the official track plan and presto, there was a branch line!

I still had my Jallen 'module' (Jallen was the name I gave my John Allen Timesaver) - while not ideal as a town I put together some brackets to hold it up at the end of the Deschutes branchline added a bit of track to connect it and voila, I could now run trains to four towns, Mill Bend, Oakhill, Redland, and Jallen!

When I disassembled the previous BC&SJ most of the wood, track, and turnouts were saved. The original Stagebrush was too cramped so I extended it using more recycled bits and pieces. Later South Jackson would occupy this location. The temporary staging didn't look like much but it worked and let me have a place to run trains from. I think I invested about two evenings of construction in Stagebrush.

Then I had an unusual (for me) flash of brilliance...

Operation on the Bare Creek would get considerably more interesting if Stagebrush wasn't the end of the line. In fact I liked yard ops and there wasn't a yard at all, just staging.

I was figuring it would take many months (probably over a year) of effort to build the peninsula where the main staging area was located along with three towns and the Bear Creek division point yard. Was there any place to put some decently sized temporary staging? However, I didn't want to waste a lot of time and resources building a temporary staging area.

Then I realized that the Siskiyou (Coos Bay and Roseberg) staging area was the answer I'd been looking for. In order to progress (clockwise) beyond Oakhill the track gang would need to span the train room's entry door. Once across that doorway the mainline would be running above the Siskiyou staging area.

I didn't want to build the Siskiyou staging area after the mainline above was installed. Working under already install benchwork sucks (especially with low overhead clearance).

What, I thought, if I build Siskiyou staging first? It was just around the corner from where South Jackson would be located – could I snake a mainline from the future South Jackson around the bend and into Siskiyou staging without violating minimum radius too badly or creating an impossible grade? If this became the new end of the line staging could I turn Stagebrush into a yard?

I use CAD software to plan my layouts. But I expect when actually laying out the trackwork that better alternatives will surface. The CAD program keeps me honest with turnouts and shows if what I've got in mind will really fit.

Up the Creek column, page 3

Figure 5:
Pocatello staging (bottom)
Salem staging (top)

Amazingly the answers were yes and yes! I won't claim I planned it that way but there was just enough room to get track from the Siskiyou staging area throat down 1-1/2" to the yard (now named South Jackson) elevation. Heck, it would even be possible to put a yard lead snaking around that corner too!

Originally Siskiyou staging was designed with 3 tracks in it at an elevation of 53". This would be inadequate for a mainline staging area (experience on the previous BC&SJ showed me this) and too high to make the South Jackson connection.

So I redesigned Siskiyou staging to include 5 tracks and lowered it two inches (carefully checking that the Siskiyou branch coming out of Bear Creek yard would still work!) and started building Siskiyou staging.

Once the roadbed and trackwork was complete I built a little bit of temporary benchwork (using more of that recycled wood and track) and bent the mainline around the corner between a newly revamped South Jackson yard and the renamed Pocatello staging area (the radius on that bend was 30" but it proved to be workable - even for full length passenger cars - serendipity indeed!)

The Bear Creek schematic was now starting to get a lot more interesting. I built a swing bridge across the room entrance (track at 63") and ran tracks part of the way down the wall above the new Pocatello.

Another trip to the recycle bin found the east end throat from Salem staging on the old layout complete with ladder turnouts still attached. It got extended another 16' with some scraps of plywood and more recycled flex track (creating what some folks call an aircraft carrier staging area - so called because it moves around the layout as construction progresses so there's a always a place to run trains to).

I certainly hadn't planned it that way. The ability to use (the future) Siskiyou staging area temporarily as Pocatello was purely accidental And I'd not been planning for South Jackson to be much more than a crew change point and base for helpers.

But these things let me get back into serious operation very soon after starting construction without needing to get the whole layout built. Believe me, there's a LOT of building involved when you have a 1000+ ft. train dungeon. It was great to be able to operate while I was working on other stuff (like scenery)!

And yet another unforeseen thing.

It turns out having a yard at South Jackson is handy for handling main and

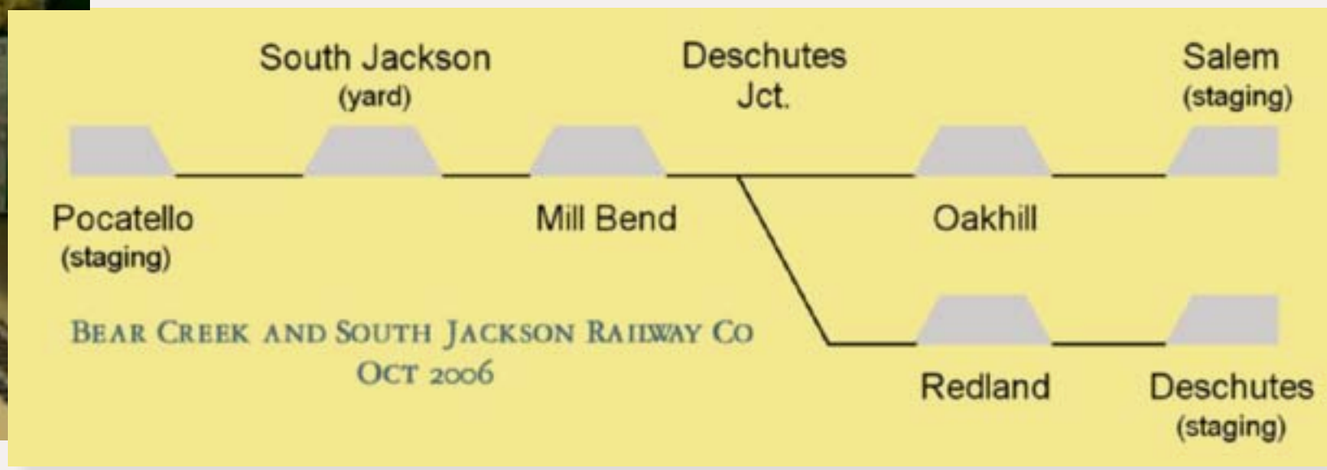
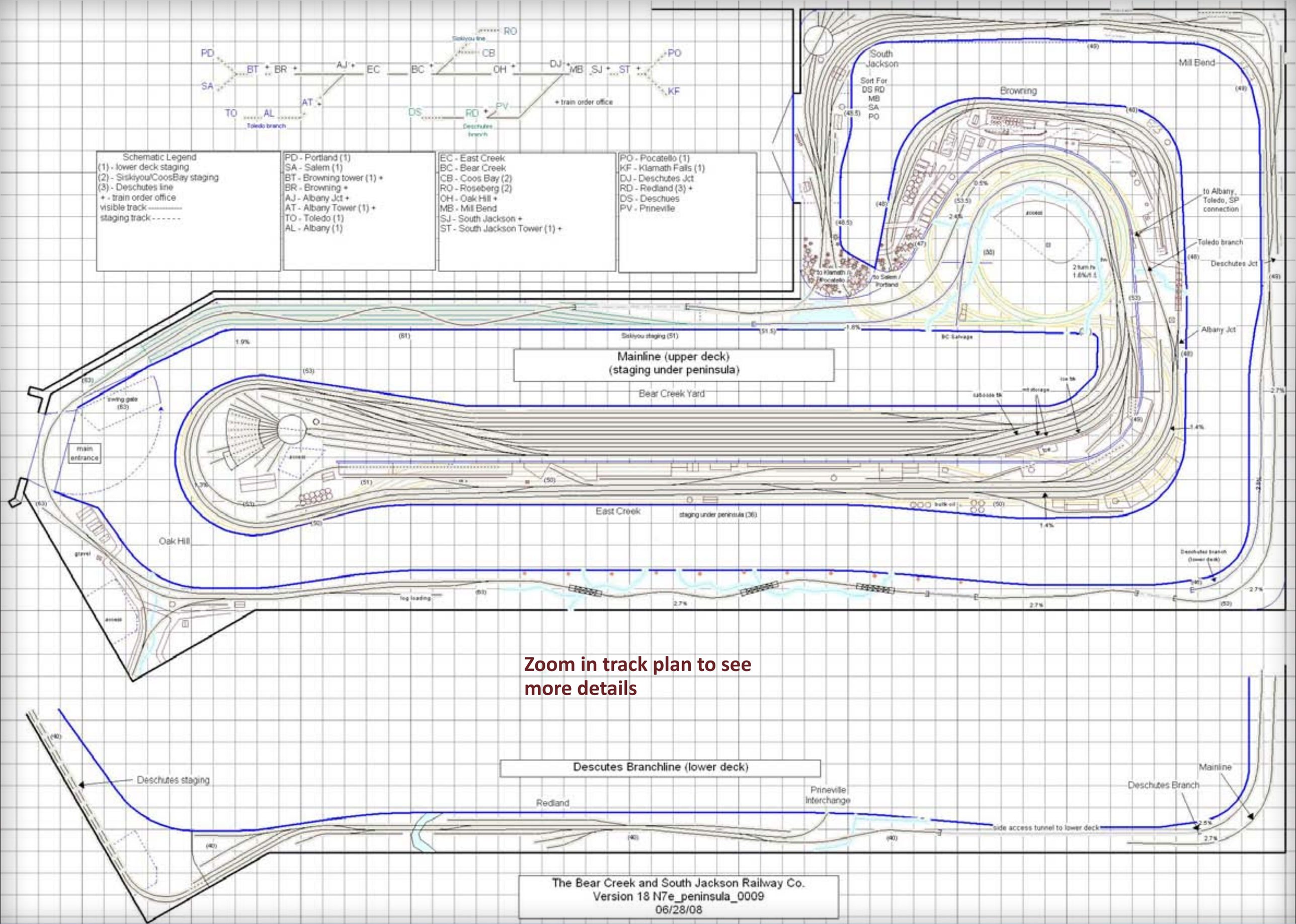


Figure 6:
BC&SJ Schematic, October 2006

Deschutes branch line traffic. As a result I've redesigned South Jackson to make it a satellite yard in the final track plan.

It's hard to believe the Bare Creek has been under construction now for 4+ years. Time just flies by.

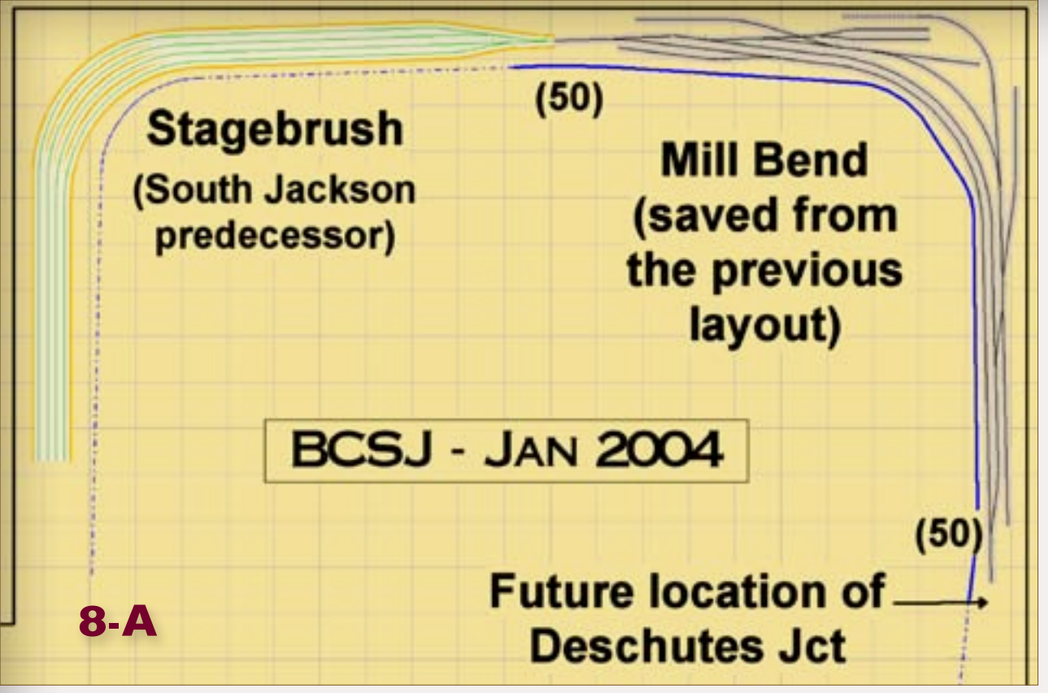
Figure 7 (next page):
Bear Creek & South Jackson Railway Co. track plan ▶



Zoom in to study the track plan detail

Up the Creek column, page 5

Contents Index



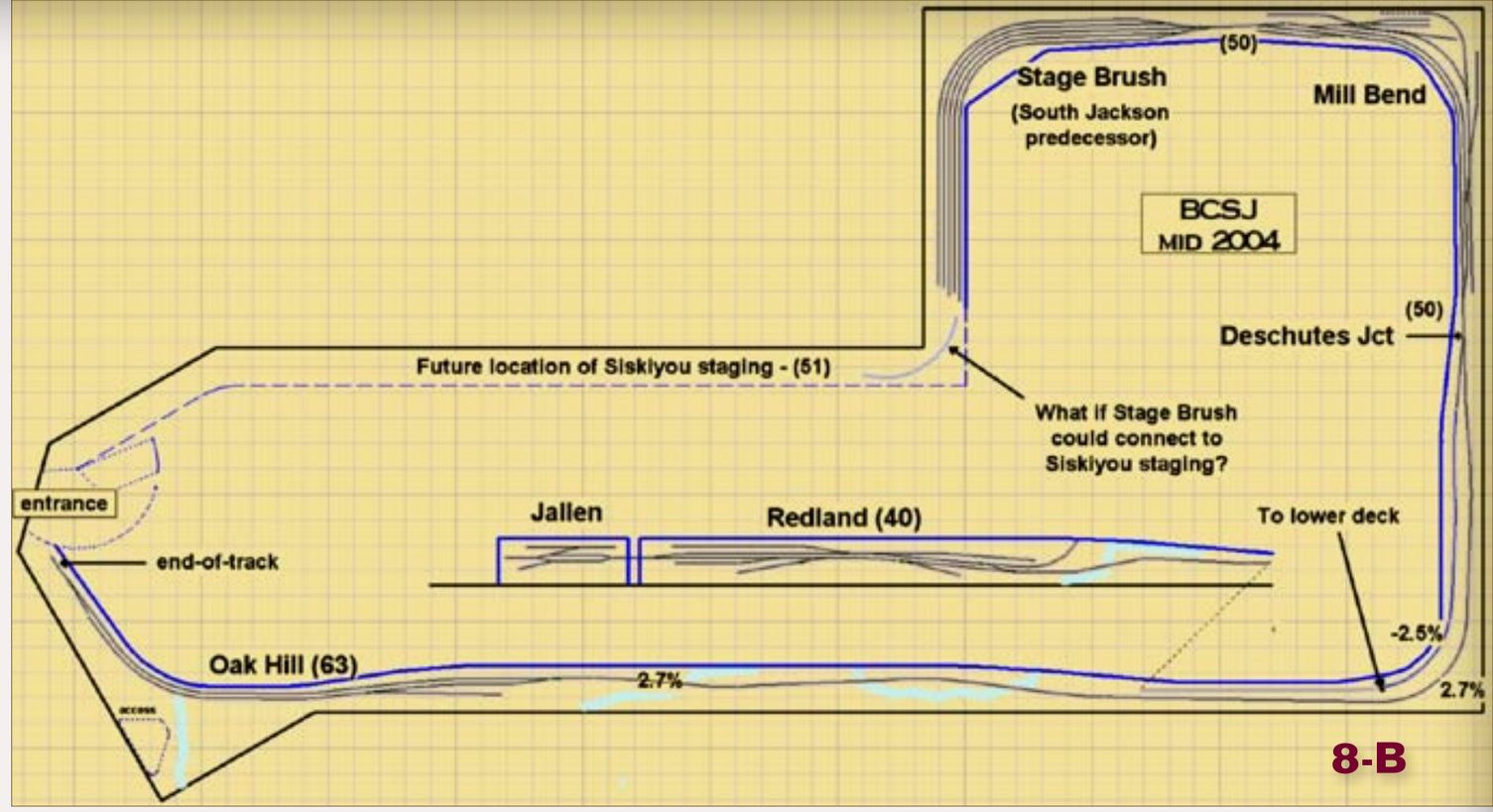


Figure 8:
The progress of the Bare Creek's construction from the (re)installation of Mill Bend (8-A) to the discovery that Siskiyou staging could be used as a temporary Pocatello (8-B), to the completion of the Deschutes Branch (8-C).

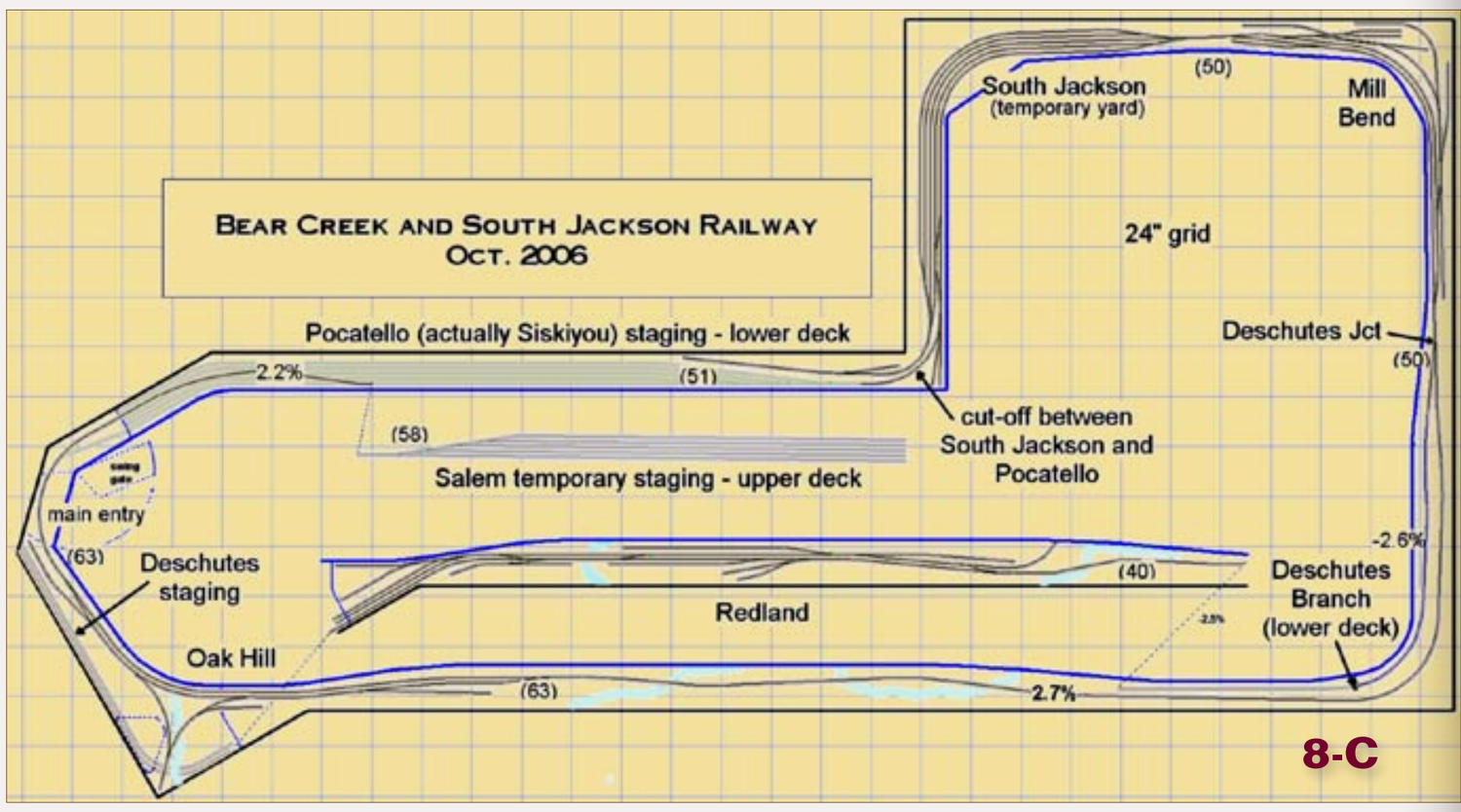
As I write this I'm preparing the room to start construction of the peninsula which will hold the main yard area and two more major towns above and the main staging area (16 tracks averaging 40 cars in length) beneath.

Some times when I walk into the train dungeon it's easy to get overwhelmed by the number of tasks waiting for me. Some are planned, some were unexpected (like when I decided the old layout lighting was too dim so I tore out the 32 feet of lighting valence I'd built and replaced it with fluorescent ceiling lights - much brighter!).

My good friend Horace Fithers, a permanent resident of the train room, had a bit to say about this (click button below). I hope Horace and his buddies get the railroad they deserve real soon now. ☑

Read comments by *Horace Fithers*

Article feedback!
CLICK HERE for reader comments on this article ...



GETTING REAL: Different Things to Different People

Adventures in Prototype Modeling

About our prototype modeling columnist

Marty McGuirk is a well-published model railroad author: he has been an editor for Kalmbach on *Classic Toy Trains* and *Model Railroader*, and was the VP of Product Development for Intermountain Railway Company from 2001-2005.

Marty's an avid Central Vermont fan, modeling the "Southern New England" – an HO scale proto-freelanced railroad set in the 1950s and based in part on the real Central Vermont Ry.

Prototype modeling? I can hear the groans already ...

Welcome to the premier issue of *Model Rail Hobbyist!* I hope you're as excited about this new publication as the entire staff. When I first talked to Joe Fugate about doing a prototype modeling column I knew I wanted to go beyond "bending wire and gluing fiddlely bits" on to freight car models.

Don't worry, we'll talk about some of that (very shortly, in fact) but we also wanted to explore "prototype modeling" in broader terms incorporating layout design, construction, and operation and not just the equipment.

FIGURE 1: In this issue, we'll look at modeling hoppers. Here we have Central Vermont 20001, the second car in the class, showing off the paint and lettering scheme she wore for 20+ years starting sometime in the early 1940s.

What is prototype modeling?

I can hear the groans already, and I'm sure there will be some feedback on this. Here's my response: to clear up any confusion and give this column some framework, we need to define what we mean by prototype modeling.

"Prototype modeling" means different things to different people. If you don't believe me ask any internet discussion forum to define it for you, and stand by for the inevitable flames. In fact, it's almost as good as the "prototype vs. freelance" debate that serves as a stable of many model railroad chat lists and forums.

Don't worry, we're not going there.

So, what is a prototype model? Perhaps it's:

1. A model based upon an actual subject.

This is the classic definition of a prototype model and what most model railroaders think when they hear the term. You show me a boxcar you've just built, and a photo of the real thing it was based upon. I can easily see how closely you replicated the real thing in miniature.

That's great for models of individual cars and locomotives, but what about a layout?

Does every element on a model railroad have to exactly duplicate the real thing as precisely as that one boxcar you just showed me to qualify the model railroad as a

"prototype model?" Putting the ridiculous comparisons aside (yes, our models use electric motors, the trucks are screwed into the bottom of the freight cars, and we do have to shorten our mainline . . .) I'd say a model railroad does not necessarily have to exactly duplicate a prototype scene for scene or building for building.

For that reason, I'd suggest a broader definition of the term "prototype model" for this column:

2. ***Prototype Model(ing): A model, or collection of models, inspired by, and designed to, emulate the appearance, use, and ambience of the real thing.***

For example, is a model railroad designed to closely recreate the operations of a timetable and train order railroad – even if it's a 'fictional' railroad[1] – *LESS* of a "prototype model" than a collection of detailed rolling stock that duplicates its full-size counterpart but runs around an oval on a 4 x 8 sheet of plywood?

According to definition 1 where we said the model is based on an actual subject – such a model railroad certainly would be considered "*not* prototype modeling".

So, what do I hope you'll find in this column? Simple. Anything that helps to achieve that "collection of models that emulates the appearance, use, and ambience of the real thing."

That runs from the gamut from individual models of cars and locomotives to layout design, to effective selective compression of structures, to deciding which towns to include on the layout and which to leave out. Along the way we'll have some fun (I hope!) and learn a thing or two. All of which leads to . . .

Prototype Modelers vs. Rivet Counters

I gladly call myself a "prototype modeler." With undergraduate and graduate degrees in history you shouldn't be surprised that I take my own railroad research seriously. But I still get upset when I read or hear people equating "prototype modelers" with nitpicking, so called 'rivet counters' who suck all of the fun out of the hobby by picking on the poor model railroaders who only want to have good time.

There are some big secrets about prototype modeling I'm going to let you in on.

Here's the first – I'm not a prototype modeler because it hurts! I find it tremendously rewarding. Is it somehow better than freelancing? Hardly. But it's not worse either.

I've heard horror stories about rivet counters over the years. I'm not certain they're all true, but if they are it's a real shame since the "prototype modeling movement" (as some call it) is really all about sharing techniques, information and fellowship – none of which are achieved by picking on people.

"I know many of the top prototype model railroaders in the country. And I count some among my closest friends. And I can say, without exception, that I've never seen any of them 'count rivets' ..."

I know many of the top prototype model railroaders in the country. And I count some among my closest friends. And I can say, without exception, that I've never seen any of them "count rivets" (at least not in public!). More importantly, I've never heard them utter a disdaining word about another model railroader.

This, of course, can not be universally applied, and I'm sure somewhere some model railroader has been bitten, figuratively (I hope!) by some "rivet counter", but if that's the case write it off to a person who has other issues and move on.

Here's another big secret – there's a huge difference between "prototype modelers" and "rivet counters." "Prototype modelers" DO; "Rivet counters", "nit pickers" and the like DON'T.

If you encounter one these nitpickers simply ask to see the latest model they've built. Most times you'll be treated to a description of what they're going to do, someday, in the future! Ask a prototype modeler about his or her latest model, and you're in for a treat!

Where can you join the fun of prototype modeling? The best place to meet these prototype modelers is at one of the many prototype modeling meets that take place across the country. If you've never been one you're missing not only some great modeling but also the opportunity to see what "prototype modeling" is all about.

A common element to all prototype modeling meets is a "display room." If you go to one of these meets, be sure to spend some time in that display room talking to the builders about their models.

If you see a neat weathering or construction technique seek out the builder and ask about it. Rather than a nitpicker or "rivet counter" you'll likely get a few tips to improve your next model – or turn up a great new lead for your own research!

Best of all, you may make a friend or two (or 20!) in the process. One last thing: Once you've built a few

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1 By fictional, I mean the towns, the railroad name, and/or the routing are made up.

Getting Real column, page 2

prototype models of your own share them with the rest of us. We'd love to see them!

A word about, well, words

When reading this column (once we get past a lot of this first issue "admin" drivel, that is!) you're likely to find some unfamiliar terms. I will try and explain these as they appear. Over the years railroads developed a very specific language to describe the various components of freight cars.

You may have seen or heard of "Car Builder's Cyclopedias", commonly called "Cycs". These are, essentially, catalogs of freight car parts and components. The origin of the Cyc was a volume called the "Master Car Builder's Dictionary" – proof of the importance of the proper terminology.

So in this column, in keeping with the spirit of prototype modeling, we'll use the prototype terms whenever possible. So, you won't find reference to a "lift bar" here – it's an "uncoupling lever." Likewise, there's no such thing as a "Bettendorf truck" as the term is not specific enough since the Bettendorf Company produced a wide variety of trucks.

Don't bother looking for "roofwalk" – it's a "running board." If we're going to model the prototype it stands to reason we describe our models using the same nomenclature as their full-size counterparts.

Modeling one railroad's roster . . . Part 1: Hoppers

As manufacturers come out with even more detailed ready-to-run cars it's easy to ask "Do we even need to build models?" The answer is, happily, yes. Especially if you model a small railroad like I do.

In future columns, I'll show how I've been building a roster of HO scale Central Vermont Railway cars. Rather than looking at this as a series of articles on duplicating my efforts exactly (after all, there are only a few other CV modelers out there, and I think I know them all) I'm hoping you'll look upon this installment as a "how to detail a plastic hopper car" and garner some tips and techniques useful for modeling your favorite prototype.

One of these times, we'll review upgrading a resin car. – *Marty*

The Central Vermont Railway did not have a very large freight car fleet, but the railroad, true to its Yankee heritage, got its moneys worth out of the rolling stock it had. One example of this longevity was the CV's fleet of single-sheathed boxcars.

These cars, which were built in the 1920s, lasted in service well into the 1960s. Another example are the CV's twin hopper cars – built in 1912, they lasted on the roster well past the end of the steam era.

The railroad bought 200 hoppers from Pressed Steel Car Company in 1912. The CV hoppers were identical in overall dimensions and key spotting features to the twin hoppers built for the Grand Trunk Railway in the early 1900s. They shared some spotting features and a similar appearance with Pennsylvania RR GLa hopper cars.

Originally numbered 30000-30199, the cars were rebuilt by American Car & Foundry between 1923 and 1925 and renumbered in the 20000-series. As built, the cars had a capacity of 1,680 cubic feet. Starting in 1937 198 of the 200 cars were rebuilt with panel sides that increased the capacity to 1,769 cubic feet.

These panels were sold as conversion kits and were popular in the years between WWI and WWII. Of course, one problem with the panels occurred when the panels failed (either through rust or damage) – unless the railroad had the correct panel available they could not replace the "blister" panel. This led to some very interesting combinations.

In 1948 the CV began converting the cars back to flat panel sides, sometimes modifying the side posts in the process. This rebuilding continued through

Getting Real column, page 3

Figure 3

Figure 4

the early 1950s and by 1955 only two cars retained their panel sides. Since the cars retained their old car numbers through these rebuildings the only way to sure you're modeling a car in the correct configuration is through the car number listing found in the ORER or by using a photograph taken during the era you're modeling.

In 1955 a total of 168 hoppers remained in service. In 1965 81 hoppers remained, and by 1977 only one car was left. In some cases, individual cars were rebuilt four times over their service lives.

All the cars were painted black with white lettering when built. In the 1930s the cars would have been painted box-car red (a color officially referred to as "CN Red #11") with white Roman style lettering.

FIGURE 3 and 4: Finding "detail" shots of steam era freight cars is not always easy, but when you find good ones all the searching becomes worthwhile.

While these cars may appear black in these images note the ends and areas under the slope sheets. The cars are red, just extremely dirty!

Some of the black marks on the side are a result of the torches used to heat the car sides in an effort to thaw frozen cargo. This is commonly seen in photos of open hoppers. (Alan Irwin photos)

In the early 1940s CN family railroads, including the CV, went to a condensed Gothic "stacked lettering" paint scheme (see figure 1). That scheme was found on the hoppers through the remainder of their revenue service lives.

As an exception, 20113, 20117, and 20147 had wood extensions added for woodchip service in 1969. Those three cars were painted black for this service. In their final days on the property a few of these cars were painted MofW green.

The cars were used for a variety of company service assignments on the CV (in such things as company coal, cinder, and ballasting duties) and were also regularly used to haul stone from on-line quarries. They were not commonly found offline, although there have been one or two of these cars that have appeared in yard photographs taken in Pennsylvania.

Modeling a CV 2000-series hopper

This project is part my ongoing effort to build a reasonable CV freight car roster. Like most CV modelers, I was originally content to use USRA hoppers, (either from Tichy Train Group or Accurail), to model these cars. As I learned more about the prototype, the significant differences between the USRA models and the CV prototypes started to bug me.

The main difference is the height – the USRA car is about 10 inches taller than the earlier Pressed Steel Car Co. hoppers. So, realizing the GT and CV cars were close in overall dimensions to the Pennsylvania RR GLa I picked up

Getting Real column, page 4
Contents Index

a Bowser HO scale model of that car with an eye toward using it as a starting point for my model of a CV 20000-series hopper.

My to-do list for this model included the things I do to all my cars. These include replacing the plastic wheelsets with metal ones, replacing the cast on grabs with free-standing wire grabs, replacing any clunky details with finer after-market parts, and adding some brake piping and appliances.

I started by doing some homework on these cars. Although I''ve known about these cars for years, and have acquired many photos of them along the way, it's really only when you sit down to actually model something that you come to realize how little you know about it!

I had a few roster shots, but was missing detail pictures.

My good friend, and fellow CV enthusiast, Alan Irwin really came through here. In the late 1960s Alan took some detailed shots of these cars sitting in St. Albans, Vermont.

The more I studied the prototype cars the more I found to change on the Bowser model. There's a point with any project where you have to say "enough", but I wanted these cars to be as accurate as I could make them so I took things further than you might want to.

The first step is the most basic – fixing the sides to look correct.

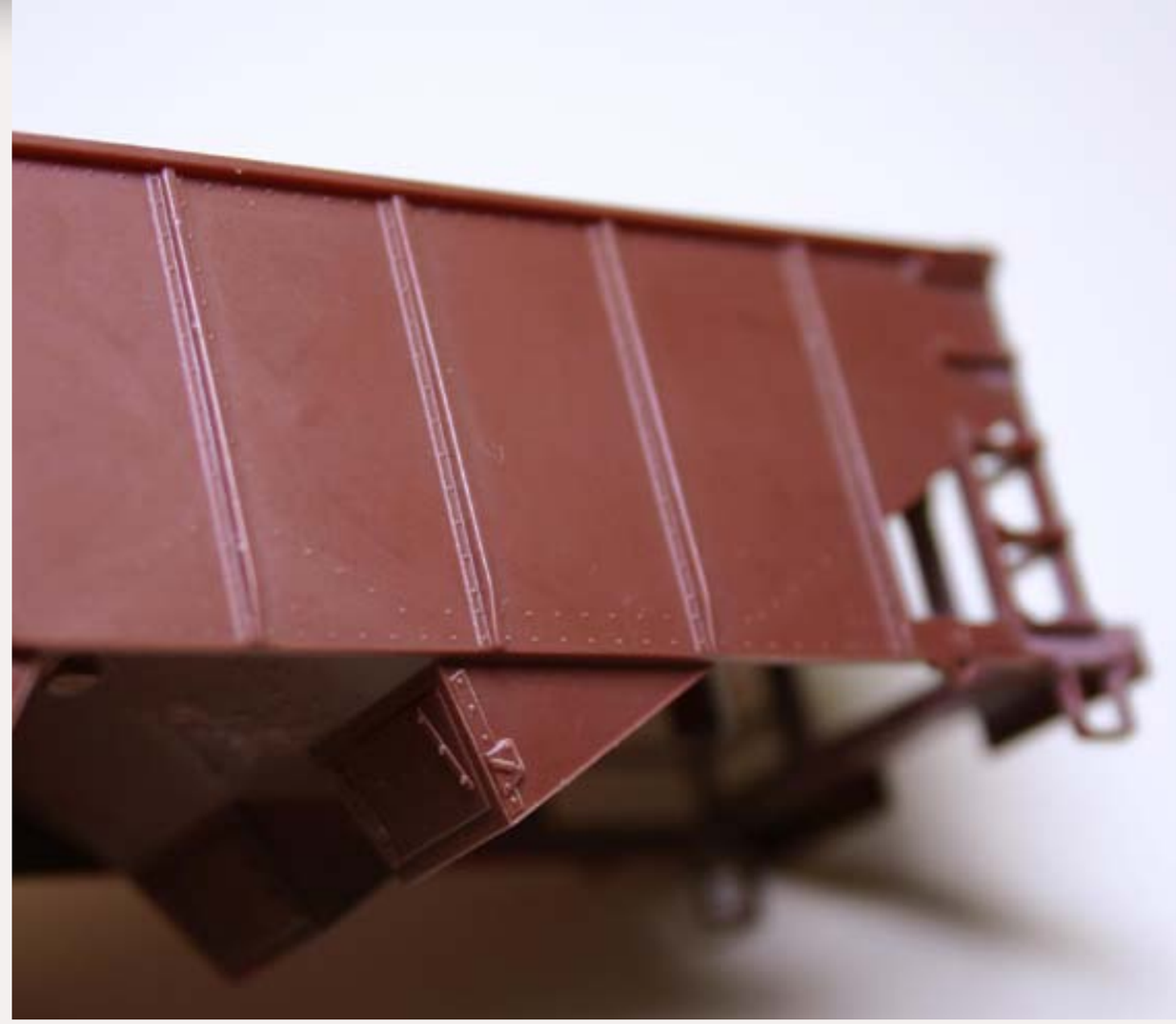


FIGURE 5: The tapered side posts were found on virtually every class of Pennsy hopper in the steam era, like these on the Bowser GLa.

Side posts

This almost brought this project to a screeching halt before I started! The most significant spotting feature that makes the Bowser GL scream "Pennsy" are the tapered side posts.

This may sound like a minor issue at first, but once you know they're there it's the first thing you notice. I toyed with several ways to change these to before deciding simplest approach was likely the best.

Turns out it sounds a lot more difficult than it was. I used a PBL flush cutting nipper (same tool that makes removing small parts from the kit runners a piece of cake).

Since I wanted to keep the rivet detail intact I was careful to avoid digging into the flange section of the side posts (the part with the rivet detail), leaving a slightly raised section of smooth plastic between the rivets on the flange.

I built the side posts back square using Evergreen .040" x .040" styrene strip,

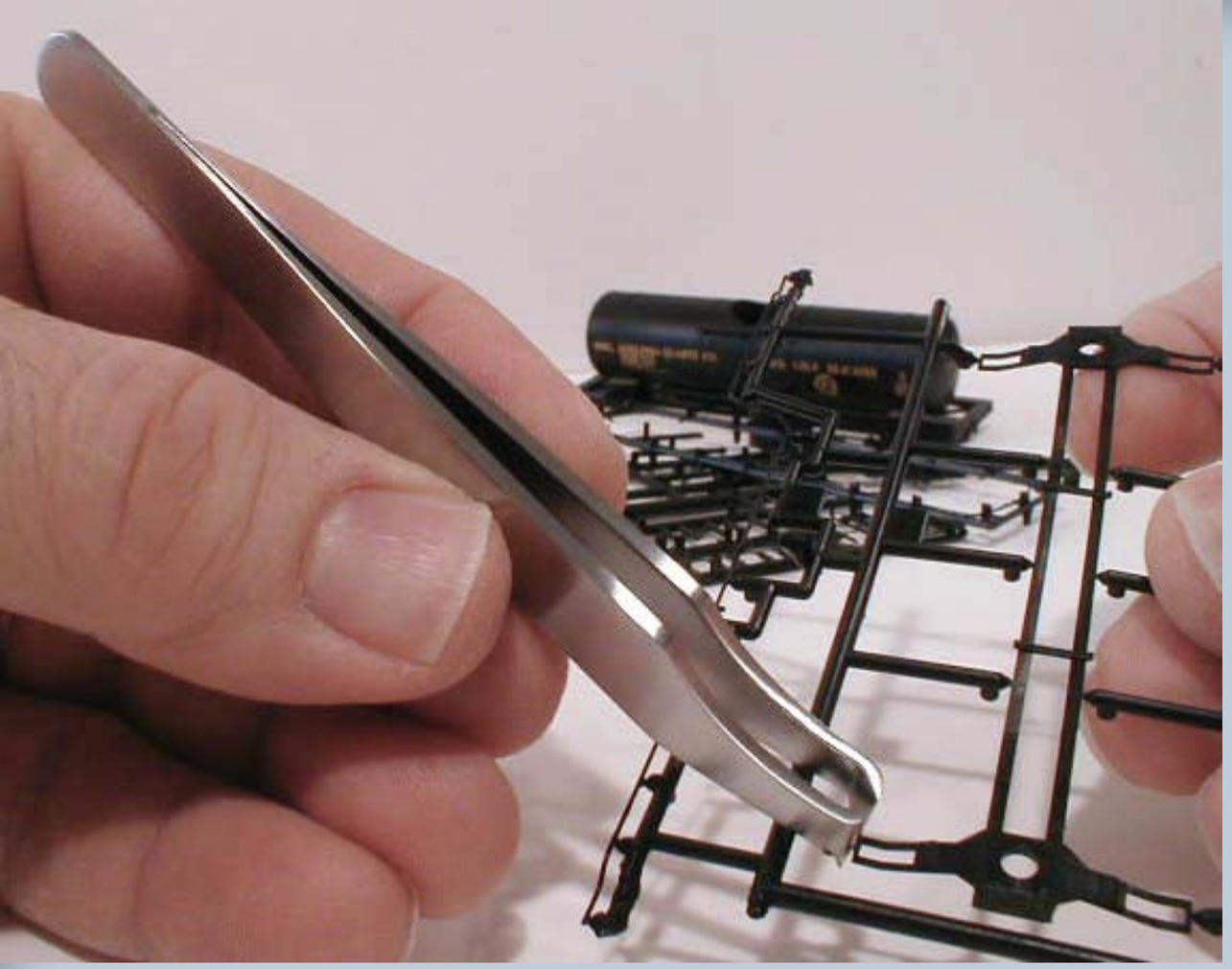
Modeling Hoppers

Even if you're not interested in the Central Vermont, the same basic techniques shown here can be used not only to model the CN, GT, GTW, or ON hoppers that were virtually identical to the CV cars, they can be used to modify the Bowser model to match prototypes from numerous other railroads.

Other similar hoppers can be found on the Rutland, New York Central, and New York, Ontario & Western. Of course, these cars all vary in appearance, so you should consult prototype photos wherever possible.

For the CN, GTW, and CV cars, John Riddell's excellent article in the October 1994 issue of *Railroad Model Craftsman* includes lots of prototype data as well as prototype drawings that proved invaluable. ■

Getting Real column, page 5



De-spruing Nippers

This tool, sold by Intemountain Railway Co., Greenway Products, and Micro-Mark, makes it easy to remove fine plastic parts from the runners of plastic kits.

It also makes it easy to cut close enough to the part that there will be no visible "nub" of the runner remaining. I used to break a lot of smaller plastic components before discovering this tool more than a decade ago.

I've hardly broken a fine plastic part since. For more, visit these links:

Intermountain Railway Co.

Greenway Products

Micro-Mark

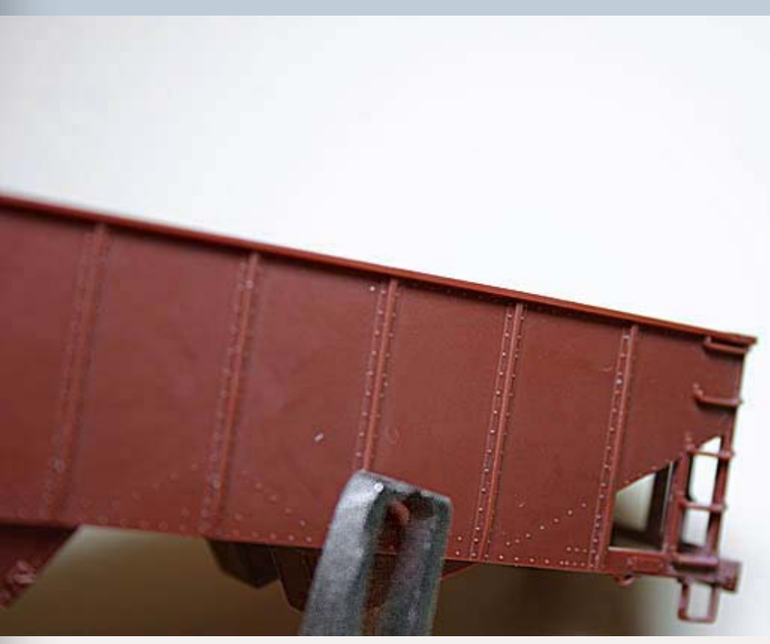


FIGURE 6: Use despruing nippers to carefully cut across the width of each post above taper. Then use the nippers to remove the tapered portion without removing the rivet detail or the flange. Carefully sand the surface smooth.

securing the styrene I place with styrene cement.

Grab irons and handholds

The best way to improve the appearance of an injection-molded car, especially a hopper, is to replace the cast grab irons with free-standing wire parts.

While I thought side post alteration was going to be the biggest challenge, I was only starting down this slippery slope. For starters, as I compared the Bowser model to the CV prototype I noticed several key differences.

Figure 7 shows the items I changed on my model. On the CV cars, the lower grab irons on the ends extended from the corner post to the vertical support. The upper grabs were shorter. Also, there was an intermediate grab iron between the center vertical post. And, interestingly enough, there was a vertical grab on the opposite corner post.

Once I felt familiar with the layout of the grab irons I removed the unneeded details from the Bowser model. This included the vertical grab iron support post on both ends, the molded grabs on the corners, and end sills, the tack board (on the side sill), and the brake platform.

MODELERS TIP

The brush inside the liquid cement bottle is way too large for most models. It's much easier to use a small paintbrush to apply a small amount of liquid cement to the parts to be joined.

I started redetailing the car by adding grab irons to the sides, forming them from .010" wire – which is close to the size of prototype grab irons. I started by creating a bending jig from a piece of scrap styrene with holes drilled 18" and 27" from the edge.

To form the grabs, I cut a short piece of wire, bent a 90-degree angle in one end and inserted the short leg into the hole. Then I carefully bent the other end over the edge of the jig. It pays to be picky here – not every grab came out perfectly, but I was able to bend enough good ones fairly quickly.

Frankly, after looking at the close-up of the prototype I think I may have been TOO picky about getting the grabs straight!

I used another jig to locate the holes, marking each with the point of a needle. After drilling no. 80 holes at each location I slipped the grab irons into the holes and used a spacing jig, in this

Getting Real column, page 6

Contents Index

case a scrap of .030" styrene narrow enough to fit between the legs of the grab irons, to ensure each grab was the same distance from the surface of the car. Then I secured the grabs in place with a small amount of CA applied with a fine wire.

MODELERS TIP

The easiest way to fill mounting holes is to install the stock kit parts in the holes using liquid cement, allow the cement to dry overnight, and then cut the parts flush with a sharp hobby knife. Any remaining scars were removed by carefully sanding the fine grit wet/dry sanding sticks.

Brake System Piping and End Details

Although they were built with K-brakes, by the time period I'm modeling (the early 1950s) these cars had been converted to AB brakes. I replaced the Bowser brake components.

First, I removed the two large circular mounting pads on the brake end of the Bowser underframe and filed the edges smooth.

I used the drawing of the CN prototype car (RMC October 1994) to lay out the brake components. First, I added a small mounting pad from .060"x.100" styrene for the reservoir. Next, I added the lever to the end of the cylinder arm and installed the cylinder in place on a small platform.

FIGURE 7: The finished model before painting (right) and the stock Bowser end (left). Note the CV car has an additional grab (six, compared with the Bowser models' five) on the right side. There were two long grabs (of different lengths) on the left side. Finally, on the ends, the PRR GLA, and therefore the Bowser model, had shorter grabs, requiring the use of a vertical post between the corner of the car and the vertical support.

Finally, I drilled a hole for the AB valve in the centersill. I bent .010" wire for the brake piping between the cylinder and valve, and from the valve to the reservoir.

I didn't bother adding all the brake piping to the various brake components. My layout will require a string of these cars and frankly I didn't want to spend a lot of time fiddling with brake piping on what is, all things considered, a "stand in" model.

But I find it's helpful to add some brake piping on hopper cars, especially the brake rod and the trainline. For the brake rod I drilled two no. 78 holes in the centersill at a point where the brake rod wire would be span the entire distance between the hopper sections and still not interfere with the truck swing.

I bent two 90-degree bends into a length of .010" wire and secured it with CA.

On hopper cars the trainline extends along one side of the car. I duplicated this with a piece of .020" wire, with 90 degree bends on both ends. I drilled three no. 80 holes in the bottom of the right side sill. Then I slipped three Detail Associates eyebolts over the train line and secured the legs of the eyebolts into the holes with CA. The bent ends of the wire run under the side sill and disappear into the shadows.

For the brake wheel housing I used a Detail Associates Ajax housing, chain, and clevis components. Between the chain and clevis I cut a piece of .015" wire to length and secure it with CA, retainer valve.

Years ago I would have used the Detail Associates brake wheel, but I've come to prefer the Kadee parts so I used a Kadee Ajax brake wheel on my model.

PROTOTYPE MODELERS DICTIONARY:

Sides and ends of cars

Look closely at prototype cars and you'll often see a small "L" or "R" stenciled on the side. But if that lettering isn't there, how do you tell which side is which?

The right or left side of a freight car is determined by the relative position of the sides when looking directly at the end with the brake wheel. That end, by the way, is called the "B" (for brake) end. The other end (without the brake wheel) is the "A" end. ■

Getting Real column, page 7

The CV cars had unusually long brakeman's platforms on the B end made from two 2 x 6 planks mounted on triangular brackets.

I installed a pair of Detail Associates brackets that looked close to the prototype component and added a platform from a piece of 2x12 styrene with a line scribed down the center to simulate the seam between the two boards on the prototype.

MODELERS TIP

Since detailing freight cars means securing lots of small parts, often made of dissimilar plastics, I tend to prefer using CA to join the parts rather than liquid styrene cement. The CA tends to "grab" the part and hold it in place whereas liquid cement can allow the part to "droop" or otherwise move.

No commercial part matches the uncoupling levers so I bent my own from .010" wire. I drilled no. 80 holes in the end sills (see photo for location) and slipped a pair of Detail Associates lift rings onto the uncoupling lever. Then I secured the lift rings in the holes with CA.

Finally, I added a short length of HO scale Evergreen 1 x 6 with a hole drilled in one end to hold the Detail Associates air hose.

I replaced the Bowser wheelsets with Intermountain "semi scale" 33" wheels. Installing Kadee no. 58 couplers completed the modification/detailing phase. It was time to paint the model.

Painting and Lettering

I sprayed the car with Badger CN Red #11 (an exact match to the CV color). This paint can go on a little thick if you're not careful but it dries to a glossy finish perfect for decaling.

No one makes CV hopper car decals. Frankly, no one makes a decent set of CV steam era freight car decals. One of my pet projects is to finish the artwork for CV freight car decals, but I wanted to get this model done so I did what I've always done – I decal-bashed the lettering.

I didn't stress getting all the small data correct as I knew the finished model would end up being heavily weathered. The roadname, reporting marks, and car numbers came from a Microscale CV/GT/DW&P caboose set. These were cut from the sheet and applied to the car using standard decaling techniques.

The capacity, load limit, and light weight and other small lettering was cobbled together from my collection of decal bits and pieces, mostly from Champ (I think!)

The other small lettering, including the end reporting marks and car numbers, are from CDS Central Vermont boxcar dry transfers.

With all the lettering applied I gave the car a coat of Dullcote. I weathered the car using oil paints dabbed into various points on the side and then drawn down the side of the car using a brush moistened in mineral spirits.

Once the oil paint dried, I used Bragdon Weathering powders to duplicate the dark splotches on the side of the car. I think it's impossible to overweather this car, but I did want it to look fairly well maintained.

A final check to make sure the model tracked well, a little Grimy Black with a fine tipped brush along the air hose and some dark gray on the tack boards and brake platform to simulate weathered wood and 20001 was ready to deliver a load of company coal to the engine servicing terminal . . . once I build it of course!

Article feedback!
CLICK HERE for reader comments on this article ...

FIGURE 8: One of the best parts of prototype modeling is seeing the model at this stage since all the work you've done on it is readily visible. Here's the PRR GLa converted to a CV 20000-series hopper ready for the paint shop.

Getting Real column, page 8

About our N-scale columnist

Bernard Kempinski got started in model railroading in 1990. He is the founder of Alkem Scale Models; a modeling firm specializing in photo etched and laser cut fine scale model kits.

Bernard has over over 40 articles and a book relating to model railroading to his credit. He is currently building two home layouts, in N and O Scale.

COMME-N-TARY: The Quest for Fine Scale Track

Modeling in the hobby's most eNgaging scale

The quest begins with an understanding of how model track compares ...

Welcome aboard to Model Railroad Hobbyist. The staff at MRH and I are excited to bring you this new venture in an internet based model railroad magazine.

As a contributing editor for the N scale column, I plan to focus on topics that deal with that scale, but I hope that modelers in all scales will find information, tips and fun stuff that will appeal to them.

Indeed, our larger scale brethren may at least enjoy learning about the trials and tribulations that the smaller scale modeler faces.

Although this may merely confirm their own choice in scale, instead

"I plan to focus on topics that deal with N scale, but I hope that modelers in all scales will find ... tips and fun stuff that will appeal to them."

I hope it may inspire them to try a project in a smaller scale just to see what all the fuss is about.

FIGURE 1: How does prototype track compare to N scale model track? In this issue, our N-scale columnist delves into this question.

One thing is certain, contemporary model manufacturers are producing a wide range of N Scale locomotives, cars, structures, track and related items with unprecedented scale fidelity, fine craftsmanship and excellent running qualities.

It is now possible for the modeler with average abilities to jump into N Scale and achieve outstanding results without resorting to scratch building or rebuilding. Over the past few years I have heard many larger scale modelers exclaim at train shows, "if N scale looked and ran like this when I got started, I'd be doing N scale right now."

Well it's not too late. Thanks to N scale's smaller space claim and increased product availability, it's not difficult for an HO, S, O or G Scale modeler to take a break and try something new in N scale. Be it a diorama or small module, it can afford

you an opportunity to try an era or prototype that is new to you.

With that in mind, please stick around as we begin the adventure both with this new magazine and in the world of N Scale.

As I mentioned above, N scale, perhaps even more than the rest of the hobby, is in a renaissance. Manufacturers are introducing exciting new kits weekly. But it wasn't always the case.

Early N scale modelers had a limited range of often crudely detailed models from which to choose. Yet, many people recognized the potential that N scale offered and over the years considerable progress has been made.

FIGURE 2: Rail Sizes Table

North American Standard	Weight (Pounds)	Typical Application	Actual Height (Inches)	N Scale Height (Inches)	HO Scale Height (Inches)	S Scale Height (Inches)	O Scale Height (Inches)
PRR	155	Heavy Main Line	8.00	0.050	0.092	0.125	0.167
AREA	140	Modern Main Line	7.31	0.046	0.084	0.114	0.153
AREA	132	Modern Main Line	7.13	0.045	0.082	0.111	0.149
AREA	115	Modern Secondary Line, Steam Era Main Line	6.63	0.041	0.076	0.104	0.138
AREA	100	Modern Secondary Line, Hvy Yard Tracks, Steam Era Main	6.00	0.038	0.069	0.094	0.125
ARAA	90	Siding & Yard	5.62	0.035	0.064	0.088	0.117
ASCE	80	Siding & Yard	5.00	0.031	0.057	0.078	0.104
ASCE	70	Siding & Yard	4.63	0.029	0.053	0.072	0.096
ASCE	60	Narrow Gage, 19th Century Steam	4.25	0.027	0.049	0.066	0.089

Now, with great running locomotives and detailed rolling stock routinely available, many N scale modelers today seek to attain finer scale standards.

For example, some N scale modelers add minute detail parts to cars and engines to match particular prototypes, they replace cast on grab irons with carefully formed bits of scale thickness wire and they body mount couplers achieving results that rival models in larger scales.

However, one of the major challenges that fine N scale modelers still face is the dearth of fine scale track components, particularly turnouts.

FIGURE 3: Prototype rail sizes vary depending on the purpose of the track. A careful look at this photo shows the more frequently-traveled rail is heavier.

The quest for fine scale track begins with an understanding of how model railroad track compares to prototype iron.

Model railroad track code is measured in thousandths of an inch, so code 40 would be .040" tall. On the other hand, prototype rail is measured in pounds per yard of rail.

The table in Figure 2 shows various prototype rail weights and the comparable N and HO scale code.

Pennsylvania Railroad Standard 155 pound rail was the heaviest used in the United States, but only on a limited number of main lines in the East and is now relatively rare.

Most main lines today use 130 to 135 pound rail, which works out to about code 45 in N Scale. One would typically find 100 to 115 pound rail

FIGURE 4: Modern mainlines with today's heavier cars typically use 130 to 135 pound-per-foot rail that's just over 7 inches high. In N scale, that equates to approximately 45 thousands of an inch, or code 45 rail.

on older main lines as well as on modern secondary main lines. Many of today's sidings and heavy yard tracks also use 100 to 115 pound rail.

Model rail appropriate for N scale is available in codes 80, 70, 55 and 40. When compared with the prototype code 55 is a bit heavier (about 0.010 inches) than most modern main lines.

Code 40 rail falls neatly between main line and secondary or yard track. Note that code 80 is nearly fifty percent larger than modern mainline rail and nearly twice as tall as secondary track.

There is even a very small subset of the N Scale hobby that use code 30 rail. This rail is so fine that it lacks the distinctive ball head, web and base profile. It is usually just a simple T profile. As an aside, note that code 83, a common size for HO scale track is right on the money for 132 to 140 pound rail, hence its popularity with HO modelers.

The above discussion primarily applies to North American prototype track standards. British N gauge modelers have not settled on a single standard scale ratio, so the rail to prototype relationships have to be adjusted according to whether they are modeling 1:148, 1:152 or 1:160.

In spite of this, they produce some of the finest N Scale track modeling out there. For more information see the British 2mm Scale association at http://www.2mm.org.uk/standards.htm.

FIGURE 5: Here's an N-scale model scene built using Peco Code 80 track. The code 80 track, once weathered and ballasted nicely, looks good even though the rail height is about 45% larger than what is correct for N scale. ▼

FIGURE 6: Here's a N-scale model scene built using Peco code 55 track. Note that the ties and spikeheads look similar to the Peco code 80 N-scale track. If the track is nicely weathered and ballasted, the prominent spikeheads on this track are not that noticeable.

FIGURE 7: This N-scale model scene uses MicroEngineering code 55 track. The finer spikehead detail on this track makes this photograph difficult to tell from an HO model photo. MicroEngineering track has the finest detail of any N-scale track on the market, with Atlas code 55 a close second.

Thus code 40 rail comes the closest to scale for most North American N scale main line and secondary branch applications. In an ideal world, fine scale modelers would use code 40 rail.

However, code 40 rail is not tall enough to provide clearance for most full-profile N scale wheel sets, the so called "pizza cutters." In other words, normal N scale wheel flanges will bounce on the spikes of code 40 rail.

There are two solutions to this problem. The first is to avoid using spikes by hand laying the track using either glue or solder to hold the rail on the ties. However, this technique results in track that lacks the important spike and tie plate detail.

The other solution is to use low profile wheel sets. These wheels have a smaller flange, one that is closer to scale than normal "pizza cutter" N scale wheels.

There are now several manufacturers offering replacement low profile metal wheelsets in N Scale, such as Intermountain (http://www.imrc-models.com/) and Fox Valley (http://www.foxvalleymodels.com/).

Metal wheels run cleaner than plastic wheels and are necessary if you plan to use electronic occupancy detection for a signal system. While replacing wheel sets on freight cars is easy, locomotive wheels need to be turned on a lathe to get the correct profile.

Fortunately, there are some firms that offer this service for diesels models (for example try Trainworx: http://www.trainworx.com/). Steam modelers are generally left to their own devices.

A compromise approach is to use code 55 rail. This rail is tall enough to clear normal N scale wheel sets. While not as fine as code 40, code 55 comes close without the need to turn down flanges, although I still recommend low profile metal wheel sets.

The spacing and size of ties is another important consideration in fine scale track. Prototype ties are typically 9 by 7 inches and spaced at about 21 to 22 inches apart.

Tie spacing in turnouts is similar while tie length varies in accordance with the turnout number. If you hand lay your track, you control the tie spacing and getting it right is up to you. Flex track users must rely on the manufacturer to get the tie spacing right.

There are four major manufacturers of N Scale flex track: Atlas, Peco, Micro Engineering, and Shinnohara. Micro Engineering offers flex track with true scale tie spacing and width in codes 70, 55 and 40.

Atlas has long offered code 80 track on ties that are thicker and more widely spaced than scale. However, they also now offer code 55 track with proper tie spacing and spike detail. (see http://www.atlasrr.com/catalog.htm)

In fact Atlas code 55 track is designed to be robust with reinforced spike detail so that normal pizza cutter wheel sets will ride on the spikes, a problem that Micro Engineering flex track does not have.

For rolling stock this is not much of an issue except for some additional noise, but it can cause some of the older engines to lose traction and in some cases electrical pick-up. It should be noted that Atlas code 55 track follows the NMRA standards and works flawlessly with low profile flange wheels.

If you must run large flange wheels, then you might want to consider Micro Engineering or Peco code 55 for your track needs.

Peco (http://www.peco-uk.com/) offers both code 80 and code 55 flex track. The code 55 uses a clever design. This flex track uses a code 80 rail with a dual web.

The bottom web is buried in the plastic molded ties leaving a normal appearing rail only 0.055 inches exposed above. This creates a very durable flex track. While the visible rail height is close to scale, the ties of both Peco products are spaced too wide and are too thick compared to scale for North American prototypes.

Shinnohara offers codes 70-flex track but again the ties are too wide and thick. It is also becoming harder and harder to find in the US.

Peco code 80, and Atlas code 55 and code 80 track is flexible, making laying it around curves somewhat easier than the stiffer Micro Engineering and Peco code 55 track.

It must be said that some modelers prefer the stiffer feature when laying. In my opinion, it's not a big issue either way.

One other note, Kato, Bachman, Walthers (formerly Lifelike) and Atlas make sectional track pieces with preformed ballast. These track sections are ideal for train sets and temporary layouts. Their fixed radii and lack of easements do not lend themselves to use in fine scale applications.

Figures 5 - 10 show examples of Peco Code 80, Peco Code 55 and Micro Engineering code 55 track in actual applications.

While the tie plate and spike detail of the Peco track is over scale size, the photos show that with weathering and ballast all three options can

Comme-N-tary column, page 5

be made into attractive and functional model track.

I did not have a photo available showing Atlas code 55 installed with ballast, but I can assure you that the visual results with Atlas code 55 are nearly identical to the Micro Engineering code 55.

Turnouts and crossings are the final and perhaps most important consideration in fine scale track. Unfortunately, the field of ready-made N Scale products in code 55 is narrow and non-existent in code 40. No manufacturer offers ready-made code 40 turnouts (although see the Railway Engineering discussion below).

Peco offers an extensive line of code 55 turnouts including number 8 turnouts, double crossovers and various crossings. In spite of the code 55 rail these track components suffer from the same oversize ties and spacing as in their flex track .

Peco offers their code 80 turnouts in metal frogs (called Electrofrog) or insulated frog (called Insulfrog) variations. Their code 55 turnouts only come in Electrofrog versions. The insulated frogs use a plastic casting at the turnout frog with internal jumpers to route electrical power. This makes wiring the insulated frog turnouts much simpler.

The Electrofrogs require addition wiring and mechanisms to route power to the metal frog. Although the points can sometimes route the necessary power, once the track is weathered and ballasted, the points no longer become reliable conductors of electricity.

FIGURE 11: Here's a comparison of all the major brands of N-scale track shown side-by-side. Notice the variation in spikehead size, tie size, tie length, tie spacing, tie height and tie color between the various brands.

On the other hand, the plastic Insulfrogs can cause electrical pick-up problems with some short wheel base locomotives, but most N scale engines traverse these turnouts without trouble.

Peco turnouts have a locking point feature, making external point actuation mechanisms optional. Micro Engineering code 55 turnouts also have a related feature, but it is not as effective as the Peco mechanism. None of the Altas turnouts have point locking mechanisms, so some extra work is required to install them.

I frequently find myself installing Peco Insulfrog turnouts on projects where quick build time and simplicity is important and I am willing to sacrifice some scale fidelity.

Micro Engineering offers number 6 turnouts in code 55. These turnouts have scale ties and spacing, tie plate and spike detail, and a cast metal frog. The turnouts use a spring mechanism that helps throw the points.

The points include a solid throw bar that has tabs that extend under the stock rails. These tabs are supposed to route power to the frog, however, in practice an auxiliary means of routing power to the frog should be used as the built in tabs are not reliable.

To make these turnouts DCC friendly (i.e. each point rail is a different polarity) requires that one disassemble

the factory throw mechanism and substitute a new insulated throw bar usually made from a piece of printed circuit board.

As good as the Micro Engineering turnouts are, their main drawback is that they are only available in number 6. They do not currently make other turnout numbers, crossings or other special work.

While number 6 turnouts are useful, in the prototype a number 6 turnout would be used in only the tightest of applications. Most railroads use number 10 or higher turnouts in yards and even longer turnouts on the mainline.

Atlas has the best variety in turnouts with their relatively new code 55 line. They offer an extensive selection of turnouts in numbers 5, 7 and even 10, hallelujah! They also offer several wye turnouts, crossings and fixed radius sections.

This product line has moved N scale track options to a new level! The Atlas turnout line does not include a locking point mechanism, so an external method to actuate the points and route power to the frog will be required.

The beauty of N scale is that it is not unreasonable to use number 10 or longer turnouts since they are reasonably compact.

A planning rule of thumb that I find useful is that a turnout needs as many inches as its number. Thus a yard ladder consisting of 3 tracks with number 11 turnouts is about 33 inches long if the tracks spaced at 1.25 inches apart.

Long number turnouts not only look better, they allow the equipment to operate better. The sight of an articulated steam engine pulling a string of cars through a number 12

"Long number turnouts not only look better, they allow the equipment to operate better. The sight of an articulated steam engine ... through a number 12 crossover is a joy to behold."

crossover is a joy to behold. Atlas number 10 turnouts are very smooth in operation. But if you want bigger turnout numbers you will have to hand lay.

Fast Tracks, a Canadian Company (http://www.handlaidtrack.com/), offers a very complete line of supplies, tools and jigs to simplify hand-laying track. I must say that the N Scale number 8 turnouts I built using a Fast Track jig were some of the finest operating turnouts I have ever used.

However, due to the small size of code 55 rail, I have had reliability problems with the points staying soldered together. Fast Tracks recognizes the issue and has published a guide about techniques to improve this area. You can find it here: http://www.handlaidtrack.com/forums/viewtopic.php?f=2&t=14

The technique basically involves soldering small pins (they actually recommend small spikes) to the throw bar to act as pivots. This relieves the stress on the point-to-rail solder joint and should lead to improved durability of the critical points solder joint. I have not personally evaluated it yet, but it does appear promising.

While hand laying high number turnouts is always possible, Railway Engineering, will custom build turnouts to your specifications, including code 40, at prices that are not unreasonable. Check out their web site at http://www.railwayeng.com/. Since their turnouts are custom built they can require up to 6 weeks for delivery.

The quest for fine N scale track is not an exercise in futility. Code 40 and 55 track and components are now available through various sources. Hopefully more manufacturers will hop on board.

Combining long number turnouts and code 40 or 55 rail will result in track that will look as good as it runs. ☑

Article feedback!
CLICK HERE for reader comments on this article ...

PARALLEL LINES: Examining S Curves

Pursuing more reliable and better-looking trackwork

About our track modeling columnist

Tim Warris is a long time model railroader and co-founder of Fast Tracks, a trackwork fixtures company. Tim first developed his track assembly fixtures out of a desire to find a better way to hand-build reliable turnouts and crossings.

Since March of 2007, Tim has been constructing the 1930's CNJ Bronx Terminal in both HO and N scale.

Are S curves really so bad?

FIGURE 1: The thing to watch with S curves is coupler alignment – which actually doesn't look too bad in the above photo. In this issue, our trackwork columnist takes another look at that trackwork bug-a-boo, the S curve.

I was scanning through Paul Mallery's book on Trackwork the other day and a paragraph about S curves caught my eye. For some reason I seem to be stumbling onto articles about S curves lately and this got me thinking.

We have long been told to avoid S curves in our trackwork. Failure to do so would result in poor operation, derailments and could possibly even tear a hole in the fabric of space and time.

This is one of those design rules that I think the majority of us accept without question. Even when I built my last layout, The Port Kelsey Ry, I avoided S curves wherever possible, certain that they would lead to trouble.

My current layout, the CNJ Bronx Terminal, is a different story. This track plan seems to go out of its way to use S curves. This layout took its track plan from the original drawings of the terminal, scaled faithfully to HO scale with no compression.

So like the prototype, my layout will have S curves – lots of them.

An S curve is a section of track where curved track changes direction without any straight track between the arcs, effectively forming an "S".

As a result, individual cars of a train are offset as they change direction when crossing an S curve (figure 1). Depending on the equipment and the radii, this offset can be extreme enough to cause cars to tip, as the couplers are unable to pivot enough to accommodate the curve.

Looking at most track plans, it isn't hard to find S curves in nearly every design. Even a simple crossover between two parallel tracks will form an S curve. Studying the track plan for my Bronx Terminal I can spot several of them, yet in the tests I have run so far I don't seem to have any operating issues at all.

So if S curves are so evil, why don't I have derailments on my layout? Are

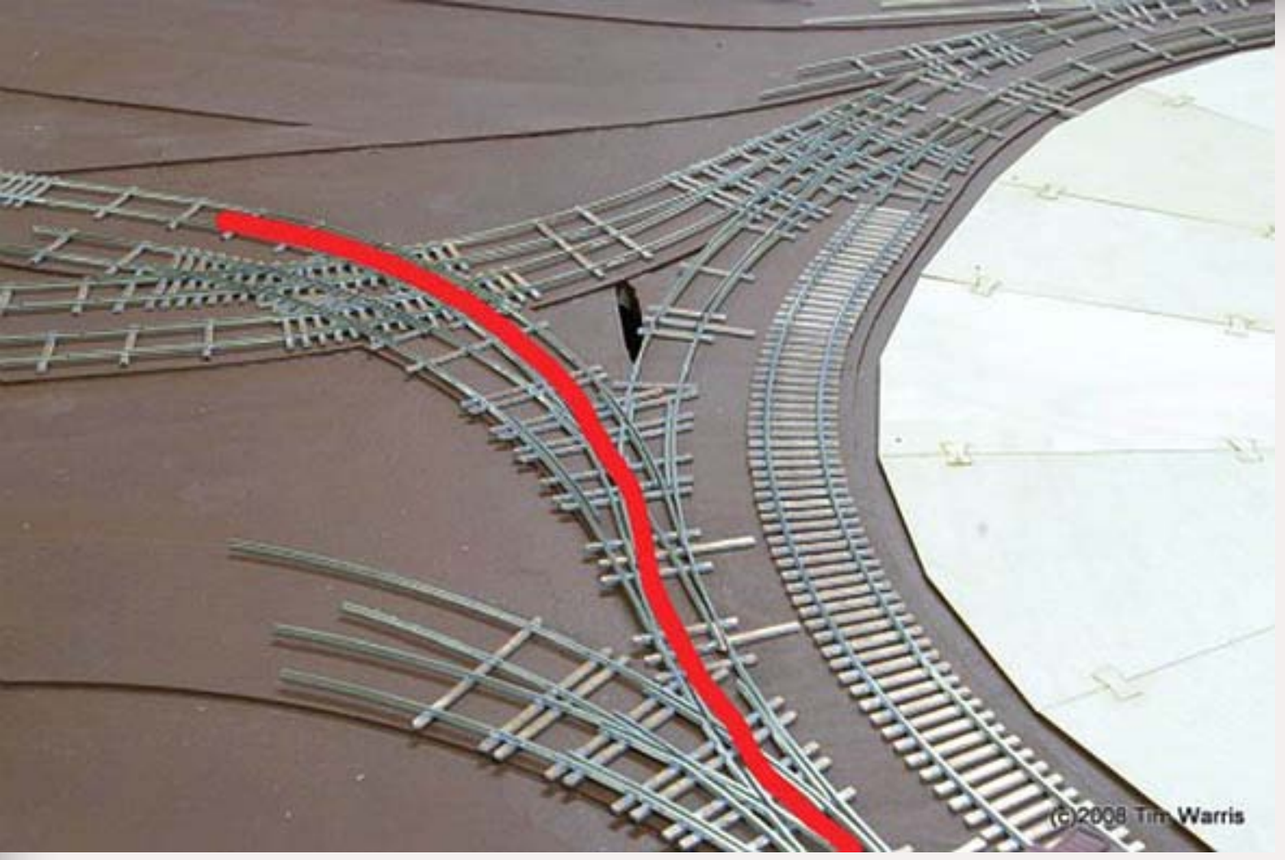


FIGURE 2: The trackwork from Tim's Bronx Terminal has many tight S curves. The red line shows an S curve with a 12.4" radii.

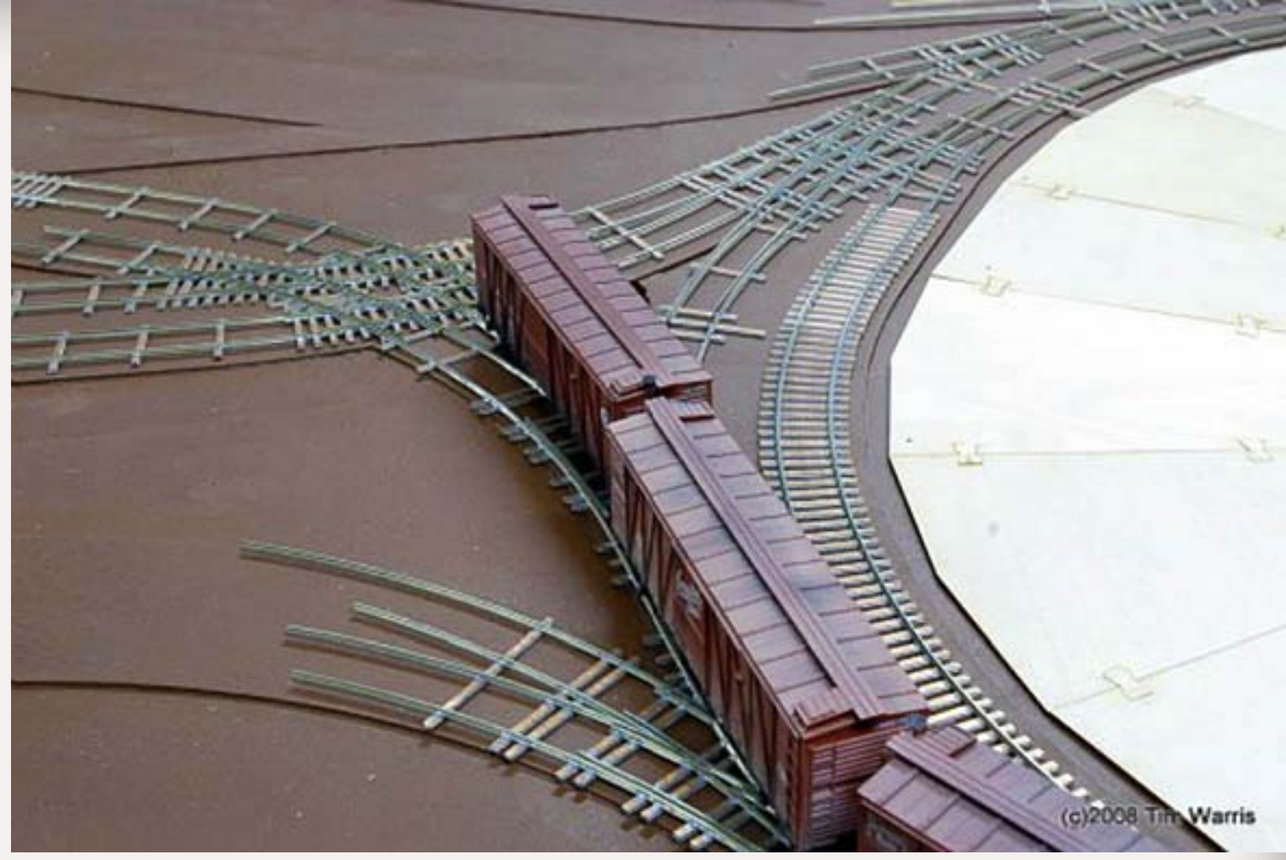


FIGURE 3: The effects of this S curve can be seen in the extreme offset of the box cars as they change directions.

S curves as big a problem as we have been lead to believe?

It seems that over time what originally was "be careful if using S curves" has become "never use S curves". This can create a lot of difficulty for modelers as they develop their track plan.

I found a good example of this while reading an article in the 2007 issue of *Model Railroad Planning* about the Harlem Transfer; a small terminal of similar design to the CNJ Bronx Terminal.

In a sidebar about working with extreme radii it says that you should steer clear of S curves.

Yet, the prototype track plan next to it shows several extremely tight S curves! So should we avoid them or *not?*

Now, in the author's defense he is probably right to be wary of S curves when using small radii, but I take issue with his blanket recommendation to steer clear of them completely, because they can and in many cases *must* be used.

Lets look as some examples of S curves that will operate reliably.

Figure 2 shows some of the trackwork from my CNJ Bronx Terminal (still under construction, but usable enough for this example). This trackwork was scaled from original blueprints and is a faithful reproduction of what was used at the terminal – a full sized version that was built and used successfully for many decades.

The red line shows a great example of an S curve with very small 12.4" radii. The route clearly changes direction without any tangent (straight) track between the curves.

The effect of this S curve can be seen between the extreme offset of the first two boxcars shown in Figure 3 as they change directions. Still, the couplers take up this offset with no problem by pivoting, providing enough movement to allow the cars to travel through the S curve without any issues.

ELSEWHERE IN THIS ISSUE: The effects of curve radius

The other key curve factor is radius – and we cover *that* in this issue's feature article presenting the new curve rule-of-thumb guidelines.

Armed with these two insights of curve radius and S curve effects, your track alignments will be much more reliable. ■

Article feedback!
CLICK HERE for reader comments on this article ...

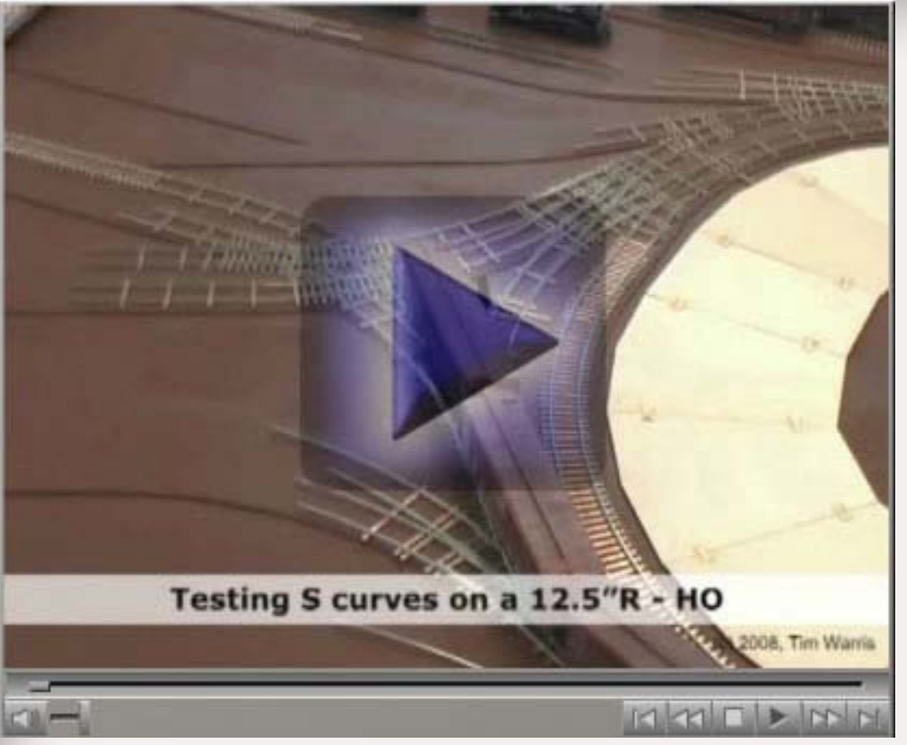


FIGURE 4: This video shows a 12.5" radius S curve in HO with 40 foot boxcars using body-mounted couplers.

Figure 4 video

This effect is very clearly shown in the figure 4 video (left). In this example I am using small equipment; HO scale 40' boxcars with body mounted couplers on a 12.4" radius. Notice the offset between the cars as they snake through the S curve?

If this works with these radii, I don't think any modeler using the same equipment on their layout has to worry about any S curves using larger radii.

Now lets look at some examples that fail.

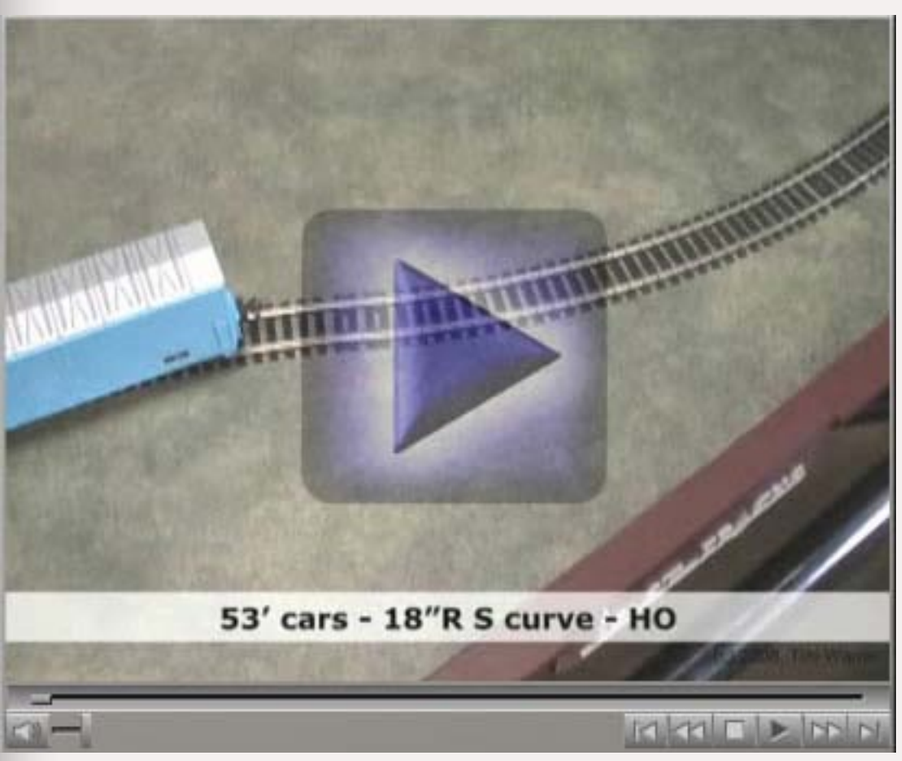


FIGURE 5: This video illustrates what happens when two 53' HO boxcars negotiate an 18" radius S curve.

Figure 5 video

The video in figure 5 shows two 53' HO scale boxcars trying to negotiate an 18" radius S curve. Clearly there is interference. The couplers simply do not have enough swing to handle these tight radii and long cars. So if you are using 53' cars, than HO 18" radii are not for you.

Figure 6 video

In the figure 6 video, you see the same two cars on a 24" radius S curve, with much improved the performance.

Figure 7 video

Now using the same 24" radius S curve, I tested a couple of 89' flat cars, and as you can see in figure 7's video, there is no way these cars can handle this S curve.

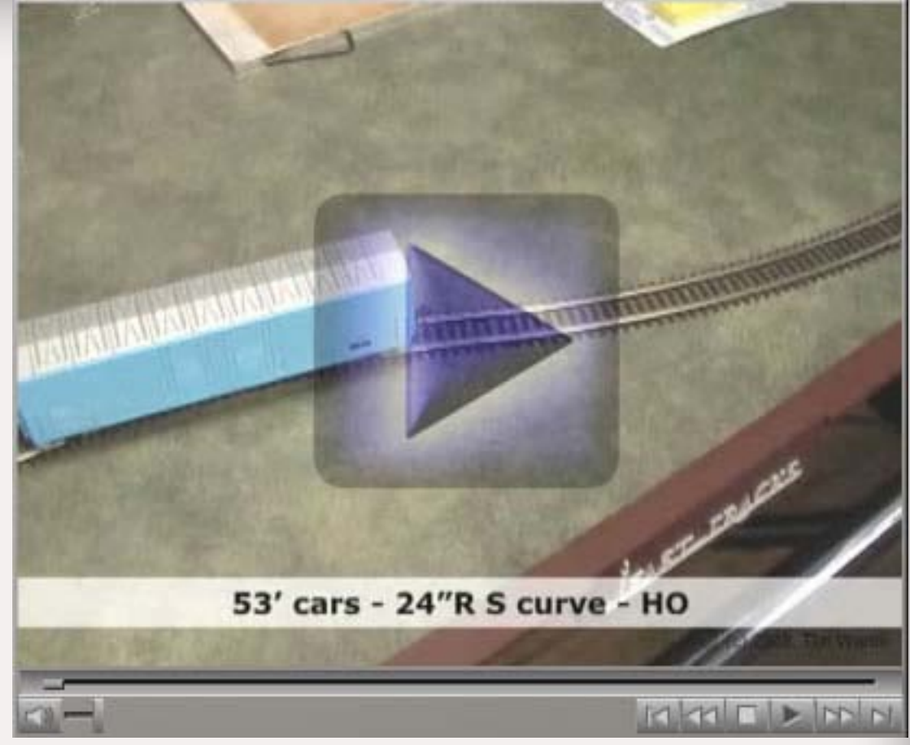


FIGURE 6: This video shows the same 53' HO cars as figure 5, but now with a 24" radius S curve.

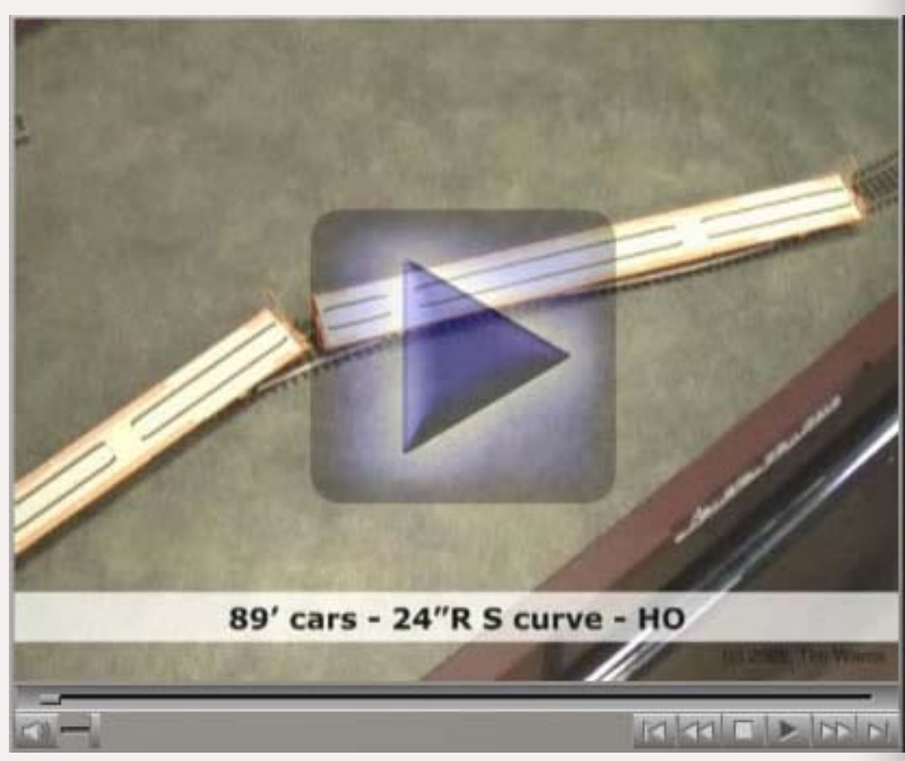


FIGURE 7: What about 89' HO flat cars on a 24" radius S curve? This video shows what happens.

FIGURE 8: What happens if we try the HO 89' flats on a 30" radius S curve?

Figure 8 video

So I upped the radii to 30" to test these same 89' flat cars (figure 8), and even with these fairly large radii, the cars still struggle.

Figure 9 video

Adding a 53' boxcar between the two 89' flat cars eliminates the issues with the S curves. (figure 9) This has the same effect as a small straight section of track between the two arcs.

In all of the previous examples I used cars with body mounted couplers. However if you use truck-mounted couplers, operational reliability over S curves increases dramatically.

Using some N scale equipment, which typically employs truck-mounted couplers, I ran some similar tests.

FIGURE 9: This video shows what adding a 53' HO boxcar between the two 89' flats does on a 30" S curve.

Figure 10 video

The figure 10 video shows two 60' N scale boxcars operating on a 9-¾" S curve. As can be clearly seen, these cars handle this very small radius just fine, as the pivoting couplers will always stay in line regardless of the radius.

Figure 11 video

Figure 11's video shows a closer view of the how the couplers remain aligned as the cars pass over a very tight 9-¾" N scale S curve. Not only can they handle this track, but can also reliably couple on the curve!

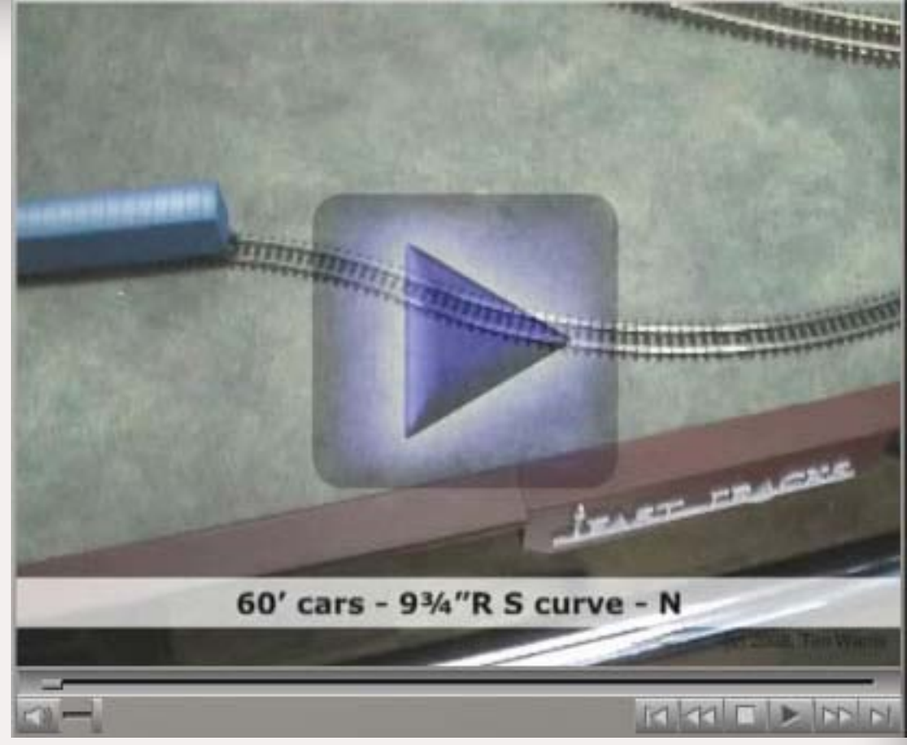


FIGURE 10: Moving to N scale, this video illustrates to 60' boxcars on a 9-3/4" radius S curve.

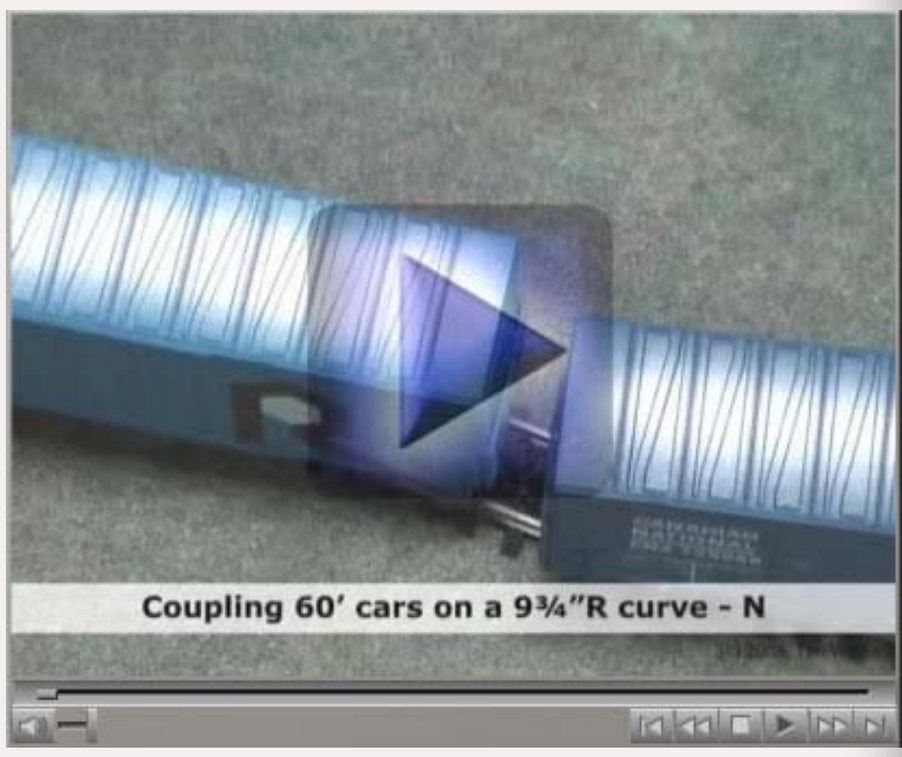


FIGURE 11: This video shows the N scale coupler alignment up close with 60' boxcars on a 9-3/4" radius S curve.

FIGURE 12: This video shows a 9-3/4" radius S curve in N with 85 foot passenger cars using truck-mounted couplers.

Figure 12 video

OK, so lets go really nuts. Figure 12's video shows a couple of 85' passenger cars negotiating the same 9-¾" radii. I doubt anyone would actually need to do this, but it is a great example of how truck mounted couplers can handle very tight curves.

Even though the cars are unbelievably offset from each other, the couplers stay in line over the length of the S curve.

Most N scale equipment is supplied with truck-mounted couplers, and if you elect to stay with the truck-mounted couplers, there's little need to be concerned with S curves in your designs. They will not cause any issues.

Conclusions

For larger scales where body mounted couplers are more common, it is best to do some tests to see what your chosen equipment and radii is capable of handling.

A few quick tests with some flextrack will let you know what will work. As always, use common sense. If you are trying to cram 60' boxcars through small radii, you are probably going to run into some trouble.

As for crossovers and other switch created S curves, unless you are using very large equipment, like the 89' flat cars shown above or turnouts smaller than a #5, I would not be too concerned about the S curve in the switch.

Most commercial turnouts that match prototype design have straight track through the frog, and when used in a crossover will automatically add a straight length of track between the arcs of a turnout.

However (there always seems to be a however), if you are using "snap track" or other train set type turnouts, be careful. These typically have a constant arc through the frog and when joined in a crossover can create a very nasty, small radius S curve. ☑

NEW MEDIA MODELER: New ways to enjoy the hobby

Model Railroading in the Internet Age

About our new media modeling columnist

Ryan Andersen is a relative newcomer to model railroading, but he's anything but a newcomer to modern new-media technology. In October 2007, Ryan started the Model Railcast Show, a weekly model railroad-focused podcast available from iTunes.

Ryan built his first 8 by 5 HO layout in 2007 and still uses this layout for improving his modeling skills and techniques. Ryan is planning his next railroad to be set in the late 1800's.

Technology has infiltrated all aspects of life ... we now have talking locomotives!

Wow... what a great time to be a model railroader. Technology has infiltrated just about all aspects of our lives, from computers to online shopping, email, talking refrigerators, and of course talking model locomotives!

Today, tomorrow, and beyond there will be an ever growing diversity of technology that helps make life, job, and model railroading easier and more fun.

So who am I? Well nobody really; just your average IT professional, with a taste for the electronic medium of print, audio and video – and of course, model railroading.

Model railroading found me through my 4 year old son, who is now 6 and growing like a weed. After seeing HO scale Thomas and Friends electric trains on a vacation two summers ago, my son Noah asked – well begged me – for a Thomas electric train set.

FIGURE 1: Ryan watches his young son Noah as they work together on their 5 x 8 layout. Noah pleaded with his father to get him a Thomas electric train set – and shortly thereafter the serious model railroading bug bit poor Ryan!

As I looked into making this purchase, I became fascinated by the hobby itself. From there I went full steam ahead into modeling a free-lanced railroad on a 5 by 8 with tunnels, hills, engine shop, depot, and all. I found building craftsman structure kits particularly fun.

Model Railroading media on the Web

So I started web surfing the train boards looking for examples and pointers. In my quest to further my knowledge of model railroading, I expanded my search from the forums to audio and video content, including such sites as YouTube, Blip.Tv and iTunes.

I have an iPhone, which is basically a cell phone and media player in one. This portable media player allows me to listen to music and podcasts anytime and anywhere.

Podcasts

A podcast is an audio or video production that can consist of music, rich media content, and talk shows such as blogs (short for we**blog**). These blogs can be downloaded to your computer and listened to (or watched) on your media player (iPod) or on a computer.

Apple, formally Apple Computer, has a free program called iTunes, which allows users to search and download to their computers and iPods content such as music, videos, podcasts and more. There is typically a charge for music, movies, etc; however the podcasts are typically free – which is why I personally listen to a lot of podcast shows.

To see a video explanation of iTunes and Podcasts, see this link at apple.com (http://www.apple.com/itunes/tutorials/#video-podcasts).

Podcasts are considered to be part of the new media revolution. New media is the term used in the tech-world to describe any digital distributed content, whether it be website, video like You Tube or Hulu, podcasts or this magazine.

By the way, anyone can create, produce and distribute a podcast through iTunes. So if you are interested, check out this link to Apple Podcasting tips (http://www.apple.com/itunes/whatson/podcasts/creatorfaq.html).

So using iTunes, I searched for "Model Railroad" and found Scott Mason's Podcast. Scott has a great podcast with some of the modeling greats like Dave Frary. However, Scott's podcast, at the time I started listening, was very craftsman kit focused.

Starting my own Podcast

As I got more into model railroading, I wanted to learn more about the hobby as a whole. While not something most people would do to learn more, I decided to start my own podcast called ***the Model Railcast.***

Being a total newbie to the hobby, the first five shows were rough. Then a listener contacted me about being on the show. This listener was the UK modeler, Will Aryest (Will lives in the UK, but he models American prototypes for the most part). Will added so much value to the show, I doubt the show would have continued without his contribution.

FIGURE 2: Ryan started the Model Railcast Show podcast a year ago, and as of this writing, the show is growing significantly in popularity on iTunes. A *podcast* is the modern internet equivalent of a radio program.

In the process I met many experienced modelers and have learned a great deal about the hobby. Plus I continue to have a blast with the show and with the hobby itself!

The Model Railcast Show today

Today, my podcast has been running for well over a year, with over 40 episodes of solid content and interviews. In this short time, the Model Railcast Show (MRCS) and website (www.ModelRailcast.com) have become one the most popular internet destinations for tech-savvy model railroaders.

The MRCS website has more content and information beyond just the podcast: there's a user-supported online photo gallery, a model railroad forum, and supplementary audio and video

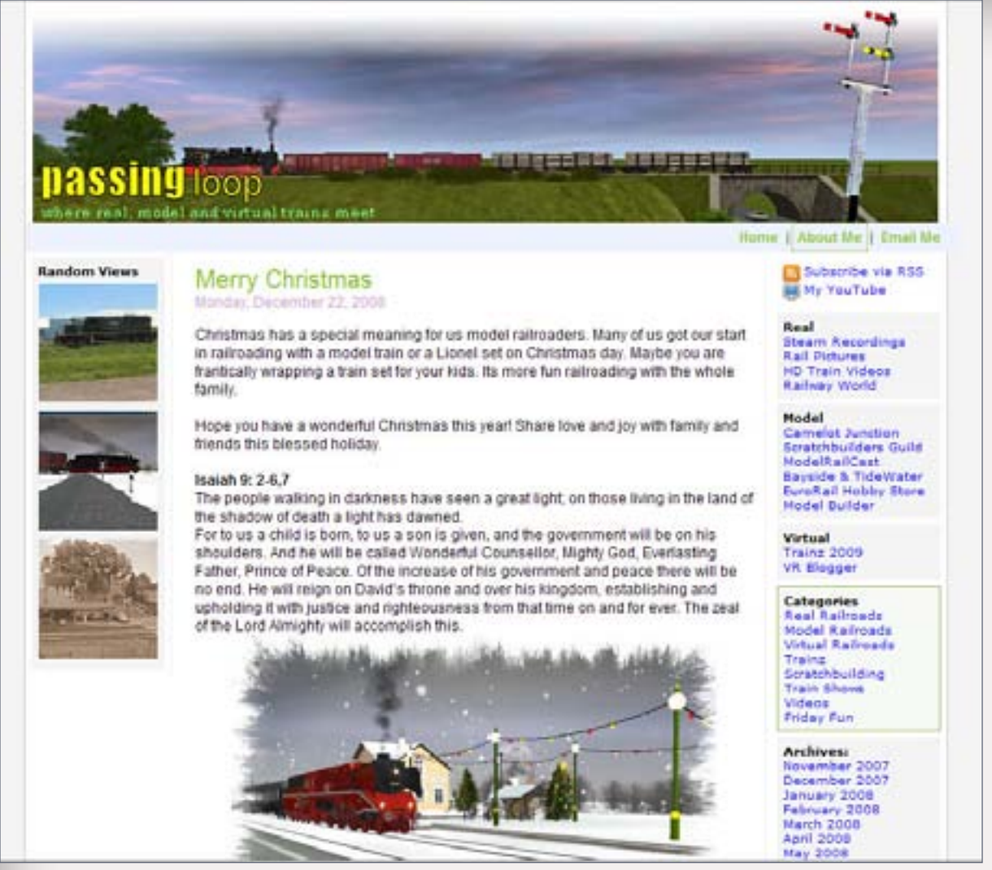


FIGURE 3: Don Naik updates his Passing Loop blog web site almost daily. Ryan recommends Don's web site as easy on the eyes and full of great insights.

FIGURE 4: Another web site Ryan recommends is Don Ball's Stockton and Copperopolis site. Ryan's drawn to 19th century modeling, and he finds Don's site *most* appealing.

You click on an area of his huge layout map and it takes you to another page (drill-down-style) to the details of that area of the layout, typically a town on his railroad.

There you will see prototype photos, photos of his layout and explanations on the prototype and what he is modeling. At the time of this writing Don was finishing up his bench-work and track laying.

The era Don's modeling makes his site really work for me, since it's near the era I want to model. As his website states, it's "An HO Excursion to 1895."

content. Because the Model Railcast Show is listener-focused, the site is constantly updated to suit the requests and needs of the MRCS community.

The MRCS community is what makes Model Railcast a success. Their continued support and input keeps the show and all it related content fresh, interesting and entertaining.

Model Railcast is just one of thousands of websites with new media-related content that is available from the world-wide-web with a model railroad focus.

In this issue of MRH I also want to mention a few sites that have recently grabbed my attention.

www.passingloop.com

I just *have* to start with the Passing Loop by Don Naik (www.passingloop.com). Don was one of my first listeners. Don's website is a hybrid mixed of model, virtual and real trains.

Don has kept his blog updated on a regular basis, almost daily, for over a year. He offers interesting and thought provoking content supplemented by awesome photos and videos. His website is easy on the eyes and easy to navigate. His writing style is such that you can quickly breeze through his posts while taking in great insights and knowledge of his railroad related experiences.

www.sandcrr.com

Another website of great interest is that of Don Ball. Don has been a model railroader for years and is a published author of many articles. Don's current website, the Stockton and Copperopolis Railroad (www.sandcrr.com) is a great resource if you're interested in modeling late 19th century roads. His website is laid out so that you can quickly find and drill down to the information.

For example, Don's layout drawing is a navigation map, not that this is a new concept in web design, but I find that it's rarely used these days, and Don has his working nicely.

www.realityreduced.com

And last, but certainly not least, there is Reality Reduced, a video podcast (otherwise known as a Vid-Cast or NetCast) hosted by Leo Bicknell. Leo started his show in March 2008, releasing his first episode on Blip.tv on March 29th, 2008. Leo covers N Scale and modular modeling. Leo attends many train shows and has been a member multiple N scale railroad clubs.

His videos are very educational for anyone interested in modeling N scale, however, many of the topics and concepts that Leo's covers can also be applied to the larger scales. Leo puts out a

FIGURE 5: Leo Bicknell's Reality Reduced *video* podcast site represents some of the best of what's becoming available for model railroading, totally free on the internet, in this new media century.

See you next time!

That's it for now. Until next time you can catch me and all the Model Railcasters by listening to the Model Railcast Show every week. New shows are posted on iTunes and www.ModelRailcast.com every Monday.

Ryan Andersen

Article feedback!
CLICK HERE for reader comments on this article ...

What the heck is NEW MEDIA?

And what does it have to do with model railroading?

Until the 1990s, communication media relied primarily upon print and analog broadcasting such as television and radio.

Recently we've seen the rapid emergence of *new media* relying on digital computers and the Internet, e.g., digital television and online publications.

With new media, we note:

- Geographic distance matters less.
- New opportunities for interactive communication exist.
- Forms of communication previously separate now overlap (the Internet and video, for instance).

We're seeing this "new media wave" impacting all parts of life, including model railroading. Besides this new digital mediaZine you are reading, we're finding an increase of model railroading new media goodies showing up across the internet.

To that end, we've tasked new media aficionado Ryan Andersen to keep us informed about some of the *latest and greatest* new media finds on the internet for the hobby of model railroading! – *J.F.* ■

Tom Miller's Little Colorado

– by Charlie Comstock

Tom Miller is what those given to understatement might call an "avid" model railroader. Best known locally for his 7-1/2" gauge outdoor railroad, he recently completed his "Little Colorado" project. Housed in a full-sized replica of a Denver & Rio Grande freight house, the reaction of people walking through the door for the first time is unanimous – heads swivel taking it in, then jaws hit the nicely carpeted floor.

Photos by the author

Tom has built an Fn3 version of Colorado and New Mexico that feels like a museum – the calendar is frozen at 1940 and 2-8-2 outside-frame mud hens chuff through mountainous scenery towering nearly 20' over the floor. Detail abounds throughout – all buildings have interiors, the stamp mill operates, a mine tram runs back and forth and sound effects play for each of these.

And if that weren't enough there's also an American Flyer layout on a mezzanine.

Tom has a passion for model building. He's been involved in live steam modeling since he was a teen and developed a fascination with narrow gauge railroads that led him to build a 7 1/ 2" gauge D&RGW K-36 and festoon his property with track on which to run them.

Over the years he started collecting brass Fn3 locomotives. His *Little Colorado* project was born as a living display case. He began construction in 2003 after several years planning and was able to complete this mammoth project in 5 years – just in time for the 2008 Narrow Gauge National convention held in Portland, Oregon.

◀ **FIGURE 1 (previous page): It's train time at Chama in Tom Miller's Little Colorado. A mudhen comes slogging by with assorted freight in tow.**

FIGURE 2: This view from the Mezzanine gives some idea of how big the 'Little' Colorado is – and Tom uses a 9 foot minimum radius!

I spent some time talking with Tom in *Little Colorado*.

Charlie: Tom, this layout is really incredible, it's huge! I've never seen anything like it. Where did you get the idea?

Tom: The whole thing started when I was building my K-36 next door in live steam 2 ½" scale [7 ½" gauge]. I started collecting Accucraft and Berlyn [Fn3] locomotives and started dreaming about being able to operate them someday. Mostly a display track and then as the idea grew [as] I realized the size of the building to do F scale indoors.

It became obvious that if I'm going to go to all the trouble to build a building

big enough I might as well put in the scenery and everything else to make it worth the money to build the building.

Charlie: So *Little Colorado* is a display case?

Tom: Basically, yeah.

Tom Miller

Tom lives with his wife in a rural area near Portland Oregon. He got started in model trains with an American Flyer set when he was a kid. When he was a teenager he became interested in live steam locomotives and built his first - a 4 3/4" gauge - when he was 16.

Over the years he's driven race cars, flown airplanes and had boats. But trains have always remained his passion and he speaks with passion about his trains especially his outdoor and indoor layout projects. ■

Charlie: When did your fascination with trains start?

Tom: My parents bought me my first American Flyer Train when I was 5 years old. So it's been a long time.

Charlie: And where did it go from American Flyer?

Tom: Oh I did flyer up until I was a teenager in the mid-60's when HO was getting really big. I sold all my Flyer stuff and went with Marklin HO for a while. Nothing with scenery, just basic track and running trains. Then I started into live steam. When I was about 16 I built my first live steam locomotive in 4 ¾" gauge.

Charlie: Where was that?

Tom: Oh, I grew up in Arcadia which is near Pasadena.

Charlie: What got you started in narrow gauge?

Tom: My main interest actually used to be standard gauge, mainline trains, Union Pacific specifically. I was at a live steam meet in Los Angeles and [there was] a narrow gauge [D&RGW] K-28 locomotive. When you run it on the same track that the standard gauge [engines] runs on it ends up being a pretty big locomotive and I was very impressed with it. I ran it and it was so comfortable I thought "Boy, this is pretty neat, I need to build one of these".

FIGURE 3: Engine 482 approches Chama. The detail in Fn3 is amazing!

FIGURE 4: A consolidation emerges out of upper staging.

Figure 5

Figure 6

FIGURE 5: All of Tom's buildings feature full interior details and lighting.

FIGURE 6: This engine is 8' off the floor crossing the room entrance. It's early morning in the day/night cycle.

My interest in narrow gauge became all encompassing after that when I built the [K-36] engines.

Charlie: Given all the detail here how on earth did you get this done in just five years?

Tom: Fortunately my work situation is such that I have 7 days a week, 24 hours a day to play with trains.

So I worked on this layout 7 days a week, 8 to 10 hours a day for about 5 years.

Now of course I had a little bit of help – Joel Bragdon who I got involved in the layout because of his scenery. ***Scott Anderson, Joe Crea,*** *and* ***Joe Metzger*** all helped build the structures that are in here. The live steamers and model railroaders in the area came over and helped do some of the casting and some of the bench work and things like that.

But it was basically about 90% my time and my effort that did it and the Narrow Gauge Convention gave me a reason to really push and try to get it done. I made it, but only with days to spare.

Charlie: When did the scenery plan appear?

Tom: That happened pretty early on. I've known Joel Bragdon for about 30 years. When I started this project I was looking for someone [who knew scenery], because I knew nothing about scenery really – all the layouts I've done over the years had no scenery. I knew Joel did because I'd been to his seminars at train conventions.

So early on when I did the track plans I would bounce them off Joel and say "How's this going to look with scenery?"

Why was Narrow Gauge popular?

Narrow gauge became popular in the late 1800's because its smaller equipment needed less right-of-way, could bend itself around much tighter radius curves than standard gauge, could use lighter rail, and needed less roadbed preparation.

Eventually, because of the manual labor required when transferring cargos between standard gauge and narrow gauge cars and because the narrow gauge cars had a relatively small cargo capacity compared with standard gauge the narrow gauge railroads either were relaid as standard gauge (like the South Pacific Coast in the San Francisco Bay Area) or just faded away.

A few Colorado narrow gauge railroads lasted into the late 50's before being abandoned. Thanks to some entrepreneurs who want to preserve this part of our rail history, several narrow gauge railroads have been restored to partial operation as tourist railroads. ■

FIGURE 7 (next page): This shot of a trestle gives you an idea of the magnificent scenery and backdrops. ▶

and he would give me suggestions for moving the track away from the walls and getting some height differential and separation between the tracks so I'd have somewhere to put the scenery.

I learned an awful lot from Joel on how to do this and he's quite frankly responsible for this turning out as nice as it did. The thing that really got Joel involved with it was I told him early on that this layout was going to be more about scenery than trains and of course that just lit him right up.

I treated this layout more like theater than a train layout – my lighting, the lack of a ceiling, the trains are running through what I consider to be a set, and the scenes are very specific and very detailed. A train runs through them and that's what you see.

I'm not so much interested in operation as I am seeing a train in a real life setting.

Charlie: The coloring on the rocks is terrific. Did you do that?

Tom: No not really. It's Joel who did 90% of the painting here. I did some, but Joel is so good at it I hated [to get in the way]. Joel would try to hand me a brush and a spray bottle and get me to do painting and I'd say, "You know, just keep going. It's coming out so spectacular, I don't want to screw it up". So Joel did most of it himself and he's really good at it.

It's done with very thin transparent washes. There's like 7 or 8 coats of paint on this thing. [Joel] starts out with spray bottles and ends up going to brushes for the last couple of coats but most of it's done with a mister bottle and different water colors. It goes pretty fast, if it took us 4 days to put the scenery up it would take him 4 days to paint it.

Charlie: Who did the trackplan?

Tom: Well, I basically made it up myself. I would sit and doodle while I was building my K-36 [7 ½" gauge live steam] next door and was standing at a milling machine for hours on end with nothing to do but watch the machine run. I was constantly dreaming and doodling – it's a very simple track plan. It's two loops around the building with a peninsula in the center with the yard in it.

Because of the size of the trains I'm really under the same constraints that an HO guy is in a 12' x 12' bedroom. It's the same situation, you're limited [by] the size of the room and the radius.

In this case you should have at least 10' radii to make these trains look real. That means your building has to be at least 20' wide just to make 1 reverse turn.

So for F scale indoors, as big as this building is it's not really big enough to get [fancy] F scale [trackplans] – the track plan has to be pretty simple.

Charlie: This place is huge, but the trains fill it and you get no sense of how big it really is.

Tom: The building is 45' x 90'.

The staging room in the back takes up 13' so the actual area that most of the layout is in is 78' x 45'.

It seemed a lot bigger when it was empty. Now that it's done I really don't think that you get that feeling. Of course anyone that walks in here for the first time, yeah, it's big. But it just seems like it's gotten so much more intimate.

You don't feel like you're in a huge layout in a big cave – it really does give you a nice 'you're there' feeling – it transports you to Colorado and I don't think it feels that massive now that it's finished.

Charlie: No it doesn't, it almost feels like it's HO except that it's way too big... What's your minimum turnout size and maximum grade?

FIGURE 8: The blacksmith shop at Chama around midnight is still goin' strong.

FIGURE 9: The stamp mill's power plant eats a lot of coal to keep it running.

Basically it's all fluorescent – there are 6 tubes in every fixture – 2 whites, 2 blues, 1 red and 1 yellow and every one of those has it's own [electronic dimmable] ballast so I can control it individually. All the fixtures are more or less independent from one another. The whole thing [is run by] a processor made by Vantage. It's a home control unit – it's not really a theatrical unit but it works just fine.

It's basically a computerized set of on/off switches and dimmers. And there's a Windows driven program so it's very easy to program.

At least after learning it, it's easy.

Charlie: So you plug a lap-top in?

Tom: Yeah, I plug in a lap-top and it asks you what it is you're doing, what kind of fixture, what kind of bulbs and different parameters. It prompts you through it.

FIGURE 10 (next page): We see there's a couple of passengers waiting for their train at the Placerville Depot. ▶

Tom: I think the steepest [grade] comes off this peninsula and going up the hill is around 1.8%.

So it's not very steep although it does look it. The reason it looks [steep] is the upper track goes up at 1.6%, the lower track is going down at 1.8%, and the differential of the two looks like 3% or 4%.

For turnouts, I have one #8 and all the rest are #7s and #6s so they're pretty broad.

Charlie: So that wasn't a problem for your engines.

Tom: No, if I could have used all #8s I would have but there's only one on the layout. I think there's some #5's in the yard. These engines seem to take them pretty well.

Charlie: Are most of your engines K series outside frame 2- 8-2 engines?

Tom: Yeah, those are my favorites, I mean I just enjoy all the K's and then I do like the C class engines [2-8-0], the C-16, C-21, the C-19 and all those and the Geese [railcars]. None of them are really huge wheelbase engines where radii and sharp switches are a problem.

Charlie: You've put a lot of effort into lighting this place.

You've got color balanced lights in the ceiling with a lighting controller to automate lighting effects. Can you tell me about that?

Tom: I'll try to summarize it.

What is Fn3?

Fn3 is 1:20.3 scale with a 3' track gauge. Fn3 models run on G gauge track (1.77" between the rails).

G gauge track can also be used with models in 1:24, 1:26, 1:28, and 1:32 scales.

F scale is over twice as big as O scale (1:48) and close to 4 1/2 times bigger than HO (1:87). ■

I do a 24 hour light cycle in 30 minutes. I can make it any time I want but 30 minutes seems to be what most people like. Longer than that [and] people get bored and if it's shorter it happens too quickly – 30 minutes seems pretty natural. When it dims the whites will fade out first, then the yellows, then the reds, then the blues fade down to 2% and that's night. [Then] the whole thing turns around and goes back.

All the colors are theatrical gels that wrapped around the tubes because you can't buy colored, at least I don't know of any, fluorescent tubes. Theatrical gels are available in thousands of colors and there are huge ranges in each color. It took a lot of experimenting to get this to do what I want.

The buildings on the layout are run through the same program.

All my structures have lights [and interiors] in them and are wired back through the Vantage system so as the lights are dimming buildings [lights] are coming on and turning off independently – they're not all at once and it's a very realistic look.

Charlie: So you're using the same controller for the lights in the ceiling (daylight and moonlight) and the lights in the building so they're all coordinated?

Tom: Yeah, I run all the lights through a [Vantage] relay panel (with 8 relays). I've 5 of those panels for 40 relays, so all I do is take a specific building and wire it to that relay. Then you tell [the] Vantage controller that when it gets to [a] point in the dimming cycle, turn on that light, or turn off this light. It makes a very realistic look.

The town slowly comes to life at night and toward midnight it all starts shutting down again except for the street lights and a few signs. Then toward morning the houses start coming on again.

To go along with that Vantage controls all of the sound systems.

There's about 12 Dream Players in here, each of which has an SD card plugged into it [with] different recordings. A lot of my structures in here, the station, the mine, the stamp mill, and the roundhouse all have their own recordings. The playback units have 4 channels so you can record day, evening, night, [and] morning sound tracks [and] run those back through a relay that triggers that track, so as the light is changing to a lower level, maybe the roundhouse goes to an evening sound which is quieter than it was during the day.

FIGURE 11: Tom Miller stands over 6 feet tall, and that train's on the *lower* loop!

The saloon gets a real party going in it at night. Toward midnight it all shuts off and you hear snoring coming out of the hotel. All these things are controlled by the Vantage control unit.

Charlie: You've built a real railfan's layout here. You can stand in one place and look all around and there's trains and railroad everywhere. There's a mezzanine too which gives you a birds eye view. Was the mezzanine part of the original plan?

Tom: No, it wasn't. Actually the layout was originally supposed to go only around the edge of the building as two loops of track.

My American Flyer layout was [to be] in the center of the building with some ship models that I have and some of my railroad friends convinced me to [put the Flyer layout] on a mezzanine. So I built this thing that was 20' wide and 38' long and the Flyer layout [moved] up there and that gave us space for this peninsula [with] other models I have underneath, which gave me a way to light them [halogen spots under the mezzanine].

[As] I started building the Flyer layout which went all the way to the edge of the mezzanine my wife came up there one day and said "Gee, why don't you move this toward the center a little more and put an aisle down both sides so people can walk along and look down at the other layout?" which was just a great suggestion.

It's one of the best parts of the layout now that we can go up there. When you're on the floor everything is up –

FIGURE 12: This photo was shot from the raised mezzanine. What a great railfanning spot!

the tracks are up to 6 and 8 feet in the air and the lowest [track] is 4' on the peninsula, but on the mezzanine it's more what I call a traditional look – looking from an airplane down at the scenery. Basically you get two layouts for the price of one. It looks completely different from up there.

Charlie: That is a great view!

Tom: Yeah.

Charlie: I'm curious, how many trees do you have on this layout?

Tom: I'm afraid that I didn't actually keep track, but I suspect there's somewhere between three and four thousand trees. That was one of the reasons I picked the area to model that I did. If you modeled the northwest there would probably be 50,000 trees.

The area I modeled was pretty sparse so I got away with a lot less.

Charlie: You've also got a lot of bushes and weeds and shrubs...

How did you keep from going nuts while you were putting those in?

Tom: It wasn't easy. My wife made all the bushes.

Charlie: Great wife!

Tom: Yeah, she did a lot of the work in here. Actually she probably did 1/3rd of the castings of the rocks, painted all my rail rusty, weathered all the wood for the trestles that I built. [She made] all these bushes from Scenic Express Super Trees. They're HO Super Trees and you cut 'em into pieces [to] make bushes.

Charlie: Oh so HO scale super trees are bushes?

Tom: In G scale when you cut 'em up. So then she'd flock 'em and I'd plant them. I'm going to guess she made somewhere around 6000 bushes.

Charlie: Your ground cover, especially in the yard area where it's readily visible looks great.

Did you use any special materials?

Tom: I bought playground sand that you'd use in a sand box. And ¼" minus [gravel] which they call pathway rock at a quarry and mix the two together until I got a blend I liked and I'd throw some fine, sifted, dirt in it. I used some Scenic Express colors over the top to give me the exact tones I wanted. I think there's 700 or 800 pounds of gravel on this peninsula alone.

Charlie: So you must have built the peninsula pretty sturdy for that?

Tom: Yeah... Everything in here is 2x4 construction with 2' centers and the reason for that is you have to be able to walk on it. The peninsula is close to 20' wide – there's no way to work on it except get up on it. The same with all the rest of the layout – the mountains, some of them are almost 20' high. The only way up there is to climb on the layout so the bench work is 2x4 construction - it's all very sturdily built.

Charlie: I would guess so! Speaking of up high I see a magnificent backdrop painting of mountains and hills. Where did that come from? Are you an artist too?

Tom: No, not even close. I met a fellow named ***Jose Solice*** that I hired to do all this painting. I found him when I wanted to have this big *Rio Grande* sign painted outside the building but I wanted it to look like it had been there 50 years. My wife and I were in a restaurant and [it] had these signs all over that looked [weathered]. You know, 'Mail Pouch Tobacco', and they were all weathered down to look old and I asked the owner of the restaurant "Who did that?" and he gave me Jose's phone number.

That was the start of a great relationship. He came out and did that sign and another one.

Then he came in here when there was nothing but sheetrock and painted all the sky because we realized that at some point once this is built you won't be able to get to these walls any more. So we had to figure out how to build the layout and still get access. So we started with the sky and he painted it down way low because we didn't know where the mountains and valleys were going to be.

Then as the layout was being built he would come in as I would get the rock

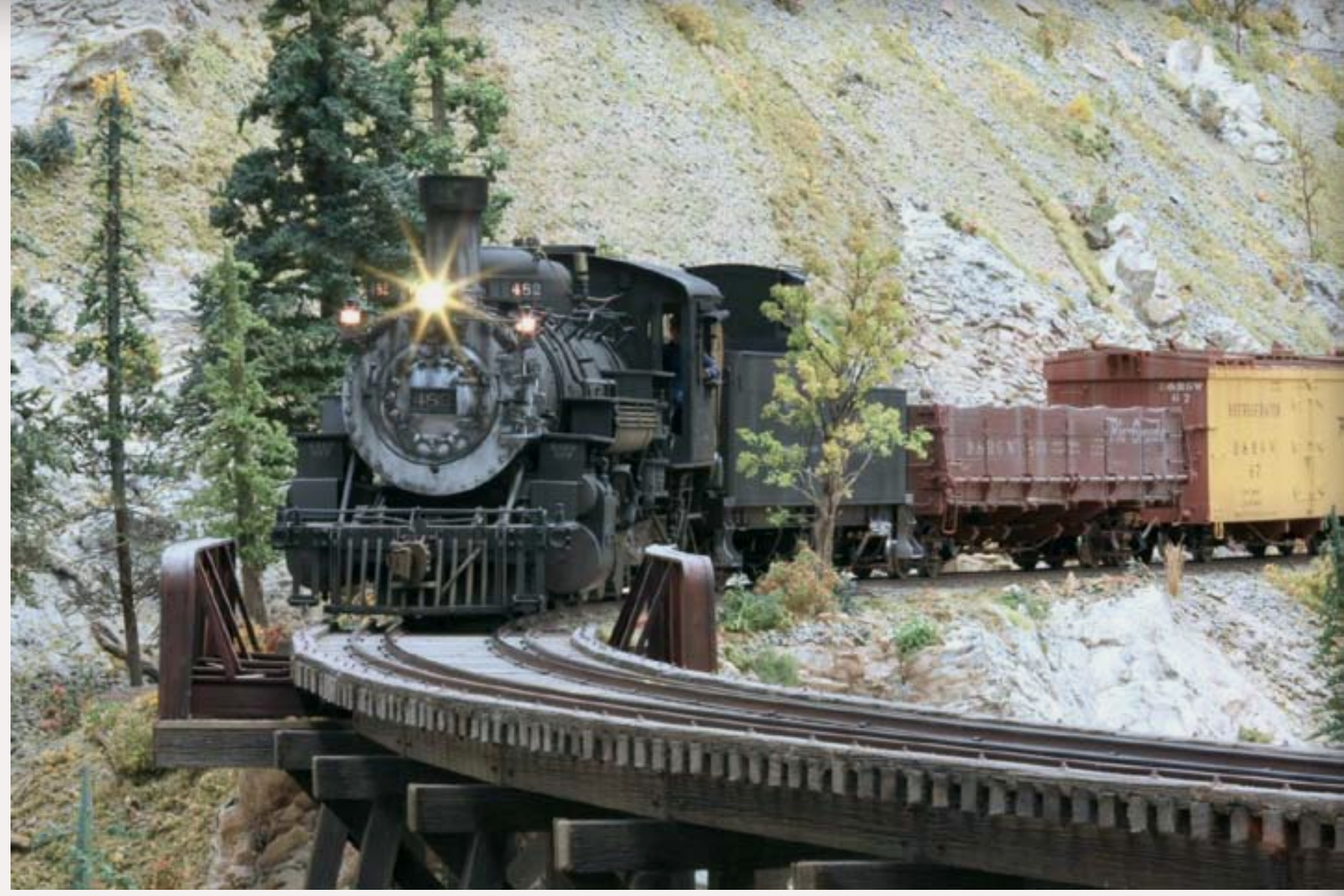


FIGURE 13: The level of detail possile in F scale is simply outstanding. Here number 482 nears Chama Depot.

up and painted in the basic colors (so he would know what the colors were) then he would get up on the layout where I would be on the [temporary] catwalks and paint that particular scene. It's some of the best backdrop painting I've ever seen.

Charlie: I agree with you on that, it's magnificent! How about those trestles?

Tom: Well, my friend Jim Reardon who is very good at trestle building showed me how to make jigs for the bents. I cut the pieces, lay them in the slots [on the jig], glue them together and wait for it to dry. Most of these things [trestles] are 8 to 10 feet long and I could build them in 2 days. They go very quickly when you have the jigs.

Charlie: Is it easier to build these in F-scale than something smaller?

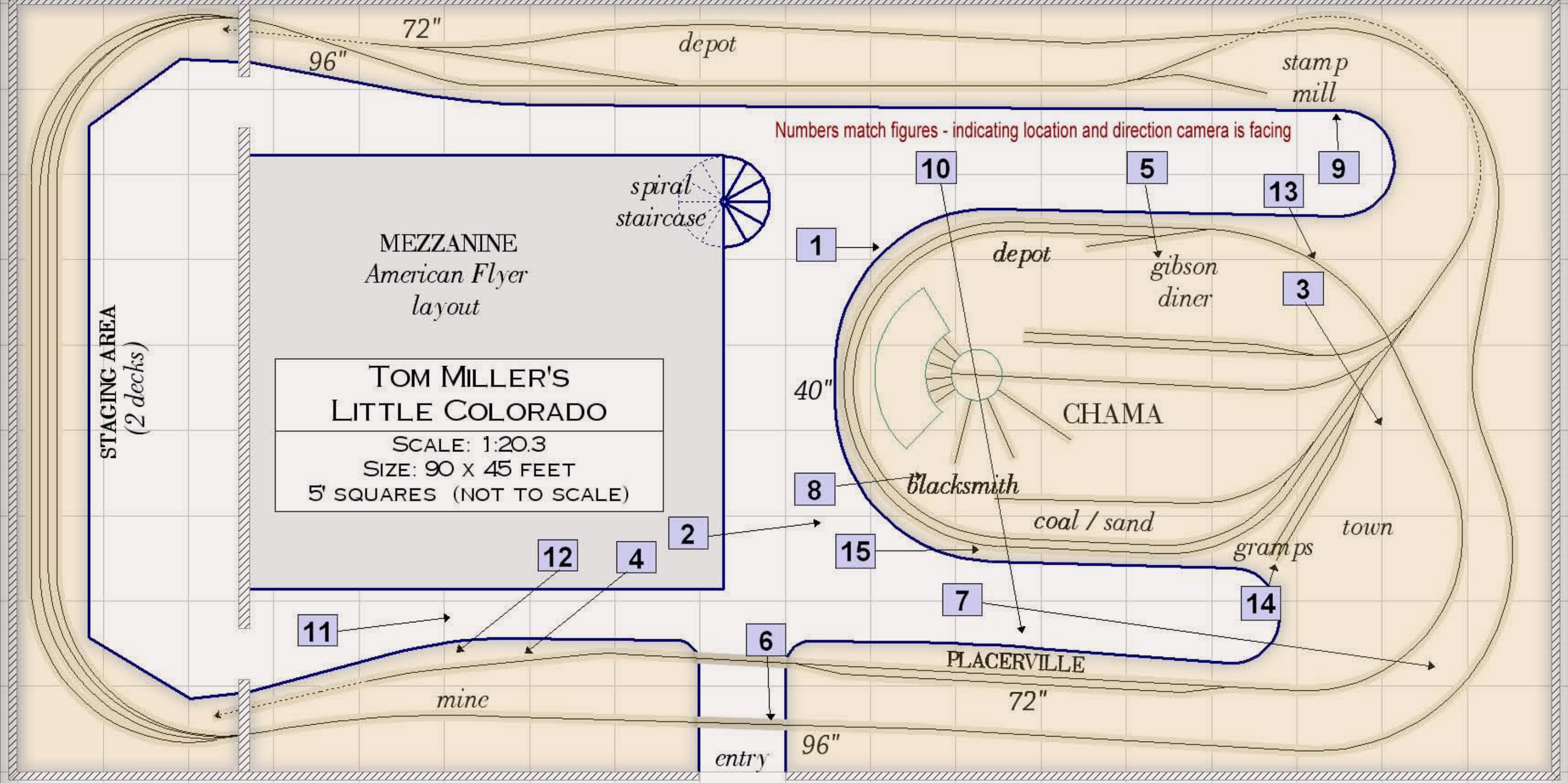
Tom: Yeah, I think so. The verticals in the bents are ½" square. Part of the reason I like this scale is that as you get older your eyesight fails, your coordination isn't as good. You need something you can get a hold of and work with and that's part of what I like about this - I can see it, the parts are big enough and you can get a lot more detail into it.

It's kind of a blessing and a curse because it gives you a way to get more detail in [but] if you don't put the detail in it's glaringly obvious that there's no detail there so unfortunately it made the project a lot more detail oriented than I thought it would be but the result in this scale is just spectacular when you take the time to do it.

Charlie: This is such a huge project that if the maintenance genie ever gets out of the bottle you're never going to put him back in again. Did you do anything special to minimize maintenance issues?

FIGURE 14: The hills in the background are close to ▶ 30' behind these tank cars. The people look absolutely great in this scale!

FIGURE 15: Number 462 with coaches in tow has finished taking on coal and will soon be pulling out of town and heading upgrade.



On the track plan above, click on a number to go immediately to the page with that photo figure.

To see a panoramic view of Tom's layout from the mezzanine, click the image thumbnail below. ▼

See Tom Miller's Little Colorado on video!

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If you want to see some great videos of Tom's amazing modeling, make sure you check out Pacific Vista's web site – you won't be disappointed! ■

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Tom: Everything is done the best I can do it – all the wire connections are soldered. Feeders are soldered to every track section – there are no rail joints carrying power anywhere.

All the lights to the buildings are soldered connections [and] the bulbs are screw in so you can change them easily without having to cut and solder wires.

I had a very good filtration system put in. The whole building is heated and air conditioned and I had like a hospital style filter put in.

Charlie: Oh, for dust control?

Tom: Yes, because there's no way to clean this... I just don't know what I'd do... But it does stay very, very clean in here. I've got some ships over here in glass cases that you can go a month or two and not have to dust them.

There's no windows in here and only one door to come in, so any dirt's going to come in [there].

During construction anything that was dusty or dirty was done outside and brought back in.

Nothing was cut in here. We tried to keep it clean during construction and I try to keep it clean now.

Charlie: What were your favorite and least favorite parts of building this?

Tom: I enjoy putting decoders in engines and wiring lights and things to different F functions and making things happen. I enjoyed wiring all the [ceiling] lights - I did it all myself, made the fixtures, did all the wiring, [installed] the Vantage system. I spent three months in a lift wiring these lights. I bent all the conduit, hung all the conduit, pulled all the wire, ran it out to Vantage, learned to program it all. It got a little tedious, but it's a part I really enjoyed.

I guess the thing I enjoyed least is probably what most model railroaders would say, the scenery.

Unfortunately there is probably more scenery in here than any layout ever built, so I had to really learn to like it whether I liked it or not I had to do it.

Joel's [Bragdon] scenery is what got it done. If [I] had to do these rocks in plaster I wouldn't be 20% finished with it. You can put this stuff up so fast. I mean he and I would work together and we could do easily 50' of scenery 8' high in 3 or 4 days and at least get the basic rock hung.

I'd have to go back and clean it, prep it, gesso it, paint it and that sort of thing but you could hang it that fast. It's amazing the amount of detail you get with his process.

And of course it's light weight.

Charlie: So do you have any plans for the future?

Tom: No, other than I've got a little work to do to finish this.

Um. I've taken on so many big projects in my life – building the outdoor layout [7.5" gauge live steam]. What I've got is 7000 lineal feet of track on the mainline, 11000 feet if you count all the sidings. There's a 400' long bridge [trestle] and a 300' long tunnel. It was a massive project, took years and years to build. Then I built the K-36's which took 8 years and then 5 years to build this and I don't know why I'm still married. Fortunately my wife tolerates all this, but I'm pretty burned out on big projects and I'm getting old enough that I don't have enough time to do any more, so I'm going to try to limit myself to something a little less extensive.

Charlie: Are there any other hobbies you enjoy or activities?

Tom: I used to race cars in the Trans-Am series as a professional driver for a few years. I've tried boats, I've flown airplanes.

I've tried everything. I always go away from trains but I come back. But it always comes back to trains.

Charlie: Why is that?

Tom: I don't know, it's a disease.

Well you know it's something you can do at home. With boats you have to go somewhere or take your boat someplace to use it and airplanes are the same way. With race cars I was flying all over the country to drive race cars at different race tracks.

You're always away from home.

And trains are something I can walk out the door and play with any time that I want – indoors or outdoors. On nice days I can play outdoors and on bad days I can play indoors.

It's a great hobby. It's something your family can be involved in.

My wife was involved with it. My friends are involved with it.

I've met fabulous people doing this. Guys who have helped me with the layout, people that came to see the layout. We had over 700 people come through here for the Narrow Gauge Convention.

It was great, I mean you meet a lot of people, you swap ideas, they get ideas from me and I get ideas from them. That's what the hobby is about, I go to your house and say "Aha! How'd you do that?" and I go home and try that. I'm hoping some people come in here and see something and go "How did you do that?" and go home and do it, and that to me is the best form of flattery – to have somebody come ask me how did I do something?

Charlie: Well Tom, I'm sure you have a lot of people asking you that question! ☑

Tom Miller's Little Colorado is a museum quality masterpiece. His attention to quality and detail make it an outstanding place to watch 1940's rail equipment rolling through mountainous terrain.

While not strictly a prototype layout it is without a doubt one of the most inspirational layouts I've ever seen.

Charlie Comstock

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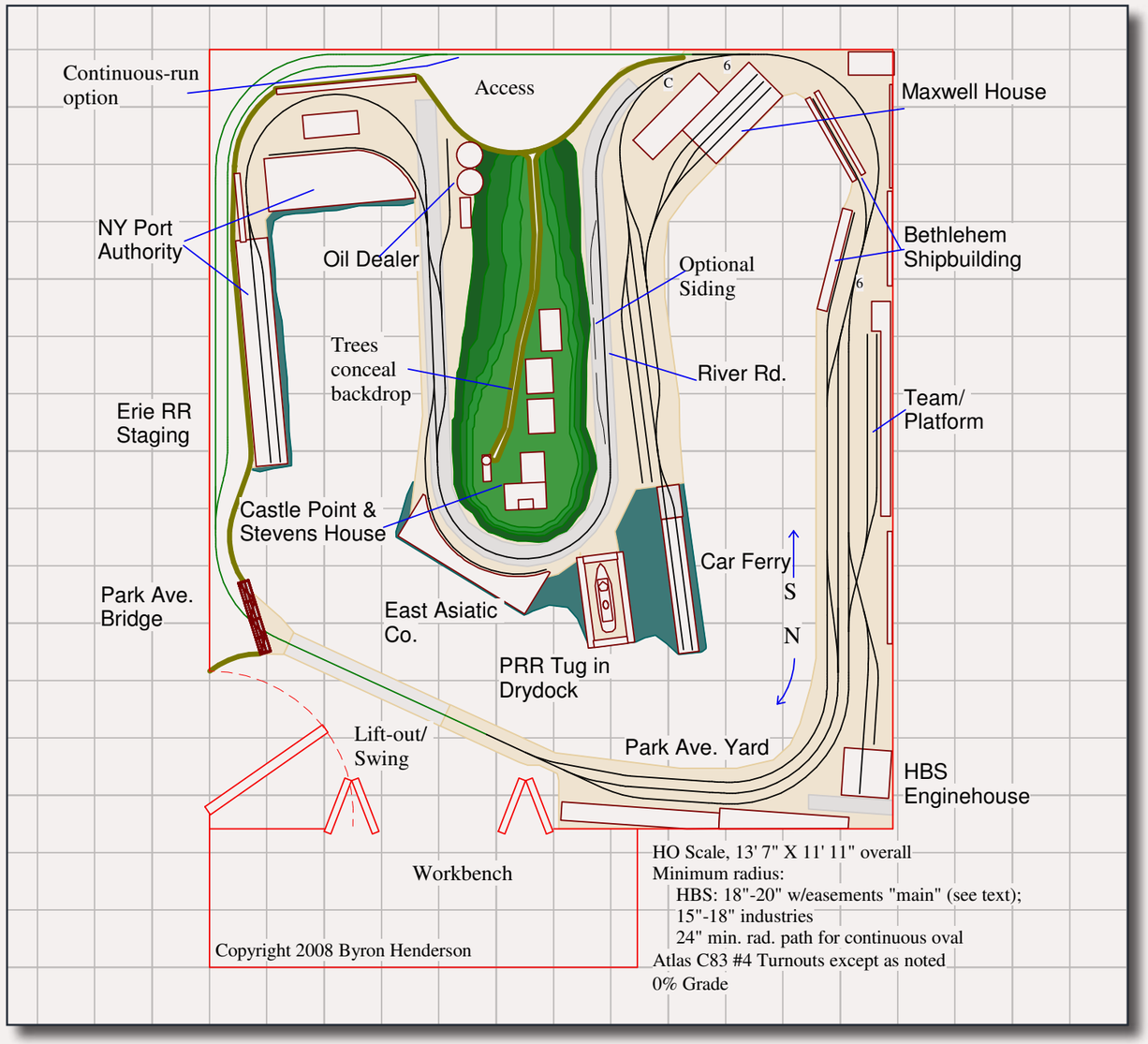
Want to know more about Tom Miller and his model railroading pursuits? Check out Pacific Vista Publishing's video series on Tom's Little Colorado and his outdoor live steam operation!

Down by the Shore in Hoboken

Interesting operation in a small package

by Byron Henderson
www.LayoutVision.com

Byron Henderson is a custom model railroad layout designer from San Jose, CA. His own under-construction proto-freelance N scale layout, the Oakland Harbor Belt, is focused on waterside freight terminal operations near Oakland, CA in 1955. Byron is a member of the Layout Design SIG and Operations SIG, and is a past editor of the LDSIG's *Layout Design Journal*.



Coffee, a castle, and a car float – ingredients for an engaging model railroad? The first is the Bauhaus-inspired Maxwell House coffee plant, with its famous "Good 'till the Last Drop" neon sign that beckoned to New Yorkers across the Hudson for decades.

The second is Castle Point, a (relatively) high prominence upon which once stood the large home of Colonel John Stevens, later giving way to the Stevens Institute of Technology. And although unknown to most, a small independent railroad (with car float connections) picked its way along the docks and piers of the Hoboken shore (literally) in the shadow of Castle Point.

The Hoboken Shore RR (HBS) is well documented in Paul R. Tupaczewski's detailed HBS fan site, which includes many photos of scenes planned for the layout. Founded in the late 19th century, the railroad operated under a variety of names, including Hoboken Shore Road, Hoboken Manufacturers Railroad, and finally (1954 until abandonment in 1978) as the Hoboken Shore Railroad.

The little road hosted a variety of motive power, from 0-6-0 and 0-4-0 steamers, to GE electrics in the 1890s, to Ingersoll-Rand boxcab diesels, Alco HH660s, and finally two GE 44-tonners, which served until the end.

The HBS is another of those fascinating "pocket terminal" railroads along the Hudson River, connecting via car float to the Delaware, Lackawanna & Western Railroad and via a direct rail link to the Erie Railroad.

Occasionally other connections were made via the car float, but primarily it was with the DL&W until the car float was embargoed in the late 1960s.

Third time's the charm

Just as its subject changed over the years, this layout has changed – for the third time before being built! The design was begun for twice the space in a basement to be built with a new home. When the house-building was delayed, I designed a much smaller HO shelf layout version to fit over some existing cabinets in a family room.

Partway through the home construction, an opportunity came for the owner to accept an early retirement and relocate to more desirable environs. Unfortunately, this comes at the cost of a basement, so the layout's venue became a larger-than-average bedroom, which must also provide a workbench and layout-related storage.

A mid-1950s time period was chosen, aligning with the arrival (1954) of the 44-tonners on the real-life HBS, but the recently

announced Atlas HH660s may allow for future flexibility in era. Typical operating crew will be only one or two, so aisle widths were somewhat sacrificed in the interest of including more signature scenes and a reasonable amount of operating interest in the smaller space.

Off-the-shelf Atlas Code 83 components are to be used (a few are trimmed to fit), along with one Walthers #7 curved turnout in a tight area leading to the float yard.

Get the point, the rest follows

The owner's highest-priority signature scenes included Castle Point, the Maxwell House plant and car float yard area, and the Erie interchange at Park Avenue. A couple of different configurations would have fit in the bedroom, but it just seemed most natural to have the Castle Point area as the end of a single peninsula.

The rest of the layout was arrayed around the walls of the room based on the placement of Castle Point and the realities of the door and closet/workbench area location.

In keeping with the prototype's flange-squealing curves around the promontory, I chose a minimum radius of 18" (with short easements to minimize coupler "lurch") around Castle Point and south from there to the end of the line at the NY Port Authority facilities. I went with a bit broader "Main line" radii (20 ¼", eased) from Castle Point north to Park Avenue Yard to allow for a little more flexibility in choosing equipment.

Beginning near the entrance door, Park Avenue Yard is where interchange takes place with the Erie. The real-life yard sported seven tracks (and an impressive series of double-slip crossovers) in its early days, but the three reasonably long tracks should be enough to handle the 15-20 cars per day coming from the Erie along with a bit of storage.

There is a lift-out or swing-gate here to allow for "live" interchange, but the short fixed tail track at the north end of the yard is long enough to allow the HBS to run-around the yard, permitting operation without the removable benchwork. The HBS' modest enginehouse is here also, along with a slightly relocated team track and freight platform.

A very small representation of the massive Bethlehem Steel Shipbuilding facilities is provided, with either fascia flats or loading docks alone representing the unseen industry assumed to be "in the aisle".

Constraints like the prototype, only more so

The next section of the layout was an area of challenging compromises, but duplicates to some degree the difficulties the real-life railroad had to overcome. A portion of the small float yard pulls double-duty as the runaround for the relatively large Maxwell House plant (the owner is on his own for devising a method to duplicate the sign, though).

In real life, a runaround move required the locomotive to run almost to the car float apron before switching Maxwell House. Operating this close to the water's edge when no float is docked gives "Good 'till the last drop" a new, and perhaps unwelcome, meaning!

Maintaining a 2-foot "slip-by" aisle at the end of the car float creates a number of compromises. To begin, the car float has only two tracks (three-track floats were more typical in the area). This allows a shorter and simpler throat approaching the apron, which is also shortened a bit.

Car float capacity is 8-12 cars, depending on car lengths. The HBS crew might need to use the "main" while swapping cars on- and off the float, but with only one or two crews operating, this should not be too problematic.

From here the line is in River Road, which in the era modeled was a rough industrial access way, paved with intermittent asphalt, cobblestones, and gravel. (Today, renamed for favorite native son Frank Sinatra, it's quite a bit more hospitable to auto traffic).

The Pennsylvania Railroad maintained maintenance facilities for its marine fleet here, and we give them a nod with a PRR HO tug in dry dock. Castle Point rose about 100 feet above the railroad in this area, so we can model the hill full size (for height, at least). Colonel Steven's large house and the adjacent picturesque gatehouse are featured on the hilltop, with other college buildings alongside. Trees and other foliage help disguise the edges of a two sided backdrop.

Continuing around the sharp corner, we encounter the East Asiatic Company's Castle Point pier, an imagineered oil dealer, and the NY Port Authority's large pier sheds at the end of the line.

Creating operations "stations"

In quarters as tight as these, it's always worthwhile to find locations where a crew member can work out of the way. While most of the operating activity is north of Castle Point (as on the prototype), the tracks have been designed so that a second operator can run a train "around the horn" and set up shop near the Port Authority pier sheds.

The connection to the East Asiatic pier has been moved to allow it to be switched from this end, with a short added runaround. Adding challenge through numbered "spots" at doors or inside the pier shed can also add to the interest and fun. This operator might also operate the live Erie interchange.

While the owner is keenly focused on the HBS in the 1950s, like many of us his model railroad eye has wandered to embrace a few out-of-place, out-of-era models. Some of these locos are a bit fussy as to radii they'll accept, so one 24" minimum radius continuous loop path is provided for the occasional exercise of these "aliens".

Should anything go wrong behind the scenes, pop-up access allows for maintenance and retrieval of equipment in trouble on the show loop. This continuous run connection makes it easy to pull out Erie interchange trains for re-staging and a manual engine turnaround between sessions.

But the main attraction will be recreating some of the signature scenes and operations of the Hoboken Shore Railroad. By prioritizing and placing key signature scenes first, it's easier to make the compromises necessary to balance appearance, operating potential, and access.

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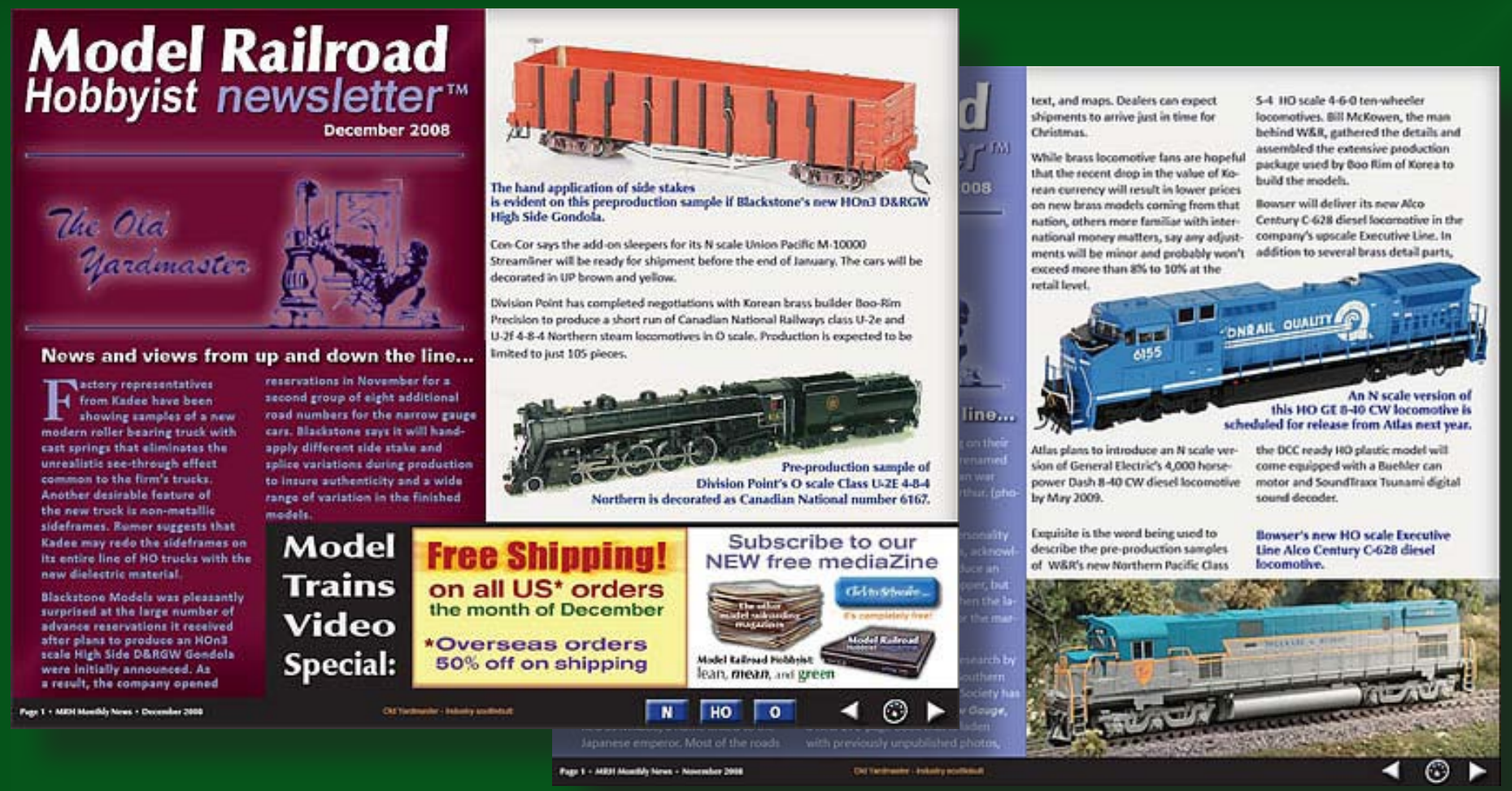

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REVERSE RUNNING: Chainsaw railroads

Stepping outside the box with a contrary view

— by Joe Fugate

Far too many in the hobby, it seems, keep waiting for the perfect time to start their "dream model railroad" – yet the talk of "someday" continues indefinitely. What will it take to get these folks off the dime and started on building a layout?

While discussing this topic at this summer's NMRA National Convention in Anaheim, my good friend and fellow modeler Dave Clemens introduced a fascinating new term: *chainsaw railroads*.

A chainsaw railroad is a model railroad layout that you're willing to take a chainsaw to the minute it has served its purpose.

The idea, of course, is to tell "fear of making mistakes" to take a hike.

I've been a computer software developer most of my adult life, and there's a classic software book from the 1970s, *The Mythical Man Month,* by Fred Brooks, that promotes a similar notion.

Fred Brooks advocates that software developers of complex computer programs should plan to throw the first attempt away. Fred calls this first attempt the *pilot system*.

To quote from Fred Brooks: "The management question, therefore, is not whether to build a pilot system and throw it away. You will do that. Hence plan to throw one away; you will, anyhow."

It's the second *smarter design*, built on the learnings you make from the first attempt, says Fred, that should be delivered to the customer, since the pilot system will be full of obvious shortcomings.

While Fred is talking about computer software systems, his point applies to most anything we try to construct: building the first of something completely new is where you'll make your biggest mistakes.

We all enjoy attending presentations and reading articles written by hobby experts. They seem to have so much insight into how to do things and on how to overcome any obstacle.

Yet how did these guys get to be experts? Were they born with all that insight? I've heard the "official" definition of an expert on a subject is someone who has been actively doing the discipline for 5 years or more.

So how do these "experts" get to be so wise in a discipline? There's no magic formula – it's by plain old *hard knocks*. Making mistakes, falling over in a heap, botching things badly – that's what every true expert will tell you is the secret to acquiring their expertise.

I've come to realize every time I make a boo-boo on a modeling project, I'm building my expertise in the hobby. I'm learning how to do it better the next time.

I'm always interested to see a relative hobby newcomer post their "dream railroad" track plan on a forum somewhere.

I can often tell, just at a glance, how much actual experience they have in the hobby from looking at the plan. When I ask them how much hobby experience they have, I generally get the expected response, "Almost none."

So stop and think a moment. Before you plan that dream layout, the wiser approach is to design and build something smaller, something designed to *pilot* and refine new skills in various aspects of the hobby. And plan on the result being something you'd be willing to take a chainsaw to once it has served its purpose!

We can use a few more chainsaw railroads in the hobby, don't you think? If you don't presently own a layout, there's no better time than the present to start building that first *chainsaw railroad*.

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Reverse Running?

Reverse running is a term applied to railroad double track mainlines. Most double track main lines in the US have a "keep to the right" rule for the double track main, and if a train is running on the left hand track, it's on the "wrong track" and is "reverse running."

Reverse Running is our regular column where we encourage something of a contrary view to the hobby, with the intention of learning some new insights from stepping outside the box. We invite other modelers to submit a thought-provoking piece for Reverse Running. *– J.F.*

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