

The Potomac Flyer

February-March 2021

The Newsletter of the Potomac Division, MER, NMRA



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Our First Ever Virtual Layout Tour (And How To Do It)!

Board of Directors Election Information

**Track Planning, Track Laying and Details, Details,
and More Details...Plus Model Photos...**

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Apologies from your editor. I am not yet able to make the contents items clickable to allow you to jump directly to an article. You'll just have to read the whole issue!

Cover Photo: Todd Hermann Narrating A Virtual Layout Tour (Taken from Zoom)

The Potomac Flyer

Submission Deadlines – Issue

Oct. 15 for Dec.-Jan. Feb.15 for April-May
June 15 for Aug.-Sept. Dec. 15 for Feb.-Mar.
April 15 for June-July Aug. 15 for Oct.-Nov.



From the Business Car: And the End is in Sight...Well, the End of 2020

by Martin Brechbiel, MMR, Potomac Division Superintendent



As I write this, it's just a few days before Christmas. The end of 2020 is in sight, and cannot arrive too soon now, as I continue to sit at the keyboard or putter away in my workshop building more models. It's been a very productive year for me on that latter activity, with many projects being completed and even a few kits being built.

No real changes are happening any time soon regarding meets and in-person events. We may have some lights at the end of this tunnel, but that exit remains off in an uncertain future at best. Change is constant, and what 2021 will look like is just something we're all going to have to discover.

In the meantime, your Division has a vibrant virtual clinic program that's actually scheduled at least halfway into 2021. This speaks to many variables, the first being that people want these programs and clinics, and that they like them on a monthly basis. These virtual meets also address and solve some of the real obstacles that have confronted this Division. The cost of suitable venues in this area is high, and few are realistically within our financial reach. The challenges of just getting around in our Division are also very real. Virtual meets, however, completely transcend traffic, travel time, and venue costs, and you get a front row seat in the comfort of your own home. All you need is a computer (or smart phone!), an internet connection, and a camera/microphone that many laptops already have built in to them. The attraction is such that when in-person events resume, we will no doubt be simulcasting them via Zoom and recording them, too. We are capturing all of the virtual events, placing them on the Division web site and our YouTube channel. So this might not replace "the real thing," but it has real value that the attendance numbers clearly confirm.

We had our first virtual layout open house in December with more than 40 attendees! I routinely attend James River, Carolina Piedmont, and other Divisions' meetings and events. The monthly O scale modelers' meeting provides an on-line get together of O scale modelers for that socialization time of talking and exchanging information between friends, colleagues, and associates that would otherwise be impossible. For those who have not tried this (and the naysayers), try it and give it a chance, since this is the new normal until some other normal arrives. The old normal is gone.

There was a Potomac Division Board meeting held in December to address a number of issues and to review as much as is available in the way of plans for 2021. Virtual clinics and very controlled live hands-on clinics will continue while we look for more

members willing to try a virtual layout open house. In parallel to that, and by virtue of Zoom, the Board will start having regularly scheduled meetings every month in 2021, starting on January 11. Contact the Clerk for more information if you are interested. On that same note, the Board adopted a modified version of the MER's Electronic Meeting Policy. Elections for 2021 are scheduled for the three (3) openings that will be available for the Board. Elsewhere in this issue is a complete schedule and calendar of deadlines, etc. along with contact information. We will no doubt be once again mailing out ballots to the entire membership in 2021, so please look for your ballot and vote!

The future is still every day, so stay busy and keep on building those models and layouts!

2021 Election Process Established

The Potomac Division Board of Directors has established procedures for the 2021 Board of Directors Elections. In 2021 the Division's current bylaws provide for three of the Board of Directors positions to be open to election. These three positions are currently held by the Division Superintendent, Division Senior Assistant Superintendent, and Division Clerk, whose two-year terms are expiring. Candidates running for office should be aware that the current Division bylaws provide for the newly-elected Board of Directors members to determine who will fill the Board of Directors positions at the first meeting of the new Board.



The following individuals are the Nominations Committee for the 2021 elections: Jerry Stanley (Chair), Bill Lyders, and Mark Gionet. These members are available to answer any questions concerning the duties and activities associated with service on the Board. The following are email addresses for the committee members:

Jerry Stanley - Paymaster@potomac-nmra.org

Bill Lyders - blyders@verizon.net

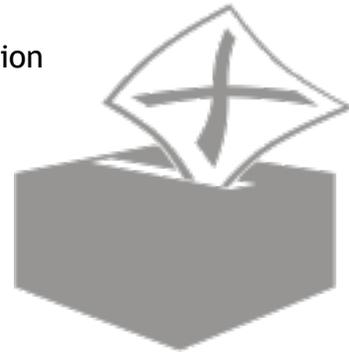
Mark Gionet - mgionet@lsginc.com

Members interested in running for office in the 2021 elections are required by the Division bylaws to notify the Nominations Committee by email, no later than midnight, February 5, 2021, and supply them with a picture, short biography, and why they are running for a position. (*Send to all three Committee members.*)

The election process will take place by ballots sent to the Division members due to the uncertainty of being able to have an Annual Meeting in person because of COVID-19 restrictions.

Important dates concerning the 2021 election process are as follows:

- **February 5, 2021(Midnight)** - Deadline for candidates to notify the Nominations Committee of their intent to run for office and provide a current picture, biography, and why they are running for office.
- **April 1, 2021** - the Potomac Flyer and emails from the Division will provide a list of candidates for office for the membership to consider.
- **April 26, 2021 (Midnight)** - Deadline for receipt of ballots by the Nominations Committee.
- **April 30, 2021** - Candidates will be notified of election results.
- **May 1, 2021** - First meeting of the new Board of Directors.
- **May 8, 2021**- The winning candidates and the Board of Directors positions (if possible) will be announced to the membership by the posting on the Division's Groups.io, emails from the Division sent to the membership, and posting to the Division's website.
- **June 1, 2021**- The winning candidates and the Board of Directors positions will be announced to the membership by the Potomac Flyer.



Presenting a Virtual Layout Tour - Observations and Lessons Learned

Article, Layout Photos and Plan by Todd Hermann



The live-on-Zoom layout tour that I conducted for the Potomac Division on December 12, 2020 was the second one that I had attempted for my HO scale tribute to the Lehigh & New England Railroad's Catsauqua Branch circa the summer of 1956. It occupies about two-thirds of my 29'x24' basement in Falls Church, VA.

The first occurred in September as part of the Reading Railroad Prototype Modelers Meet. For that meet, which was being conducted entirely on Zoom due to the pandemic, I'd initially volunteered to give a traditional PowerPoint clinic about the history of the Catsauqua Branch and my layout project. However, organizer Barry Hensel wanted to line up some live-on-Zoom tours for the last day of the weekend-long meet and encouraged me to give that a try instead. I'm glad he did, because putting together these presentations proved to be a lot of fun, exposed me to some new tech gadgets, and offered a chance for my wife and kids to get into the act.

That first tour was very well received. With my original in-person Potomac Division open house date coming up on the calendar and COVID-19 still a limiting factor, I



offered to do a similar live Zoom presentation for our Division in lieu of an in-person event. Here's some additional info on how I did it and what I learned:

Hardware: Having seen a variety of live presentations during the pandemic, including some of the excellent NMRx Facebook events, I knew that stable camera work was essential. Hand-held smartphone camerawork can result in bumpy, motion-sickness-inducing footage that can be tough to watch. Fortunately, a wide range of gimbal stabilizers designed for use with smartphone cameras are now available at relatively reasonable prices. I'm no expert on this technology, but after reading a few reviews and rankings online, I purchased a unit called the Smooth 4 made by a company called Zhiyun.



In addition to automatically stabilizing the camera with a gimbal, the device comes with its own app and software that allows the user the control of zoom, focus, and other camera functions via buttons and a dial on the Smooth 4's handle. Those extra

bells and whistles have great potential for filming pre-recorded videos, but for the live presentation we used only the gimbal stabilizer and not the Smooth 4's software or its onboard camera control features. We wanted to keep it simple and minimize the chances for delay or miscommunication between the Smooth 4's software and the Zoom meeting program.

My Shooter-Producer: I say "we" because my wife Molly handled virtually all of the camerawork for these presentations. Molly happens to be an accomplished documentary film producer by trade, but she is quick to insist that even non-film & TV professionals can easily master this sort of camerawork with just a bit of practice. Her participation allowed me to take the role of on-camera presenter and host, rather remaining behind the camera as narrator and videographer. Both approaches can yield great results, but we felt a guided presentation with an on-camera host was a better way to emulate an in-person open house experience for our virtual visitors.

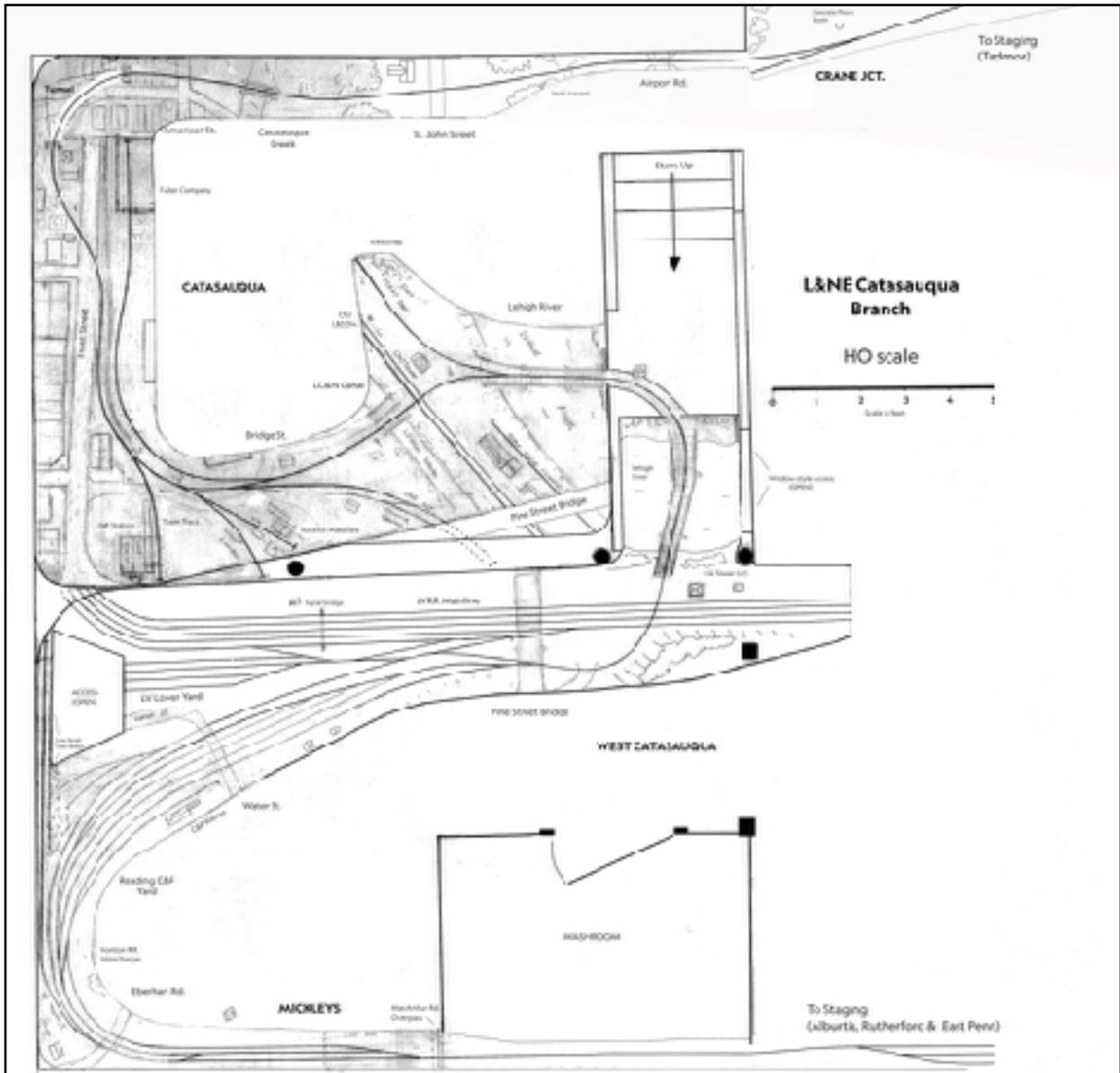
One disadvantage to being on-camera is that you cannot easily see the comments and questions that attendees were posting in the chat during the Zoom session. Having the meeting host monitor the chat for questions and relay them is how we got around this around this. Encouraging attendees to speak up along the way or during the Q&A period worked well, too.

More on Hardware: The other key pieces of hardware included an Apple iPhone 10 which we used for filming and a pair of Apple AirPod wireless earbuds borrowed from our eldest daughter. The AirPods are not an essential item in my view, but they allowed me to hear questions clearly and they have a built-in microphone which nicely captured my audio as I walked around -- even when I was far from the camera. However, the AirPods did a poor job of capturing other room sounds -- most notably the sound of the locos when I ran a train to close out the tour. Getting more train sound is something to improve on for next time.

Dress/Tech Rehearsal: It is worth spending some time in advance thinking about what you want to cover and how you'll present it. Like any live presentation, a dress rehearsal is a good idea. Molly



and I worked out some basics on the sequence of the tour, what I'd talk about, and how she would shoot it. For the most part, I spoke off the cuff, but I did place some note cards at various points around the layout to remind myself of key items I wanted to cover. Once I got rolling, I did not end up using the cards much, but it was nice to know they were there if needed. The run-through also allowed me to pre-stage some prototype reference photos on the layout which I incorporated into the talk.



Do Not Disturb: A rehearsal is useful for testing the tech set-up, as well. I found it easier to use Zoom's Spotlight function to share our video feed with all attendees, rather than the more well-known Screen Sharing feature. One other important thing

we learned is that you should set the cameraphone in “Do Not Disturb” mode to prevent any calls, text messages, or other alerts from interrupting the presentation.

Maximizing bandwidth: We have three kids -- ages 16, 12 and 12. As you might expect, they can consume a lot of internet bandwidth. I asked them not to be on-line during the presentation to ensure that our internet was fast enough to handle the live feed. It was a hardship for them to be off their devices for a few hours, but they survived!

I had hoped to have our home internet service upgraded before the presentation, but I could not get it scheduled in time. We were able to scrape by with our existing service, though the resulting picture quality was a bit less than optimal. Another thing I did was move my internet router down to the basement for the day -- just to make sure we had a strong wi-fi coverage in that part of the house.



Shooting style: Having a stabilizer on the camera really helps smooth out the bumps of hand-held camera work, but it is still easy to overdo it with too much camera movement. We found that you need to slow down and be deliberate with the shots so viewers can take in the scenes and see details.

Hiccups: Despite the best laid plans, we did have some glitches. For the Reading Modelers Meet, we had an unexpected DCC shutdown right before my son Henry was going to run the train. During the Potomac Division tour, I managed to turn off the gimbal when it was handed to me. I suppose that confirms my decision for me be in front of the camera rather than behind it! But as they say, “the show must go on” and we solved these hiccups pretty quickly and kept moving.



Track plan: Several people have suggested adding a track plan at the start of the tour to help orient visitors. It’s a good idea to explore. Probably the easiest way to do that would be via a hybrid presentation of PowerPoint slides to intro the layout/ track plan and then switch to the live feed for a walk-around tour. Perhaps that is something to try next time.

Feedback, Reach, and the Future: One of the great side benefits to doing a live Zoom tour is all of the constructive feedback and excellent correspondence that’s resulted. In my experience, virtual events tend to draw more attendees than in-person ones as they are accessible to people who might live far away or are unable to travel for other reasons. During both of the virtual tours that I’ve done, I’ve heard

from people who grew up in the region I'm modeling. The memories and interesting prototype info they've shared have been amazing. Having noted L&NE author Doug Lilly drop in on our Potomac Division tour from Pennsylvania is a great example and was a real treat for me. (A big "thank you" to John King for giving him a heads up!) Those sorts of connections might not have occurred were it not for the wider reach we can achieve with these COVID-induced virtual presentations. That's a definite silver lining amidst this bizarre year we've had. And it's a good reason to put some thought into finding ways to continue with virtual clinics and Zoom layout tours even after COVID-19 is properly tamped down and some version of normality returns to our lives.

Don't get me wrong, there's no substitute for visiting a layout in person. I fully expect that my next Potomac Division Open House will be an in-person event, but setting aside a portion of that open house for a live virtual tour via Zoom is definitely something I'll be considering when that time comes.

To close out, we had a lot of fun putting the live presentation together. I sincerely hope everyone enjoyed it. And I hope that others will be inspired give it try. If you are considering it and have any questions, please feel free to contact me via email at RTH_628@yahoo.com.



Todd Hermann lives in Falls Church, VA. He models the Lehigh & New England Railroad's Catasauqua Branch and its connections circa 1956 in HO scale.

Building Track: Part 1 Getting Close(r) to the Prototype

by Nigel Phillips



Building track is a large subject, so I've divided it into 4 parts. This, the first part, explores some of the issues inherent in modeling the prototype with respect to track and turnouts.

And a big caveat: I am not an engineer. I just like building track. This started out of necessity—one of my interests is in modeling a UK railway, the Great Western Railway (GWR), in 4mm scale using a track gauge (EM gauge, 18.2mm) that until very recently required building from scratch. I also like to keep to real-life standards as far as possible, but there are always compromises. There are, of course, many real-life exceptions to prototype standards, and it's your model railway, and you get to make the rules.

So first off, let's start with a look at what model trains run on: the track. I often feel this is the Cinderella of railway modeling, ignored and overlooked by many modelers. Bought by the yard, laid, and then forgotten. HO modelers are lucky: Ready-To-Run (RTR) track is almost spot on with respect to gauge, although tie dimensions look a bit strange with some track, and ballast representation is usually that of a heavy-duty freight mainline. Many examples in this article are taken from the Great Northern Railway (GN), my HO modeling interest.

Ballast. A lot of modelers use RTR track bed, cork, or foam, 1/8" thick (NMRA standard, Data Sheet D3e, updated 1999), which corresponds to 10.9" in 1:87. Checking the GN ballast standards, 9"-10" was used for heavy rock or gravel, on top of which the ties were laid and further ballasted. Almost spot on. However, lighter-use tracks used a depth of 6" (or often less), with finer rock or gravel with a different ballast profile. Definitely not spot on.

The GN used 6 grades of ballast. Main lines were Grade 1, crushed rock, 2" to 0.75", basalt or quartzite, dark grey/black or pink in color, followed by Grade 2, crushed stone, grey, 1.25"-0.25", washed gravel in origin. Branch lines used much lower grades (Grade 6, stone, 0.25"-sand, in a few cases). Steam locomotive cinders went where they usually go, the yards. Using HO-sized ballast on a branch line is probably way out of scale, so be careful about what is used where. The ballast profiles for curved tracks were different (superelevation). Best to check prototype railroad ballast dimensions and profile, especially when modeling a branch or lightly-used secondary line. AREMA (American Railway Engineering and Maintenance-of-Way

Association) has a similar grade classification for modern track, where the standard for main lines is grade 4A (2.5" to 0.375").

Superelevation back in the 1930's on the GN was a maximum of 5" (that's 0.066"/1/15" in 1:87) depending on the curvature of the track. At a prototype 60 mph, that's a 4° curve with a radius of 197 feet in HO. A superelevation of 5" still appears to be the maximum in use today.

Ties. Ties vary, depending on when and where. Timber crossties are still used on the majority of North American track. In 2016 BNSF had ~76 million wood ties and ~11 million concrete ties, with some 2.5 to 3.5 million wood ties being replaced each year. Concrete ties have been around for more than 100 years, although they were not commonly used in the U.S. until the 1960s. Wood crossties can be 8'-0", 8'-6", or 9'-0" in length, 7" x 9" (height x width), or 6 x 8" (height x width) in cross-section. The width can be reduced by 1" allowing for waness. Timber switch ties are usually a minimum of 7" x 9". Smaller 6" ties (6', 7' or 8" widths) were used in yards and on secondary lines, 7" ties (7', 8' or 9" width) were used on the mainline track. Bridge ties were larger at 10' x 8" x 8", and turntable ties even larger still. Old ties were 8' long and x 8" wide, and were usually hewed not sawed. Commercial spurs tend to have smaller dimension crossties. It's always advisable to do some research if you are modeling a specific railroad or railway. A couple of resources are the Rail and Track Association and, of course, the NMRA.

The spacing of the ties depends on the usage and load, and whether they are wood or concrete, with the latter usually having a wider spacing. Various sources state that mainline track used 24 wooden ties per 39-foot section for heavy use, 20 for lighter use, 18 for sidings and heavy industrial tracks, and 16 for storage tracks. This reflects the decreasing rail weight and track loads when going from the mainline to a siding.

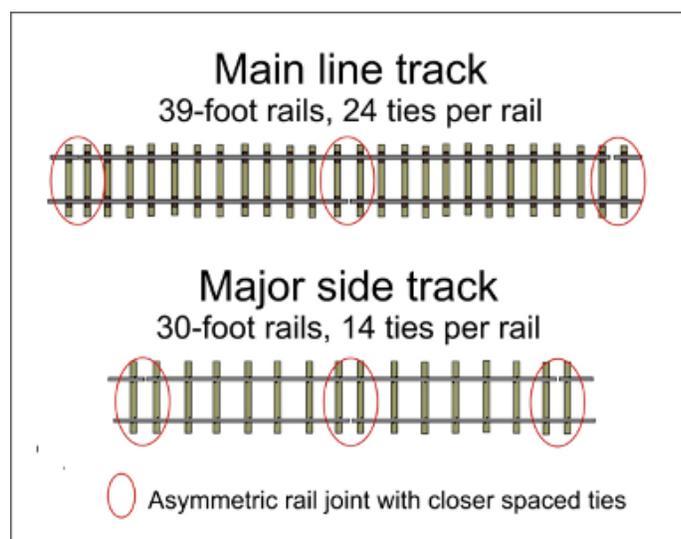


Figure 1 (left) shows some track sections (mainline and storage) with the tie spacing used by the GN in 1932. Several things of note for modelers: 1) Rail joints are asymmetric, being displaced by half a section; 2) Tie spacing increased as use and load decreased; 3) Ties around the suspended rail joints were spaced closer together; 4) Modern track after 1950-1960 seems to ignore tie spacing. That said, up until the 1970's photographs show the spacing was still there in many locations. The GN standards appear

to have been in force in 1935, so these track standards could be expected to be in use some 15-25 years later prior to track renewal. Inspection of photographs from the 1950's confirms this. This was probably true later on the branch lines up until their closure. I have seen similar spacing on several other railroads. Again, research on your prototype should give you this level of detail.

The life of preservative-treated ties can be up to 20-30 years, so it is not unreasonable to have "new" ties in juxtaposition with "old ties." See the *Railway Tie Guide*, published by The Railway Tie Association.

Keeping the rails on the wood. Early track just used a spike on either side of the rail foot. Locomotives and cars were not that heavy, but as weight increased, something was needed to stop the rail from moving around on the timber due to compression failure of tie wood fibers. Metal tie plates used with flat-bottomed rail increased the pressure bearing surface significantly, and although introduced in the 1840s along with flat bottomed rail, had become common by 1900 (Webb, 1900). Tie plates significantly increased material costs per mile of track; so until traffic weights required their use, it was spikes only.

Most modelers who use wood ties and spikes don't bother with plates, and often spike every 5 or so ties. Old photographs of GN track show plates were common after around 1910, although plain spikes were in use for many years afterward, especially in the yards and on quite a few branch lines. There is no reason why the mainline can't have tie plates and an old branch line, spur, or yard just a plain spike.



Not commonly modeled (if ever) is the inward cant of the rail of 1:40 (2.5%) or even more on curves. The plate rail-bearing surfaces is sloped to match the tread profile and maximize adhesion surface on the rail, and helps counteract lateral forces on curves in conjunction with superelevation. **Photograph 1 (above)** shows a modern

Pendrol tie plate I found on the side of the CSX track at Point of Rocks, MD. The cant on the rail bearing surface is very obvious.

Using rail appropriate for the rolling stock. Railways use rail sizes appropriate for what goes on them. Rail weight has increased dramatically over the last 150 years. The weight of rail required for a yard spur was usually different from what was required for a lightly used branch line, or a mainline with large diesel locomotives and 100+ ton freight cars. Using HO as an example, the NMRA suggest various rail codes and their equivalent prototype weights in pounds:

- Code 100 rail represents 152 lb. rail with a height of 8.7”
- Code 83 rail represents 126 lb. rail with a height of 7.1”
- Code 75 rail represents 114 lb. rail with a height of 6.5”
- Code 70 rail represents 100 lb. rail with a height of 6”
- Code 55 rail represents 83 lb. rail with a height of 4.7”
- Code 40 rail represents 60 lb. rail with a height of 3.5”

Modern rail is between 112-145 lb./foot, although several railroads were using rail of between 125-136 lb. in 1915 (Orrock, 1918), and the PRR was using 155 lb. rail during WW2. Unfortunately, some of the above suggestions are wildly inaccurate for prototype modeling. Using data from NMRA RP 15.1 (1999) an x-y plot in Microsoft Excel gave a linear relationship between rail weight and rail code, $y=2176x-46.634$, where y =rail weight and x =rail code (where 0.1=code 100). Using this the actual relationship between code and rail weights in HO was determined:

- Code 100 corresponds to 171 lb. rail found on heavy duty port cranes, trestle guard rails, and the like.
- Code 83 corresponds to 134 lb. rail, better suited to heavyweight and heavy-duty mainline use (which now uses 140+ lb. rail)
- Code 80 corresponds to 127 lb. rail
- Code 75 corresponds to 117 lb. rail
- Code 70 corresponds to 106 lb. rail
- Code 60 corresponds to 84 lb., rail
- Code 55 corresponds to 73 lb. rail
- Code 40 corresponds to 40 lb. rail

Code 55 or even Code 40 is more applicable modeling early steam or narrow gauge, a lightly used branch line or spur, or an old yard. Code 80, 75, and 60 rail is available if you look for it, and I have included the calculated weights.

RP 15.1 also has an interesting table (Table 3) taken from the Interstate Commerce Commission reports, detailing the changes in average rail weights over the period 1940-1960. In 1940, 62% of rail was between 90-119 lb., with only 9.6% between 130-139 lb. In 1960 these numbers had changed significantly: 52% and 21% respectively. I suspect this trend has since continued.

The GN used a 90-110 lb. rail for most of its main lines. However, the R-2 class 2-8-8-2 monsters it built in the 1930s came in at 448 tons with a driving axle load of just over 33 tons, and needed a calculated rail weight of 123 lb., so, Code 80 is a good match. GN 4-6-2 Pacific locomotives required calculated rail weights of 80-90 lb. depending on the model, so Code 70 rail (or even Code 60) would be fine. Code 70 would be fine for a medium-use branch line. If you know the locomotives that will be used on your layout, the rail loading is useful for determining the nearest model rail code to use.

A word of warning: wheel flanges on older stock will probably dictate the limits of what you can use with Code 55 and even more so Code 40. Flange depth for HO wheels meeting the NMRA RP25 specifications for 110 and 88 wheels should be fine.

Turnout frogs and switches. If you are scratchbuilding frogs and switches/turnouts, have a look at the NMRA RPs and Standards. Download RP-12.xx from the NMRA website – there are a lot of files. HO straight turnouts are in RP-12.31, curved ones are in RP-12.32. This gives the recommended dimensions to be used in constructing a turnout for frogs from #4 through #12. Dimensions are given to 3 decimal places (my engineering micrometer reads to $\pm 0.02\text{mm}$ and guesstimates to $\pm 0.01\text{mm}$). While useful to any RTR manufacturer, I would argue that such precision is unnecessary and, in reality, beyond the ability of most home modelers given the vagaries of hand-held equipment and jigs. The NMRA makes it clear that allowances have been made from the prototype when generating this RP. A couple of points here (pun intended): frog rails are always straight, even with a curved turnout; and switch blades in North America are always straight from the heel to the blade. Have a look at **Photograph 2 (next page)** to see what a modern turnout looks like on mainline track (taken at Point of Rocks Station, MD) and compare this with RTR offerings with respect to the level of detail.

Switches are probably the major deviation from prototype practice on a model railroad. Most layouts will use switches with #6 frogs (or even #4 or #5) in yards, and #8 frogs on main lines. Lots of modelers, including me, are quite happy with just #6 frogs. Of course, the higher the frog number, the longer turnouts get, and the larger their radius becomes. Prototype railways rarely use anything less than a #8. BNSF specifications for industrial lines used by their locomotives are illuminating:



“Maximum degree of curve shall not exceed $9^{\circ}30'$ (603.80' radius). All curves are defined using the chord definition. A minimum tangent length of 50 feet must be placed between reversing curves. No turnouts (switches) can be placed in a curve. Mainline turnouts must be placed at least 200 feet from the end of a mainline curve. Industry turnouts within the facility must be placed at least 50 feet from the end of any curve.” The specifications also call for a minimum #9 switch. If prototype practice is to be acknowledged, a minimum #8-#9 in a yard and a #10-#12 *minimum* on a mainline would be used. High-speed switches with spring or switchable frogs require something like a #18.

Just to make life interesting, frogs come in different forms. Spring frogs are usually found on mainlines, and allow higher speed running through the frogs, as well as allowing trains to enter and leave from a diverging line (for example a passing loop). Then there are switchable frogs for high-speed running. Switches can also be locked on either side or sprung, the latter again for high-speed running.

Derails. Derails are rarely modeled. These are an obligatory requirement for active sidings, especially those at the same height as or higher than the mainline (many sidings, spurs, and branch lines are at a lower level than the mainline because of lower ballasting and rail height). These come in sit-on the rail wedge types (which can be manually hinged, portable, or retractable) or as a split rail switch with either single or double points. Wedge types that sit on the railhead have a long history. A portable, manually-operated one was patented by Stanley Hayes in 1919. Split rail derails are common. BNSF, for example, specifies a double point derailer in its “Guidelines for Commercial Track Projects, 2018.”

Photograph 3 (right) shows an unusual 2-point derailer (opposing blades rather than facing the same direction) on a commercial siding taken by jlmuller99 on October 9, 2010, on the NS in Virginia. Note the welded rail on the main, and rail sections on the spur.



Rail joiners. Plastic or metal, prototype track does not have them. What are used are rail joining bars (sometimes referred to as splicers). I think their use is a hangover from the

commercial fixed-length model track sections, rather than any structural requirement. Shinohara makes joiners with cosmetic bolts in an attempt to look like joining bars, but they still look like... rail joiners. Why are we still using rail joiners? Location, I hear you cry. Hmm. I have used modules for many years, and the track runs to the edge of the module, with no bridge-joining tracks, no joiners. The GN used staggered rail joints some 6 ties or more apart in the 1930s (as did all of the other railroads that I have researched). Depression of a joint on one side gives rise to that characteristic sway of freight cars. Staggered joints were still there in the 1970s. As usual, there are exceptions. Depending on the curves, constant length rails will have different spacings compared to tangent track. The prototype addressed this by using shorter rail sections as required. Plastic insulating rail joiners? Power-routed switches from Peco and Shinohara need some sort of electrical isolation where the frog exit rails will have changing polarity depending on which way the switch blades are thrown. They are not required if there is an air gap between the frog exit rail and the gauge track, or if the frog is dead/air-gapped or its polarity is automatically switched with the points. Rail creep and expansion are issues when using air-gap

insulation, but with properly fixed rails and anchored ties this should not be a problem.

Rail bars and joints. In our model world they are rarely seen, but if glued or soldered in, rail bars really change the appearance. So, how far do we go as modelers in having them? North American track rail length was usually dictated by the length of the car used to transport them. They are usually very noticeable on the prototype (*see photograph 3 on previous page*). Early railroads used 16-30 feet long sections, using a 40-foot long gondola for transport. Lengths of 39 feet (or later, even 78 feet) became the standard for mainline bolted rail in the mid-20th century. Continuous welded ribbon rail has even longer lengths, but still requires some sort of expansion joints. Flex track 36" long corresponds to some 260 feet of welded ribbon track. Using rail of 39- or 78-foot sections means rail joints every ~5.38" or ~10.76" in 1:87 scale. Rail sections can be shorter in commercial spurs (CN for example specifies 27 feet). Modeling the prototype practice means that the often overlooked rail starts to become a lot more visually obvious.

Conclusions. I hope the above commentary (which I am the first to admit is far from comprehensive) gives those modelers thinking about track building, or who are contemplating going for the Civil Engineer award, some sense of what to look for when modeling prototype track – and more importantly, what is often missing with RTR track. Like all things, a compromise has to be made between time, availability, cost, appearance, and space. There is no reason that commercial track cannot be mixed with scratch-built turnouts, or jointed track with welded track. Highly detailing track on a 10-foot length layout with a couple of lines and spurs is a lot different than doing it on a large layout. I have deliberately not addressed in detail the equipment required for track building or the jigs available. Most modelers already have most of the required tools. I'll cover that later in the series. I have only briefly discussed the subject of rail codes, as the choice is essentially limited to code 100, 83, and 70 FB in HO. You can also get other codes (80, 75, 60) if you want to be closer. Are they really to the desired scale? Usually no, but sometimes, as Mr. Jagger succinctly puts it, you can't always get what you want!

In Part 2 I'll be looking at the NMRA Civil Engineer requirements from the perspective of a potential candidate. Happy and safe modeling!

Nigel Phillips is a retired biomedical researcher, professor, and biopharmaceutical company executive. His modeling interests are currently the Great Northern Railway, HO, and the Great Western Railway, 4mm scale, EM gauge.

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Mark Me Up: Layout Planning Based On Operating Experience

by Mat Thompson, MMR

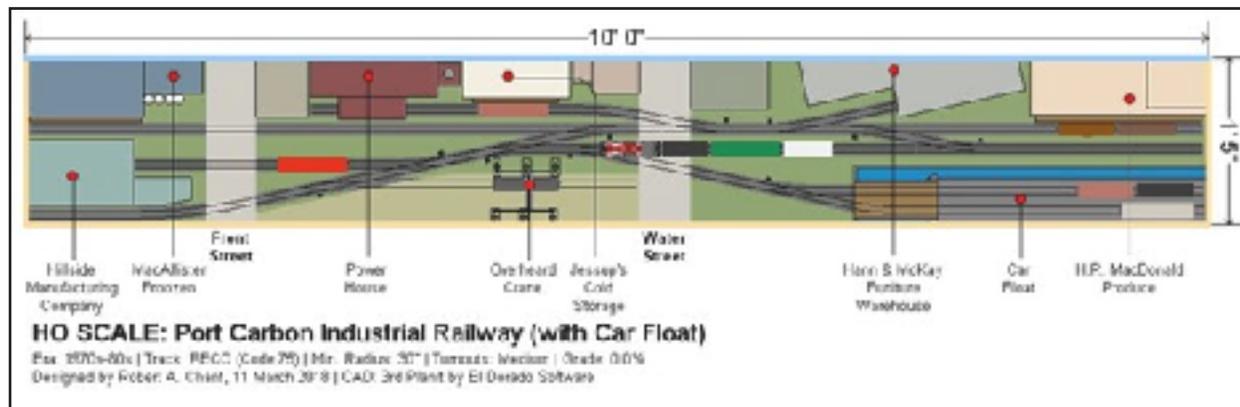


I plan to build a small HO scale switching layout. The available space is 11 ½' by 2 ½' above my work bench. My two goals are to have a well-modeled layout and a good track plan for switching operations.

Many things I have learned as an operator are guiding me, starting with the track plan I have selected.

The first thing I noticed is that, even though this plan is presented as a port with a float, it is very flexible. Eliminate the float, and this could be a small town in the Midwest with

grain elevators and farm supply businesses. It could also easily be a crowded city area with multiple industries. Other possibilities are a single large industry like a meat packing plant, chemical plant, or a manufacturing facility.



(This track plan is from Rob Chant's website <http://www.jomrd.com/index.php?page=Blog> and used with his permission.)

In fact, there are so many possibilities, I will not worry about the theme yet. Instead, I will first lay the track, wire everything up and run it many times. When the infrastructure is good, it will be time to move on to modeling.

My era will be the late 50s when cars were no longer than 40' or 50'. Lance Mindheim has done some gorgeous modeling of the current era, and this track plan would certainly work for that. But for me the switching possibilities with modern 80' and 90' cars are limited when the whole layout is only 10' long.

Engines will also be small, SW7s and similar. This not the place for Big Boys or A-B-B-A lashups. They are beautiful, but not prototypically appropriate for the railroad work on this layout—and they would barely fit.

The most important feature of the track plan is a “runaround.” Looking at the plan you can see a red engine. The track arrangement allows the engine to move from the front of the train to the rear by uncoupling, switching over a track, running back, and then switching back over to get behind the train. Without a “runaround,” the engine can only work trailing point turnouts. That’s efficient on the prototype, but limiting on a model switching layout.

Six or eight industries or car spots with a mix of trailing point and facing point turnouts will support a job that takes an hour or two. Setouts and pickups will probably be no more than a dozen cars. One of the attractions of this small layout is I can run for a few minutes, wander off, and then return in a few minutes, or an hour, or a day, or a week and easily pick up where I left off. The only paperwork I will need is a switch list.

Another thing I like about the track plan is its prototypical look. Modeling prototype scenes makes a layout believable even if it isn't built for operations. Scenes tend to look real because they are based on reality.



The track height at this spot on my Oregon Coast Railroad is 54 inches high. At just under six feet, I can reach in 21 inches to uncouple the flat car but it is a stretch. Doing it repeatedly during an ops session gets tiring. Also notice the trees under my arm - another irritation over time. That's why the new layout will not have obstructions on the front of the layout and operators won't need to reach in more than 18 inches.

Layout height from floor to bottom of fascia must be 50" for me to have headroom for sitting at the workbench under the layout. That means the top of layout will be 54"—a great height for viewing, but potentially difficult to work without careful planning.

Even though the layout will be 2 ½' deep, no turnouts or other spots will require reaching into the layout more than 18" from the fascia. Also, no structures or other scenery will be placed in that first 18" where they could obstruct reaching in to uncouple cars.

Since the track will be at 54", there will be little or no change in track elevation. I may curve and tilt the mainline slightly so the mainline and the edge of the fascia are not straight lines. Operationally it doesn't matter, but visually it would be better.

I have room to build the layout at tabletop height—about 30". I threw that idea out immediately. Leaning over to uncouple cars gets painful quickly. In fact, unless I built the layout to be operated while sitting, it would be so uncomfortable I wouldn't run it much; and I know most of my operator friends would feel the same.

You might have noticed the plan is 10' long and I have 11½' to work with. That's a gift as far as I am concerned. The designer used Peco Medium turnouts. They work well, but I like the look of slightly bigger turnouts even in crowded industrial areas, so I will use #5 or #6 turnouts. They look better and help reduce derailling.

Turnouts will be powered with Tortoise machines. Each turnout toggle switch will be mounted on the fascia even with the turnout throw bar. Operators will not have to

reach into to the layout to throw switches. Since the toggle locations are consistent, operators won't have to search for the control or keep referring to a track diagram. They can simply reach out at about chest level to throw turnouts without taking their eyes off of their train.

I need to think about industries for the front of the layout, since I don't want structures blocking the track where operators need to reach in for coupling/uncoupling or (not that this could ever happen) rerailling cars. That's one reason floats are popular. Other thoughts are an interchange track, a team track, a pole yard, or a rail car repair facility. The choices I eventually make will be examples of modeling supporting operations.

Incorporating what I have learned while operating model railroads is helping me plan a layout that will be fun to operate, fun to model, and fun to view.

Norfolk Southern Connector—Part IV

by Ernie Little, MMR



Progress continues on the renovation of the Norfolk Southern Connector Railroad. Since the last update, this has included:

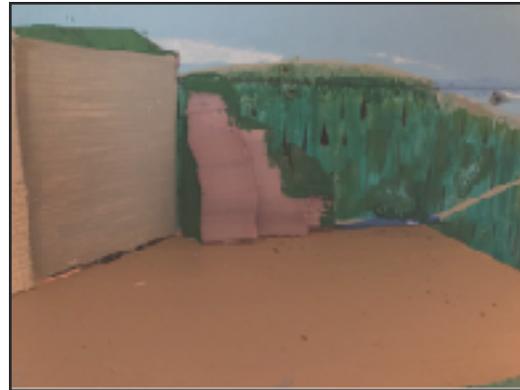
- Connection of the power bus to the second level track.
- Addition of more backdrops.
- Starting of ballasting and scenic details on the second deck.

With connection of the power bus, trains can now be run the entire length of the railroad. Currently the layout is on one power district with one auto reverser in the wye at Joyceville.

The auto reverser is not wired at this time but is in the queue to be wired. When the layout is finished, if there is such a thing, the levels will be separated into separate power districts, upper and lower.

I have completed the installation of the backdrops on the railroad except for one area on the lower level along the wall that leads to the helix entrance. I have not been able to locate a printed backdrop that I like for the area. I will probably either paint one or go to a location and take a picture from which to create the backdrop.

I started ballasting the second level at the entrance to the helix, as well as installing the tunnel portal and scenic details at the tunnel entrance. *(Picture 1 right)* I used a combination of Styrofoam, as a base, and plaster to create the rocks and substrate. I then painted the area with brown, yellow, and various green acrylic colors to create the effect I was



looking for. *(Picture 2 left)* One thing I found when I installed the tunnel portal was the need to install something to block the light that comes from the helix area. Doing so will make it look like a tunnel and not an entrance into a sunny valley. Additional work to be done will include paving and other details for the Bachmann storage building, which will be completed after I finish the corner where Fire Station 3 is located.



Work on scenery has been concentrated on the upper level in the corner after the lift out bridge. *(Picture 3 right)*

A roadway has been painted onto the roadbed using a black chalkboard paint. The roadway starts near the helix entrance, proceeds across the lift out bridge, and onto parts to be determined past the lift out bridge. A roadway has also been painted to access the yard interlock building by the ethanol and intermodal facilities.

Fire Station 3, a Pikestuff kit, has been constructed in this corner.

(Picture 4 right) The station has 12-volt LED lighting installed in it and has been designated as the Rodriguez Station. The apparatus for the station has not been purchased at this time, but it



appears like a foam unit will need to be kit-bashed to provide the apparatus necessary to protect the ethanol facility. A grass mat has been placed on the fire station side of the road along with a parking area and station ramp. I created the station ramp by using a sheet of .010 styrene plastic painted with MODELflex concrete paint, which was allowed to dry, then scored by using a number 11 Xacto blade dragged along a metal ruler to create expansion joints. The styrene was glued into place with carpenter's glue.

Another area where scenery has been done is the area between the loco shop and the ethanol facility. **(Picture 5 right)** Here the same grass mat product has been installed. Ballast is still needed in the track area to complete this scene. Dwarf signals made by Oregon Rail have been secured and prewired for placement at the double cross. The structures for



the ethanol facility have been appropriately placed, and a roadway into the plant has been painted on the roadbed. I still need to ballast the track, make a minor adjustment in the trackwork into the corn unloading building, and install a few LEDs to light up the exterior of the buildings.



The final work to be done is the installation of the base for the digital intermodal crane ([Picture 6 left](#)) at the end of the line of the upper level. The base for the crane has been installed, and the installation of the tracks and other details will be done soon. This has been a challenge, as the crane did not have the installation manual in the box when I opened it. I was successful in finding a manual on the internet, but there is not a lot of information about the crane and its operations. I will probably need to conduct some more research on this when I am ready to proceed.

Ballasting is still needed in the upper-level yard area and in the facilities where track is located.

Some of the signage for the track and structures has been printed and constructed but needs to be placed in the appropriate locations.

The bottom line is that trains can now be run on the layout on both levels. It looks like the renovation may be finished in about four to five months, and then I can start concentrating on “completing” my railroad.

This project has been fun. It has allowed me to do a lot of thinking about how to construct a railroad and add scenic items. Thanks to all of my circle of railroad buddies that have been providing me good information and keeping me on the right “track.”

Ernie Little is the Potomac Division Assistant Superintendent.

Homemade Styrofoam Hot Wire Cutter

by Tim Barr

This is a follow-up to the virtual clinic on using styrofoam as a scenery base that was presented on 12/6/20. The commercially available types of hot wire tools were demonstrated, including the Tippi and the Hot Wire Foam Factory bow type (shown in photo below).



I have been using styrofoam as a scenery base on HO modules for 25 years because of its sturdiness, ease of working, and light weight. It became obvious early on that ripping large sheets into smaller strips was going to be a chore, and that a bigger and deeper cutter was needed. In the clinic I demonstrated a

homemade “deep throat” cutter designed to “rip” long strips of styrofoam accurately and cleanly. Some folks had asked for more details on this tool.

This tool (*photos below*) was made from scraps – a 12” X 20” shelf, some pieces of 1” X 2” and 1” X 3” lumber, and a piece of PVC pipe. The “arm” could be pieced



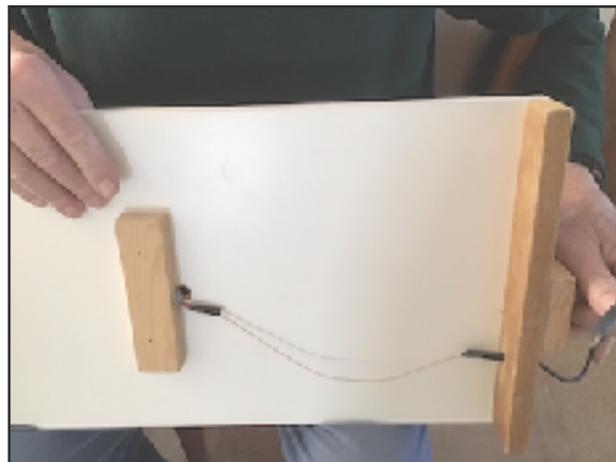
together from wood or even cut from plywood. The only parts I purchased were a jack-type plug to connect to the Foam Factory power pack and a piece of hot wire (from Woodland Scenics).

The hot wire is a bit hard to spot, but it runs from the bolt on the arm down through a hole in the center of the table to a bolt

underneath. Wires on the arm and under the table run back to the plug. The space between the table and the arm is 3”+, more than enough for the usual thicknesses of styrofoam. A fence can be clamped to the table to allow rip cuts of any width. As built, the table allows for 12” cuts.

Editors Note: If you missed Tim’s virtual clinic, you can still see it on our website: <https://www.youtube.com/watch?v=PyZ4JPOQHdA&feature=youtu.be>

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Tim Barr has been involved with local HO modular groups for the last 25 years, most recently the Potomac Module Crew. During this time he has constructed or cut parts for more than 50 modules for the groups and individuals, using Styrofoam extensively for a scenery base.

It's in the Details

by Stan Knotts



I have been scratchbuilding structures for many years now, and from time to time I add interior details. Sometimes I add some limited interior details in part of a structure that has lots of windows or a large open door. While those details are slightly visible up close, they are usually not visible in photos. When I want to add lots of interior details, I usually make the roof or one wall removable. I enjoy doing interior details, and usually they are scratchbuilt, as buying the details can get expensive and some of what I need is usually not available. My layout era is 1939 so that also constricts what details I can use.

I have built many structures of all types, but I tend to try to keep them reasonably small so that I can actually fit them on my layout. I enjoy building small industries the best, although I have built a lot of stores and other structures. Shops and industries tend to have more interesting interiors



such as machines, workbenches and many other things. Scratchbuilding interior details is not as difficult as you might think, and over time one gets better at it. One of the recent models I built was the platform truck shop ([photo above](#)) that has a workshop filled with interior details ([photo below](#)). They include a workbench, a set of shelves, a sawhorse, a dolly, and a trash can. All of these are scratchbuilt. For trash cans I use small sections of plastic straws.



To populate shelves and workbenches I use scrap that I save in small drawers and boxes. These include small pieces of wire, cast metal, plastic scraps, etc. To simulate boxes I use small sections of thick wood strips. Since these details are inside buildings, they do not have to be specific items. For workbenches, I sometimes make small vises for the edge of the bench. I use two small squares of wood or cardstock slightly separated at the base by a small strip of wood. I add a short piece of wire at the outside to simulate the handle.

Workbench tools are easy to make—two short pieces of wire glued together can simulate a hammer, and a small strip of paper painted silver can be used to represent a saw.

Some interior details are unique machinery items that are their own modeling challenges. The autoclave ([photo right](#)) in my autoclave shop seen in a previous article [in the Oct-Nov 2020 *Flyer*] is an example. I really enjoy doing these things.



One model I built was the Hott Steam Pump Company ([photo below](#)). It has brick walls, so I made the side wall next to the edge of the layout removable by creating exterior corners that were attached to the

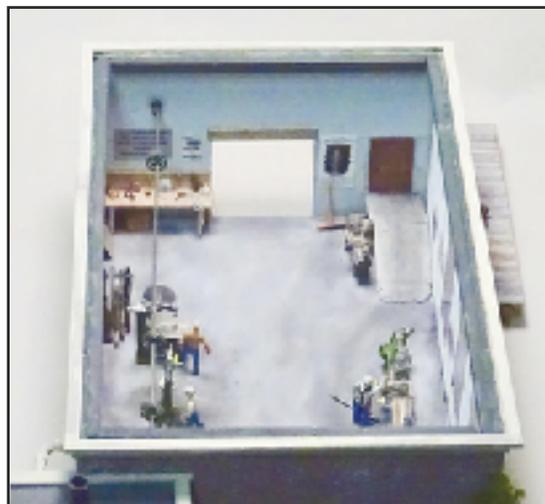


side wall but not attached to the end walls. I push it in place, and it is held up by friction. That way the viewer can see all of the details inside when I remove the side wall. Most of the interior details are commercial machines that I have arranged to be operated by an overhead line shaft with belts attached to each machine. I made the belts with thin strips of paper. The line shaft is operated by a steam engine and boiler in a small shed next to the steam pump shop. The roof on the shed is removable to reveal the engine and boiler. The engine is a commercial product, but the boiler was made using wood dowels of various sizes.

The usual way I make the interior details visible after installation on the layout is to make the roof removable. That means the structure needs to be installed close enough to an edge of the layout to reach it and actually see what is inside. Several examples are shown below.

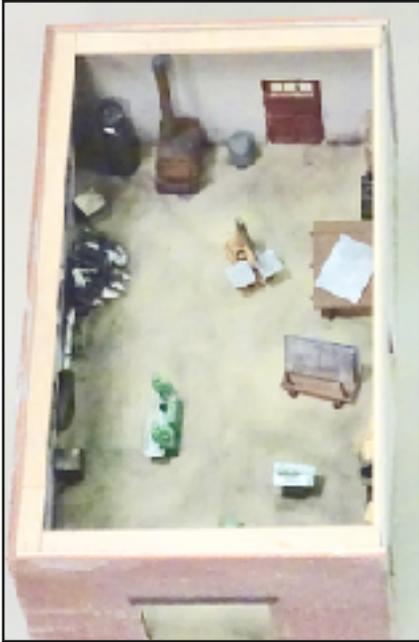


The structure shown in the photo *(left)*, the old machine shop, was built with a removable roof so one can see the machines inside *(photo below)*. The machines are Scale Structures LTD kits, but the workbench is scratchbuilt similar to the Hott workbench. There are other details such as a broom, and some



pipes made from wire bits. Again, it has an overhead line shaft. Whenever I detail an interior, I always add some figures.

Another structure with a removable roof is my shovel factory *(photo next page)*. Inside are some commercial machine parts. I also added some wood for handles, some small metal sheets for the shovel ends, scratchbuilt shelving, scratchbuilt carts, a



scratchbuilt oven for heating the shovel metal for bending, and the miscellaneous detail parts.

I hope you found this to be interesting, and maybe you will try it.

[Flyer Editor's Note: Stan says he has not installed interior lighting in his structures to highlight his details, but there are many options for doing this. I have used some Woodland Scenics "Just-Plug" lights on my layout. They require drilling holes through the layout to run wires to a controller device that plugs into a wall socket. I have also installed Evans Designs LEDs powered by a 3V watch battery inside buildings on a diorama, with the on-off switch hidden under bushes at the rear of structures. There are new fiber optic lighting options as well, for example by Dwarvin.]

Stan Knotts has been a model railroader for more than 65 years and has built many layouts. The current one, the HO scale Royal Oak and Southern, was started almost 30 years ago. Stan spends his modeling time scratchbuilding structures and associated details like trucks. He is a former editor of the MER's *The Local* and has written for the NMRA magazine.

It's in the Details: Rarely-Modeled Scenic Ideas

by Nick Kalis



For modeling urban scenes in any scale, several details come to mind as "often-seen, rarely-modeled." I know this from growing up in a neighborhood with a mix of rowhouses and light industry.

First, rarely are winter scenes modeled in industrial or urban areas with snow plowed so that operations can continue. This might just make for a unique scene on one's model railroad.

Second, even light industry can be ear-splitting noisy. This is can be modeled – though not at an ear-splitting level – with a sound chip, power source, and speakers.

Third, in urban areas, an army of workers would march two or three abreast on sidewalks leading to the nearest subway station (at least in New York City). Other urban areas may have been served by a combination of bus and trolley lines. Bus stops with the appropriate signage can add interest to a model railroad.

Fourth, a light industrial area can have some residential holdouts, which would make for interesting modeling in any scale. I recall as a boy walking every day past a nice single family detached home with a wonderful topiary garden that was mostly surrounded by light industry and factories. This topiary garden did succumb to re-development in later years.

Fifth, go easy on large building signage. Many firms just did not put up large signs, as they often served little purpose and would otherwise be expensive. Why no purpose? Many manufacturers were not producing for the general public. Their output was sold to other businesses. Another reason for not investing in large signs was that often the thoroughfares on which these industries were located enjoyed little foot traffic. And what vehicular traffic those roads carried were not travelled by the sorts of decision-empowered executives who one would want to reach with one's message.

Sixth, some urban areas had telephone lines from which pairs of old sneakers had been tied together and tossed over the lines. Kind of stupid—but? This could be modeled, but would probably not be visible enough to be included in an N scale scene.

Seventh, one industry of a type I have never seen modeled was around the corner from our row house. It was what we would call today a recycling facility, which had a large loading dock in front. We probably had a much less nicer name for this place, probably with "junk" or "trash" in the name. I remember this flat-roof building as nondescript, with no side yard. It was just jammed between two one-story warehouses, or perhaps a row house and a warehouse. The loading dock was covered with bumpers to protect the dock as trucks backed up to it. As boys, to amuse ourselves and gain some pocket change, we would collect used newspapers and bring them to the loading dock. Some unscrupulous boys would try to hide a brick in their bundle to increase the weight. To my shame, I admit, I probably tried this stunt myself. I recall that their employees were on to such tricks. Such a facility could be modeled with trucks unloading their paper at the loading dock.



Photo with permission forgotten-ny.com

Eighth, how about modeling a crude advertising sign nailed (often crooked) to a wooden telephone or electrical post? This is often seen, yet seldom modeled.

Ninth, don't forget one-way-street signs, street name signs, and parking signs, all on the same cluttered post.

Good luck with your modeling

Nick Kalis is the Potomac Division Clerk. His Fn3 Oahu Sugar Company is set in the WWII era in Hawaii.

The Flyer Tips Sheet: Making Real Log Loads for Your Old Steam Engines

by Alex Belida, *Flyer* Editor



If you model early era railroads, you will probably want to run steam engines fueled by firewood. Unless you build your own, you will find a limited selection of suitable locomotives; and most will probably have ugly plastic log loads sitting in the tender, like the one included with the popular Bachmann 4-4-0. You probably won't be satisfied with the way it looks, and eventually you'll decide you must put in something that appears more realistic.

I operate two HO scale Bachmann 4-4-0's with log loads—one a new model with DCC installed, and one older DC only model — plus an old MDC Roundhouse Climax, upgraded to DCC, which also came originally with molded plastic firewood. I have replaced the loads in all three, using real wood, trimmed from small branches I simply picked up from my yard.

Here's how I did it.

The first thing I did is cut the branches (*photo right*) I picked up into smaller pieces, even splitting some of them to look like chopped



wood.



For my first 4-4-0, the old DC version, I had to cut away the plastic log load using a rotary cutting tool. As you can see [\(photo left\)](#), the plastic wood on that engine concealed the motor.

I built a raised platform out of scrap wood to cover the motor and encircled it with a frame out of some spare styrene gondola side pieces from an old Roundhouse kit [\(photo below\)](#). Once I confirmed it would fit, I simply started stacking some of my pre-cut branch pieces into the new

enclosure, gluing them securely in a pile.

I did something similar for the Climax [\(photo below\)](#), cutting out the log load from the single piece body after removing it from the power chassis. Again I built a frame, then glued and stacked firewood in place. In this case, I also added a dirty canvas cover over part of the load. I used one of my favorite go-to's – a piece of used coffee filter, stained with



India Ink wash. (I also used the same filter pieces to make canvas curtains on the Climax cab.)



My latest 4-4-0, the DCC version, was part of Bachmann's limited edition "Transcontinental" Golden Spike Commemorative set. It was much easier to deal with. Instead of cutting away the plastic wood load, I opted to simply cover it with my branch bits.

I first painted the plastic load

a mix of brown and black to remove the shiny blonde color of the plastic. I then applied some Woodland Scenics “Scenic Accents” glue. After it set, I carefully placed my mini-logs, piece by piece, into place with tweezers until the entire original load was covered over ([photo below](#)).



If you pick up branches from your yard to make firewood for your locomotives, you should first bake them in an oven, something I also do with the sand and dirt I use in ground cover. I recall “cooking” mine at 350 degrees for 30-45 minutes. (Others have recommended microwaving but I have no specific recommendation on how long you should do it.) This should remove any remaining moisture in the branches and kill off any critters who might be hiding in the wood. I then take the branches, wrap them in a paper towel, and stick them into a clear plastic container. I leave them there for several days before launching into a project like making realistic log loads, just to be sure they are completely dry and free of pests.

Alex Belida is the Flyer editor. His HO scale Eureka and South Pass Railroad models a mining and logging operation in Nevada in the 1890s.

Keeping Busy During a Pandemic, or Building MoW Cars - Part 4

by Martin Brechbiel, MMR

Building this next car started with a passing photo that caught my eye and provided the needed stimulus for me to start firmly sketching out some plans in smoke and dust. Anything firmer, and change becomes too complicated. I prefer embracing the seat-of-the-pants philosophy of car building, as it permits a far more liberating experience. Once again my plans, such as they were, immediately informed me that the stack of pre-built frames I had were not going to work at all, as this car was going to need end platforms. As a result of that variable coming into play, I also decided to make this a one-of-a-kind car, as my in-shop supply of steps of the style envisioned for this car was limited. The pre-built frames went back into the for-future-use stack.

Building new frames was not a major issue; the supply of stripwood was not threatened. But with the addition of end platforms, a little thought had to be applied to define their dimensions. Actually, very little thought was involved, as it was width of the steps that set the depth of the end platforms. The central framing had to extend at least a few scale inches beyond this measurement. I have no idea what that actual measurement was, as I just used the step castings like a ruler.



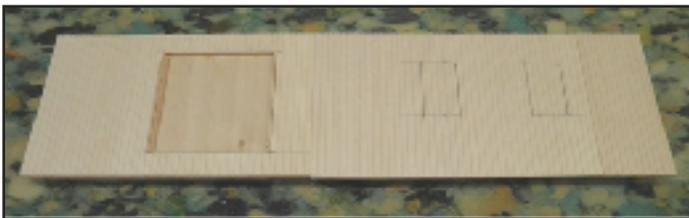
The basic framing was then assembled. The scribed siding glued to the side sills (scribed side down) and other framing is what really held this all together while everything was trimmed out to

complete the base frame. The [photo above](#) shows the in-progress assembly. Scribed siding was done scribed side down, since that's the exposed side. This is far better than a simple blank bit of sheet basswood, as even from the underside these little details can have impact.

This car called for ends with doors, so some door castings from Grandt Line were pulled out of the bin. These were inserted into some scribed siding; and then the back of that unit was brought up to flush, as the castings were rather deep. The door ends

were then glued to end blocks that were going to be used to assemble the basic car body. The blocks were fabricated from some 1" pine scrap in the shop, cut to the width of the floor and that of the body bolsters, and then to the height of a car, minus the contribution in height from the floor of the base frame and the roof stock. The

blocks were also painted black where the windows of the doors would normally let one see inside. The basic box framing for the body was accomplished by gluing the ends into place with the wood roof stock flush with the ends (*photos left & below*).

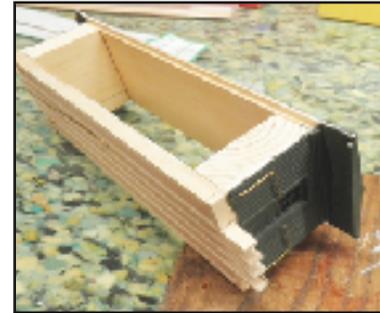


The sides were built up from scribed siding, and the side door and pair of windows laid out. After cutting all of the openings, the door was preliminarily started and Grandt Line window castings were test-fitted (*photos left and below*).

The roof overhang over the end platforms had to be installed while the sides were being built out. This is a bit of an old trick. A 4"x6" index card was cut into two pieces and glued to the top of the roof stock. The end of the card stock was aligned with the end of the platform after the end beam was applied to the extended card stock roof. After the glue was set, the underside of the card stock was filled in with strip wood to create the illusion of roof sheathing.



Being accessible at this time, some of the platform grabs were fabricated from brass wire and installed onto the ends. The ends were then painted Pullman Green (*next two photos below*).



The sides (*two photos below*) were finalized with the door details applied. Then they were painted so that the windows could be glazed and painted a different color more conveniently. The rattle can of red primer makes a nice generic freight car red. After the paint was dry, the sides were glued into place on the body frame. Added details like the door grabs and handles were fabricated from steel wire. Stirrup steps were



formed from old Walthers passenger car steps, drilled, and then secured with a mix of superglue (CA) and Goo prior to being pinned into place .

With the end beams put into place, this was a good time to attend to the entire set of underbody details. Body bolsters and needle beams were glued into place, and 3" queen posts were mounted into place. I had leftover Grandt Line queen posts, and a few odd ones left over from a brass set, which made up enough to do this car. Holes were drilled at each end, next to where the steps would be placed and through the end beams. A single length of surgical silk was threaded through the car four times under the bolsters and over the needle beams. Turnbuckles (Tichy) were added with each pass, and the surgical silk was secured at each end of each pass with a large Nut Bolt Washer (NBW) casting and CA. The excess silk was trimmed away later.

I had a Grandt Line K brake assembled from its pack of parts. After the cylinder was mounted into place on some scrap scribed siding, the location of all the rest of the brake parts became more defined (*photo below*). The levers were my resin castings, and Precision Scale (PSC) turnbuckles were used to make the clevises. The brake hangers were from PSC. All of the plumbing was brass or phosphor bronze wire on this car. The last brake connection was to the brake stirrup that I made from some brass box stock that the brake staff passes through from above.



Returning to the ends, the railings, side grabs, and ladders were installed. You can see the end sill was capped over with a bit of styrene channel where the center two truss rod end bolts are located, prior to the silk being trimmed. The steps were Keil-line castings which were secured in place with a mix of Goo and CA. The other two truss rod end bolts are hidden behind the steps. The one end also sports a brake wheel with a



ratchet & pawl casting and a shaft that runs down through the previously noted brake



stirrup. The beginnings of the roof details are also visible here (*photos above*).

Moving to the roof (*photo next page*), one can see that there has been a bit accomplished here. Roof walk supports were added prior to the 50% overlapping single ply napkin material. That roofing is put into place using 50% diluted Carpenter's glue.



After that was good and dry, the now-installed tarred canvas roof was painted Lark Dark Gray. The roof walk was glued into place. A smoke jack casting (Train Craft?) hollowed out on the drill press was inserted into a hole in the roof and secured with Goo and CA. End platforms were fabricated from stripwood.

Air hose castings (PSC) were added to each end. Final painting was done to wrap up the building of this car, and the underbody was stained with MinWax Walnut. The painted and then glazed windows were mounted into place, and bits of stripwood painted Platinum Mist were

added over them as sun shields. The addition of trucks and couplers completed the build of this car.



The Finished Model

I'm off to the next MoW car to build now.

Martin Brechbiel is the Potomac Division Superintendent.

Models We Admire



Local freight departs the village of Proctor on the branch line of **Mark Gionet's** Boston & Maine Western Route after leaving an empty milk car at the Brookside Creamery. The creamery and ice-house behind it are from the South River Modelworks' Kingston Creamery kit which has been site-adapted to fit the short siding. The farmer's pick-up is a Sylvan Scale Models Studebaker kit. The hotel in the background was the subject of an earlier Potomac Flyer article.

Once upon a time, **Dave Emery** made this structure for the late **Marshall Abram's** layout: "Since we both worked for MITRE at the time, I made a "MITRE Box Company - We Cut Corners for You!" model." (Photo courtesy of **Martin Brechbiel**). In case you missed it, the January issue of *NMRA Magazine* (p. 12) has published Marshall's article about installing a construction site on a model railroad with a sidebar he wrote with **Tom Brodrick** on steel frame building techniques.



Brian Sheron sent in these photos of kit cars he built. First is a Taurus Products stock car, second is a Tichy milk car, third (*next page*) is an Ambroid insulated tank car, and fourth (*next page*) are two Ambroid phosphate cars.





Editor's Note: If you have a model photo you'd like to share, send it to ***The Flyer:*** Potomac-Flyer@potomac-nmra.org

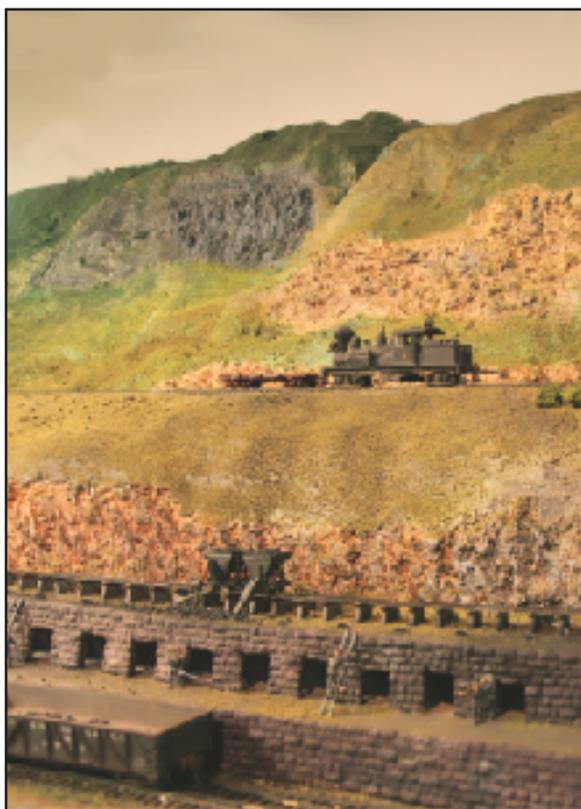
Turning Your Hobby Into A Business: One Man's Saga

by John Glaab

Editor's Note: We recently received word of John Glaab's passing late last year. Our late Flyer Publisher Marshall Abrams had asked John earlier in 2020 if he would write this article. John wrote it but later asked that it be pulled. When asked why, he said, "It seems too much like an obituary." We respected his request, but now, to honor this remarkable model railroader, we publish it.

How does an avid model railroader, happily at home enjoying his hobby, evolve into a businessman? Well, I stumbled into it, and ended up becoming one of the major brass dealers in the country.

It happened this way: a fellow model railroader called me one day and said, "If you want to buy my collection, be over here tomorrow by 10:00 AM with xxx dollars." It



A photo from John Glaab's C&O Peach Creek Division layout (plan on next page)

was a shock. He was a very good modeler and had a lot of Chesapeake & Ohio Railroad models that I coveted. His asking price was reasonable and I had the money! So the next morning I showed up bright and early with the cash and went away with his collection.

Once I got home, I started sorting the stuff. Most of it was brass locos and several of them were C&O. These were keepers. But there was more, much more. He bought kits and parts by the dozens: freight cars, buildings, brass castings, loads of detail parts, scenery materials, etc.

What was I to do with this excess stuff? I decided to join the crowd of vendors at MER conventions, and that is where my plans changed.

I had expected to sell this stuff and go on my way. But then someone would come to me and say, for example, "I'd like to buy that XYZ 4-8-2 you have there, but I don't have that much money. Could I trade you my ABC 2-8-2 and xxx dollars?" A little

horse-trading math told me that this was a good deal for me. I could make a profit on the deal and the customer was happy. The only problem was that the pile of brass didn't go down! I was making money, and my inventory continued to roll over. People would come up and ask if I wanted to buy their collection of brass locos and freight cars. The MER conventions were giving me a good outlet, and I started a mailing list.



The big change happened when I got a call from a brass importer who had heard that in one collection I had purchased were several photos and drawings of C&O steam locos. We struck a deal and if they used my drawings, photos, and data, they would give me a loco when it was produced. I did this for two or three locos, and everything worked out great. They were fair and honest, so I was happy. Then one day they called me to talk about a C&O project and I asked if I could become a dealer. There was an awkward pause, and the response went something like, "Well you know, Johnny, we have several dealers in your area and it might be awkward for us to sell to you at dealer net." I responded by saying that I understood, but I was hoping to buy a dozen of their latest C&O engine. That did the trick.

Using this as leverage, I convinced several other importers to make me a dealer.

My brass business flourished, and I started mailing out a catalog listing all the models I had in stock. At one point there were over 1,700. I offered discounts, reservations, and trades. Things were cooking. I even took over updating the *Brown Book of Brass Locomotives* after Ray Brown died.

I eventually opened my own hobby shop, Peach Creek in Laurel, and ran it for some 30 years.

Could it happen to you? Who knows? I had a good, if unexpected run. And, best of all, my interest in model railroading is undiminished.

Editor's Note: John founded the Steel Mill SIG (Special Interest Group) and organized the only national NMRA Convention held in Washington (in 1982). He wrote monthly columns for Brass Modeler and Collector and contributed to Railroad Model Craftsman. John worked most of his career at NASA.

Achievement Program Report

by Mat Thompson, MMR

Bryan Kidd has earned the Chief Dispatcher Certificate.

It may still be some months before COVID is tamed enough for us to go back to normal, but that's no reason to slow down your AP efforts.

For the Certificates that only require someone to sign off on your work, everything can be digital. Fill out the Statement of Qualifications (SOQ) and email to those who need to verify the info. They can print the form, sign it, scan it, and send it back to you, or they can simply write a note verifying the appropriate lines on your SOQ. This would work for **Administration Official**, **Association Volunteer**, and **Chief Dispatcher**.

For **Author**, no signatures are required. Just provide your articles and/or URL's indicating where they are located. Author is the one Certificate that requires the Record and Validation Form as well as the SOQ, but it still can all be sent digitally or by U.S. Mail.

Model Railroad Engineer - Civil and **Model Railroad Engineer - Electrical**, could both be demonstrated with video – meaning all the documentation and the video can be

submitted and judged digitally. With some coordination, we might even be able to judge using a Zoom meeting.

Three other categories -- **Master Builder - Motive Power**, **Master Builder - Cars**, and **Master Builder Structures** -- still require in person judging, so evaluation will have to wait until we can gather safely. But all of these categories require a lot of work. Do the modeling now and the required documentation, so when it is safe, we can get judging completed quickly.

Master Builder - Scenery and **Master Builder - Prototype Models** probably require in-person evaluation, but maybe, with lots of clear photos in the SOQ package, judges who have visited the layout before and know it might be able to do a proper evaluation in a Zoom meeting. No promises here, but if you think that might work for you, let me know and I will see what can be done.

Remember, when you do the writeups, you are not writing for the model press. Be brief and use lots of pictures if you can. If doing a writeup makes you think of high school English assignments, you are doing too much. Also, the list of materials can be simple—we don't need brand names and part numbers, just a list of the pieces and parts.

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2021 Mount Clare Junction

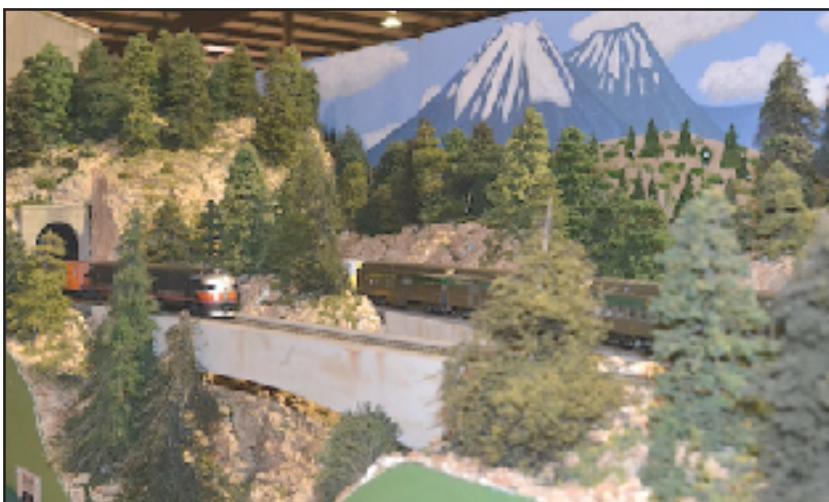


Editor's Note: The following information has been provided by the organizers of the 2021 MER Convention, Oct. 21-24 in Hunt Valley, MD.

This month we take a look at just a handful of the great clinics which will be offered during the convention. Enjoy, and happy new year!

Making Pine Trees: Easier Than You Think!

Purchased model trees can be very expensive, especially if you need many of them. Making your own for about 50 cents each can save a lot of money. [Jim Fisher's](#) course starts by studying real trees. With this knowledge, details on how to mass produce models of pine, spruce, fir and other types of conifers trees quickly and inexpensively are presented. During



the [clinic](#), you will be provided a kit capable of making several trees, and it will be used to put the lesson into practice by making one model tree during the course.

Modeling The MA & PA Red Lion PA Depot In LEGO®

When [Cale Leiphart](#) decided to model the Maryland and Pennsylvania Railroad's depot in Red Lion Pennsylvania he followed the basic procedures of the Master Builder - Prototype Models AP certificate: he thoroughly researched the prototype learning about the buildings, the arrangement, and the rolling stock at the site. Cale scratch built this sprawling L-Gauge station from plastic stock, though the form differs from the regular Evergreen sheet and Plastruct shapes -- he built it from LEGO®. Even the scenery is recreated in bricks. Check out Cale's [clinic](#) on the MA & PA Red Lion PA Depot to learn about the station, design details and the building process.

Arduino Basics for Enhancing Your Railroad

Arduinos are very small computers, essentially a chip on a small board with connection points, and this extra fare clinic will net you a board, jumper wires and a few other do-dads you will need to get started in applying this inexpensive device to your model railroad. Some of the functions they can be used for (but not limited to) are: Block Detection, Turnout control, Crossing flasher control and Layout lighting control. In this extra fare [clinic](#), [Kurt Thompson](#), MMR, will show how to use an Arduino to control crossing signals and a tortoise switch machine. Please plan to bring a laptop to participate during the course. Don't be afraid, jump in!

And in case you missed it, here's a reminder there will also be layout tours, including:

Al Pugliese's Pugsburg Railroad:



Based on the Appalachians in the 1950's, Al's freelance railroad pays tribute to his major influences, John Allen, Howard Zane, George Sellios and Harry Clark through thousands of Super Trees and similarly detailed large deciduous trees in summer foliage adorning floor to ceiling rock castings. The chest-high double track mainline runs around a 23' x 32' horseshoe featuring two 20-foot straights and has a 10' x 10' spur line running through vignettes of Ellicott City and Point of Rocks, MD.

2021 Potomac Division Calendar

Sunday February 21st, 2021 Virtual Clinic 9, 3PM

Virtual - John King - Track Arrangement & Operations

Saturday February 27th, 2021 Make & take 10am

In person - Martin Brechbiel - Building a flat car; Scratch building
Jerry Stanley's Hobby barn, Hume Va.

Saturday March 13th, 2021 Make & take 10am

In person - Cam Green - weathering, Jerry Stanley's Hobby barn

Sunday March 21st, 2021 Virtual clinic 10, 3PM

Virtual - John Sethian - Art & Technique or lighting Building and streets

Saturday April 10th Make & Take 10am

In Person - Ken Wilson -Painting Back drops
Jerry Stanley's Hobby barn, Hume Va.

Sunday April 18th, 2021 Virtual clinic 11

Virtual TBD

Saturday May 8th Make & Take clinic 10am

In Person - Earnie Little - TBD - Scratch building a car in Styrene at Jerry Stanley's
Hobby barn, Hume Va.

Sunday May 16th, 2021 Virtual clinic 12

Virtual TBD

Saturday June 5th, 2021 Make & Take clinic 10am

In Person - Jerry Stanley - TBD - Carpentry techniques to build a module
Jerry Stanley's Hobby barn, Hume Va.

Sunday June 20th, 2021 Virtual clinic 13

Virtual TBD

July 4-10, 2021 NMRA National Conventions

Santa Clara, California

Sunday July 18th, 2021 Virtual clinic 14

Virtual TBD

Saturday August 7th, 2021 Make and take clinic 10 am

In Person - Shannon Crabtree - weathering techniques using an airbrush
Jerry Stanley's Hobby barn, Hume Va.

Sunday August 15th, 2021 Virtual clinic 15

Virtual TBD

Saturday Sept 18th, 2021 Make and Take clinic 10am

In Person - Nicholas Kalis - Design Secrets
Jerry Stanley's Hobby Barn Hume Va.

Sunday Sept 19th, 2021 Virtual clinic 15

Virtual TBD

Sunday Oct 17th, 2021 clinic **Virtual TBD 16**

October 21 - 24 MER “Mount Clare Junction” Convention
Delta Marriott Hunt Valley, MD - Chesapeake Division

Sunday Nov 21st, 2021 NMRax convention

Sunday Nov 21st, 2021 Virtual clinic 17
[Virtual TBD](#)

Sunday Dec 19th, 2021 Virtual clinic 18
[Virtual TBD](#)

August 14 - 21, 2022 NMRA National Convention
Birmingham UK



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Electronic Meeting Policy for the Potomac Division, MER

1. All participants (Board members and invited Staff) will have read the BoD agenda and any other provided information for the meeting prior to the meeting and they will be prepared to act upon each item and topic without delay. Questions and conversations between Board members prior to the meeting to gain clarification or additional information is encouraged.
2. Reports from Board members and any ancillary functionaries will not be read to the Board and other attendees during the meeting. If a member needs to add or change information, he may do so to the extent he is not substantially changing his report. If there is a substantial change in his report caused by events occurring after the report was filed, the Board member must contact the Superintendent promptly when the event occurs and then also before the meeting so that the Superintendent can determine how the matter will be addressed.
3. Discussion will be limited by a motion at the beginning of the meeting to a time limit of five (5) minutes. On motion of two members or in the Superintendent's discretion, this provision may be waived as to any particular matter either before or after the aforementioned rotation of discussion has been concluded.
4. Discussion during/about topics shall be done in the following order as I call upon each person: Sr. Assist. Superintendent, Assist. Superintendent, Clerk, Paymaster.
5. Recognition of other attendees will be done by the Superintendent through use of the "chat" function to address questions, to provide additional requested information to the Board, or for required discussion of a vote by the membership. All attendees will use their real names at these meetings or be removed from the meeting room. The Superintendent shall recognize persons by name and also clearly place a rigid limit on their time on the floor, e.g. "The Chair recognizes "Member's Name" for 2 minutes". Control of the mute function shall be strictly controlled to maintain order of the meeting.
6. All attendees shall be muted when not speaking. Please use the mute feature on your phone or in the software on the monitor. The host shall also control this function for the meeting. Do not call in on your phone and also have the sound unmuted on your computer!
7. When a vote is called, the Superintendent will take the vote by roster in order: Sr. Assist. Superintendent, Assist. Superintendent, Clerk, Paymaster. If a tie break vote is needed, the Superintendent will cast it at the end of the roll call.
8. Your patience and tolerance will be expected and appreciated so we can efficiently conduct the business of the Potomac Division, MER.

The Potomac Division, Mid-Eastern Region, National Model Railroad Association includes the District of Columbia; Calvert, Charles, Montgomery, Prince George's and St Mary's Counties in Maryland; Arlington, Fairfax, Fauquier, Loudoun, Prince William, and Rappahannock Counties in Virginia, as well as all area independent cities.

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(who deserve many thanks!)

The Potomac Division Needs Your Help

Yes, **you!** Not the model railroader down the street; not the other guy, **YOU!** Lend us a hand. If you don't, we'll keep on running this notice until we fill all our slots. A commitment to volunteer is not a lifetime commitment. Help us out for twelve months and we will be grateful. Passing your job along to someone else after a year is just fine though we'd prefer you stay on.



CURRENT POSITIONS THAT NEED VOLUNTEERS

Newsletter Publisher: *The Potomac Flyer* is looking for a volunteer versed in desktop publishing and newsletter production to take over as Publisher. Requirements include preparing, laying out and producing *The Flyer*, helping solicit articles and photographs and working closely with the Editor to provide a quality publication for posting on the Division website. Contact Martin Brechbiel superintendent@potomac-nmra.org or *Flyer* Editor Alex Belida abelida@yahoo.com

Train Show Outreach: The Division is looking for volunteers to represent the Division (and the NMRA) at future train shows. We'd like to have eight people to staff an outreach booth, two to set up the booth, two to pack up the booth, and one person to select photos and print and mount them for an NMRA information board. Contact Jerry Stanley jerry@madisonhomesinc.com

Want A Topic Covered in The Flyer???

If you'd like to see a particular subject covered in *The Flyer* in the future, send your requests to Potomac-Flyer@potomac-nmra.org and we'll add it to our planning list. Then we'll cross fingers and hope one of our distinguished members will offer to step up and share his or her expertise by volunteering to write that article.

Our pitch for something in the last issue on hand laying track has been met by Nigel Phillips series starting in this issue and the foam cutter item by Tim Barr is a start on our request for help with terrain making. So the "Wanted" feature works! Try it.

Hobby Shop Business Cards:

