FORM 19

The Official Newsletter of the Hudson-Berkshire Division of the NER NMRA

Order Number 346 April 2019

Next Division Meeting Friday, April 26, 2019 at 7pm

A Basic Introduction to the Arduino Hardware and Software by Artie Krass

At the Mechanicville Fire Department,
54 North Main St, Mechanicville NY

Arduino what? - UNO? - Sketch? - IDE? - Shield? - Breadboard? – Dupont connectors?– PWM? - Mega? - Adrafruit? - Sparkfun? – Pololu?

Any of these sound familiar? Hopefully by the end of this introductory presentation about the open-source Arduino hardware and software you will have a better understanding of what the Arduino world is all about, and what all of the above terms refer to. In addition I hope to show how we can use the Arduino to enhance our model railroads with some simple projects. And you do not have to be an accomplished programmer to make use of the Arduino circuits – since the Arduino world is open source there are numerous versions of project code out there for you to access, use and modify to suit your needs

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Form19

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The opinions expressed do not necessarily reflect those of the Division. Products and publications mentioned in *Form19* in no way constitute an endorsement by the Division.

Contributing to the Form19

The *Form19* staff welcomes all contributions. Letters, articles, photos, and other items may be mailed or e-mailed to the editor. Please include a note if you would like materials returned. Suggestions also welcome.

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The Ready Line

By Irwin D. Nathanson

All Aboard for Empire Junction

As those of you know who have attended recent HBD meetings, I like to take impromptu polls of those present. At the next meeting later this month, I plan on asking two questions:

1. How many of you have ever attended a regional convention?
2. How many of you plan on attending the next NER convention to be held in Syracuse in September?

Now, in the spirit of full transparency, via this article, I hope to positively influence the responses to the second question!

Regional Conventions

Recently, there's been some debate amongst the Leadership Team regarding the value of the Northeastern Region (NER), and regions in general. Without entering into this discussion, I feel that one of the most valuable things the regions bring to the table is their facilitation of the regional conventions.

Without regions, by definition, there would be no regional conventions, just the annual NMRA convention.

The annual NMRA events are fantastic (I've attended several) but they are longer and although, they offer more than the regional events, they also cost a lot more to attend, especially including travel costs, meals and hotel bills for an extended period of time. Many of our members just don't have the money (and available time) to attend annual NMRA conventions.

Regional conventions, on the other hand, are closer and more affordable, and they don't require that much time off from work, for example, because half of the typical four-day event is on Saturday and Sunday.

Attending regional conventions is educational and lots of fun. They're also great opportunities to renew old friendships and to make new ones.

Although time-consuming and often grueling, planning, hosting and running a regional convention is also a lot of fun. Indeed, since its founding in 1966, HBD has hosted *three* NER conventions!

Empire Junction 2019

This is the upcoming NER regional convention. It will be held in Syracuse 19 – 22 September. Hosted by our sister division, Central New York (CNY), it looks like it's shaping up to be a real winner.

I believe all regional conventions feature various **clinics**. But those planned for Empire Junction seem especially good.

For example, on Thursday afternoon, there will be a special, three-hour "Digital University." This will be hands-on: those who register need to bring a computer with them and two DCC-equipped locomotives. They will download JMRI (see my March Ready Line) and receive instruction on the many possibilities it affords for decoder programming and layout control. Using what they learn, they will

The Ready Line (continued)

speed-match their two locomotives. Note: this is an extra fare event costing $10. Registration is limited to 15 members. I expect those slots to quickly sell out. Indeed, the main reason I am writing this column so far in advance is to give our HBD members advance notice and – if they act quickly – a fair chance at getting one of those slots. Actually, at most there are only 14 slots left since I already registered for one of them!

Digital University will continue Thursday evening with sessions on Layout Command Control) and JMRI Operations Pro. (Again, see my March column.) These are open (not extra fare) events and attendance is not limited.

Noted model railway authors/photographers Lou and Cheryl Sassi will be giving clinics on layout detail work and custom trees.

Noted modeler Jack Ellis of Bar Mills will be presenting a three-hour hands-on clinic on Friday. Participants will build, finish and weather a Bar Mill's kit following Jack's guidance. This session is limited to 20 participants (actually, 19 for the same reason noted above – so hurry up and register!). The extra fare of only $10 covers the cost of the kit and materials.

Other clinics will be presented by Dave Myers of Gatorfoam and our relatively new National President, Pete Magoun. I will also be presenting my clinic on Miniatur Wunderland. *And there will be many others.*

Other standard features, more or less, of regional conventions are **prototype tours**. For Empire Junction, this will be an all day fall foliage tour on the Finger Lakes Railway. Heralding NYC paint scheme, this scenic railroad journey will follow the former NYC Auburn Branch. The trip loads at 0830 on Saturday. The train, with three coaches and a Budd RDC will proceed west for three hours towards Geneva with a photo run-by planned at the Central NY Chapter of the NRHS-restored Martisco Station. The train will reverse direction returning by 1500. Lunches from Panera Bread are available for pre-ordering.

Operating sessions are very popular features of regional conventions. For Empire Junction, nine layouts are scheduled to offer operations – with more than 130 slots available.

Layout visits are also on the agenda at most regional conventions. But the CNY organizers of Empire Junction seem to be doing all they can to "break the mold." In this regard, Friday's activities will start with the "Lakeshore Limited," a guided tour of great layouts in the adjoining (to the west) Lakeshores Division. Seven unique layouts will be included, along with a tour of the NCE factory. This will be a carpool tour leaving the headquarters hotel (Holiday Inn, Liverpool – very affordable in general and offering special rates for convention-goers) at 0800 and returning about 1800. There is no added cost for this tour. But participation is limited to 20 (err, 19 at most…guess why).

There will also be **non-rail activities** including a "Sip 'n Paint" on Friday evening at 1830. This fun session has participants painting a piece of art based on a railroad (or other) theme. To help the "creative juices" to flow, the artists will enjoy some wine. A $30 fee includes instruction, paint, canvas and – wine! Julie and I participated in a similar event for Valentine's Day. It was very enjoyable!

There's a lot more but, as a salesman, I go by the motto: when a customer says "yes, I'll buy," it's time to stop selling! So, I sincerely hope I've sold you already on attending Empire Junction this coming September!

A Registration Form was included in the April – June 2019 issue of "The Coupler." Better yet, you can register on-line at: www.empirejunction.org

In closing, when I hold my poll during our next meeting, and I ask you all "how many of you plan on attending Empire Junction?" I hope to see all hands raised high!

Thanks, and see you April 26!

2019 NER Convention in Syracuse!

September 19-22, 2019

www.empirejunction.org

Taking Operations to Notch 8

By James L. Lauser

As a model railroader, I enjoy doing everything I can to make operations more realistic. Several years ago, I heard about a project from a company called Iowa Scaled Engineering that would eventually become the ProtoThrottle, I was very interested. I followed their development process on Facebook up until the product came to market last year. When I saw that they'd be demonstrating the throttle at the Springfield show, I had to try one out, and as soon as I did, I knew I needed to get one for myself, so I bought it on the spot.

The ProtoThrottle is a hand-held box, wider, thicker, and heavier than an NCE ProCab, but not quite as tall, and is designed to mimic the look of an EMD-style diesel locomotive control stand. It has large, easy to use handles for direction, throttle, brake, and horn, plus two satisfyingly chunky latching buttons – one for the bell and one programmable. There are also two knobs to control front and rear lighting functions, and a small screen with four small buttons surrounding it, two for operating the menus and two for additional function control. The build quality seems quite sturdy.

So you might ask, what might one use one of these for? Well, the point is to make your model trains feel more like the real thing. Real locomotives don't have little knobs that make them go faster and slower. With a ProtoThrottle, you can control your diesels much more realistically. But that's not to say that this is easy.

Starting out with the ProtoThrottle is a bit of a complicated exercise, but I feel it's worth the effort. First, when you purchase the throttle, you also need to buy an interface board. The ProtoThrottle is wireless, but uses the XBee standard (a fairly common wireless protocol for industrial control systems) rather than the proprietary systems like the ones that NCE or Digitrax uses. The interface board receives the XBee signals from the ProtoThrottle and relays them to your commands to your DCC command station. One board is available that talks directly to NCE or Lenz systems via their respective control buses, and the other has a WiFi interface that will talk to JMRI via the WiThrottle protocol, or any system that speaks the same protocol, such as Digitrax's LNWI, or theoretically TCS's upcoming WiFi Command System. I went with the NCE/Lenz interface since I have an NCE system, and the ISE engineers that I spoke with at Springfield said it was much easier to use and more reliable. But this is actually the easier part of the setup.

The next thing you need to do is configure one or more locomotives to work with the ProtoThrottle. While you *can* run any engine with a ProtoThrottle, it won't really make all that much sense to run a standard engine with it. In order for your engines to work the way you'd expect with the ProtoThottle, you need to modify their decoders' settings somewhat extensively to respond correctly to the inputs they'll be receiving. I won't go into the technical specifics here, but the general idea is that you need to massively increase the decoder's momentum so that acceleration is proportional to the throttle setting you choose and the train will coast correctly when backing off, the brake function needs to be configured to work with the brake lever, and lighting functions should be modified so that the light controls do what they're supposed to. ISE's website and their very active discussion group have instructions on how to make these modifications on ESU LokSound (for sound files that have the Full Throttle feature), SoundTraxx Tsunami 2, and TCS WOWSound Diesel decoders.

It's possible to get other decoders to work with the ProtoThrottle, but these ones are documented to work best. Of those options, I only have the ESU decoders, so I used that for my tests. It took me a few attempts at tweaking settings specifically around the braking function to get my locomotive to behave in a way that seemed right to me. Every engine and decoder combination is going to be slightly different, so this will probably be the trickiest part for most users.

Once I got everything configured the way I wanted, I started playing around on my layout, getting the feel for how to operate my engine and not have it run away from me. The first thing you'll learn VERY quickly is that you need to run your trains SLOWLY when switching. Accelerating and braking take a significant amount of time, and if you want to spot cars accurately on a siding, speed will be your worst enemy. But as I said in the beginning, this is all about making operations more realistic. Real trains run really slow when spotting cars on sidings, and it's for exactly this reason. Trains don't just stop suddenly when you pull off the throttle.

After having used my ProtoThrottle quite a bit at home and during an operating session, I can say I'm really quite happy with it. It's certainly not for everyone, though. If you're the kind of model railroader that can't stand the momentum feature on most decoders, this is definitely not for you. It's also rather expensive, and being a niche product targeted just at model railroaders that are really serious about operations, I don't anticipate that the price will come down any time soon. Also, the modifications to your decoder configurations necessary to make your locomotives run properly mean that you'll very likely need to either make a decision to only use ProtoThrottles, or have a split between engines that you'll use with the ProtoThrottle and other engines that you will use with standard throttles. But if you're looking to step up the realism in your operations, I really can't recommend this product enough. It really is that good!

UPCOMING EVENTS

Friday May 17h

clinic by Bruce Johnson

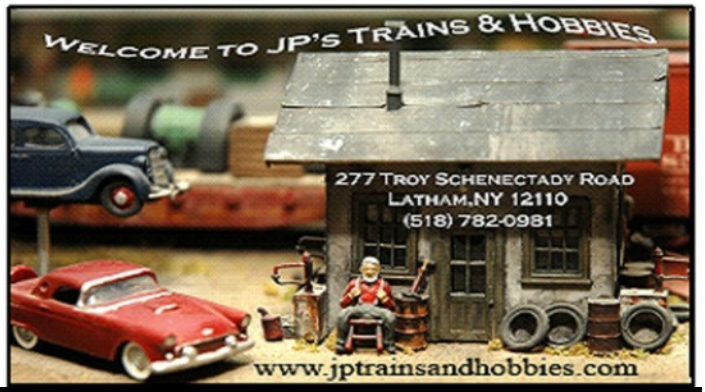
Saturday June 15
Family Picnic at ALS

Summer Hiatus!

Are YOU going to the

———— >

?????????



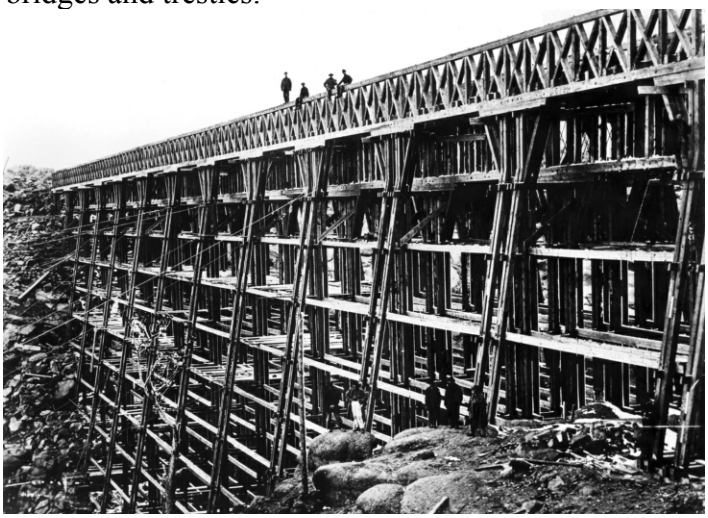
Does Your Layout have a Bridge or a Trestle? If it doesn't, why not?

By Bert Pflegl, Associate Editor

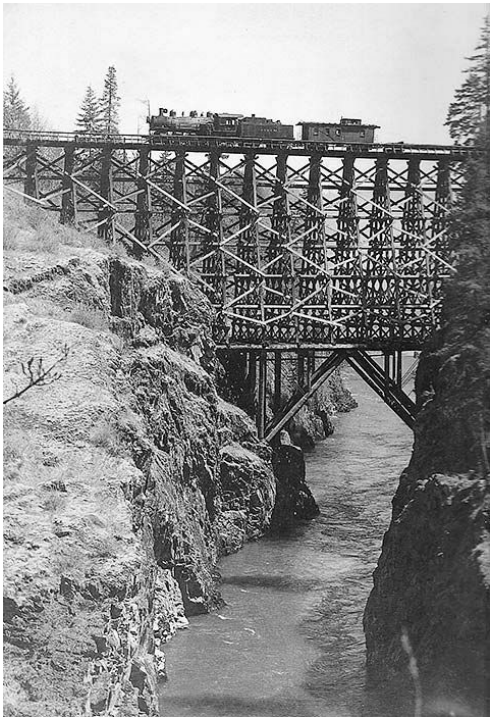
Bridges and trestles are important features of almost all railroads since, by nature, railroads need level or only slightly inclined track to work. Track can not be laid to follow the terrain if there are any significant depressions or valleys; no sharp changes in grade and grade kept as small as possible. But you know that, already. And you know the difference between bridges and trestles.

The *Form19* had an article on the new bridge Norfolk Southern built across the Genesee gorge at Portageville, NY; a remarkable structure with an aesthetic design..

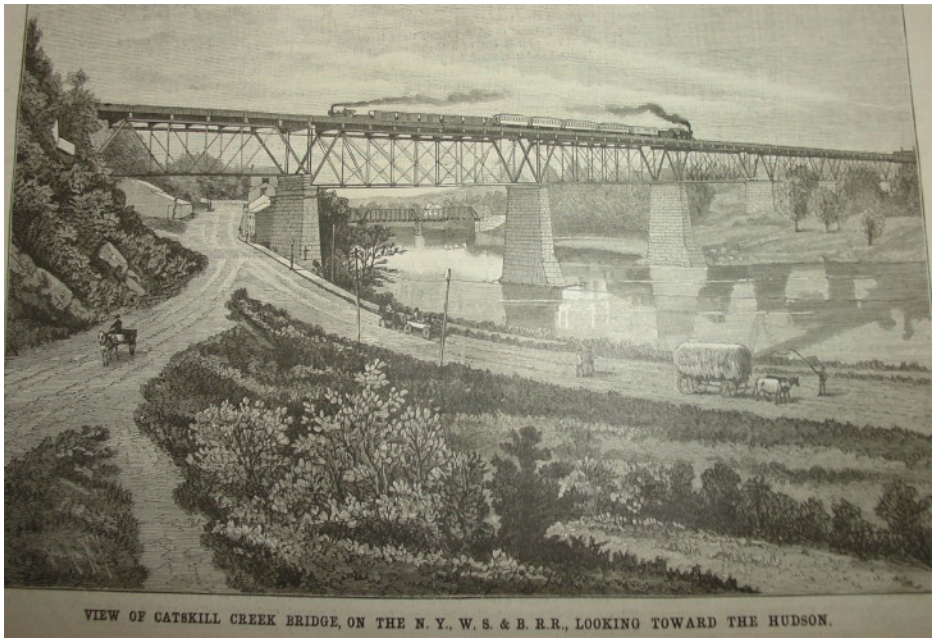
So bridges and trestles are iconic; every layout should have at least one - unless it is under the Christmas tree. You have visited layouts where they have been built to be exactly like the real one on the railroad being modeled. You've even seen a layout with a spectacular bridge - that was built from scratch before the layout was even started. So where is yours? Here are some pictures to give you ideas.



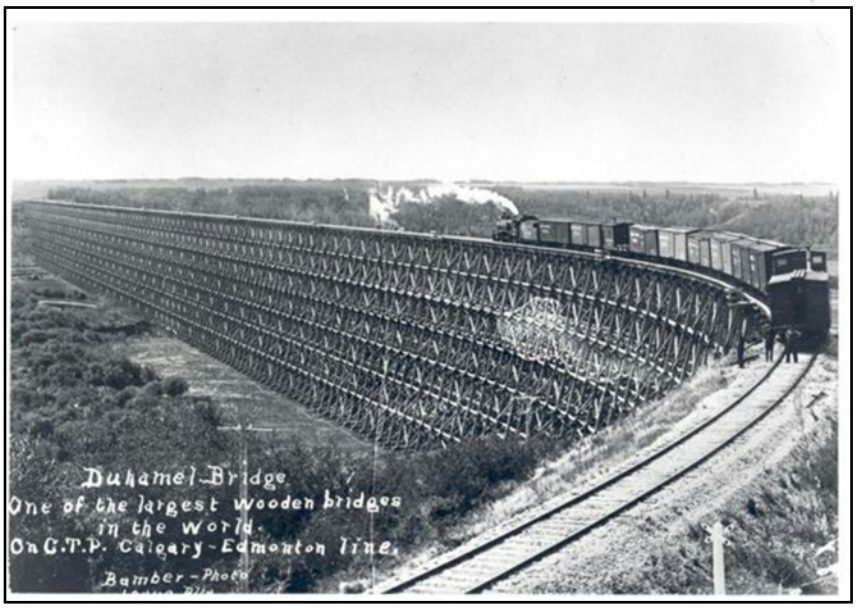
Dale Creek Bridge in SE Wyoming -original above replacement on the right. Both steadied by cables



Bridge/trestle across narrow ravine. Railroad unknown.



The NYWS&B RR bridge across Catskill Creek at Catskill, NY. View looking east. This was before rebuild to handle heavier trains. Catskill Mountain Railroad bridge across stream to Catskill Mountain House is low in the background.



Now here is a picture of the trestle at Duhamel, Alberta, Canada that was built by the Grand Trunk Pacific RR to cross the Battle River Valley (see below). The Battle River is a 'meandering river' with much turning back-and-forth in a wide, flat bottom valley in the flat prairie of Alberta, Canada. The river was used for transportation by First Peoples and then fur traders long before railroads existed. A small settlement developed in the flat of the valley, southwest of Camrose.

In the early 1900's the GT set a path through there on its way to the Pacific and chose to cross at about the spot of the settlement. So the people moved the buildings of their community up the south embankment and recreated Duhamel, AB just south of that edge. Construction of the trestle began in September, 1909 and finished in August, 2010. About 120 men worked on the construction and used about six million board-feet of British Columbian fir, a third in the piles they drove into the basin floor. The trestle was 3,972 feet long and the rails were 120 feet from the stream below. It was the longest and one of the largest wooden bridges ever built in the world. Trains were soon running.

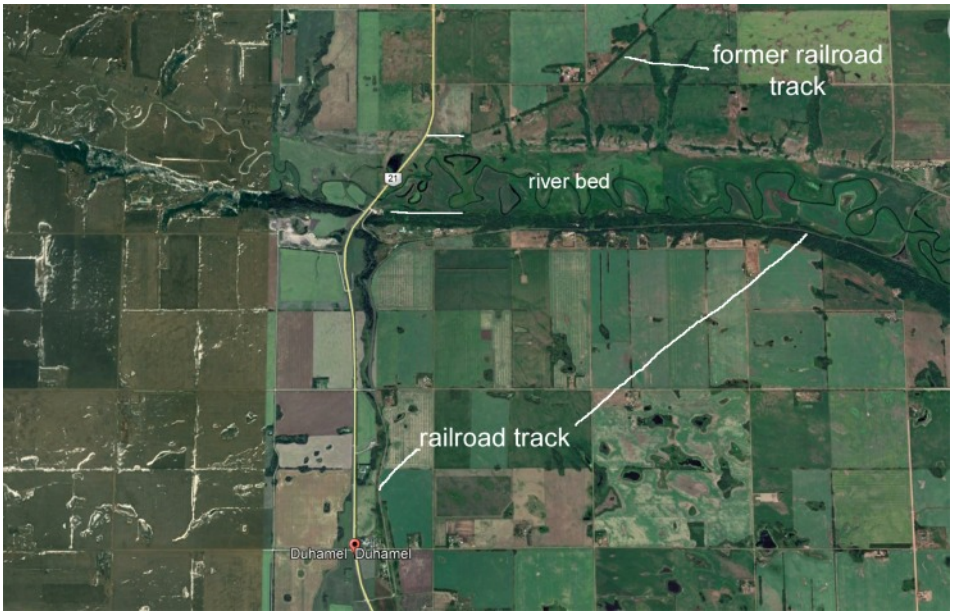
But, as you know, the Grand Trunk had repeated financial problems, went bankrupt in 1923, and was bought by the Canadian National. The CN redirected the line eastward along the south ridge and connected it to its own line (see picture). This eliminated the security and maintenance expenses. Yes, a guard had to patrol across the bridge after each train to check for fires. So in 1924 the bridge was dismantled - gone. The timbers were used for other bridges and trestles; some sold to people in the area. The community of Duhamel dwindled. In 2006 it had a population of just 30, but many remember the trestle.

So where is your bridge or trestle?

A view (Google Earth) of Duhamel, Alberta today (bottom center of picture), home to 47 people.

The CN Railroad track still go through but takes a turn to the East before it cross the river valley. The old roadbed shows on the other side.

If one searches the Internet for 'railroad bridges' and 'model railroad bridges', you will find great pictures and there are even plans displayed for both types.



A new railroad bridge over the Rhine River in Switzerland in front of the old, lattice-style bridge formerly used on this high speed line. A different style with clean, simple lines that reduce cost of construction and maintenance. It also very aesthetically modern and pleasing to a populace that demands the best from their government.

You have probably received an email from the Northeastern Region office announcing that the latest issue of the Coupler is now online. It contains the sign up form for the Empire Junction 2019 NER convention in Syracuse, NY and is available on the NER website - NER Coupler.

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