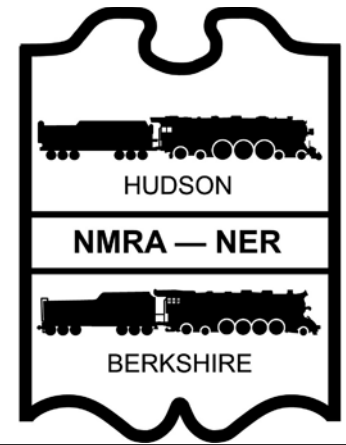


FORM 19

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



Order Number 312

June 2015

June 20th - Division meeting & picnic with the Adirondack Live Steamers

Saturday from 11:00 to 3:00 at the ALS site in Saratoga Springs

(Map and directions on page 4)



Begun in 1983, Adirondack Live Steamers is a 1 ½ inch scale, 7 ¼ inch gauge railroad running in the woods near Saratoga Springs, NY. Engines include live steam and diesel style running on both gas engine and battery power.

Several Hudson-Berkshire Division members were part of the starting group back in 1983.

Train rides will be available during the day with a variety of motive power.

The Officers and volunteers of the Hudson-Berkshire Division have been working hard to prepare for this end-of-year special program. And some have worked especially hard to arrange and prepare for this 'dining out.' They have seen to it that there will be food and beverages for everyone, including the ALS members who will be out there running trains for us. This is an event for the family to enjoy.

So come and enjoy and be sure to thank those who have worked to make this a great experience.

A special thanks to the Adirondack Live Steamers and their members for making this possible.

www.hudson-berkshire.org





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 Paul Hoffman

As the summer begins to heat up we are getting ready to take our yearly hiatus. This will be your last issue of the *Form 19*, unless Bert whips up one of his summer specials, until September.

But before we go, don't forget our end of season bash at the Adirondack live Steamers. Come one come all! Bring your family, significant other, kids, and grandparents! We traditionally use this time to share our hobby with those closest to us and to thank them for letting us indulge in our guilty pleasure that is model railroading.

It has been a good year and 2016 (which is closer than you think) is shaping up to be HUGE! Our convention is picking up steam and this is an all points bulletin to start getting your volunteer caps dusted off and to join in the fun. Be sure to catch up with Kevin Surman for all the details and how you can help.

That's it for this month, short and sweet. I'm looking forward to a relaxing day full of fun and friendship at the ALS for the end of season family day!



A younger Mark Hoffman posing (probably on command) during a visit to the ALS site in 2009.

Mark doesn't look like this anymore.

Photos by Paul Hoffman

Marky in front of the ALS car barn doing a good job of almost hiding with those camo pants.

His smiles in both pictures say that this is a fun place so bring the family.



The Hudson-Berkshire day at the Adirondack Live Steamers is a family event, so bring the kids and the grand-kids. This is a fun day in which all can celebrate the joy of scale railroading.

Spoiler alert: No one has ever been successful in selling their significant other on a 1 1/2 inch scale home railroad after a visit to the ALS.



This may be the closest a young person like, the fellow at the left, ever gets to being near a railroad of any size. Take this opportunity to give them exposure to what we all love so that they (hopefully) have an appreciation and an interest as they get older.

Ken Nelson (right) is one of several Hudson-Berkshire members who are also members of the Adirondack Live Steamer. Some ALS members will spend a good portion of the day driving trains to provide rides to all.

The ALS has recently completed an expansion program so that the club can now run on more than a (real) mile of track through the woods.

Your attendance is not only fun for you and those you bring, but it is actually a show of support for those working in the HB Division and the ALS.



What it takes!

Have you listened to the radio or watched TV lately? If you have you may have noticed that Vermont Public Radio is asking for money to support their programming and operations. WMHT TV and FM radio is also asking for money. WAMC has just completed a fund drive that raised over \$1 million in just one week.

Has an officer or board member of the Hudson-Berkshire Division called you or approached you at a recent meeting for a donation to support the operations of the Division? No? And it's not likely to happen.

That's because we volunteered for what we do! We don't get any pay and the perks are minimal – free coffee at meetings. Well, actually, the host donates that to quell the rioting.

But we need just a bit more volunteer effort and support.

First we need a volunteer to handle the signs for the Great Train Extravaganza. As Rich Smith stated in the last issue of the *Form 19*:

“The Sign Manager will buy, organize, and distribute all the GTE signage. Basically he would own the entire sign department, including storage of existing signs (I keep them in my garage), cleaning of the old signs, stickering of the old signs with the new date, and work with HBD membership to get the signs distributed to the volunteers (and UTA guys) and get them planted. With only this GTE activity under his control, he could possibly dramatically improve the process and placement ... efforts I do not have time to do. For example, we lose nearly all of the signs on Rt.9 ... something else needs to be done like different placement, or contacting municipalities, or another idea you come up with.”

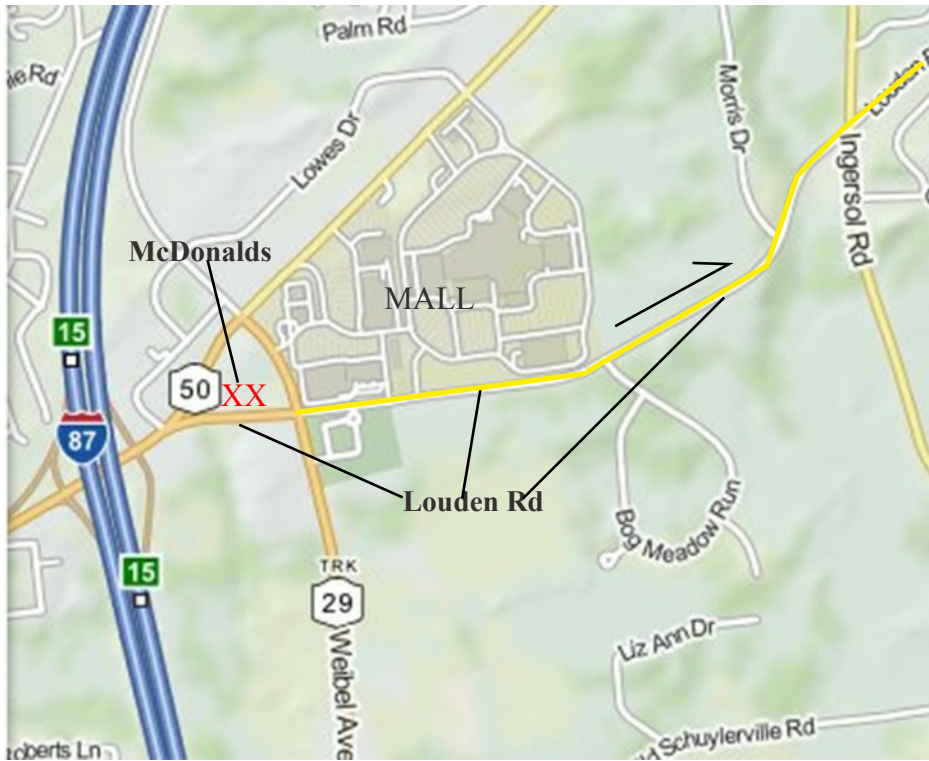
And, yes, the signs have to be put out when it is cold and often snowy. Many have worked for one Saturday morning for each of the last several years to go out singly or in pairs to place the roadside signs announcing the show. Through attendee interviews we have found

Continued on page 9



Directions to joint picnic with ALS.

Please note that these directions are provided to HB members to get to the meeting. **Please DO NOT share this information with anyone outside of the Hudson-Berkshire Division.** Adirondack Live Steamers is concerned about 'un-authorized access' to their facility and requests that this information be 'held close.'



Directions: Exit I-87 (the Northway) at Exit 15 and head east (away from the City of Saratoga Springs) on Route 50. Just east of the Exit is a McDonalds on the right - turn off Route 50 to the right **just before** the McDonalds. This is Louden Road.

Just past the McDonalds is a traffic light at Weibel Road. Continue ahead along the back side of the shopping mall. You will cross three more roads and then you should start looking for the signs that ALS has placed along the road to direct you to their location.

Follow the signs and park in the field as designated.

If you get to Route 29, you have gone too far.

As stated at the top of the page, the directions are sufficient but somewhat vague **by intent**. Should you feel you need more information you can call Hudson-Berkshire AND ALS member Ben Maggi prior to Saturday at 585-506-2680 or on Saturday if you do get lost and can't find where we are all hiding.

When on the ALS site, **be sure to follow safe practices and signs**. Remember 'things' can be hot, there is live steam and there are sharp edges. Have fun! Enjoy. Please wear your HB Division badges and, perhaps, your HB T-shirt.



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The Traveling Railroad

by Geoffrey Zahn Kelley, President, The CA&B

Chapter Three: A New Frontier

A few years after I got out of college I started seeing advertising for a model train show in the area. The show was an open house for a local club. It was a nice layout but attending meetings and work sessions would have been difficult because of my work schedule. Eventually my schedule began to free up so I felt I had the time to join a local club. The next model train show was bigger but the local model railroad club didn't have a modular layout anymore. However, the Catskill, Adirondack and Berkshire Railroad (CAB RR) had been invited to the show with their modular layout.

The CAB RR had a smaller modular layout than I had experienced in college, but it was still impressive. The modules had scenery and the trains ran smoothly. I asked them about their club, found out that they were from the Albany area, and did four shows a year, all of them local and none conflicting with the Norwood shows, which I still attended. I eagerly filled out an application and became a member. I was now a member of two groups, from two different cities, and even area codes. I think model railroading had taken over my life!

Three of the shows at the time were quick one-day affairs. You were in the hall in the morning and out that afternoon. Only one show had a Saturday setup for a Sunday train show. This was in contrast to the Norwood club where you setup on Friday for a show and were tearing down Sunday evening. During the summer, the CAB RR set up an abbreviated version of the layout in a member's garage. He also let us paint the walls and add trees and clouds for background.

In the first few years I was a member of the CAB RR, I created two new modules; one of them had a small airport and the other was a mountainside lake. Both conformed to the CAB RR standard which differed from the Norwood club standard. The CAB RR follows the NMRA standards for an HO scale module with the addition of a third mainline, commonly known as the branch-line. Because of the different standards, I couldn't use the urban scene that I had created for the Norwood club. .

One year I got lucky, however, as the CAB RR was doubled booked for two shows during the same

weekend. They were scheduled to operate for the Great Train Extravaganza in Albany on the same day as the Upstate Model Railroad Club annual show. Another member and I used our non-standard modules, along with one club corner, to create a small U-shape layout for the Upstate show. Because all three MRC Power Packs were at the GTE, we ran the trains on this layout using my Digitrax setup. This was the first time the club entered into the digital age.

Moving to Digital Command Control (DCC) from Direct Current (DC) was a big step. The promises of DCC with simple wiring, independent train control and use of different functions made the move rewarding. It was still something new, however, but by slowly introducing DCC at the shows and having the participation of new members, this new frontier became feasible. When we achieved full DCC, we were able to have six trains running simultaneously on what was previously a three-train maximum. These additional trains allowed more members to operate and provided more interest for the public. Members now could run trains with realistic sounds, do some switching of industries, or just watch them go around in a circle. The possibilities were endless.

Around this same time, I moved into a small two-bedroom apartment in Latham. I didn't have a roommate, so the second bedroom was a perfect start to my layout. In fact, my landlord encouraged me to put in a train layout after he heard I liked trains. By integrating three urban modules I built for the Norwood club, I was already 50% complete. For the other 50%, I was able to use the same tried and true methods I had learned from the modular clubs. It only measured 9'x14', but it was a great start. I really don't think I would have even attempted something like this without having been in a modular club first. Unfortunately, I never got a chance to finish it before I moved away. Building it was a fun experience and I was looking forward to my next layout.

If you are looking to bring your skills and interest to a layout, join a local club like the Catskill, Adirondack and Berkshire Railroad (www.cab-rr.org) today. Everyone makes a difference in the club, and has an impact on the club. In addition, but working on a smaller scale, a modular club can help you start building that layout you have always dreamed about and achieve new frontiers. Visit them on the web or talk to member to learn how to join today.

Associated pictures in the extra pages.



le Viaduc de Garabit

The following article is from some simple online research inspired by the picture above. The picture of the railroad viaduct in France is striking and reminded the author, The Editor, of another very open structure that has become the symbol of Paris, France – yes, the Eiffel Tower. And thus unfolded the story of this magnificent railroad structure and its remarkable history. The Editor, having been a research engineer for over 32 years, has been impressed by the story of this engineering achievement and has been waiting for almost two years to bring this to you, the reader and railroad enthusiast. I hope you enjoy it and the pictures.

The Garabit Viaduct

The Garabit Viaduct (Viaduc de Garabit in French) is a railway arch bridge spanning the River Truyère a bit southwest of Ruynes-en-Margeride, in the mountainous Massif Central region of France. The bridge was constructed between 1882 and 1884 by Gustave Eiffel & Co, with structural engineering by Maurice Koechlin, Leon Boyer, architect. It was opened in 1885. It is 1,854 ft in length, has a principal arch of 541 ft span and the rails are 400 ft above the river. Design and engineering was done 1880-1882. No computers. No automated drafting. Pencil, pen, paper and slide rule. (The slide rule being a mechanical analog computer developed in the 17th century based on the emerging work on logarithms by John Napier. It was used for simplifying the process of multiplication and division only. It could not be used for addition and subtraction – that's what brains were used for at that time.)

Background

By the end of the 1870s Eiffel & Company, the business formed by Gustave Eiffel in partnership with Theophile Seyrig, had an established position among the leading French engineering companies. Between 1875 and 1877 the company had built the Maria Pia Bridge over the Douro River at Porto, Portugal and when it was proposed to construct a railway between Marvejols and Neussargues in the Cantal department (prefecture; local governing region; like one of our counties) in south central France, the work of designing and constructing a viaduct to cross the River Truyère was given to Eiffel & Co without the usual process of competitive bidding. This was at the recommendation of the engineers of the state Highways Department, since the technical problems involved were similar to those of the Maria Pia Bridge, by which the company had proved it's talent and competency. Indeed, it was Eiffel & Co's success with that project that had led to the idea and then proposal for a viaduct at Garabit.

Design & Construction

The project was demanding, with the track 400 ft over the River Truyère. Officials believed this would be considerably less expensive than taking the railway line around or down through the valley. To resist the wind, Eiffel instantly discarded the principle of solid beam construction, thinking that “it would be very heavy and the beams would rattle in the wind” (and also act like sails, Editor). Instead, he adopted the concept of trusses or “a series of open triangles” to nearly eliminate wind



forces because the wind “would blow right through them”. Truss work also provides stability, when loads are applied, through the theory of tension and compression that states that force is exerted on the diagonal and vertical segments causing them to resist one another. Eiffel also improved upon his Douro design, adopting the same two-hinged crescent-arch form but employing an arch visually separated from the thin horizontal girder. In the Porto bridge, which is still being used, the horizontal span is integrated within structure of the top of the arch. The Garabit Viaduct’s arches (two side-by-side with connecting structure) were engineered to have support hinges, allowing the crescent shape to have a point of support at each end. This method both simplified calculations and improved resistance to wind loads. The hinge support bases were constructed of stone blocks and themselves each include an arch. They are not solid cubes of stone as one might expect. Other supports for the bridge are also of stone (see pictures).

Performance

When it opened with a single track in November 1885, the Garabit Viaduct was 1,854 ft long and weighed 3587 tons. Even more impressive was the actual deflection, which was measured at 8 millimeters – about .32”. (How in the world were they able to actually measure it? If it were measured with something like a surveyors transit, then that would have had to have been at one end of the bridge and the distance to center being over 900’. Editor) This figure was precisely anticipated by Eiffel’s calculations. (How were they able to calculate to this precision? Wow! Editor) The bridge was also, when built, the highest in the world. The overall project cost was 3,100,000 francs. Until 11 September 2009, only one regular passenger train per day in each direction passed over the viaduct - a route from Clermont-Ferrand to Béziers. On that date, the viaduct was closed as cracks were discovered in one of the foundation piles. It reopened one month later after a safety inspection and was in service with a speed limit of 6 mph for all traffic.

On 15 June 2011, the Garabit closed for extensive work and reopened on 15 December 2011. During the works, the train from Béziers to Clermont-Ferrand terminated at St Chély d'Apcher and a bus continued to Clermont-Ferrand. There is an excellent view of the Garabit viaduct from the bus. Both the Garabit Viaduct and the Maria Pia Bridge are still in daily service. They can each be seen by viewing with Google Earth. It was this type

of engineering and construction for the railroads that lead to the engineering and science capability to design and construct multi-story, steel-framed buildings – and, of course, the Eiffel Tower.

There are ladders up each stone support of the arch and stairs and walkway up and across each arch for inspection. Occasionally tours are offered to hike this path. Much more frequently walking tours are offered across the bridge on the walkway along side the track. These, of course, are in cooperation and coordination with the SNCF railway.

The viaduct and the Maria Pia bridge in Portugal can both be seen via Google Earth.



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To the left is the complete viaduct with approach stone structures clearly shown.

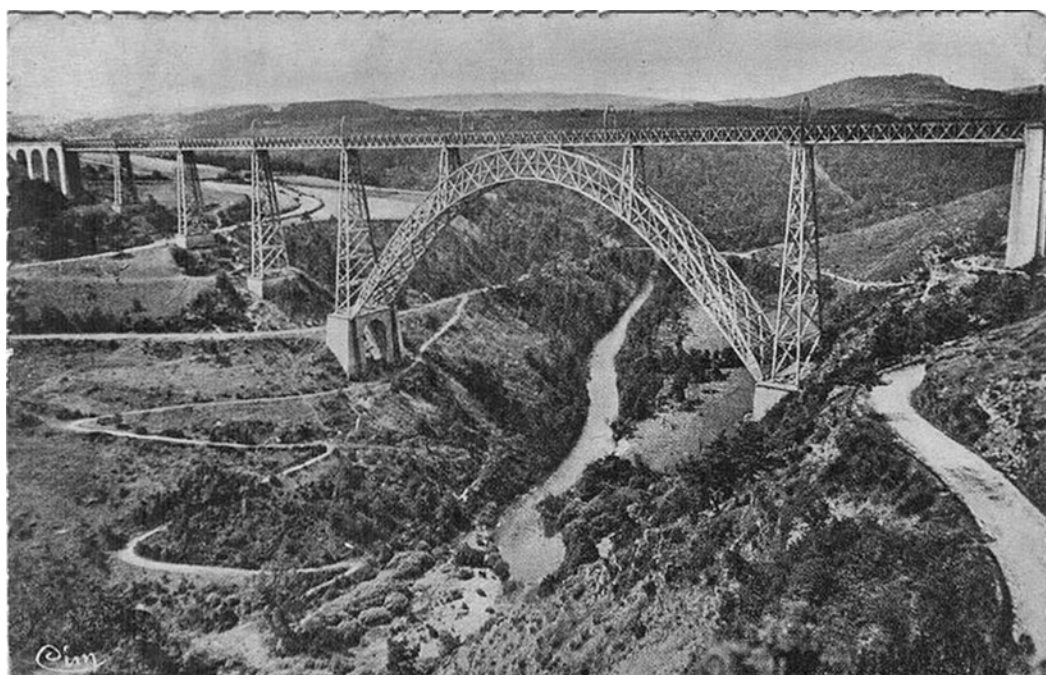
The red color makes it look spectacular at night when the bridge is lighted from below and within.

It took 38 tons of that red paint to protect the viaduct when it was repaired in 2011.

It is now a tourist attraction.

The viaduct as it was being constructed in 1883 or '84.

The arch is the most striking and necessary part of the viaduct. Its construction shows the talent of Eiffel & Co.



The viaduct after electrification but before river had been dammed. Note the pivots for the arches at the edges of the support bases .

Thus was the importance of railroads in the late 1800s.

Note the arch in the base structure and that vertical supports on face of base under pivots were original.

See more pictures in he extended pages of the online Form 19.



this to be the most productive way to alert people that the GTE is returning.

And, no, the person will not have to buy the signs with his own money. GTE has a line item for that.

But seriously, we need someone to take charge of this one segment.

Talk to Rich or one of the officers to learn more. Please.

And we need some more volunteers. The jobs do not cost anything and require just an hour or two of your time at the most. There are two, maybe three, ways to help.

One, volunteer to have the *Form 19* photographer come over to take pictures of your layout and ask you some questions. He's reasonably friendly, asks some good questions and takes good pictures. He and the *Form 19* Editor will then work up an Almost Hidden Treasure article for the *Form 19* to document you and your layout and share that with the rest of the Hudson-Berkshire Division. And maybe share it with the rest of the NMRA membership as two of the articles have been mentioned in the NMRA Magazine and placed on the NMRA website for member access. The photographer and Editor have both been pleased with this outcome.

Second, if you don't think you or your layout is worth a visit, volunteer one of your friends. Point him out to one of the *Form 19* staff and we will try to do the rest. Tells us why you think his layout is worth the article and we will use that as leverage to gain entry.

And third, volunteer an idea. The *Form 19* staff has interviewed members about what they would like to read about in the newsletter. Many have said that they would like more how-to articles. That said, where is this material going to come from. There are Model Railroader, the revitalized Model Railroad Craftsman, and the online Model Railroad Hobbyist all trying to bring you new or interesting material. The *Form 19* staff can't copy that material, it's illegal. So what can 'we' do? We can appeal to you to provide a bit of information that we can develop.

If you remember, Karl Butler provided information and pictures on how to mount a Tortoise Machine horizontally to save clearance space. He also showed how to hook it up so that it would rotate the indicator on the top of certain switch stands. You couldn't find that in any of the referenced magazines. Karl volunteered the material, took a bit of time to write what he did and took some pictures and sent them all in one

email. Thank you Karl. And we had an article by Mike Evans on how to use a simple light switch to control the motion of a track switch and also control power to the frog. This is a great way to 'do it all' for about \$3. Thank you Mike.

So who is next?

In this issue we have presented an article on the Garabit Viaduct in France. This is a fascinating structure and might be motivation for someone to put something like this on their layout. We already have someone talking about it. We also had an article on the French designed and built steam-electric locomotive of the early 1890s. And then there was the recent article on the Lima 8000, a real advancement in the design of the steam locomotive – the move into 'super power.'

We hope you have enjoyed reading them and learning about some of these significant, but little known, events in railroading history. 'The Staff' has enjoyed the research and writing. But, truth be told, these also fill up white space on the pages of the *Form 19* when other, more hobby related, material is not available. It's interesting filler.

So volunteer an idea, some pictures and a few words about something that works on your layout, or a friends. Perhaps you can recommend a place to visit or a place that you like to go to watch trains.

The "staff of the *Form 19*" wishes all of you a safe and enjoyable Summer with time to visit friends and do some rail fanning. Take notes and take pictures and share them when you get back. And where ever you go, be sure to mention model railroading and have some pictures on your cellphone to share with others. It is a great hobby with so many and varied aspects within it.

There are no new members to announce in an "All Aboard" frame this month, but be sure to greet people in a friendly way at the meeting on June 20th.

As we discussed last issue, it may well extend your life and those of the ones you greet. And isn't it better to be around people who are smiling?

The USDOT this week released the specifications for the DOT-117 non-pressurized tank car, the replacement for the troubled DOT-111. Included with the specifications are time lines for replacing the DOT-111 cars and the newer industry-sponsored CPC-1232 cars constructed since 2011. There are stated dates for the phaseout/retrofit of these two classes of cars ranging from 2018 to 2023. It remains to be determined whether retrofit to the new standards will be economically viable for the older DOT-111 cars. The Greenbrier Companies was quick to point out that its “Tank Car of the Future” is, in effect, a DOT/TC-117, strongly suggesting that regulators simply adopted its design as the new spec. Over 1000 of these cars are now in Class 3 flammable liquids service across North America and 2500 are on order. The effects of the new standards and regulations remain to be seen for the current back-order of over 85,000 tank cars.

Also included in the regulations issued are operational requirements such as maximum speeds and speeds within populated area for trains carrying certain numbers of tank cars carrying flammable materials of specific classes. Trains meeting the definition of a high-hazard flammable unit train (HHFUT), defined as “a single train with 70 or more tank cars loaded with Class

3 flammable liquids must be operated with an electronically controlled pneumatic (ECP) braking system by Jan. 1, 2021, or reduce maximum speed to 30 mph. All other HHFUTs must have ECP braking systems installed after 2023.

Tank car manufacturers, however, greeted the time line as “aggressive but appropriate.”

The AAR, however, stated that the ECP brake requirement ordered by the DOT is an ‘operational requirement’ and should not be part of the tank car standard rule making. The requirement for ECP brakes is aimed at tank cars, not locomotives. Railroads don’t own tank cars, they own locomotives. While the requirement for ECP brakes is aimed at tank cars, by default, locomotives will have to be ECP-equipped to be able to move cars with ECP brakes. If tank car owners decide not to so equip tank cars intended for crude oil service, railroads must decide whether or not to limit such unit trains to 69 cars or to restrict speeds to no faster than 30 mph. Either scenario will decrease rail capacity and have negative consequences on both freight and passenger traffic.

FORM 19

Hudson Berkshire Division
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First Class Mail



Photos follow the third installment of Geoffrey Kelley's 'The Traveling Railroad'.

A shelf layout starts to materialize.

With experience making modules for two different groups, Geof had built the confidence and talent to set up a couple of modules, connected by a corner, to start a layout in a 'spare' room.



Track, buildings and then some scenery.

And if one can stay in one place long enough, operations can start and the layout nears completion.



Start creating structures, from kits at the start, and move them around to get a sense of how they will fit within the spaces and within the vision of "how it should look."



The arch under construction. It is being held in place and aligned with cables going back to the supporting column. As more structure is added, the cables have to be adjusted to maintain the alignment against the increased weight (tension). This process was made easier by the pivot at the foot of each of the support arches that make up the span.

There are some men standing at the edge of the roadway in the lower right corner of the pictures.

The elements of the structure are riveted together. Each piece had to be held in alignment as the rivets were set by hand with hammers swung by men up in the structure as it advanced.



This picture (above) shows that the main structure of the viaduct is the arch that is actually composed of two arch structures inclined towards each other as they rise for increased stability. The arch is supported in pivots at only four points - the lowest corners.

You can see the large arches in the support bases with the portion of each holding the pivot points one each side in alignment. And this has been working for 130 years.



The viaduct was designed and built before 1885.

Opened in 1885, it safely carries modern trains 130 years later.

Enclosed duct most likely for telephone and fibre optic cables.



Stairs and walkway with handrails for inspections and tours. Would your go?



The catwalk across the viaduct under the track. Those evenly spaced 'lines' running from the bottom of the picture off into the distance are actually rails for some sort of service cart, probably installed for carrying paint or for the electrical work when lights were installed.

Lights along length and on other side.
Electrical conduit