Thousand Lakes Region National Model Railroad Association

The FUSEE

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2022 Brainerd Express Convention Roundup

One of the original Northern Pacific Car Shop buildings remaining in Brainerd. This building is slated to become a hotel in the upcoming years

Art Suel
Photos-Kevin Dill

May 19th thru the 22nd modelers from the Thousand Lakes region gathered at the Arrowwood Lodge in Baxter/ Brainerd Minnesota for their annual convention. On Thursday night, there were two clinics presented. The first was Exploring the Contest Room by Kennedy Guager followed by Matt Lentz's Wet Palette Painting clinic.

Friday activities started with a clinic on T Trak and How to Use Modules to Build Your Division. Jay Manning gave this clinic out of the Dakota Southeastern Division. This division has been using their HO modular layout and now has added t -trak modules to create interest in Model Railroading in the Sioux Falls area.

Ken Zeiska presented a clinic on Brainerd and the Cuyuna Range. Then it was lunch time and off to the Crow Wing County Museum. There Hillery Swanson showed us artifacts from the days of Brainerd being a railroad hub on the Northern Pacific railroad plus history of Brainerd. Next time in Brainerd and looking for an activity, visit the Crow Wing County Museum.

Now back at the hotel, William Sampson via Zoom presented the next episode of SOO the Milwaukee Road to the attendees. Larry Vanden Plas presented his clinic on Effective Transportation and Storage of model trains. Larry is a member of the New Brighton Connection, a modular club that sets up a train shows, so he knows how to transport model trains.

Friday night was devoted to visiting the Cross Lake Model Railroad Club. This club has different scale model railroads in their building. The club was destroyed by fire around three years ago but has recovered with the help of the community. This must stop on a Saturday in the Brainerd area.

Saturday morning Greg Smith gave a clinic on how to use photo stacking software. This is a method of adding background to photos. Then Lester Breuer, MMR, clinic via Zoom was Interchange on the Minneapolis and Northland Railroad, his model railroad. Neil Maldeis, MMR, presented a clinic on operations on a compact layout. He brought his n scale layout which measured around 2" x 4" to the convention. Modelers had fun operating on this layout. The last clinic of the convention was Dave Hamilton, MMR, on his journey to earn the Master Model Railroad certificate.

Saturday night was the banquet, award ceremony

View from the Cab

President Art Suel

Hello, my name is Art Suel and I am your new President. When browsing the list of regional Presidents, the footprints I am following are large. A little model railing background on me. I got the bug for this hobby around 12 or 13 years of age. In my hometown of Shakopee, we were fortunate to have a local hobby store, Andy's Hobbies.

The Progress Valley Model Railroad Club occupied the third floor of the hobby shop. Most Friday nights they were open for visitors to gaze and drool at their model railroad. From there I built a 4' x 8' primitive layout in my parents' house. Since those humble beginnings, I have built 3 layouts in the houses I have lived in. My current layout is in n scale. That's right, I am a n gauger now after having HO layouts. Now this is enough about me.

I like to thank former President Jay Manning for his leadership during this pandemic era we are in. His message to the divisions was to stay connected with the membership. It worked- this last year the region grew by 12, up to 450 members. Let us keep getting the word out to the public what a wonderful hobby this is. Dakota Southeastern Division has mastered this by using their portable HO module layout to spread the news about this hobby to the public.

T Trak is another method of connecting to the public by displaying the modules at public events. Besides DSED using this, South Red River Valley and the Twin City Divisions have built t-trak modules for this purpose. Kids love to watch trains operate on the modules and t-trak gives the module builders freedom to create their scene.

Finally, that was a great convention in Brainerd. The convention featured interesting clinics, fantastic models in the celebration room and of course the forementioned t-trak modules connected and having trains running. Neil Maldeis, MMR brought his small n scale layout for viewing and operating. It was small but it showed what can be accomplished in n scale. The hotel was great and their food was top notched.

Till next time
Art

Announcing the TLR Convention in Minneapolis
May 18-21, 2023

Mike Engler and Greg Smith

We have a couple of events planned with cash bars and a couple with appetizers and/or desserts. We are still confident that our projection of a $30 convention fee and an optional banquet in the $35-40 range is doable. They will hold 25 rooms at $109 plus tax that includes free breakfasts and parking for 2 Queen bed rooms. We can add or release rooms up to April 18. Those reserving rooms will be able to add or subtract additional room days at that rate subject to availability. This is a tentative schedule and may change.

Where:	Best Western Bloomington- Mall of America. Easy freeway access in every direction.
Guest room rates	$109 plus tax for 2 queen room. Free breakfast buffet and free parking.
Layout tours	Thirty layouts plus four club layouts and the live steamers will be open Sunday
Operating sessions	Several operation sessions available by advance reservations
Clinics	Twelve live clinics each offered twice. During clinic times there will be two choices during each time slot
Contests	Model and photo contests- NMRA judging and popular vote
Mini trade show	National and regional vendors and some hands-on clinics and demonstrations. Modelers Re treat concept. Also information on local clubs and societies as well as NMRA, TLR, and TCD and local hobby shops
Modular layouts	In hotel featuring TLR modular groups
Banquet	Optional Saturday evening. All attendees can attend awards presentation at approximately 5:30pm and 6:00- 6:30 cash bar happy hour and auction and entertainment about 8:00pm. Op tional banquet will be at 6:30pm
Other attractions	Across the street from Mall of America and light rail station with access to both downtowns and Minnesota Twins; Minnesota Apple Valley Zoo; Arboretum and many more
Restaurants	Over 100 within ten minutes of hotel including over 40 in the MOA

Matthew Lentz gives pointers during his Wet Palette Painting clinic.

Jay Manning (left) demonstrates the N-scale rail gauge for T-Trak modules and Rich Holzapfel (right) helped out.

Ken Zieska talks about the Cayuna Ore Range and the Brainerd Shops.

Larry Vanden Plas demonstrated several methods of transporting rolling stock using common items.

and Lucky Number Auction. The new auction team of Rich Holzapel and Kevin Dill did a wonderful job, but nobody has topped the performance of Alan Saatkamp and Gerry Leone in Sioux Falls years ago. But this was more than adequate and this duo has earned the right to be back next year. The Arrowwood Lodge food was outstanding not only at the banquet but also at their restaurant at the hotel. Sunday morning concluded the convention with the Annual General Membership meeting. See you next year at the Best Western in Bloomington MN across the street from the Mall of America.

Greg Smith discusses photo-stacking software for a totally in-focus photo.

Dave Hamilton, MMR talks about his journey to becoming an MMR..

Lucky Number Auctioneers Rich Holzapfel (left) and Kevin Dill (right) kept the prizes moving for the lucky winners.

2022 Brainerd Express Convention Awards

Dave Hamilton (left), received his Master Model Railroader Award surrounded by the other MMR's present (left to right) Fred Headon, MMR, Mike Engler, MMR, Neil Maldeis, MMR and John Hotvet, MMR

Matthew Lentz received the Presidents Award for his work on the TLR archives as Historian.

Tom Gay (right) received the Bob Dew, Sr. award for his work as Treasurer.

Gerry Miller received the Stafford Swain Lifetime Achievement Award..

Mike Engler, MMR won the Jock Oliphant Best in Show Award.

Celebration Room Brainerd 2022

Kevin Dill, photos by author

Freight Cars

1st Place

Winner Name

Tom Lennon

Model Title

NP Center Flow Conditionaire

Ken Zieska (right) accepts for Tom Lennon. ***All the following photos are with Contest Director Kennedy Gauger on left.***

Non-Revenue Cars

1st Place

Winner Name

Aaron Cohn

Model Title

SRS 126

Structures– On-Line

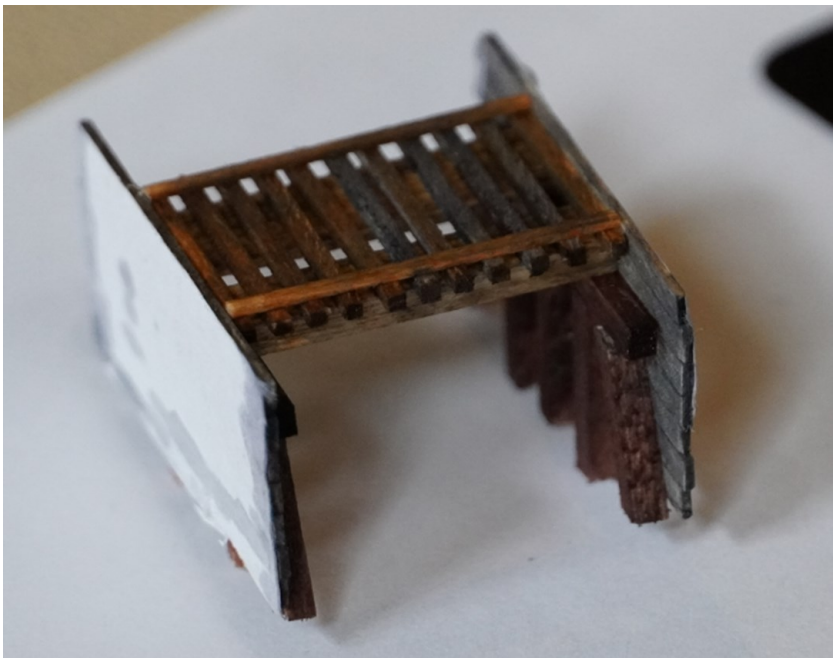
1st Place

Winner Name

David Menard

Model Title

N-scale Culvert



Structures– Off-Line

1st Place

Winner Name

Randi Relander

Model Title

Stuckum Glue Works

Module

1st Place

Winner Name

Rich Holzapfel

Model Title

Scout Camp

Module

2nd Place

Winner Name

David Menard

Model Title

Moose Creek Mine

Module

3rd Place

Winner Name

Rich Holzapfel and

Finley Seeloff

Model Title

Dude Ranch (Lazy F)

Finley was not able to attend the convention and is shown at home with the plaque and Grandfather, Rich Holzapfel.

Railroad Pass

1st Place

Winner Name

Matt Lentz

Model Title

VIP South Red River Valley Railroad Pass

Photograph

Prototype Black and White Print

1st Place

Winner Name

Scott Nesbit

Model Title

Nebraska Zephyr

Photograph

Prototype Color Print

1st Place

Winner Name

Amy Meader

Model Title

Comical Auto Rack

Photograph

Prototype Color Print

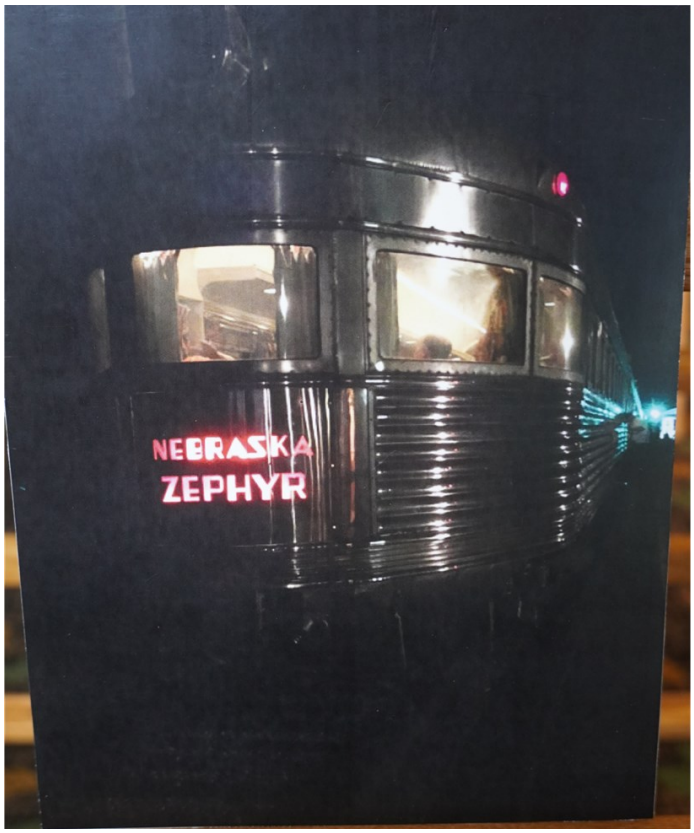
2nd Place

Winner Name

Scott Nesbit

Model Title

Green Light for the Nebraska Zephyr



Photography

Prototype Color Print

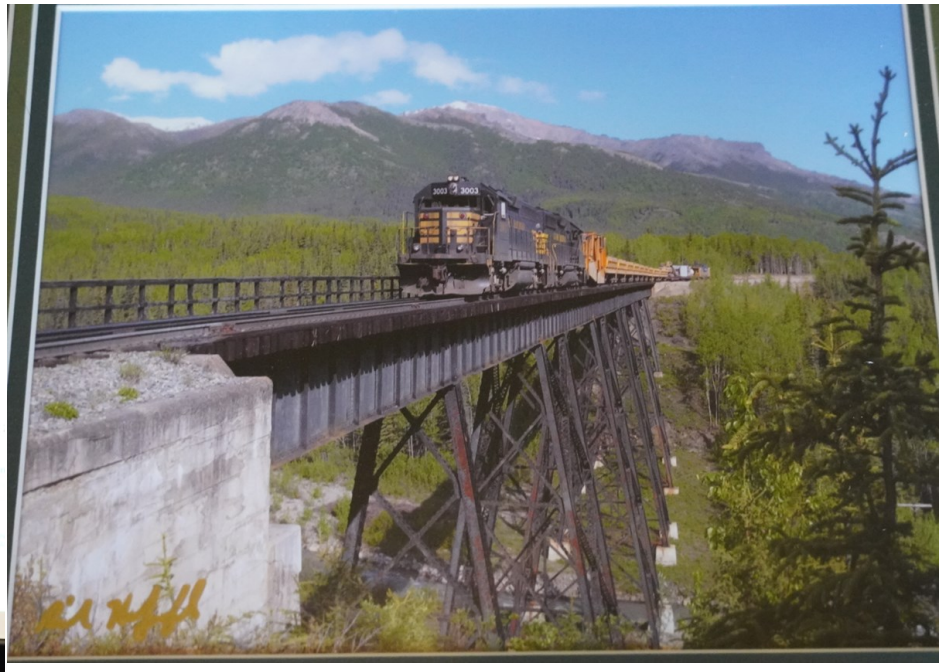
3rd Place

Winner Name

Rich Holzapfel

Model Title

ARR 3003 on the Riley Creek Bridge, Denali Park, AK



Photograph

Working on the Railroad

1st Place

Winner Name

Rich Holzapfel

Model Title

ARR Work Train Pulling out of 223 Pit

Photograph

Working on the Railroad

2nd Place

Winner Name

Rich Holzapfel

Model Title

ARR Work Train at MP21 on 4th of July Creek

Photograph

Working on the Railroad

3rd Place

Winner Name

Rich Holzapfel

Model Title

ARR 3008

People's Choice

Favorite Train

1st Place

Winner Name

Aaron Cohn

Model Title

1980 Superliner

People's Choice

Locomotives

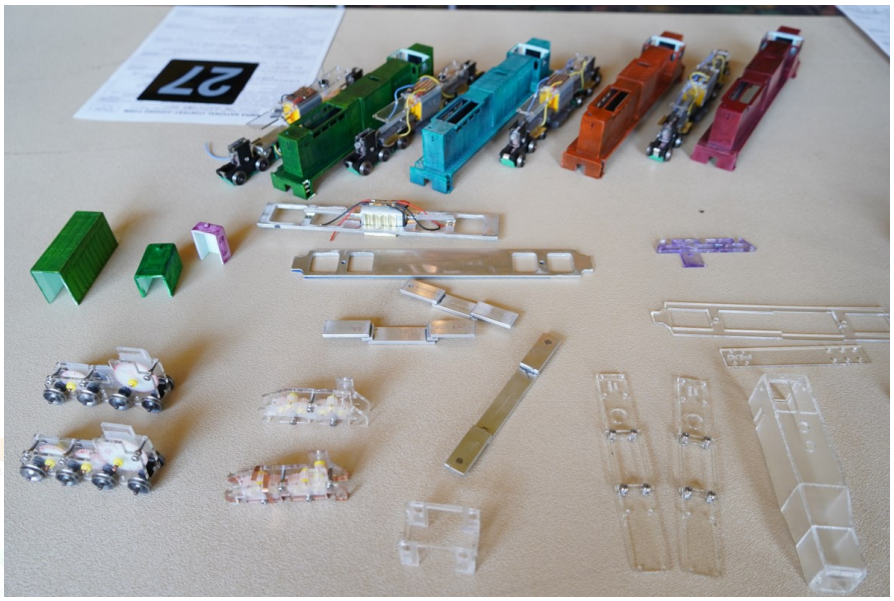
1st Place

Winner Name

Mathew Lentz

Model Title

The Mighty 280 Set



People's Choice

Rolling Stock

1st Place

Winner Name

Aaron Cohn

Model Title

SRS 126

People's Choice

Rolling Stock

2nd Place

Winner Name

Tom Lennon

Model Title

NP Center Flow Conditionaire

Ken Zieska (right) accepts for Tom Lennon.

People's Choice

Structures

1st Place

Winner Name

Randi Relander

Model Title

Stuckum Glue Works

People's Choice

Structures

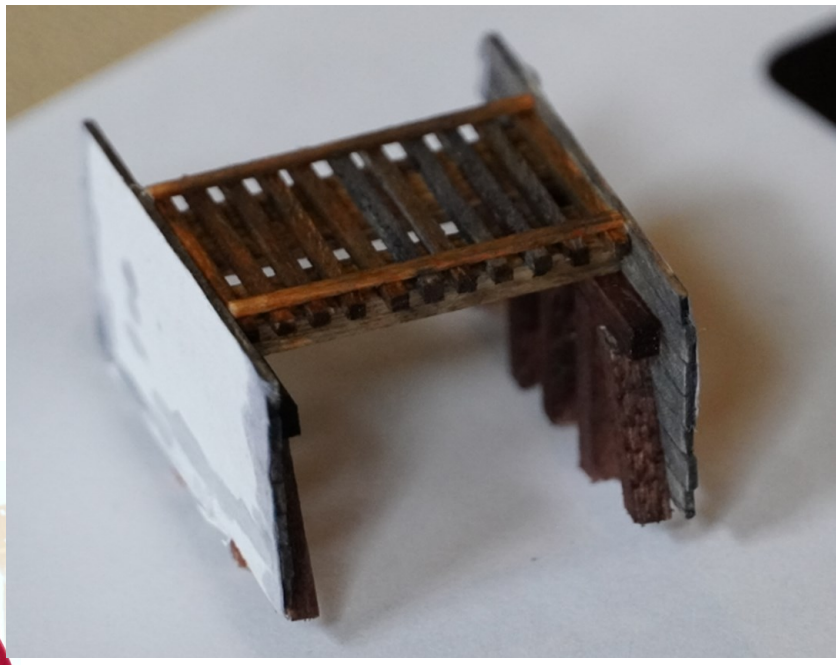
2nd Place

Winner Name

David Menard

Model Title

N-scale Culvert



People's Choice

Module

1st Place

Winner Name

Rich Holzapfel and

Finley Seeloff

Model Title

Dude Ranch (Lazy F)

Finley was not able to attend the convention and is shown at home with the plaque and Grandfather, Rich Holzapfel.

People's Choice

Module

2nd Place

Winner Name

David Menard

Model Title

Moose Creek Mine

People's Choice

Module

3rd Place

Winner Name

Marion Manning

Model Title

Ashland, Virginia

People's Choice

Repurposed Car used Off-Line, Non-revenue

1st Place

Winner Name

Jay Manning

Model Title

Fire Watch-Tower, Converted from Caboose

People's Choice

Repurposed Car used Off-Line, Non-revenue

2nd Place

Winner Name

Jay Manning

Model Title

Supervisor's Office- converted from caboose

People's Choice

Prototype Print

1st Place

Winner Name

Rich Holzapfel

Model Title

ARR 3003 on the Riley Creek Bridge, Denali Park, AK

People's Choice

Prototype Print

2nd Place

Winner Name

Rich Holzapfel

Model Title

ARR Work Train Pulling out of 223 Pit

People's Choice

Prototype Print

3rd Place

Winner Name

Amy Meader

Model Title

Comical Auto Rack

Best of Show- Judged Models

Winner Name

Mike Engler

Model Title

Morton's Brass and Iron Foundry

Best of Show– Judged Photograph

Winner Name

Scott Nesbit

Model Title

Diamonds at Sunset

Best of Show– People's Choice

Winner Name

Mike Engler

Model Title

Morton's Brass and Iron Foundry

Best in Show– Arts & Crafts

Winner Name

Mathew Lentz

Model Title

Multi-setup Block

Scale Trains Visits the Dakotas

ScaleTrains will be visiting North and South Dakota for open houses hosted at the local model railroad clubs. Get to meet the ScaleTrains team, see how they are made, enjoy a Q&A session and get a gift bag and giveaways. The location addresses are :

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Sioux Valley Model Engineers Society July 6th
100 N Lyons Blvd, Sioux Falls, SD 57107

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Spud Valley Model Railroad Club July 8th
Bonanzaville
1351 Main Ave W, West Fargo, ND 58078

Dakota Central and Western Model Railroad July 10th
3805 E Bismarck Expy, Bismarck, ND 58501

44th Annual
Spud Valley Hobby Show

Sunday, October 16, 2022
9:00 am to 3:00 pm

(under 12 free with paid adult)

*****NEW LOCATION*****

Red River Valley Fairgrounds

Hartl Building

1805 Main Ave W.

West Fargo, ND

- Large and small operating model Railroads
- Vendors selling farm toys, plastic models, model railroad items, die cast vehicles, old toys, railroad collectibles and more
- Door prizes
- Valley RC Flyers display their planes

Call Don—701-234-9351 or email spudvalley@hotmail.com

Region Roundup—model railroad-related events in and around the TLR

July 28	31st Annual Rail Fair	Copeland Park, La Crosse, WI
August 7-13	**NMRA National Convention**	**St Louis, MO**
August 12	**National Train Show**	**Collinsville, IL**
Oct 16	Spud Valley Hobby Show	Red River Valley Fairgrounds, West Fargo ND
Sept 17	Twin Cities Model Railroad Museum Hobby Show and Sale	Mn State Fairgrounds, St. Paul, MN

2022 TLR Board of Directors

Left to Right: Rich Holzapfel (Convention Director), Ron Olsen (Secretary), Kevin Dill (Public Relations), Art Suel (President), Neil Maldeis, MMR (Vice President), Tom Gay (Treasurer) and Kennedy Gauger (Contest Director).

Celebration Room Judges

Photography Judges: Matthew Lentz (pictured), Caleb Van der Brink and Kevin Dill

Model Judges and shadow judges (L to R): Mike Engler MMR, Fred Headon MMR, Amy Meader, Gerry Miller, Neil Maldeis MMR and Shadow Redington.

Module Judges (L to R)- Rich Holzapfel, Jay Manning and Scott Nesbit (for non-DSED entries).

Module Judges (L to R)- Art Suel and Ron Olsen (for DSED module entries).

Building Straight Track Using a Fast Tracks Fixture

By Kennedy Gauger

Background

Many are familiar with use of Fast Tracks and similar fixtures to make various turnouts. These are widely available, and many modelers have made turnouts, crossovers, crossings and other track types using these fixtures. They are available in scales including Z, N, HO, O and others including narrow gauge variations. It is possible to make straight track, of varying lengths using Fast Track fixtures as well. Figure 1 shows a mix of turnouts and straight track made using Micro Engineering Code 70 rail. A fixture used for Micro Engineering Code 83 rail works equally well for Micro Engineering Code 70 rail because the base of each rail type is the same width.

Figure 1. Examples of various straight track and turnouts hand made using Fast Tracks fixtures

One might ask why one would build straight track when flex track is available? It is largely a personal choice, but the author chose to build straight track using a fixture for yards on his layout where multiple tracks are parallel to one another. It was easier to ensure their straight and parallel character using track made in a straight-track fixture. It is often more difficult to obtain the same visual impact with flex track. It can be easier to make the yard tracks parallel over the entire length of the yard using track hand made with a straight-track fixture than with multiple segments of flex track.

Prototype Setting and Modeling

The author's HO scale layout is based on DM&E, CP, and RCP&E trackage between Volga, SD and Aurora, SD through Brookings, SD. The turnouts on this layout are made using Micro Engineering Code 83 rail. Code 83 Micro Engineering flex track is used in other parts of the layout (e.g., curved and super elevated trackage). On his layout, the author has a major yard that is a central element of the layout with industries to the east and west. The actual yard is near the former VeraSun Energy fuel alcohol plant east of Brookings, SD and close to agricultural facilities in Aurora, SD.

Code 83 rail or flex track was used everywhere on the layout except in the yard which was constructed using Code 70 rail or flex track. The roadbed used on the mainline was HO scale cork. N scale cork was used for all other roadbed. The reason for this is that the N scale cork roadbed is slightly thinner than the HO scale cork roadbed. In all cases, roadbed was placed as long rectangles without a beveled profile. The rationale for this is that when ballast is applied, it will form a beveled profile naturally than will be more stable and not as readily damaged by inadvertent treatment by modelers.

The layout yard ignores NMRA standards in that parallel track spacing is 2 ½" instead of 2". This was borne out of a consideration for planned operating sessions to allow the fingers of operators to be able to reach between adjacent tracks for manual rerailing of cars without inadvertent derailment of cars on nearby, parallel tracks.

Straight-track Skeleton Fixture

The Fast Tracks fixture used for making straight track is shown in Figure 2. The length of the track fixture shown in Figure 2 is 16 inches. However, track lengths in excess of this can be made (e.g., Figure 1) by extending the rail lengths, and will be described later in this article.

Figure 2. Fast Tracks fixture for making straight track. Note that tie spacing can be used for Mainline, Branchline, or Siding trackage

Rail Type and Tie Spacing

The author chose to use mainline tie spacing for all of the yard trackage. This decision was made after consulting with local railroad engineers who operate trains in the area. These railroad engineers indicated that the tie spacing in yards is the same as it is for mainline track. Also, yards usually have the same type of cars as are those found on the mainline, therefore yard tie spacing is the

same as for the mainline.

Prototype yard rail is the same weight as mainline rail (selected based on price – cheapest available of suitable quality), but the height profile is usually lower than that of the mainline. Code 70 Micro Engineering rail on N scale cork was selected to accentuate this difference.

Assembly Process

There are several steps needed to construct turnouts or straight track using fixtures. These are:

- Wear nitrile gloves during the entire process to prevent skin exposure to solvents (safety) and to avoid contaminating metal surfaces with oil from the hobbyist's fingers.
- Thoroughly clean the rail.
- Thoroughly clean the copper clad PC board (PCB) ties.
- Use an abrasive on the bottom of the rails and the top of the PCB ties to facilitate better binding of the two metals together during soldering.
- Sparingly apply flux to the PCB ties placed in fixture before soldering.
- Use weights to keep the rails in place over the PCB ties and within the track-building fixture.
- Solder the rail using a suitable soldering iron that allows both the rail and PCB ties to heat adequately prior to applying the solder.
- Avoid applying too much solder.
- Repeat the process for the second rail in the fixture and make the track to the desired length as a track skeleton.
- Clean the track skeleton using Dawn dish soap, rinse thoroughly with distilled water, and allow to dry.
- Complete the track by affixing wood ties placed in between the PCB ties.
- Paint the straight track if desired.
- Place finished handmade tracks on the layout

These steps will be discussed in the following paragraphs.

Nitrile Gloves

As is for the case for painting or gluing models, cleanliness is extremely important when building handmade track. Body oil from skin can result in poor solder connections. To mitigate this from happening wear nitrile gloves during the entire process to avoid contaminating metal surfaces.

Nitrile examination gloves can be obtained from various sources such as pharmacies, home improvement stores, restaurant supply stores, and other vendors. The author obtained nitrile gloves from a local Costco warehouse.

Thoroughly Clean the Rail

Micro Engineering rail requires cleaning before track building. During the manufacturing process hydrocarbon oils are used in the track-forming process. There is some residue remaining on the rail, even when it is shipped to a distributor. The first step in the process is to remove as much of this residue from the unused rail as possible to assure good solder joints later during the track building process. Acetone was used as a solvent to remove as much of contaminants as possible. At the work bench acetone was contained in a fingernail polish remover pump rated for acetone. These pumps are available from Amazon.

A cosmetic pad is saturated with the acetone from the nail polish remover reservoir, after which the rail is wiped down multiple times. Be careful not to bend the rail. As the rail is cleaned, eventually there will be a harmonic

Figure 3. Acetone-cleaned rail showing contaminants transferred to the cosmetic pad used to wipe the rail

sound (singing), which is indicative of clean rail. One can also tell the rail is clean when there is little or no grime on the cosmetic pad. Figure 3 depicts a cosmetic pad showing contamination removed from the rail being cleaned.

Thoroughly Clean Copper Clad PC board (PCB) Ties

Straight track PC board ties can be purchased from Fast Tracks that have been pre-gapped (https://www.handlaidtrack.com/ch-ho-x). They are available in various model railroad scales, but this link is for HO scale ties. The pre-gapped ties are 2 mm thick, whereas ties sold for turnouts are 1/16" (slightly less than 1.6 mm) thick. HO scale straight-track ties come on a fret containing 33 individual ties. Figure 4 shows the ties on the fret, and a pair of "old" (no longer used for rail) rail nippers. Two sets of gaps

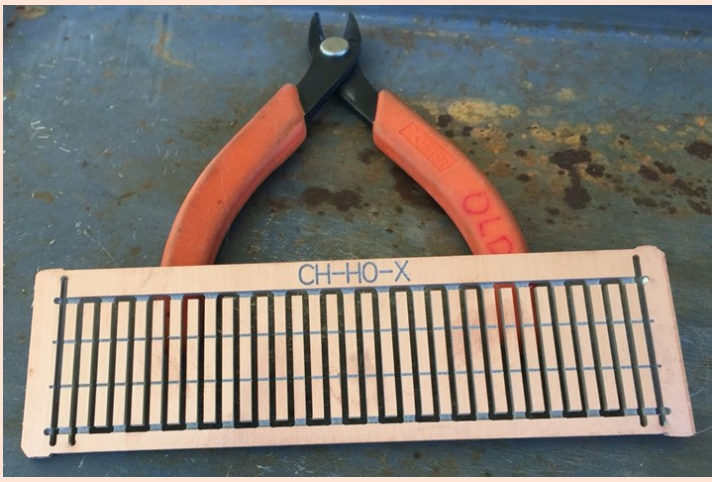


Figure 4. PCB ties used for straight track. Note the fingerprint smudges on the copper surface

can be clearly seen it the ties shown in the figure. Note the fingerprint smudges on the copper surface. These are cleaned using acetone in the same manner as described for the rail. There are parts of the PCB ties that require trimming, which is also done with the rail nippers. The ends are then filed to ensure that the PCB ties fit in the fixture.

Use an Abrasive on the Bottom of the Rail and on the PCB Ties

The final step for ensuring clean rail and ties is to use an abrasive on the bottom of the rails and on the tops and bottoms of the PCB ties. The abrasive used is 400 grit or 600 grit wet or dry sandpaper. This step ensures that the solder-binding surfaces are clean and also provides "tooth" for the solder to wick in to during soldering. The sanding process is slightly different for the rail when compared with

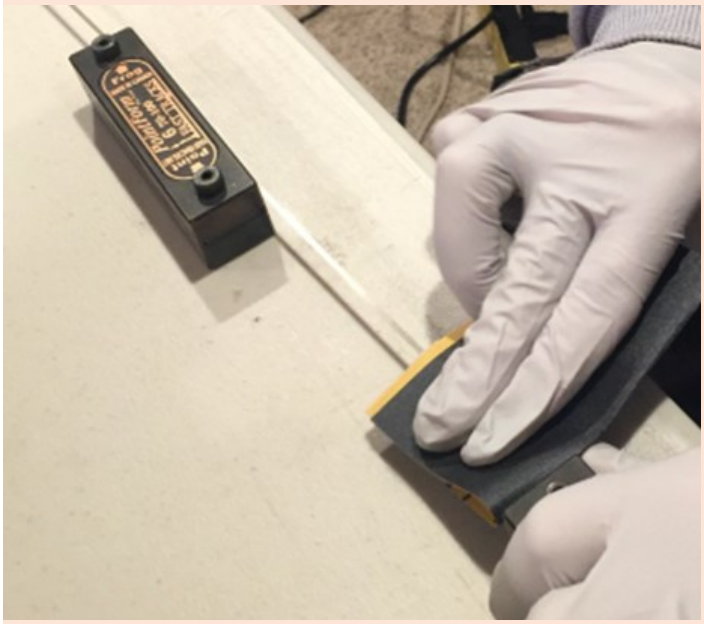


Figure 5. Sanding the bottom of the acetone-cleaned rail

that for the PCB ties.

Rail is immobilized using two filing fixtures (called PointForm tools), which aid filing of frog points and point rails when making handmade turnouts (Figure 5). The rail is placed upside down so that the bottom of the rail is exposed to the sandpaper. This arrangement makes it possible to sand the rail bottom without twisting and/or bending the rail. The rail is moved through the PointForm tools until the entire three-foot length has been sanded. Note the use of nitrile gloves to avoid contaminating the cleaned and sanded rail.

In a similar manner, all of the PCB ties are cleaned using 400 or 600 grit wet or dry sandpaper. This process for PCB ties is more labor intensive because each tie needs to be individually sanded. However, it is well-worth the effort and time spent. The sanding process is best done within a day of soldering because the oxidation of nickel silver metal and the copper on the PCB ties begins immediately following exposure to air.

Sparingly Apply Flux to the PCB ties Placed in Fixture Prior to Soldering

Before beginning the soldering process, it is important to clean the fixture well using Dawn dish fluid. This is important because the PCB ties should properly seat within the fixture. If too much flux has been used in the past, the PCB tie may not sit properly in the fixture or the flux may cause debris such as pieces of solder or dirt to stick within the fixture and prevent proper seating of PCB ties. Probably the most important consideration is that the fixture is the tool that facilitates hand making of the track model. Like any other tool, taking care of it will yield long term benefits.

The first post-cleaning step is to place the PCB ties in the fixture, gap-side up as shown in Figure 6. In this figure, application of flux using a micro-brush applicator is

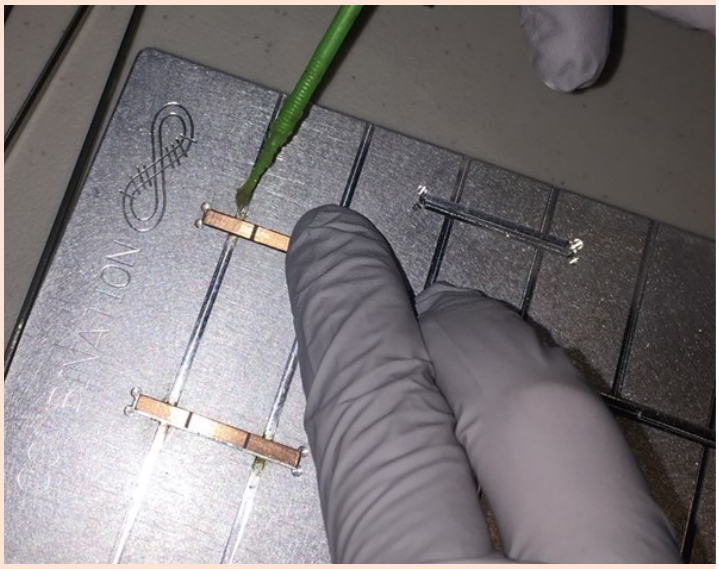


Figure 6. PCB ties placed in the pre-cleaned fixture and application of flux using micro-brush

also illustrated. It is important to not apply too much flux. The flux and solder used was purchased from Fast Tracks This flux is acid-based, which is good for track building. However, avoid using it for other applications, such as electronics, because it is corrosive, thus it may damage electronic circuits.

The solder used for this application is a rosin core solder. It is easy to use because its diameter is 0.025 inches. This makes it possible to solder without applying excessive amount of solder.

Use Weights to Keep Rails in Place over the PCB Ties

The next step is to place the pre-cleaned and sanded rail into the fixture after flux has been applied to the PCB ties (Figure 7). When viewing figure 7, the small

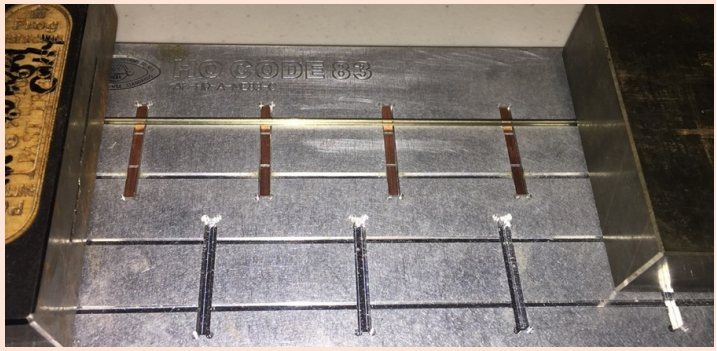


Figure 7. Rail inserted into the fixture over the PCB ties. Note weights are used (PointForm tool (left) and 1-2-3 block (right) to keep rail in place

amount of flux on the top of the PCB tie can be seen. The rail is held in place by weights. Weights used were Point-Form tools and 1-2-3 machinist blocks. All handing of the ties and rail is done while wearing nitrile gloves to preserve cleanliness.

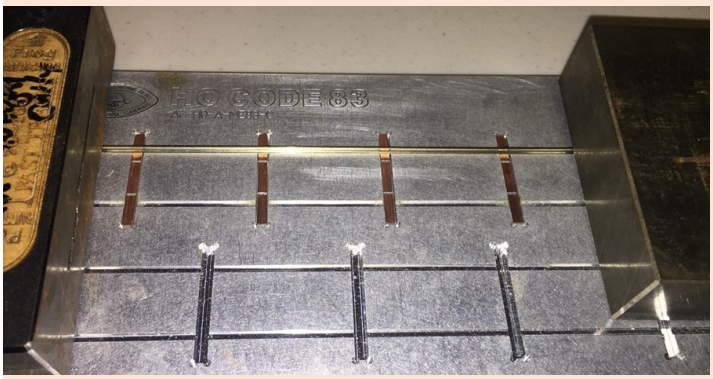


Figure 8. Rail inserted into the fixture over the PCB ties. Note weights are used (PointForm tool (left) and 1-2-3 block (right) to keep rail in place

Solder the Rail using a Suitable Soldering Iron that Allows the rail and PCB ties to Heat Adequately

At this point all of the preparation that has been completed will allow soldering steps to proceed rapidly and without issue. Any soldering iron may be used. The author has made over 70 turnouts and 75% of those were done using a 35-watt Weller soldering iron. Some have also been made using a Weller soldering station. All of the work described in this article was done using an American Beauty Resistance Soldering Unit (RSU) fitted with tweezer style electrodes. An RSU is nice because the heat at the joint to be soldered is concentrated in a small area and it heats the rail and PCB tie more rapidly than other soldering irons. The heated area is so focused that if one is soldering feeders between plastic flex track ties it can be done without melting the ties on either side of the feeder wire. One does NOT need an RSU to be successful making handmade trackage.

Figure 9 shows the tweezer-style RSU heating up the rail and PCB ties with the concomitant application of the 0.025” diameter solder. The tweezer electrodes are placed across either side of the railhead and a foot pedal is pressed down to pass current between the electrodes. When this occurs, the rail is heated over a very narrow space. The heated rail also heats the top of the PCB tie. The flux can be seen to liquify and the applied solder (very small amount needed) disperses (wicks by capillary flow) in between the bottom of the rail and the top of the PCB tie. The RSU tweezers are left in place and the foot pedal is released. After a few seconds, the solder cools and soldering of the joint is completed. The tweezers can then be moved to the next PCB tie for soldering, where the process is repeated. Because of the earlier sanding steps performed on the rail and PCB ties, the resulting solder bond is extremely strong.

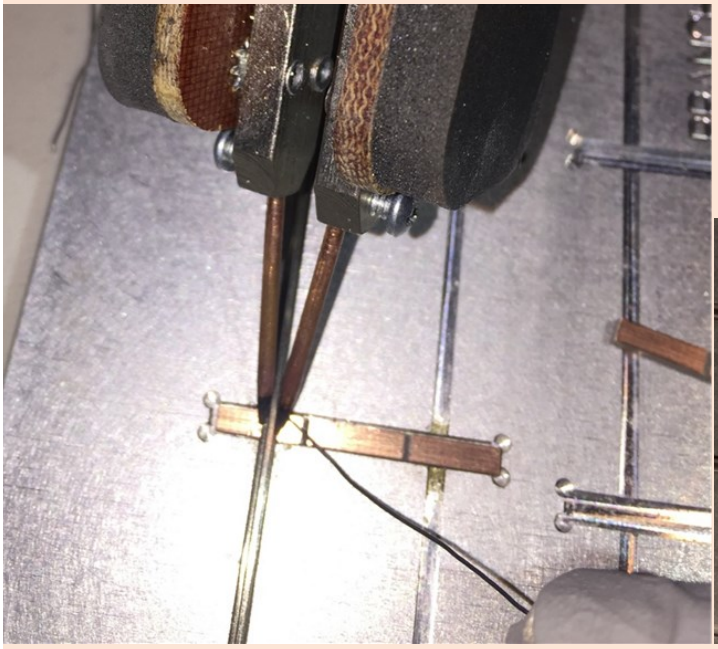


Figure 9. Soldering rail to PCB ties using tweezer attachment on a Resistance Soldering Unit

Avoid Applying too much Solder

It only requires a small amount of solder to achieve a good bond between the rail and PCB ties. Soldering is a situation where “less is more” especially for handmade track. The sanding steps taken during preparation of the rail and ties gave the metal faces increased surface area to bind to. The addition of flux hastens the physical transfer of the molten solder into the interface between the rail and the PCB tie. Excess solder is not needed and should be avoided.

On an HO scale 16” straight fixture there are 11 PCB ties for mainline track. All of these rails can be soldered to the PCB ties in about a minute including moving weights along the span of the fixture. To solder additional PCB ties along the length of a rail, the soldered PCB ties are moved along the length of the fixture where more are soldered (Figure 10).

Repeat the Process for the Second rail in the Fixture and make the Track to the Desired Length

After this is done, the second rail, parallel to the first is soldered in the same manner. If the track being soldered needs to extend beyond a 36” length of a segment of rail, the rail is cut to fit in the middle of a PCB tie, also shown in Figure 10 (bottom rail). The rail partially bridging the PCB tie (middle tie within fixture in Figure 10) is not immediately soldered. When it is desired to add rail to span this section, the new rail is butt fitted to the middle of the tie. Other PCB tie soldering is performed first. The final sol-

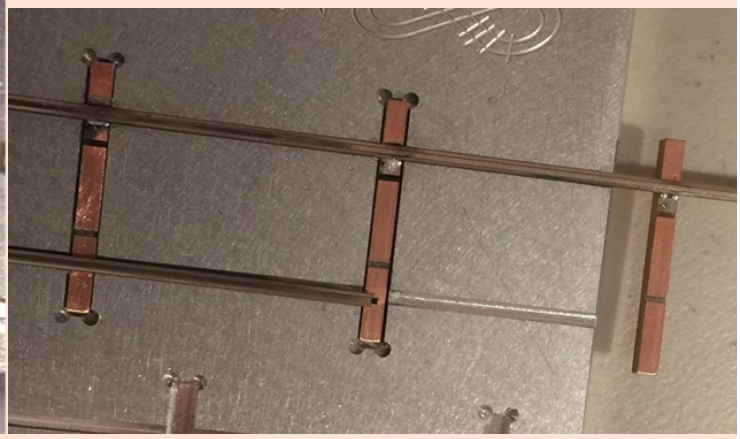


Figure 10. Adding rail to parallel trackage using a butt joint

dering is done for the butt fitted rails. It is best if these butt joints on parallel rails overlap by several ties. This is explained in detail in a video on YouTube produced by Fast Tracks (https://youtu.be/YI7R0LIpJuY).

After the first rail is soldered, the track can be turned 180 degrees and the (formerly) opposite sides of the rail can be soldered (often this is not necessary if the solder adequately wicked beneath the rail). If wicking occurs, it will be readily apparent. The author usually soldered both sides of both rails, although this was usually not necessary.

Clean the Track Skeleton using Dawn Dish Soap, Rinse thoroughly with Distilled Water, and allow to Dry

As noted earlier in this article, due to the corrosive nature of an acid-based flux, if the track skeleton is not properly cleaned, it may corrode over time. Cleaning with soap and water is a straightforward process. However, if your track segments are long (e.g., over two feet), cleaning may be a challenge. To overcome this, a cleaning device was made that would hold long straight-track skeleton segments. This was done by purchasing an eight-foot rain gutter at a local home improvement store and gluing end pieces to each end of the gutter (Figure 11).

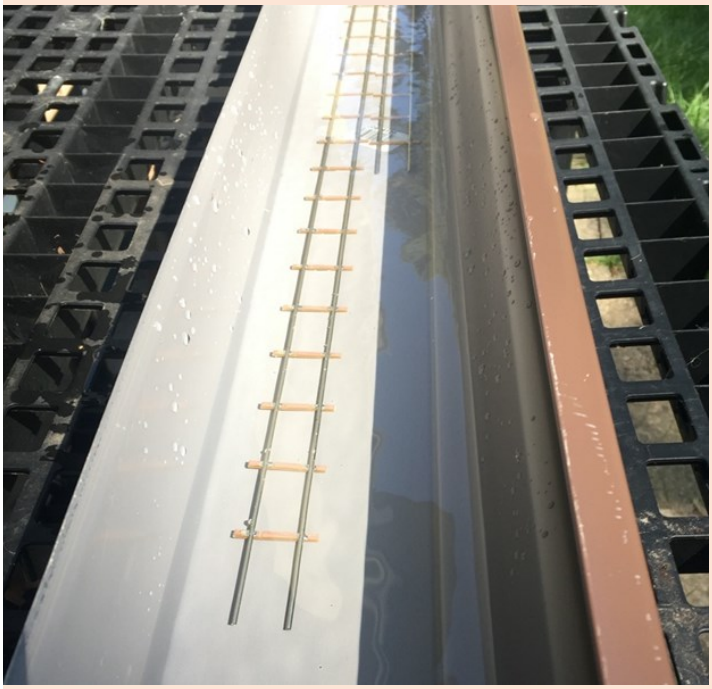


Figure 11. Gutter fitted with endpieces used to clean straight-track skeleton using Dawn dish soap

The setup was placed outside in the sun and tap water was added to the gutter along with the track skeletons. Heat from the sun warmed the water. Dawn dish soap was used as detergent. This soap works well as a degreaser and was found to be effective in removing residual flux from the track. A plastic brush was used to carefully scrub the track skeleton. This allowed gentle cleaning without being too aggressive (e.g., in contrast to a wire brush) and was effective in removing flux and other dirt.

After the track had been washed in soapy water, it was rinsed using tap water first, and then re-rinsed using distilled water in the rain gutter cleaning apparatus.

Complete the Track by Affixing Wood Ties Placed in between the PCB Ties

A product called QuickSticks is available for completing track work. QuickSticks are made by Fast Tracks using Baltic Birch plywood and cut to the appropriate dimensions for each fixture. QuickSticks are available for various scales and turnouts. Wood used for straight track is called QuckSticks Crosstie Strips. These are available as either fixed or flexible products. For this project, the fixed product was used. These come in ten-inch pieces (Figure 12).

Figure 12. Fixed length QuickSticks as received from manufacturer

Because there are PCB copper ties every fifth wood tie, the five wood-tie segments had to be cut so they could be glued to the straight rail skeleton in between PCB ties. Cutting the crosstie strips was done using a Northwest Short Lines Chopper II.

Many fixed QuickSticks Crosstie Strips were cut so that the five-tie segments would be available as needed (Figure 13). Several of the straight-track skeleton were between four and eight feet in length, so a large number of these five-tie segments were needed. For example, an eight-foot length of track required 70 of these pieces.

Figure 13. Five-tie wood tie segments for placement between PCB ties on track skeletons

The wood ties are affixed to the bottom rail of the straight-track skeleton using Pliobond 20 adhesive. This adhesive is a thermoset adhesive polymer. This means that out of the tube, bonded pieces are uncured. Pliobond is applied like other contact adhesives to both bonding surfaces. In this case, to the bottom of the wood ties and then to the rail. Both bonding surfaces received two applications of Pliobond adhesive, largely because the wood absorbs some of the adhesive. After a few minutes, volatile components in the adhesive evaporate, leaving the uncured adhesive on the surface of the wood ties and the rail.

The author applies the Pliobond using a syringe fitted with a stainless steel 14-gauge, 1” dispensing needle that has a blunt tip and a Luer lock end for attaching it to a syringe (available from Amazon).

Syringes were purchased from Amazon, too. They are manufactured by Beckton-Dickinson *(BD brand, Ed.)* as Plastipak 3 mL disposable syringes and sold without nee-

dles.

The stainless steel 14-gauge blunt-end needle is attached to the syringe. Pliobond is well mixed by vigorous shaking of the tube and poured into the syringe after first removing the syringe plunger (Figure 14). The needle was attached before filling the syringe with adhesive. When the syringe was approximately 80% full, the plunger was partially inserted sufficiently to prevent the adhesive from flowing out and to allow entrapped air to rise toward the needle.

Figure 14. Pouring well-mixed Pliobond adhesive into 3 mL syringe

The plunger was then gently depressed in so as to expel entrapped air. After that, adhesive was applied to the bonding surfaces, first to the wood (two applications for each wood tie segment) as depicted in Figure 15.

Following application of Pliobond to the wood ties, the track skeleton was turned upside down on the work

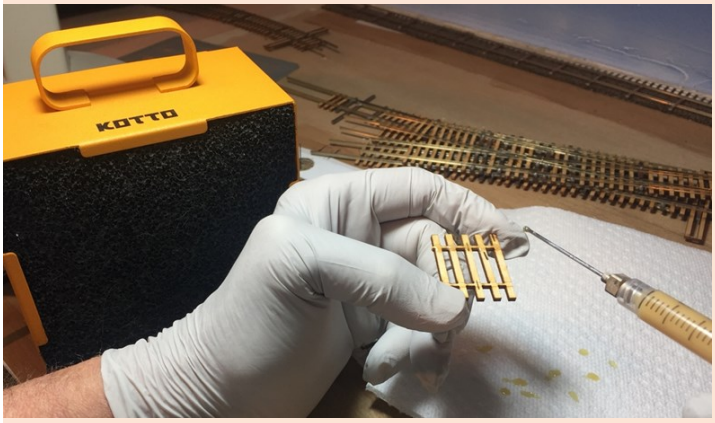


Figure 15. Application of Pliobond adhesive to the QuickSticks CrossTie segment using a 14-gauge blunt needle attached to a disposable plastic syringe. Note a solder fume extractor fitted with an activated carbon filter was used to withdraw fumes away from breathing space during adhesive application.

bench (in the photograph an area that had cork, but not yet a completed portion of the layout) and the Pliobond was applied to the underside of the rails (Figure 16). Two coats of adhesive were also applied to the rail.

Left-over Pliobond was returned to the Pliobond tube by injecting unused adhesive within the syringe via the needle. The needle was removed from the syringe and placed in a small bottle of acetone to clean it. The spent syringe was discarded.

The next step was to place the wood ties on the rail in between separate PCB ties as shown in Figure 17. This

Figure 16. Application of Pliobond adhesive to the bottom portion of the rail

step was done 10-20 minutes after the Pliobond had been applied to the bonding surfaces. Because this is a contact adhesive, the key was to ensure that the wood lined up with the rail. All of this was done with the skeleton upside down. Placement of the wood ties on the rail continued until the entire skeleton contained the wood ties.

Next, weights were placed on the upside-down skeleton and wood ties to facilitate bonding of the Pliobond

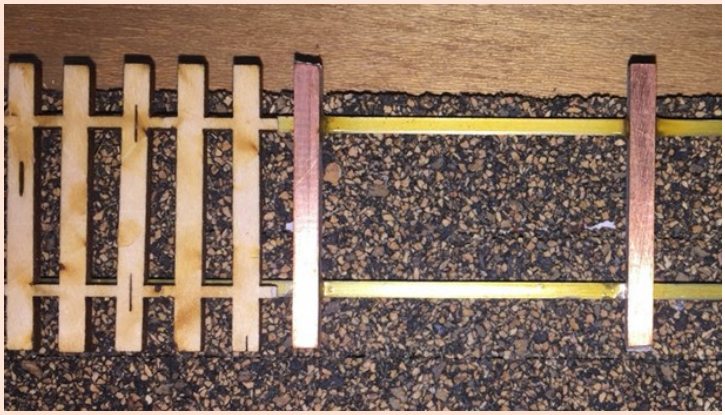


Figure 17. Placement of five-tie segments onto rail in between PCB ties

adhesive in contact with both faces. This was done using any weights available. I used metal bar stock that is ¼" thick with a length and width of 12" by 4". Three of these were placed end to end. If the track was longer than 3 feet, a piece of wood board was placed on the upside-down skeleton and wood ties and gallon-sized cans containing paint were placed on top of the board as weights. Weighted straight track was left overnight to complete the bonding process.

The next day, thermosetting was performed. Weights were removed from the track, which was then turned right-side up. A clothes iron was used to apply heat to the rail surface. In Fast Tracks videos, thermosetting is shown using a hot soldering iron, which, while effective, takes a large amount of time to accomplish, especially for long track segments. The idea for using a clothes iron was arrived at the suggestion of the author's wife, clearly his better half. I used the Cotton/Linen setting with NO steam.

For each section of track, heat was applied to the

rails for 1 to 1 ½ minutes. Heat conducts through the rails to the wood ties, facilitating the thermoset curing of the Pliobond adhesive. Next, one of the metal bar weights was placed on the just-heated track section and the iron was advanced to a portion of the track that had not undergone thermosetting. This is shown in Figure 18. A before and after comparison of the track skeleton versus the completed track is presented in Figure 19.

Paint the Straight Track if Desired

The track can be painted if desired. This may be

Figure 18. Iron used to facilitate thermosetting of the Pliobond adhesive on a straight section of track. Bar stock weight is visible in lower left of photo.

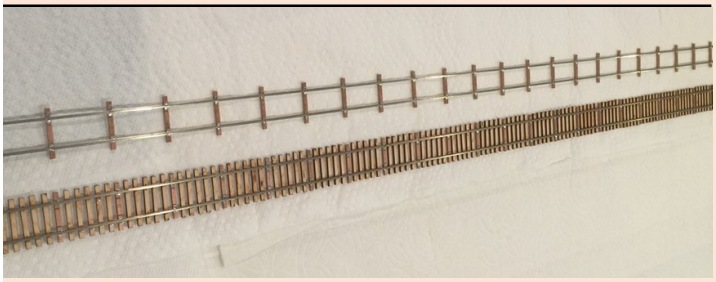


Figure 19. Comparison of track skeleton (top) with track that had the wood ties glued (bottom).

preferred if it is used on a diorama and electrification of the rail in not intended. However, if the track is intended to be connected to either a DC or DCC bus, paint insulates the rail. Therefore, the painted part of the rail where feeder drops are attached to the rail needs to be removed so the feeders can be soldered to the rail. Removal of the paint can be accomplished with a carbon steel brush (PN Dremel 428 3/4"), a stainless-steel (PN Dremel 530) brush, or a fiber glass brush. Carbon steel or stainless-steel brushes are fitted to a rotary tool (e.g., Dremel). The author found that it is easier to install the track and feeders without painting the track. Track painting was performed subsequently.

Placement of Finished Handmade Tracks on the Layout

After completing the handmade track, it was placed on the layout. In Figure 20 it can be seen with locomotives and rollingstock in the mainline (painted rail tie color), yard (four tracks to the left of the mainline track), and the passing siding (track to the right of the mainline track). Various turnouts can also be observed in this photograph. All yard tracks were handmade using Code 70 rail, whereas the

Figure 20. Yard, mainline, and passing siding tracks

mainline and siding tracks were handmade using Code 83 track.

Figure 21 (next page) shows both of the locomotives next to each other. An RCP&E SD40-2 (upper left) is on the mainline. A UP SD40T-2 (lower right) is on the yard track. In this photograph one can view the mainline trackage on HO scale cork, which slightly thicker and wider than the N scale cork. The N scale cork is the width of the HO trackage and thinner than the HO cork. This combination of use elevates the mainline track slightly higher than yard track and passing trackage.

Final Thoughts

An element of this hobby that the author most enjoys is making turnouts and track using Fast Tracks fixtures, which is why so much of the track on this layout is handmade. All track building began by following video instructions on the Fast Tracks website. Over time, improvements were implemented based on new information or through experience. Several of these are identified as follows:

Carefully measure track lengths before cutting rail
Use sharp, or new, tools for cutting or filing rail.
When cutting or filing tools become worn out, replace

them.

Be fastidious when cleaning the track and PCB ties using solvents and 400 or 600 grit sandpaper.

Use weights to hold the track in place within the fixture (e.g., 1-2-3 machinist blocks).

Apply flux sparingly.

Use small diameter solder and do not apply it in excess.

When soldering, heat rail and the PCB ties sufficiently with the soldering iron before applying the solder.

After the solder is applied, remove the soldering iron and allow the joint to cool before moving to the next tie. This avoids cold solder joints and justifies your use of weights on the rail.

A solder joint is very stable and not improved with excess solder, especially if the rail and PCB ties have been cleaned and sanded beforehand.

Excellent trackwork can be done using a standard 35-watt soldering iron; a resistance soldering unit is not needed to be successful.

When you start making mistakes, stop and come back to it after a break or the next day.

The author has found that the best adhesive for bonding wood ties to rail is by using Pliobond as recommended by Fast Tracks. Others in YouTube videos describe using cyanoacrylate adhesives. The author has not had similar success with these alternatives.

When applying Pliobond to turnouts, be careful not to apply excess adhesive near turnout points.

Mix Pliobond adhesive inside its tube well by thoroughly shaking the tube before applying it to wood ties or rail.

The author has found that the most reliable way of applying Pliobond adhesive is by using a Luer Lock 14-gauge blunt needle fitted to a disposable 3 mL Luer Lock syringe (described in this document).

Thermosetting of Pliobond bonded QuickSticks wood turnout or straight-track ties is most efficient using an iron.

Have fun!

One feature of working with metal is that if you make a mistake, de-solder the joint, clean it, and re-solder it. The author has found that repairing soldered items is fairly easy when compared with wood or plastics. De-soldering simply involves reheating and cleaning the joint. With wood or styrene, it is not easy to unglue a joint. The mistake usually must be fixed by redoing the work using unglued materials.

Reference Documentation

There is considerable information available from the Fast Tracks website (https://www.handlaidtrack.com/building-turnouts-video-series) and on the web by other authors. Kevin Marks, representing Fast Tracks has presented several NMRAx clinics on track building. His videos can be found by searching on Google and entering the search term “Kevin Marks NMRAx”. Finally, I have had many questions as I have learned to use these products. Customer service at Fast Tracks is outstanding and they are responsive, so ask questions that arise.

Finally, if there has been a way to make a mistake, the author has probably made it. As when developing any skill, one learns from their mistakes. Because metal work is forgiving, just dive in and enjoy the journey.

Figure 21. Locomotives side-by-side on the mainline (painted ties) and yard (unpainted) trackage

Sources of items used:

3 ml syringes:

https://www.amazon.com/BD-Plastipak-Disposable-Luer-Lok-Capacity/dp/B08N59HWL9/ref=sxts_rp_s_a1_0?crid=D7N6X7MJEU7P&cv_ct_cx=bd+plastipak+3ml+syringe+without+needle&keywords=bd+plastipak+3ml+syringe+without+needle&pd_rd_i=B08N59HWL9&pd_rd_r=a1590a83-4086-40e5-8df5-f91f9b7b137f&pd_rd_w=mQUeX&pd_rd_wg=liMHm&pf_rd_p=ef09fc8b-f6fe-450c-ac89-05f354bc6e1d&pf_rd_r=YRXV354R4H1K76EWNPP7&psc=1&qid=1643153542&sprefix=bd+plastipak+3ml+syringe+without+needle%2Caps%2C75&sr=1-1-5985efba-8948-4f09-9122-d605505c9d1e

Blunt tip needles:

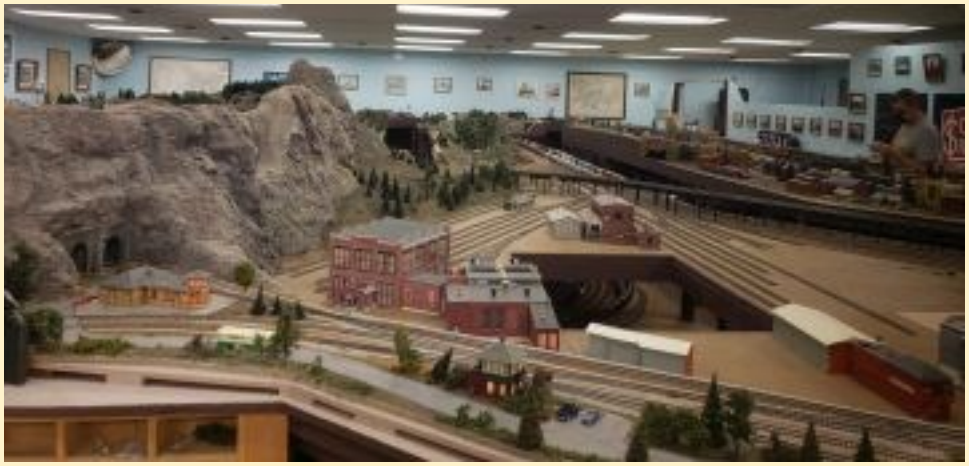
https://www.amazon.com/gp/product/B01LM8LU0W/ref=ppx_yo_dt_b_asin_title_o08_s00?ie=UTF8&psc=1

The Hennepin Overland Railway Historical Society in South Minneapolis

Greg Smith
Jason Boche
Bill Dredge

About the Organization: The Hennepin-Overland Railway Historical Society, Inc. is a Minnesota perpetual non-profit exempt organization under §501(c)(3), Internal Revenue Code, formed for charitable purposes. Within our museum we operate model railroad displays, a library which includes historical railroading related documents and model railroading periodicals, and railroad artifact displays. We also operate a museum/hobby shop to defray the cost of maintaining our facility.

Our Mission: Our mission is to provide entertainment and education for those interested in the history and operations of railroads.



Recipients Of Our Services: Our facility is open for public visitation. Recipients of our services are any members of the public interested in learning about the history and/or operations of railroads, which have played and continue to play a significant yet often unheralded role in the development of our country from numerous cultural and economic perspectives. We also host meeting space for railroading organizations such as the University of Minnesota Model Railroad club.

Membership Information: Our services could not happen without our volunteer members, who help fund our organization through membership fees. Membership is open to adults and junior members with a minimum age of 14. Work is done on a volunteer basis, and costs for constructing and operating the museum are borne by the Society.

Organization History: It is the successor to an unincorporated association of railroad hobbyists formed in 1976 in Richfield. In 1985, the layout display (then 1,600 square feet) was moved and reassembled in 1987 to the Scale Model Supplies hobby store at Lexington and University in St. Paul. In 1996, enlarged to 2 levels, Hennepin-Overland began looking for its own facility and settled in 1997 on the current building at 2501 East 38th Street in Minneapolis. The display was then taken apart again and stored until the new space was refurbished. In July 1999, the display was opened in time for the National Model Railroad Association Convention (held in St. Paul).

About the Layout: The Hennepin Overland Railroad is a 64 foot long by 24 foot wide operating model railroad display that is not based on any prototype; it is a freelance layout design. There is no particular era represented, though we try to use structures that date to the late steam era (1930-1960). Operations are conducted on 3 primary lines – an eastbound mainline, a westbound mainline, and a branch line, as well as an assortment of smaller spurs. The layout is comprised of a visible portion, and a lower level portion that is used for staging. Trains travel between levels through the helix. Typically, a train spends about half its time in the invisible, "off-stage" portions of the layout.

Mains lines are basically a two-track loop enabling continuous running, although reverse loops in the small helix in the staging yards (under the farm) allows it to be operated as a two-track loop - to-loop main. In addition, a reverse loop at each entrance into the helix allows operators to run the main lines in a shortened loop-to-loop fashion without trains running down the helix and back up. Operationally the layout is set up so it can be operated by one person (albeit somewhat limited) or up to about 30 people. When completed, the layout is designed to allow up to ten trains running simultaneously on the mains and branch lines (if we can stay organized enough) not including local switching and industrial branches or commuters. During operating sessions, 15 or more locomotives or trains can potentially all move simultaneously. Features of the layout include a steel mill complex, two industrial warehouse branches, a grain terminal, a 6-track passenger depot that can hold 15 car trains, a full branch line that could also be run as a second interchanging railroad, a locomotive and car shop complex, a logging branch line, and a 1,500 car staging yard.

With an 11-scale mile mainline a train traveling 60 scale miles an hour would theoretically take 11 minutes to run the whole main line. In practice it takes about 15 to 18 minutes. A drag freight from the steam era would take around 30 to 40 minutes for a complete trip.

General Operating Parameters: Our layout operates using a Digitrax digital command and control (DCC) system, and locomotives must be equipped with DCC decoders to function. Members are free to operate the layout anytime, subject to certain restrictions. Except for operating sessions, most of the locomotives and cars you see on the layout belong to members. The layout, scenery and structures belong to the Society. We do maintain some trains, that can be operated by members if they desire.

Layout Statistics:
MAIN LINE: Double Track 38" minimum radius #8 turnouts l% grades on visible portion 1.5% grade maximum in helix Length overall - 11-scale miles visible - 5 scale miles train length typically 20 - 30 cars staging yard capacity - about 40 cars/track maximum capacity - about 1,500 cars A typical 6 axle model locomotive can pull about 20 cars each up the helix without helper units.
BRANCH LINE: mostly single track 38" minimum radius #6 turnouts 1% grades on visible portion (with some exceptions) 1.65% grade maximum. in helix Length overall – not yet measured visible – not yet measured train length typical, 10 - 20 cars staging yard capacity - about 40 cars/track maximum capacity – TBD

The helix: There are five tracks as follows:
Two West Bound Tracks (one up and one down)
Two East Bound Tracks (one up and one down)
One Branch Line Track (used both up and down)
The frame of the Helix is made of steel. Wood was cut by a laser saw, glued in three layers, with no space or gaps. Then it was glued into a half-circle, stored and set aside until fourteen were made. Assembly was done by drilling holes for threaded rods, some over 24" long by 3/8" thick.Total rods: 32 Main Rods, 20 washers per rod, some are less than 6" long. Number of nuts and bolts is over 680, washers used- 680. The size of the helix is 10 1/2 feet across and at the time of construction it was the biggest west of the Mississippi River. Total time it took to make the helix was 2.5 years. On top of the helix is a logging camp done by a Professional landscaper who is widely known as one of the most talented model railroaders in the area. It contains over 1, 000 hand-made Ponderosa Pine trees. The five helix tracks serve the following:

Helix to staging yards

Outermost two: Main line to Centerville. Radius: 52", Grades: 1.36% elevations per tum: 4" Travel Direction: Eastbound (up) Travel Direction: Westbound (down) Next two: Main line to Hennepin Radius: 48 1/4", Grades: 1.50%, Elevation per tum: 4" Travel Direction: Westbound (up), Radius: 46" Grades 1.53% Elevation per tum: 4" Travel Direction: Westbound (up) Travel Direction: Eastbound (down)

Innermost: Mountain Branch Line Radius: 43" Grade: 1.65% Elevation per tum: 4" Travel Direction: North and South Bound (up and down) We also have a bypass track when we don't want to use the helix.

Clothespin Canyon Trestle: (just past the helix) is a custom-made work of art. It was constructed from clear pine, band sawed to 1/87th of prototype (or HO scale) size. The only items purchased were nut and bolt sets manufactured by Grandt Line and Precision Scale.

Materials used were as follows: Stringers, three 8"xl6" laminated in place. Ties are 6"xl2" spaced 6" apart. Bents, consisting of three vertical posts 12"xl2" sills, are

Shay on Clothespin trestle. Models by Jerod Amerson

8"x8" spaced 14 feet apart. Horizontal struts are 6"x10". All transverse and longitudinal braces are 4”x8”. Walkways are 4"x8", fire barrel platforms are 6"x6". There are 46 bents, the tallest being approximately 122 feet,122 vertical posts, 840 transverse braces, 1592 longitudinal braces, 920 sills, 2,820 bolt and nut sets. The left-hand bridge main beams are 8"x12", side frame is 4"x8", floor beams are 8"x10", cross timbers are 10"x10", and the side braces are 8"x 8". The bridge consists of 4 main beams, 36 sub beams, 18 cross supports, 48 "x" braces, 18 tension rods, and 72 nut and bolt sets. The bridge supports are 12"x12” posts with six posts to a support. There are 12 posts, 26 sills, 22 cross braces, held by 52 nut and bolt sets. Posts are connected with 108 side pars and 180 nuts and bolts sets. The left-hand bridge consists of 4 main beams, 10 sub beams, 24 "x" braces. 10 tension rods, 20 nut and bolt sets and 21 ties. Clothespin Canyon trestle was built by member Tom Jackson, for which he was awarded the designation of “Master Builder” by the National Model Railroad Association. This will always remind us of Tom, a Marine veteran of WWII, who passed away in January 2008.

A Fictional History of The Hennepin Overland Railroad: In the mid 1880's the KANABEC STAGECOACH COMPANY was chartered to provide transport for people and goods between HENNEPIN and KANABEC. Almost immediately it became evident that crossing CLEARWATER MOUNTAIN by stagecoach was not practical. The charter was abandoned and a new one established for the HENNEPIN and KANABEC RAILWAY COMPANY and plans were immediately drawn up to bore through CLEARWATER MOUNTAIN. By 1890 the line was completed and was doing nicely.

So nicely in fact that the decision was made in 1893 to extend the line to a small developing town named BERGEN up in the CHIPPEWA MOUNTAINS, a bit of a way from the RED LAKE MINE, a small operating coal mine. But as it turned out BERGEN was a bit too far from the mine and not too many people wanted to live there. The company town near the mine was much more popular and many more people lived in it than in BERGEN. So the BERGEN town fathers struck a deal with the owners of the mine and the town was “moved" a bit north, merged with the company town and renamed NEW BERGEN. But the grades for the railway extension proved too steep to be practical. So, the "deal" was modified, and the mining company joined with the railroad to make a new tunnel through the mountain. The railroad was appropriately extended through the new tunnel to NEW BERGEN. Now up until the time the railroad came to town all the coal was hauled from the mine by wagon cart. Needless to say, the wagon cart owners were not happy about the railroad being so close. Their hauls became much shorter and their profits that much lower as the railroad took almost all the coal from NEW BERGEN to points south. However, many new markets opened on the railroad line and the mining business prospered. It soon became evident that the wagon carts could not keep up with the demand, so a spur was added to the mine. Many of the wagon cart businesses folded up, some with some rather strong "protests". But the mine prospered, the town prospered, and all seemed quite well.

About 1894 plans began being drawn up to extend the railroad to SIBLEY, a more substantial metropolitan area also on the other side of CLEARWATER MOUNTAIN

New Bergan on the branchline

and somewhat west of KANABEC. But disputes reigned supreme as no one could come to an agreement as to how the railroad was to get there, and how the financing would be arranged. So, some enterprising men got together and decided to start their own railroad - a nuisance railroad. A nuisance railroad is one a competitor builds to the same places as another railroad, but with no intention of ever using it. However, if it ever does get finished it could pose some serious competition. It is built with the sole intention of having the competition buy it out.

So, around 1895, after some wheeling and dealing, the HENNEPIN AND SIBLEY RAILROAD COMPANY was chartered to connect SIBLEY and HENNEPIN. (They had to say they were going to go between HENNEPIN and SIBLEY even though they were going to parallel the 7 HENNEPIN and KANABEC so they could get the charter). Since the HENNEPIN and KANABEC was built years earlier they got the choice right-of-way. The HENNEPIN and SIBLEY had to make do with what was left. There were two choices - south of the H & K there was a possible route, but it required a steep grade along with a tunnel, however it was a short tunnel - or north with a somewhat gentler grade but a noticeably longer tunnel. Now since this was a nuisance line the decision was obviously to go with the high-grade/short tunnel line, and work was started. However, one day some other serious investors with more far-reaching plans saw what was going on and realized the potential of this new line. Another deal was struck, more money as loaned, the first route was abandoned, and the low-grade route was built.

Much to the original owner's surprise the line soon became profitable so it was decided to extend the line Eastward to the village of St. Anthony with a stop in the

New Bergan on the branchline

town of WOBEGON in KEILLOR VALLEY between KOOCHICHING and OTTERTAIL MOUNTAINS. With the presence of the railroad both ST. ANTHONY and SIBLEY boomed. Hennepin did well too, but not as much as the other two. A small iron works started up on the Eastern outskirts of ST. ANTHONY near BENTON RIER, and a milling district began on the East side of town. The steel mill used coal from the mine at NEW BERGEN, limestone from SIBLEY, and ore from the open-pit mines at KANABEC. Scrap iron came in from wherever. The smelting iron was sent to finishing mills to the East although eventually some limited ingot and roll1ng facilities were added to the steel mill. Grain for the mills and elevators was brought in by rail from the fields around SIBLEY, and by truck from other local sources. It was then shipped East by rail to the flour

mills in PENNINGTON.

On the HENNEPIN and KANABEC a few problems developed between HENNEPIN and NEW BERGEN. Helper service was frequently required on the grade between MILLER'S LAKE and NEW BERGEN. (Trains frequently exceeded the twenty car limit the line was originally designed for). Also, the coal mine was not doing well. About 1925 with availability of federal funds a decision was made to add electric helper service through tunnel #2 in the CHIPPEWA MOUNTAINS. a second track was added, and catenary was installed with completion in 1927. Service improved but the coal business did not. To make matters worse Black Monday was not too far away.

Meanwhile on the HENNEPIN & SIBLEY business was going quite well. So good in fact that the yard next to downtown St. ANTHONY was getting overloaded. The decision to expand to ST. ANTHONY proved to be a good one. So the board of directors voted to build a new yard about a couple of miles East, sort of centered between ST. ANTHONY and BENTON RIVER. The area that formed became known as CENTERVILLE. The land used by the

Hennepin yard. Models by Steve Giebe

old yard was used to expand the overcrowded passenger depot. Both were completed by 1926. Then the decision was made to bore through KITTSON MOUNTAIN to PENNINGTON and work was begun. Unfortunately, two things would lead to a near-fatal disaster for the HENNEPIN & KANABEC: an over-extension of credit, and the great stock market crash of 1929.

Now when the crash came the HENNEPIN & KANABEC all but folded. Its stock went down to almost nothing, and the loss of the coal business put it into bankruptcy. The HENNEPIN & SIBLEY being owned by private investors did not have stockholders to answer to, but the loss of business all around did not make for good times. Nor did the losses of their investors in other areas. Work on the line to PENNINGTON was stopped and the HENNEPIN & SIBLEY became the not so proud owner of two rather long "caves ' One day the president of the H & K happened to meet one of the VPs of the H & S at Charlie's Barber Shop in New Bergen. They got to talking about their woes and Charlie, in a fleeting moment of wisdom, wondered aloud as to why they didn't just merge. "Seemed like a lot of the roads back East were." Both men said something along the lines of "Don't be a stupid idiot", and eventually went their ways. The idea seemed to stick with them both,

Switching in Centerville

and soon they began to realize that it wasn't that bad of an idea. Both companies got to talking and soon all those involved (well most of those involved) were in favor of the merger and legal proceedings were begun. On December 12, 1930, the HENNEPIN AND OVERLAND was formed. Soon additional monies were found, and the corporation began expanding. The line to PENNINGTON was completed, plus the old H & K was extended from NEW BERGEN via a switchback thru SUMMIT to WINDOM. The WINDON line only lasted a few years however, as the town was another mining town and the mine soon gave out. The line fell into disuse and maintenance was deferred to save costs. Soon the tunnel to Windom began to develop structural problems and was closed. Eventually some sections of the roof began to collapse. The line was considered terminated at SUMMIT, although a logging branch was begun off the switchback for an independent logging company in the late 1930's. Business between SIBLEY and PENNINGTON and flour mills in PENNINGTON brought in a lot of business. Soon the single-track main line began to show signs of inadequacy. In addition, the higher-grade line of the original H & S was proving to be a bottleneck. In early 1940's the old H & S was double tracked and around 1948 a new double track tunnel was bored through CLEARWATER MOUNTAIN just North of the old H&K. The old tunnel was kept, however, as a backup, and it could also be used by shorter, lighter trains to get around the now more common and heavier 40 to 50 car trains making the daily climb up the two-track main from SIBLEY. Not long after the double tracking was completed on the old H & K (now relegated to branch-line status) the helper service came sorely due for an overhaul. Now since electric helper service worked so well on some Western Roads, and maintenance was so much lower than steam power it was decided to electrify all the way from HENNEPIN YARD to SUMMIT. Along the way with this new electrification the locomotive service facility would be upgraded substantially. A second motor shop and a separate wheel shop would be built along with a series of ready-tracks and new service platforms.

Late in the 1940's the RED LAKE COAL MINE, which had been dormant for almost twenty years was discovered to be extremely close to a major series of coal veins. Since this mine was already there it was determined it was cheaper to use the old shafts than to drill new ones. So the

mine was re-opened.

In 1952 the car shops were moved from CENTERVILLE to HENNEPIN where the railroad had undeveloped land still unused from the merger. The land at CENTERVILLE was sold for industrial use. The diesel shops at CENTERVILLE were upgraded and the old motor shop at HENNEPIN was re-outfitted for diesel service. The service rack was upgraded to two tracks. The two-track main through BENTON was retained to serve the steel mill but was reduced to single track. In the mid-50's in an attempt to modernize the company a new logo was developed, and the name was shortened to the HENNEPIN OVERLAND.

Millers Lake: Around 1958 a couple of guys got the idea of diverting the stream that runs through the old JOHNSON FARM to make a small lake a bit to the North. They were going to stock it with fish and try to get some tourists. Old man Johnson didn't mind. "Stupid cows don't use it anyway", he said. "And I could do with an occasional day of fishin". So, Miller and Long dug their ditch and moved the stream. But after the next storm the swift currents eroded their channel, and the stream worked its way back to the

Johnson Farm

old stream bed. Miller and Long routed it back to the lake again and this time made the banks much sturdier. It seemed like now it was going to hold. They decided to call the place MILLER'S LAKE as Long was not fond of the teasing he got at the local tavern after the rain incident. Soon the lake started to reach a reasonable size and Miller went out to the fish hatchery and got some stock for his lake. People started showing up and fishing was not too bad. Then one August day a real hummer of a storm blew up and wouldn't you know it--the stream again eroded its way back to its original route through old Johnson's farm.

This left Miller with a rather interesting problem. Seems the water was leaving his lake, and none was coming in. And the fish not being equipped with travel agents, didn't quite get the message to go where the water was. So, there was this large muddy lake but with hundreds and hundreds of fish flapping around. Miller tried to get as many people as he could to come out and get some for dinner ... and and breakfast .... and dinner ... as he could. Even some of the local animal's sort of helped out. But everyone soon got real tired of fish at every meal and the rest just sat there ... in the hot August heat.

Seemed like for two weeks you could tell when the wind was blowing across Miller s Lake. Miller never did get the ambition to try to divert the stream again. And any time anyone mentioned the lake to him he'd just mutter something about not foolin' with mother nature.

Construction of the Clothespin Canyon Trestle - By Tom Jackson Early in 1990, the Coos Bay Lumber Company decided to extend its logging line south to a new lumber-

Miller's Lake on the branchline

ing area called "Camp Two". The Hennepin Overland Railroad Company commissioned a survey crew to lay out the extension of the route and reported the following:
A new Howe Truss Bridge would be required to span the Hennepin Overland's line from New Bergen to the Howdeep Coal Mines. Two routes were available from that point to the new timber camp. One could swing east and onto a road-bed cut thru the Omagosh Mountains then south to the camp, or a trestle could be built to span the

Logging branch, by Bruce Johnson

massive "Clothespin Canyon Gorge" and then continue up the gorge with a tunnel bored through "Dispatch Mountain" to the camp. Lumber being plentiful in the area, Coos Bay Management decided to build a trestle across the gorge, as cutting a road-bed through the Omagosh Mountains would be labor intensive and more expensive than a trestle. Plans called for a trestle 960 feet long, and a staggering 224 feet above the floor of the gorge. The railroad would also need two bridges over existing lines and the main trestle would have to be built on a 1% grade with a 20 degree "S" curve in it. This sharp curve could be easily negotiated by the

Climaxs, Shays, and Heislers that would be using this route.

Construction was started on March 9, 1990 and trestle-work commenced at approximately 150 feet south of the site of the new Howe truss bridge. Trestle-work continued until a new bridge was required to span the Hennepin Overlands "Mexico Connection" spur which connects the City of Wobegon with the Summit branch line near the Smashem & Bashem Scrap Metal Company.

This bridge consisted of four main beams, 8" x 12", 36 sub beams, 18 cross supports, 48 "x" braces, 18 tension rods and 72 nut and bolt sets. The bridge is supported by 12 x 12 posts with six posts to a support. There are 24 posts, 26 sills and 22 cross braces held by 52 nut & bolt sets. Posts are connected with 108 bars and 180 nut & bolt sets. Work continued until a smaller bridge was required to span the final gap to "Clothespin Canyon". This bridge consists of 4 main beams, 10 sub beams, 24 "x" braces, ten tension rods, 20 nut & bolt sets and 21 ties. The huge "S" curve trestle was built on 46 bents, the tallest being approximately 224 feet high, 122 vertical posts, 840 transverse braces, 1592 longitudinal braces, 920 sills, and 2820 nut & bolt sets. Stringers to support the rail ties are three 16' x 24' timbers supporting 10 x 10 ties spaced 6 inches apart. Each bent consists of three vertical 12' x 12' posts connected by 6' x 8' sills spaced 14 feet apart. Horizontal struts are 8 x 8's. All transverse and longitudinal "x" braces are 4 x 8's. The walkways are 4 x 8 and the fire-barrel platforms are 6 x 6 foot creosoted planks. Construction was completed on May 6, 1991, just 14 months after the initial decision to build the trestle was made. The “Clothespin Canyon" trestle is made entirely of pine, band-sawed to scale size and required approximately 840 man hours to construct.

Railway Comes to Wobegon: The railroad took its sweet time arriving. The Northern Pacific reached St. Cloud and continued north along the Mississippi to Little Falls and the Great Northern swung west through St. Joseph, Avon, Albany, and Freeport, while the Soo Line ran northeast from Albany to just south of Little Falls, the three lines making a triangle and each missing the town by miles. The handsome depot built to lure the lines sat empty and its platform opened onto a field of alfalfa where a tiny sign on a post stood, which said "W".

The ultimate connection to the town in 1885, the so-called "Lake Wobegon Spur," was a mistake on the railroad's part, a siding that took a sharp angle due to misplaced surveyors' stakes and that kept going for sixteen miles in an attempt to find its way back to the main line. When the track crew reached Wobegon, which was not on their map, they simply stopped and returned to St. Cloud by horse-drawn wagon, leaving the track where it was, a quarter-mile south of town, ending in thick brush by the depot. (The depot was moved south on skids to reach the end of the line.). A district superintendent was fired for his negligence, the spur appears on G.N. maps as a dotted line marked "See Code", but there is no code. The company nonetheless began regular shipping over the spur that year.

In 1948 the HENNEPIN OVERLAND bored a new double track tunnel through Clearwater Mountain and found themselves in Keillor Valley and the town of Wobegon, neither of which were on any map. The valley provided a good location for a long passing siding and a connection to the GN, so the Hennepin Overland added Wobegon to its stops and built sidings to the Braasch Brewery and other industries located in the area. The Hennepin Overland has provided Wobegon with freight and passenger service since that date.

Located in Centerville are the facilities for servicing, repairing and storage of steam locomotives. Diesel

GL Braasch brewery in Wobegon

TC&W at Wobegon. Greg Smith models

repair facilities were also located here before the Hennepin Yard facilities were built. Remotoring diesel locomotives is still done at the machine shop. If you look closely you can see a new diesel engine being unloaded. from a flat car in front.of the machine shop. There is a large freight yard for making up outbound freight trains and also sorting out inbound fright cars for industries located in the Centerville Industrial area. A large storage yard for commuter trains also exists in the hidden tracks beneath the main line. In addition to the engine servicing facilities there are also several industries as follows: Centerville Refinery, Sal M Onella Canning Company, Centerville Machine Company, Scrattch and Dhent Van Lines, and the Nice Ice Refrigeration Company. At the East End of Centerville, is Mobius Junction where freight train main lines diverge and head into Centerville while Passenger Trains continue ahead into the St. Anthony Passenger Depot area. After passing through Centerville freight trains enter a tunnel below St.

Anthony and do not emerge until they reach the village of Hastings and gradually climb back up to main line level and rejoin the passenger lines at Trapper Junction.

When Are We Open?
We are open most weekends during the winter months, check out our "Operating Dates" link with the specific dates and times that you can join us while we operate multiple trains on our huge layout.
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Notes:
All photos are by Greg Smith except the Shay on Clothespin trestle. Jerod Amerson took that one

Picture of Golden spike left to right:
Gary Braasch
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