THE O SCALE RESOURCE

NEWS, REVIEWS, INFORMATION TO USE

Vol. 1 No. 4
March/April
2014

O Scale West 2014
Electric Railways
Bill's Switching Layout
Practical Lighting
Converting 3 Rail Cars
Some Photos From Theo Rehack
And much more…

THE O RESOURCE
NEWS, REVIEWS, INFORMATION TO USE
SCALE

Published Bi Monthly

The Model Railroad Resource LLC
Plymouth, Wisconsin

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March - April

Vol 1 #4

Welcome to the online O Scale Resource magazine. The magazine is presented in an easy to use format. The blue bar above the magazine has commands for previewing all the pages, advancing the pages forwards or back, searching to go to a specific page, enlarging pages, printing pages, enlarging the view to full screen, and down loading a copy to your computer.

Front Cover Photo

A tranquil scene on Dave Adams On3 layout. Dave was on the layout tour again this year at O Scale West.

Rear Cover Photo

Looking inside the roundhouse in Avalon, Tennessee on an August night in 1947 on Dan Dawdy's Richmond, Danville & Southern.

Bill Of Lading

Advertisers Index

Editorial Comment

A lot has been happening here at *The O Scale Resource*. For starters, we have made it easy for event sponsors and promoters to list when their event is. Dan has placed a sign up page here with form fields for you to fill out. This will give you a free notice in the show listings section in future editions. If you are an event promoter or sponsor, simply go to that page and fill out the information. You must take the initiative, and fill out the form. We do not read minds to know when your event is. Of course, an ad in the magazine will really get the word out for you. The next thing Dan is doing is videos. In his current articles, he thought that a video might help. The videos are separate from the magazine, so they will not slow down the load time. Dan will put up a link to the video in applicable articles. The next, and this is a big one, is that we will be offering gift certificates to the winners of the model contest at the Chicago O Scale Show. See the ad on page 58 for details.

Now for the regular stuff. This month for a history article, we have an early photo etched kit from 1942, and a New Haven electric locomotive kit from 1938. O Scale West was February 7-10, 2014, and we have coverage of the show. How is that for being current with the news? The show was a good one, as you will see. I made a lot of contacts, and we have some good articles coming from that. Something new starting with this issue is traction articles. I worked for a number of electric railway museums, and have come to like the electric railway scene. I put together an introductory article for those who may not be familiar with electric railways and traction modeling. There is some nice modeling going on in traction, and we will be having more coverage of it. So, take a look at the article and see if it perks your interest. We have an article about an N Scale modeler who tried his hand at an O Scale switching layout, and there are some interesting things going on. I thought you would like to see what Bill is doing. Next, there are some good 3 rail models being made, and we have an article showing some of what to expect when you convert them to 2 rail operation. These models make nice 2 rail models without much work. Take a look – you may be able to get some different cars for your layout. In the last issue, Dan talked about lighting his buildings. In this issue, he goes into how to do it. Dan uses a lot of LED lighting, and there is some good information here on how he wires and installs the LEDs. One of the videos Dan made was soldering the leads to the flat mount LEDs he uses. Then, Dan wanted to revisit the scenery on his layout. In the September-October issue of *The O Scale Resource*, we saw what Gary Engle did for rock work on his layout. Then, in the November-December issue, Gary went to Dan's house and showed us how to put the rock molds on on the base, along with how to paint them. In this issue, Dan is going to back up and show how he and Amy put up the base for the scenery, and finished the rock molds. This was their first experience with doing this type of scenery, and a lot was learned. See what they have to say in their article. There is another video to go along with this. Dan mounted a small movie camera on a flatcar and pushed it through the scenery. It showed some flaws that they did not see before. So, read on and enjoy.

Glenn Guerra

HOTTEST MODELS FOR 2014

RDC-1 & RDC-2

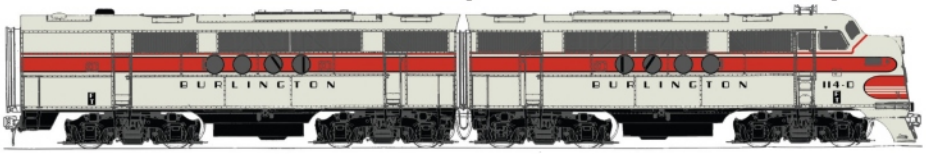
Many Road Names (Powered & Dummy)
ABS Body - Dual Canon Motors
Lighted Interior w/ Figures
QSI "Titan" DC/DCC and Sound

TIMKEN 4-ACES #1111
NP A-1 #2626 (GREY OR BLACK)

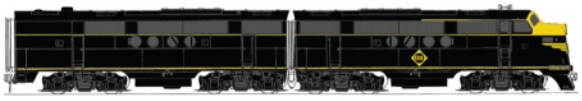
Timken 4-Aces was built in 1930 by ALCO. Used to demonstrate Timken Roller Bearings. Ran on C&O, NH, NYC and PRR and 10 other railroads for over 90,000 miles.
In 1931 NP bought her and she was renumber #2626. Painted both Grey and Black.

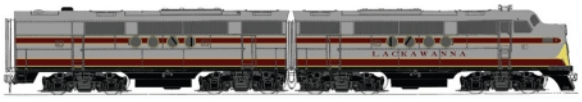
Pittman Powered, Quiet Drive Mechanism
All Drivers Sprung.

EMC FT DIESELS (A AND B UNITS)



ACL - B&O - B&M
CB&Q - DEMO - ERIE
GN - Lackawanna
NP - NYC - Reading
Rio Grande
Seaboard Air Line
Southern
Santa Fe Freight
Santa Fe Warbonnet
WP





FEATURING

POWERED A & B (DUAL SPEAEKERS)
AVAILABLE SEPERATELY
HIGHLY DETAILED
ACCURATE FOR EACH ROAD
FIXED PILOT - FULL CAB INTERIOR
HORIZONTAL DRIVE
QSI "TITAN" DC/DCC WITH SOUND

GM OR UP TRAIN OF TOMORROW

General Motors toured its all-dome concept train, the Train of Tomorrow, across the country beginning in 1947. It was operated on many Railroads during it's cross country tour. After the tour ended, Union Pacific purchased the four cars and assigned the Astra-Dome train, powered by an Electro-Motive 2,000-horsepower diesel locomotive, to pool service on the Seattle-Portland run.

E7 Diesel + 4 Domed Aluminum Cars
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THIRD RAIL DIVISION OF SUNSET MODELS INC.
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News And Reviews

Dan, Amy, and I will be at the Chicago Show in March. Stop buy and see us if you come to the show. Bring your contest models. We will be having a special gift certificate offering for the winners. See the ad in this issue for details

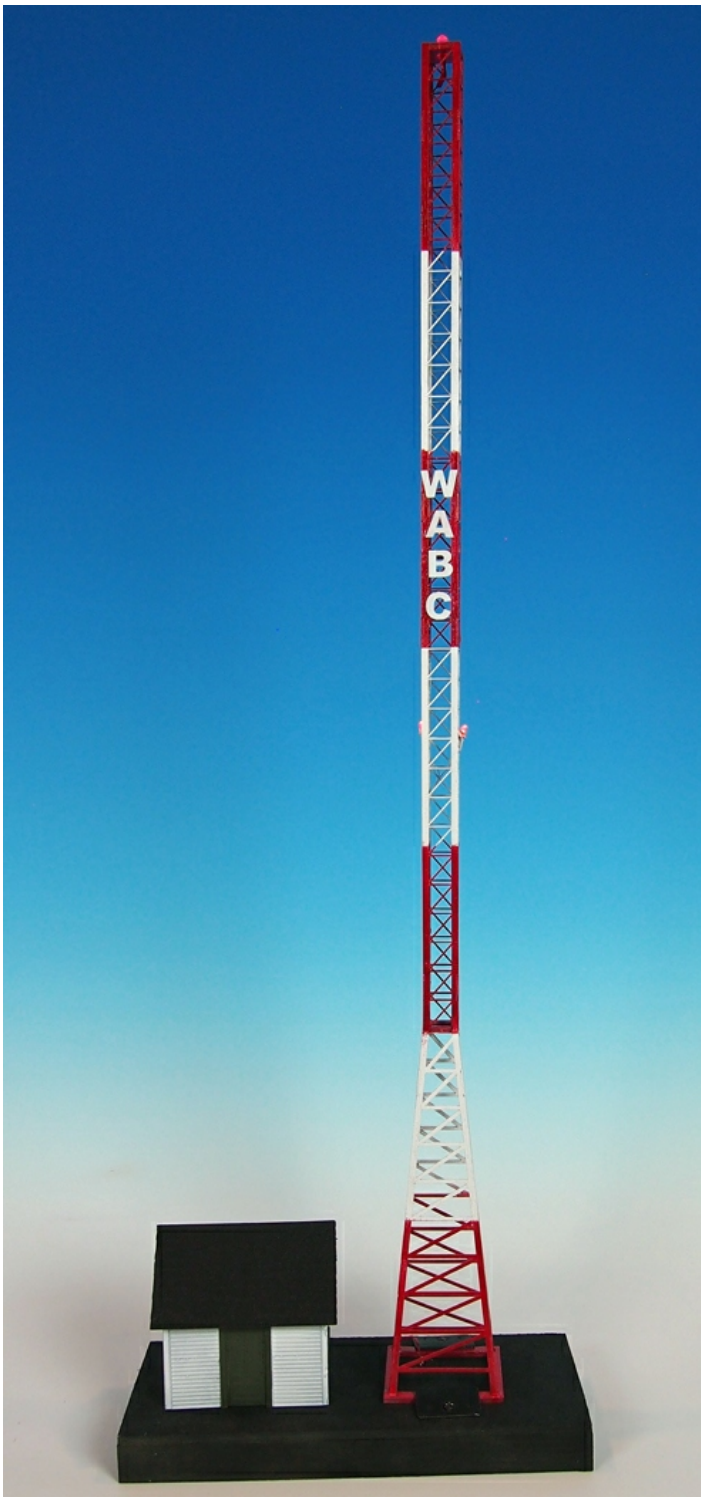
Sunset Models 3rd Rail division sent us a note to tell us their new EMD FT models will have a draw bar connection between the A and B units like the prototype had. The B units will be powered, and have their own speakers. Sound is provided by an QSI Titan sound system mounted in the A unit. A tether to the B unit will send the sound signal to that unit. The QSI Titan sound system allows for different sounds to be ported to each unit.

In addition, they have recently announced the GM "Train of Tomorrow". This is a special run of just 50 units in 2 Rail, available in both GM Demo and UP "City of Seattle" Paint Schemes.

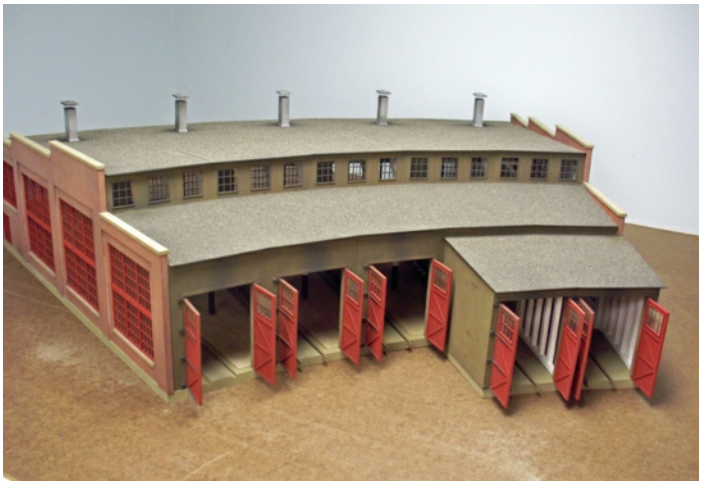
Lastly, the RDC units are being closed out and the price has been reduced $100.

Korber Models tells us that they now have a service to assemble their kits for you. They call it Korber Komplete assembly service, a turnkey model building service that provides layout ready structures delivered to your doorstep.

Rich Redmond from Korber told me Korber Komplete service starts with the same great Korber kit currently available, but taken to the next level with expert craftsmanship by one of our experienced modelers, who assemble, paint, and optionally add lights and weather the structure. The completed model is carefully packaged within a box and packing material, and then that box is placed within a larger box surrounded by additional packing material. This approach ensures that the structure received is just like it left our shop.



Korber #703 O Scale Radio Station and Tower is an example of the Korber Komplete service assembled kits



Bob Spalding at Altoona Model works sent us a photo of their new roundhouse kit. The base kit is $385.00. It can be ordered in many configurations from 3 stall to 24 stall with extensions in front. View their website for details.
http://www.altoonamodelworks.net/

The members of the Yosemite Short Line module club had their layout set up at O Scale West this year. They have been together for 10 years now, and have a very highly detailed layout. We will be doing a future article about the club in *The O Scale Resource*. For now, here's a photo of the group in front of their layout. From left to right:

Front row: Dave Kreutzinger, Richard Brennan, Ronni LaTorres, Scott Maze

Back Row: James Eckman, Dave Gill, John Roth, Pat LaTorres, Frank Markovich, and Reg Shaffer

All active members are pictured.

Bob Stevenson of Stevenson Preservation Lines tells us that they have finished their move to Illinois. The new address is P.O. Box 188, 45W177 Plank Road, Burlington, IL 60109. The new phone number is 847-683-7249.

There have been some comments about how to find out when shows and open houses are held. This information needs to be provided by the sponsors of these events, and *The O Scale Resource* has made that simpler for them. Starting with this issue, *The O Scale Resource* will provide a sign up page where any show sponsor can up load the title, date, time and location of their event. This service is provided by us, but the event sponsors need to enter the data at this web page. We will maintain the page, and take down the listings after the event is over so listings will be current. The event sponsors need to re-list their event for the next year. Events can be listed one year in advance of the event.

Dave Schneider from SMR Trains tells us he is relocating in mid-February from snow-bound New Jersey to sunny Florida. While this may cause a few delays in service during the move period, it is expected that they will be fully up and running by March 1st. SMR's latest project, the 1850s-60s "arch roof" passenger cars are now complete, and will be shipped from the factory in South Korea to the US within the week. Those with reservations will be contacted when the models arrive and are checked. If anyone is considering a purchase of these detailed, brass 0-scale models, they can still be pre-ordered at a $150 savings. Check out SMR at www.smrtrains.com.

Pre-orders of SMR's next locomotive, the Civil War era Baldwin 0-8-0 "Flexible Beam" freight engine is also now being accepted. This model is scheduled for completion about this time next year.

SMR's new mailing address is P.O. Box 186, Tavares, FL 32778.

Rick Isard from RCS America sent us some information about their new RailLinx 900 control system and 6 amp throttle. RCS America produces radio control battery power systems for the backyard railroad enthusiast. The new RailLinx 900 control system is designed for the O Scale enthusiast. Rick informed us that with the new 6amp Throttle, O Scale Enthusiasts can operate up to 16 battery-powered locomotives all from one transceiver. **Features include:** Soft Membrane Pillow top Keypad, 900 MHz Transceivers with optional antenna extensions for brass locomotives or distances greater then 350ft., 16 Loco Channels, 5 DC Sound Triggers, Easy Loco "Recall" & 30 Remote Trackside Switch Controls. **Additional Features:** Automatic Ditch-Light /Horn Trigger, Front & Rear Remote Solenoid Couplers, Loco Posichange, DCC Sound Triggers and 5 addressable keypad functions. See their website at http://www.remotecontrolsystems.com/

Jim Canter was at O Scale West with flyers for the 2014 O Scale National. People were worried that no one would step up and host the national this year. Jim agreed to do it in place of his fall show in Indianapolis, Indiana. See their ad for more details.

I saw Lou Cross of Right-O-Way at O Scale West this year. Lou told me that they have been in business for 50 years as of June 6, 2014. The business was started by Gene LaVansel on June 6th 1963. Lou and Gene were good friends. Gene wanted the business to continue after he passed away, so he willed the business to Lou who would continue it for him. That took place in 1978, and Lou has been expanding the line ever since.

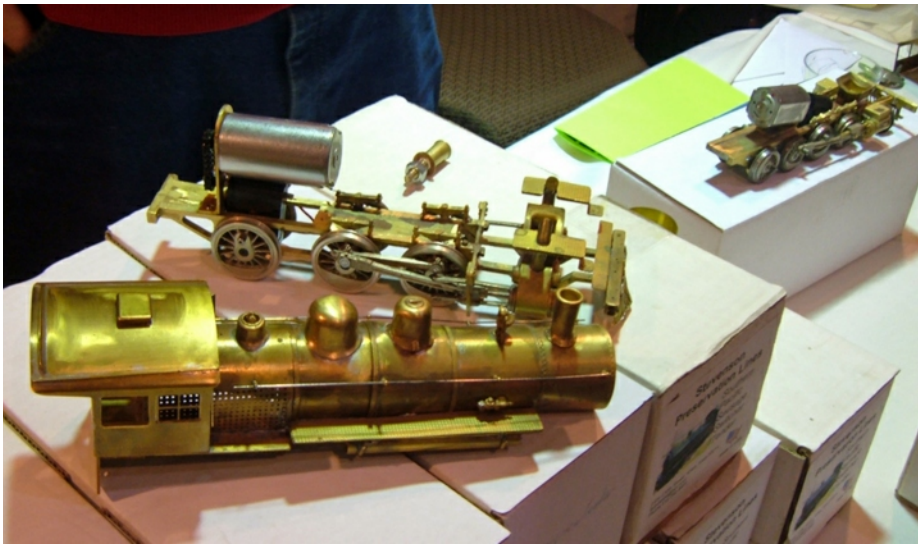
I would like to also point out that June 6th, 1944 was D-Day in Europe. Lou is a WWII veteran, and was surrounded in Bastogne, Belgium during the Battle of the Bulge shortly after D-Day. Be sure to say hello to Lou when you see him at the Chicago O Scale Show. Back to the history, Lou said the business was started by Gene LaVancil in Los Angeles, California. The first products were code 148 and 125 steel rail. Soon after, Gene introduced different sizes of frogs, guard rails, and switch points. The patterns were made by Oscar Newbert and Dave Waddington. In 1975, Lou started running the business for Gene who was not able to keep up the pace. In 1978, Gene passed away and willed the business to Lou so it would continue. Recently, Dennis Mashburn has made patterns for Lou, and John Pautz of American Switch and Signal has made P:48 standards patterns for Lou. In parting, Lou told me to tell you that he is able to continue the business due to the many loyal customers.

By Glenn Guerra

This year's O Scale West show was another excellent performance by Rod Miller, his helpers, and the modelers in California. Putting a show this large on requires a lot of work, and it you can definitely see that when you go to the show. There is always a good turn out of venders and display layouts at the show. The real bonus is the number of people who open their home layouts for display. This takes work on their part, and we all thank them for it. I have been to the show five times, and have yet to see all the layouts. Rod's helpers prepare well detailed maps of how to get to the layouts that are open. If you drive to the show, some layouts are open for the drive there and the drive home. When attending this show, I would recommend making a winter escape trip out of it, and spending some time seeing the layouts. California winter weather in the bay area is generally overcast, around 60 degrees, and some rain, but compared to the -10 degrees and snow when I got back to Wisconsin, it was wonderful. It was another great model railroad show. Good job everyone, and thanks for the effort.

Norm Buckheart from Protocraft was in attendance. If you are interested in P:48 modeling, as I am, you will agree that Norm is one of the best things to happen to the P:48 modeler. Norm has been able to offer a large range of P:48 products.

Tom Dempsey and his wife were there from Clover House. Tom has purchased the line, and is expanding it. It's good to see this line continue.



Bob Stevenson of Stevenson Preservation Lines was there with kits of his C&NW R-1 4-6-0, as was as his SP 0-6-0 switcher. Bob has just moved from Iowa to Burlington, Illinois. See his ad for new contact info.

Lou Cross from Right of Way was there with his complete product line. Lou tells me that this line celebrated 50 years this past June.

A view of the module layout done by the Yosemite Short Line group. The prototype was a 30" gauge railroad that ran in the foot hill country of California around Jamestown, California.

Dave Adams is a gracious host, and has had his layout open more than once, so be sure to see this. He models the Durbin branch of the Rio Grande in Colorado. Many good layouts like this are on the layout schedule for O Scale West.

Arn's Rail Photos had some good quality photos for sale. I found 10 for myself. Petersen Supply from Oregon does custom run Atlas cars. Check them out if you are looking for different lettering. Key imports was in attendance with some of their beautifully painted and highly detailed models.

Bill Basden was there for Delta Models. If you like passenger cars, you should look at what Bill has to offer. These are urethane castings which are light and easy to work with. This is a great source for detailing your passenger cars.

John Marchetti was selling the built up bodies he makes from kits. His workmanship is superb, and these models are a good place to start your favorite car.

Foothill Model Works was showing some of the many kits they make. They also had some of their 24" ribbed back wheels on display.

Stan Richmond from Car works was there with some of his offerings. Stan imported a number of electric railway cars, as well as, small switch engines.

I was standing on the hillside looking into the cut on Gary Shrader's layout and happened to catch two trains passing each other.

This model is a kit being produced by Keith Johnson in the Seattle area. He was taking reservation for people who may want copies. Keith knows his stuff about casting, and this looks like a good model of a GN wood side boxcar. Many modelers do pattern work and produce a model for themselves and a few friends. Some of these projects produce very good models. One of the best ways to see, and possibly obtain some of these models, is to come to the shows and meet other modelers.

O Scale West Contest Winners

STEAM LOCMOTIVE

MP 2-8-4 Class Bk #1121 — 1st Place
(Built from Lobaugh kit)
James Reardon
Milwaukie. OR

SP 2-6-0 Class M9 #1807 — 2nd Place
(S-scale)
Paul Washburn
Bullhead City, AZ

SP 2-8-2 #3218 — 3rd Place tie
Neil Chichizola
San Carlos, CA

UP 4-8-2 #9014 — 3rd Place tie
(Modified to "Baldface")
John H. Davis
Woodburn, OR

DIESEL LOCOMOTIVE

WP GP9 #725 & #731 — 1st Place
(Red Caboose kits)
Ron Mitchell
Orem, UT

WP F7A 920A, F7B 920B,
F3A 801A — 2nd Place
Bob Jarvis
Washington, UT

MILW FM H-10-44 #772 — 3rd Place tie
Richard Hunn
Arlington, NE

CPR E8 #1802 — 3rd Place tie
(Overland body on Key chassis, detailed to match 1802)
Michael Mangini
Redwood City, CA

ELECTRIC LOCOMOTIVE

Great Northern Y1 #5016 — 1st Place
Tyler Piper
Portland, OR

PASSENGER CAR

"The Cold Coast" Private car — 1st Place
(Scratch built)
Glenn Erickson
Brentwood, CA

T&P 5 Dbl. Bedroom Lounge — 2nd Place
(Heavily modified Des Plaines kit with added detail)
Bill Basden
Portland, OR

UP 70' Baggage Car — 3rd Place
(American Standard kit)
Bob Plageman
San Mateo, CA

FREIGHT CAR

Coos & Deutches
Well flat car with load — 1st Place
Tyler Piper
Portland, OR
Coos & Deutches

SP 50' Double Door box car — 2nd Place
Bill Yancey
Boise, ID

ATSF raised roof box car — 3rd Place
Bill Yancey
Boise, ID

CABOOSE

RGS #0409 — 1st Place
(Scratch built)
James Reardon
Milwaukie, OR

2-axle grey, On30 — 2nd Place
(Scratch built)
Jon Scofield
Burlingame, CA

WP #426 — 3rd Place
(Modified Atlas)
Bob Jarvis
Washington, UT

MAINTENANCE OF WAY

WP Crane MW37 and gondola — 1st Place
Bob Jarvis
Washington, UT

TRACTION

Sacramento Northern #654 — 1st Place
Jim Harper
Santa Clara, UT

Sacramento Northern #420 — 2nd Place
Jim Harper
Santa Clara, UT

Northern Electric #1010 — 3rd Place
(Scratch built brass and styrene)
Paul Zaborsky / Chris Allen
Lakewood, CA

STRUCTURES

Marine Laboratory on wharf — 1st Place
Gil Hulin
Eugene, OR

Water tank — 2nd Place
Dan Carlin
Reno, NV

Enginehoue — 3rd Place
(S-scale, heavily modified kit)
Bill Young
St. Helena, CA

FAVORITE TRAIN

Porter with log train On30 — 1st Place
(Modfied Bachmann Porter, resin log cars, kit bashed caboose from Bachmann HO)
Jon Scofield
Burlingame, CA

Tower Lumber Company log train On30 — 2nd Place
Pat LaTorres
San Leandro, CA

A Visit With Andy Sunderland

By Glenn Guerra

For a little O Scale history this month, I went to visit with Andy Sunderland in Lake Station, Indiana. I met Andy in 1994 when I started working at the Illinois Railway Museum. Andy is interested in electric railways, and does some volunteer work at the museum on some of their electric railway equipment. Besides the volunteer work at the museum, Andy has an interest in history and has given some good presentations at the Hoosier Traction Meet on Gary Railways, as well as, other local electric lines. This interest in history carries over to his modeling in O Scale. Over the years, Andy has accumulated a lot of print material, as well as, models. For this article, I wanted to show you two of the models that Andy showed me. They both have some remarkable features for their age.

The first model I thought we would look at was a model of a Lake Shore Electric interurban car. What I thought was remarkable about this model is that it's made of etched brass. That does not seem like much by itself since there are lots of etched brass parts and kits around today, but this etching was done in 1942. Andy told me the parts were made in 1942, and he showed me a copy of *Model Railroader* from January, 1943. There was a letter to the editor from G. (George) A. Doeright Jr. who at that time was in Youngstown, Ohio. George's letter stated that he was already an O Scale modeler when he decided he would like an interurban car like the ones he rode and worked on. There is no mention of who he worked for or when, but many of these railroads were gone by 1940. His favorite cars were the Niles built cars for the Lake Shore Electric Railway. The Lake Shore had 50 ft. coaches and combines, as well as, 60 ft. coaches and combines. The cars he built models of were most likely made before 1920. George states that the 60 ft. combines were bought new, and the 60 ft. coaches were made by splicing two wrecked 50 ft. cars together.

Andy Sunderland owns this model made from brass etching produced by George A. Doeright Jr. in the 1940's.

George Doeright goes on to explain in his letter that his first attempt to make a model was not satisfactory, and the problem was the arched upper sash. He wanted a model with good sharp detail and uniformity. After this experience, he became acquainted with Jack Bowman who worked in the printing business. The letter stated that George spent 19 hours drawing the art work in 1/2" to the foot scale or twice O Scale. He wanted uniformity so he modified one of his drafting instruments to do the arched upper sash. By doing this, every one he drew would be the same. When the art work was done, it was turned over to Jack Bowman who photographed the art work to make the positive to expose the etching plates. I found this step interesting. The positive for the plates was developed on a glass plate. The 60 ft car sides were about 15 inches long, so this was a large glass plate. In addition, the camera that held the plate was very large. The letter stated that Jack Bowman did this work at his place of business. The car sides were etched on 18 gauge hard brass sheets.

Andy was able to locate a set of the etched car parts produced by Jack Bowman and George Doeright that someone had started to put together. The etching is very good. On these kits, the windows were not etched through like models today. The etching was on one side only. Today with film positives, the front and rear positive are assembled into a "tool" that has registration so the front and back line up. With this process, it is possible to etch the front and back at the same time and have the details line up. The modeler who was doing the model did not cut the windows and doors very well. Andy decided that the car could not be finished, but the historical value warranted keeping the etchings. The brass is very tarnished because of the age of the etchings. The etchings were for one of the 50 ft. coaches.

Apparently, Jack was also a modeler because the letter stated that the results were so good that Jack produced five of the 60 ft. cars and three of the 50 ft. cars. Jack built two of the 50 ft. cars, and George built one of the 60 ft. coach cars. The letter states that Jack had one car running which used a Pittman motor and Walthers

side frames for the trucks. George stated that his car used a #2 K&D motor mounted vertically with a 7:1 gear reduction. He also stated that his model used Baldwin trucks (the Baldwin MCB style of truck was very popular on interurban cars-Glenn) made in plaster of paris molds. This was interesting to me because it sounded like they were investment cast, which would be a very early use of this casting process in model trains.

This close up of the Andy's car shows the third rail shoe that George described in his article about the Jack Brambles method of making the third rail shoe. The trucks are Standard C-80-P, not the Baldwin MCB trucks used on George's other models.

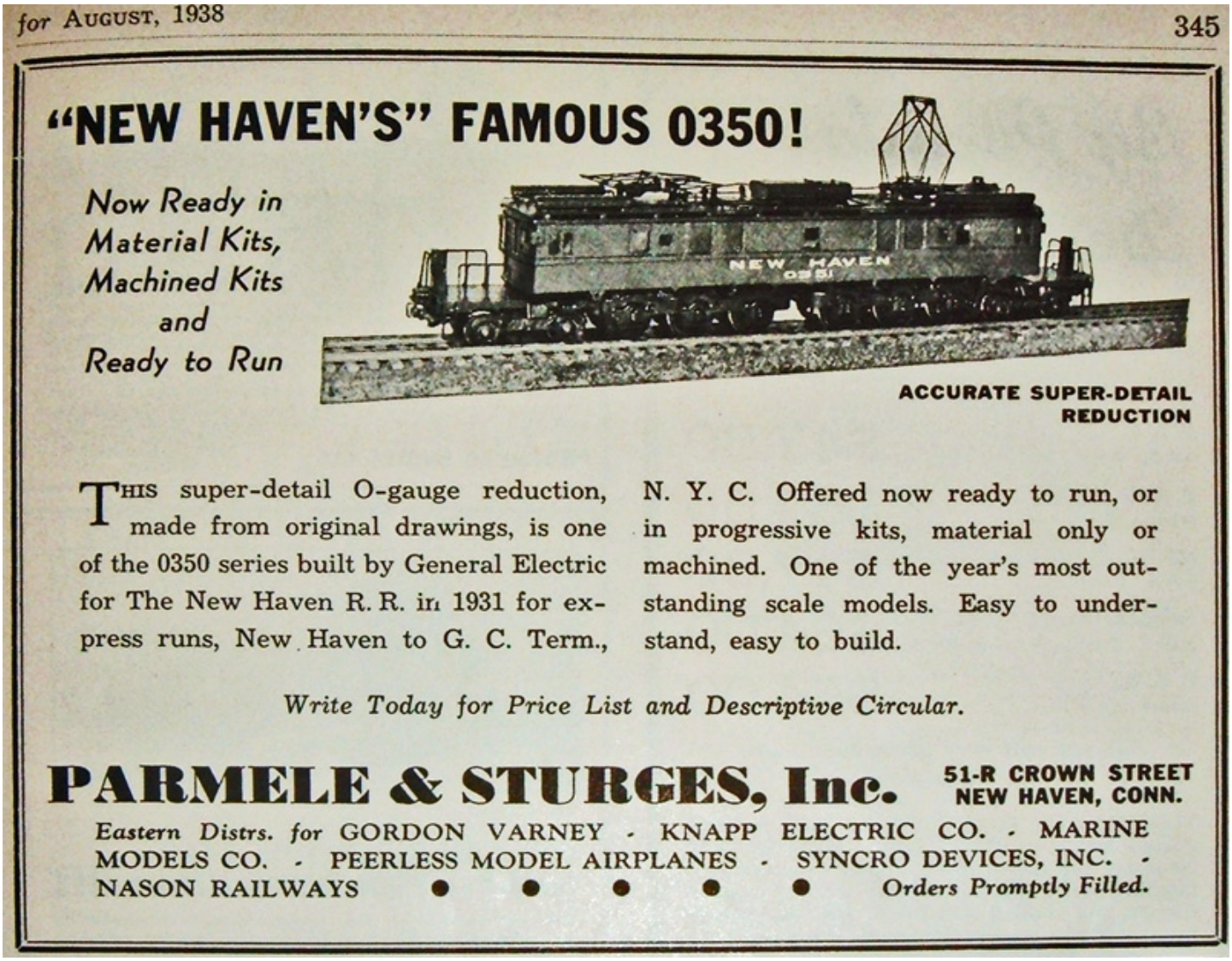
George went on to describe assembling the models. Since the etchings were on one side only, the modeler had to drill out the openings and file them to the etch line to finish them. The beading was made by tinning half round brass wire and soldering it to the car side. The window sill and letter board were made with flat brass stock. The round nose on the window sill was made with half round brass wire. George described the process in which they would "coat the wire with solder and plant it in place with a hot iron". The roof was a milled wood roof section. They painted the area where the clear story sash was a light green color. That was then covered with clear cellophane for gloss. The sash was a strip of 1/32" brass with the openings etched through. This was painted and placed over the cellophane making the result look like the green art glass in the original cars. The upper sash on the side of the car was etched deep and painted to look like the art glass. George said that spar varnish was put on over the paint for gloss. George also stated that, on his model, the anti climbers on the ends of the car were also brass etchings. The multiple unit receptacles were 2-56 screws with the slots filled with solder and filed to shape. George claimed that the idea for the third rail electrical pick up came from Jack

Bramble. In the April, 1945 issue of *Model Railroader*, George wrote an article about how to make the third rail shoes. In that same article, there is a close up photo of the assembled shoe on the Baldwin MCB truck that George used. The truck side frames were very good, and makes me think that the casting in plaster paris was investment casting.

George concluded by saying that they were going to produce a 50 ft. and 60 ft. combine in the same manner, but that they would not be doing them commercially. He stated that the etchings took about nine hours to complete, and they would need to sell just the etchings for around $20. (Remember that the highest paid workers in 1942 were making $1 per hour. People assembling airplanes were making $.85 per hour) George must have kept at it because there is a photo of an Ohio electric car that he made with different sash in the July, 1946 issue of *Model Railroader*.

The car that Andy has is one of the 60 ft. combines which were from the second batch of etchings. Andy is not sure who built the car, but it has Standard C-80-P trucks, not the Baldwin trucks that George used on other models. Whoever did build the car did a very nice job. I wonder what happened to the other models that George or Jack built?

The next model Andy showed me was a New Haven electric locomotive. This model appears to have been sold by Parmele and Sturges in New Haven, Connecticut. From the ad in the August, 1938 *Model Railroader*, it appears that Parmele and Sturges was a distributor and a hobby shop. It is not clear if they produced the kit or were selling it for some other producer. Andy said they were the manufacturer also.



The model construction was typical for the day with a lot of bronze casting. What always impresses me when looking at these old bronze castings is the quality of the casting. These were sand castings. The wood patterns would be relatively easy to make. I have made a lot of wood patterns for sand casting and wood is relatively easy to work with. The remarkable thing is the surface finish. I was helping some friends with a 3" to the foot live steam train, and we always had trouble with the surface finish. To us it looked like they used road gravel to make the mold. When making the mold for a bronze casting sand, clay, and water are used. In Iron molds, coal dust is added to impart some carbon into the surface of the casting and to improve the surface finish. When making cores, they add linseed oil to the sand and bake the core to make it hard. When you start to make a mold, you sift the sand over the pattern first. This is called riddling the sand. The idea is to cover the mold with the fine sand first, and then finish the mold with the regular sand. The screens they used for the riddling must have been very fine because the surface finish on the castings was relatively smooth. It looks rough compared to today's investment casting but compared to what we were getting, this model is superb.

Andy has two of these Parmele and Sturges electric locomotive models.

The model is extremely heavy as you may have guessed. I was impressed by the level of detail. The components of the prototype are well represented, and make the model look detailed. The ad states that the model was made from railroad plans. You used to be able to write to the railroads, and they would send you plans. In 1938, a friend of mine, who was in high school at the time, wrote to Westinghouse and got the wiring drawings for a North Shore car. Imagine doing that today.

Note how smooth the castings are on the model. This is very good work for a sand casting.

Note that the model has a third rail electrical pick up. Outside third rail pick up was the standard in O Scale at this time. No messing around with polarity problems in reverse loops and switch frogs. We could not locate any ads for Parmele and Sturges after WWII, but Andy said that Baldwin Model Locomotive Works picked up this kit. He has a 1965 catalogue from Baldwin Model Locomotive Works and this kit is listed. Andy is not sure about when this model was made, but it does have all steel wheels. The kits offered by Baldwin Model Locomotive Works had a cast wheel that looked like the spoke wheel with the quill drive that the prototype had. This could be a pre-war model offered by Parmele and Sturges. If that is the case, this model is over 85 years old. The people making the patterns were skilled craftsmen, as were the foundry people.

I had a good time talking to Andy about this stuff, and there will be more. Andy has a lot of information on the history of suppliers to the traction part of the hobby, and we will dig some of that out for future issues.

This photo shows the level of detail and the quality of the castings in these models. The pantographs work too.

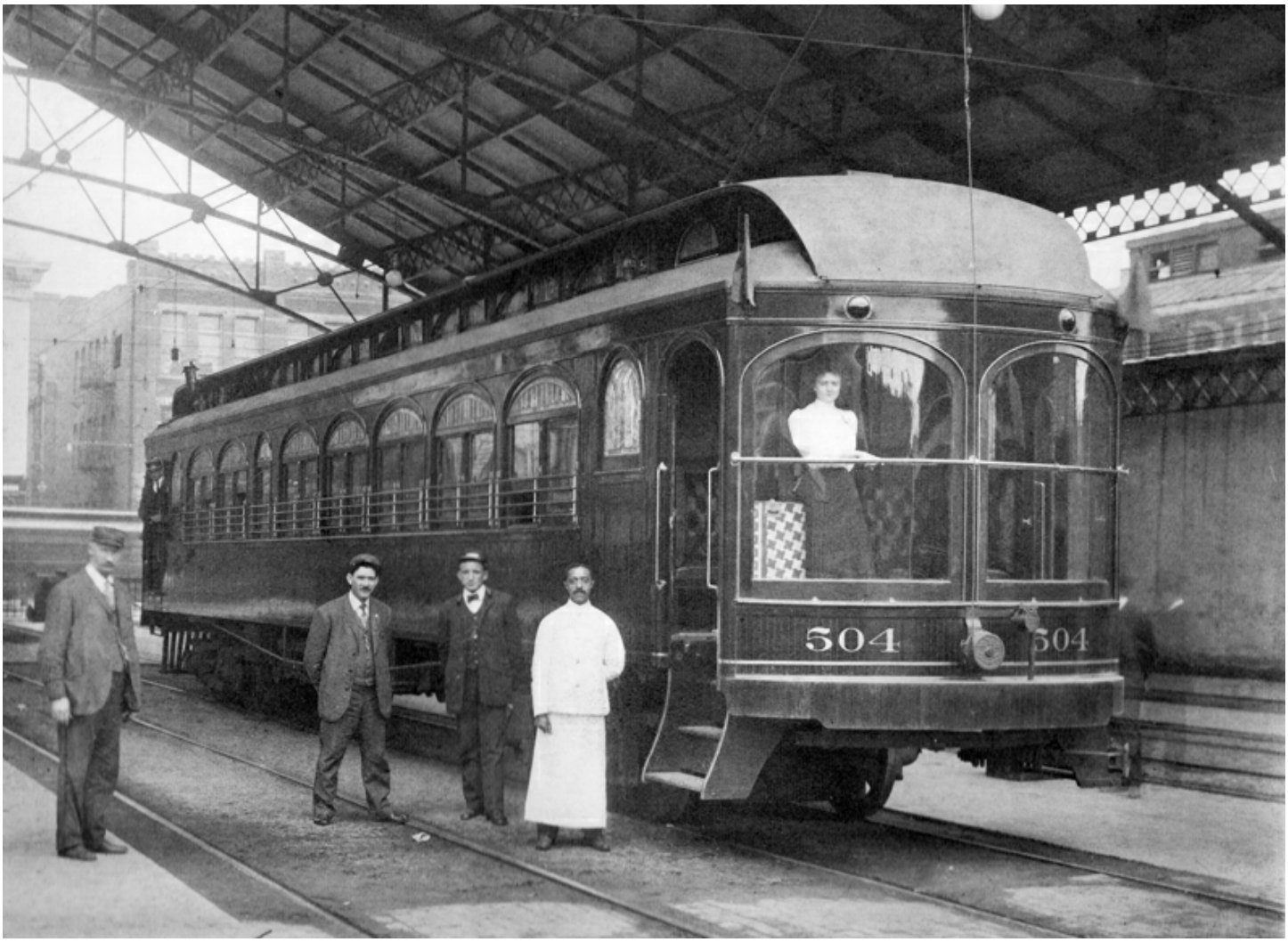
Electric Railway Modeling

By Glenn Guerra

When I was in high school, I would go to the Illinois Railway Museum a few times in the summer to work on the trains. It was 1964, and my mom would drive me there. She would paint pictures or something while I worked on the trains. That was right after the museum had moved to Union, Illinois from North Chicago, and they were just getting started in Union. I remember that one of my first tasks was to attach guy wire to the ceramic insulators for the overhead trolley wire. I was 14 at the time, and this was my first real experience with electric railways. My hometown of Barrington, Illinois had a C&NW line and the EJ&E running through it, and those were my railroad interests. A few years later, my buddy and I were building an HO layout in his basement, and we would go to a hobby store in Des Plaines, Illinois. While talking to the clerk in the store one day, he mentioned the North Shore line being recently abandoned. I did not even know it existed, and it was only 25 miles from where I lived. My buddy and I also went to the Elgin model club which is located in the old Clintonville substation for the Chicago Aurora & Elgin electric line. Not only did I not know these railroads existed, I did not much care at the time. Well, next came college, race cars, work, partying, and the rest of life. I ended up back in model trains around 1980, and around 1989, really jumped back in. I started doing wood work in 1983, and in 1985 did a job for the Mid-Continent Railway Museum in North Freedom, Wisconsin. The amount of museum work grew, and in 1994, I was hired by the Illinois Railway Museum to rebuild a 1906 wood interurban car. Since I knew nothing about electric railways, I started looking around to see what I could learn. I eventually did a lot of work for various electric railway museums, and learned a lot about the industry, as well as, meeting many modelers. What I found was a fascinating industry with a lot to offer a modeler. Here, I want to present an introduction to electric railways, along with what they have to offer the modeler. I will touch a little on the history and variety of the industry, where you can get some information, and some of the appeal electric railways have to a modeler.

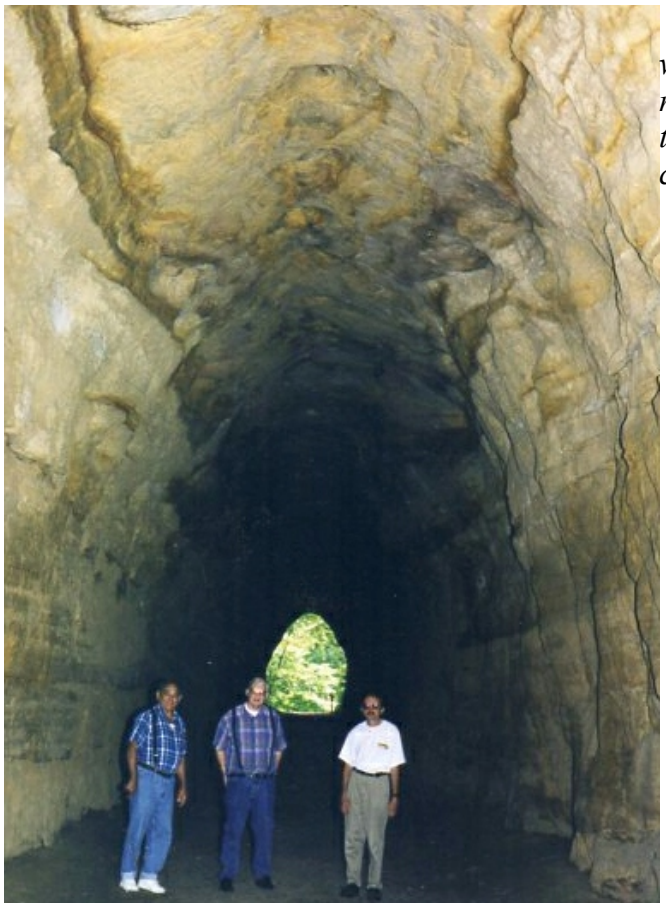
The Electric Railway Industry

The first street railways had small cars pulled by horse and were common in cities as early as the 1870's. I read a book by Saunders Norvell about his life in the hardware business. The book was written in 1924, and is titled *40 Years of Hardware*. The author talks about growing up in St. Louis, Missouri in the 1870's, and riding the horse drawn street cars. He said in the winter there was hay in the car so you could put your feet in it to keep warm. The electric railway industry got going in the 1890's. This is close to the beginning of time for electric anything. The Chicago World's Fair of 1893 settled the dispute between alternating and direct current for lighting. There were kits offered and many of the small horse cars were converted to electric cars. These early lines were predominantly city lines with short runs. Around 1900, the lines started to reach out into the countryside. They soon connected smaller communities with larger ones.



This is an often reproduced photo of the Ft. Wayne and Wabash Valley electric car train in the Indianapolis, Indiana terminal. The photo was taken in 1906 shortly after the car arrived on the railroad. This was a 60' car, the largest car made by Cincinnati Car Company up to that time. The car had a small kitchen, and served meals on the trip from Indianapolis to Ft. Wayne. The car had a smoking room at the front, a coach section, and an observation room where the lady is standing. This was the electric railway trying to compete with the steam railroads for the long distance luxury traveler. Bass Photo Collection from the Indiana Historical Society.

Where I live, the Sheboygan Light, Power and Railway Company reached Plymouth in 1905. It was possible to go 15 miles to Sheboygan, and be home the same day. The street car companies were becoming interurban lines, and a whole new industry bloomed. The new interurban lines had connections with the city street car lines running over the city tracks to terminals in the middle of towns. They could take you right to the place you wanted to go. While we were rebuilding car #26 from the Sheboygan Light Power and Railway Co. in Plymouth, a lady came forward with an old wooden egg crate. She said her mother would take her from Plymouth to Sheboygan with the 12 dozen eggs. The interurban ran down 8th Street, right by Prange's Department Store. Her mom would trade the eggs for goods at the store, and they would then ride home on the interurban. The 30 mile round trip does not seem like much today, but riding the interurban was like light speed compared to walking. Around the country, connections were being made with other companies building from other cities, and the whole industry exploded. Investment money came in, and small lines were consolidated into larger systems. The electric railroads were pulling the local passenger business away from the steam railroads. The cars were getting larger, faster, and more lavish, and starting to go after the long distance traveler. The Ft. Wayne and Wabash Valley purchased four cars in 1906 to run a first class limited stop car from Ft. Wayne, Indiana to Indianapolis, Indiana. The car featured meals, a smoking room, baggage room for express



Yes, electric lines even had tunnels. This one is in Ohio. I was on an outing with Tony, Bill, and Art to look over remnants of old lines. This tunnel is located in a park, and the right of way is a walking path. Note the holes in the ceiling for the trolley wire hangers.

packages, and an observation room at the rear. In 1910, you could go from Plymouth, Wisconsin to New York City by electric railroad with only one small segment in upstate New York missing. Also, at that time, there was a nine track terminal in Indianapolis, Indiana, and you could go twelve different directions on electric railways. The Midwest saw the greatest boom, but they were not the only ones building. There were electric railways in all the lower 48 states. By 1916, the industry reached the peak amount of miles built per year. The automobile was getting affordable and common, making them even more convenient than the electric railways. In 1927, the federal government started to appropriate money for highway construction, and that was

The St. Charles street car line in New Orleans is a must ride if you want an old time traction experience. Be sure to ride it to the end. When you get to the corner of St. Charles and Carlton, stop and go up on the levee to watch the boats go by.

This was part of the O Scale display layout at the National Capital Trolley Museum before they moved. This model would run all day when the museum was open. Note the curves.

A scene on Ed Halstead's layout with a train of North Shore Line Silverliner going by. If you are not familiar with these cars, the fluting was painted on the flat side of the car to look like stainless fluting. This was done by masking a line, and spraying the paint on the line, leaving a hard line. When you pull off the masking, it fades away to nothing. This is a trick that hot rod painters have been using for a long time.

Ed Halstead, in the yellow shirt, hosting a group of modelers at his layout. Ed has a blog here.

the final blow. The depression of the 1930's saw lines closing and even more consolidation. The once great industry was now only a few commuter lines, terminal lines, and the city street car lines. But, it did not die. A few lines hung on and are around today; and many new lines are being build under the name of "light rail".

Almost all of these early lines generated their own electricity because there was none to buy. As the lines reached out into the countryside, they started selling electric to people along the way. A big problem for them was having to transmit the electric over long distances. Most electric lines ran on 600 volts direct current, and this does not transmit very far through the trolley wire. When you take a ride at a museum, pay attention to the brightness of the lights in the car. At the end of the line, they will dim when the car is started. This is because the resistance in the trolley wire is dropping the voltage which causes the lights to dim. The amount of voltage drop will go up as the amperage draw increases, so a two car train starting will dim the lights more than a one car train will. I remember reading one article from 1905 about a line in Indiana transmitting power 150 miles, and this was a big deal. One of the ways to do this was to transmit high voltage power and step it down into low voltage power at a substation. Another feature was to have a large feeder wire running on poles alongside the right of way that would be connected to the trolley wire. The large feeder would have less resistance, and could transmit the power a longer distance. Once the electric railway lines started selling excess electric, they started becoming electric companies. Where I live in Wisconsin, WE Energies was Wisconsin Electric, which was once The Milwaukee Electric Railway and Light Company. Alliant Energy in Sheboygan was once

Terry Gaskin models the Chicago elevated in 3 rail O Scale.

Wisconsin Power and Light, which was Sheboygan Light Power and Railway Company before that.

Once the electric railways started to touch each other, interchange between them became possible, and they had the same problems that the steam railroads did during the Civil War. The steam railroads formed trade organizations to develop standards so everyone's equipment would work on all other railroads. The steam railroad organization was the Master Car Builders Association or MCB. The electric railway organization was the Central Electric Railway Association or CERA. They developed some standards that made the electric railways

A view of one of the elevated platforms on Terry Gaskin's 3 rail layout. The structures are all scratch built and designed to take the 3 rail track.

compatible with steam railroads so the electric lines could now haul steam railroad cars. The CERA also developed some standard car designs in an attempt to reduce costs, as well as, making the cars interchangeable.

What Electric Railway Modeling Has To Offer

Electric railway modeling has some unique things to offer a modeler. Probably the biggest offering to the O Scale Modeler is the short radius curves. Because interurban railroads ran on city street car tracks, they had to be able to negotiate 35' radius curves. That's 8-3/4" in O Scale. A USRA heavy Mikado was rated at a 370' radius curve which is 92-1/2" in O Scale. Very few people have 92" radius curves on their layout. With electric railways, you can have prototype radius curves. When you think of running a 60' car around a 9" radius curve, it seems like it is not possible. On the prototype, they said you could look out the window and see both rails when you went around the curve. You can fit your railroad into smaller spaces. You also have the advantage of modeling equipment in a larger scale without needing a lot of room.

This is Terrell Colson's layout during a get together at his house. You can see that the layout does not take up a lot of room, and there are loops at each end.

Many electric railways were single track operations with passing sidings. You do not need a lot of track to model an electric railway. They varied from city running to country running, so you have some options on scenery. The right of way was usually not graded very much, and the roadbed followed the terrain a lot. Grades are usually not a problem since most of the cars were powered. On the lines that handled a lot of steam road cars, the grades could not be as steep as the lines that had only self propelled cars on them. The trains were shorter, so passing sidings do not need to be long.

Terrell Colson on the right talking to Walter Keevil during a get together at Terrell's house. Note the size of the loop at the end of Terrell's layout.

Traction companies had a variety of equipment so you can find something you would like to model. Much of the equipment was homemade by the company, therefore, if you prefer free lance modeling, you will have a lot of fun with electric railways.

A Chicago Aurora & Elgin train stops for passengers on Ed Heerdt's layout. Ed's layout is a dog bone arrangement that Terrell Colson used as inspiration for his layout. There is lots of modeling in a small space.

Since steam railroad cars were handled on many of the lines, you can mix equipment. You don't need to give up on steam railroad equipment because you want to model an electric railway. When the Western Pacific Railroad made it to California in 1910, it was easier to buy the electric railroads and use them as branch lines, rather than build new branch lines. The trains looked like steam railroad trains with electric engines pulling them. The Illinois Terminal railroad hauled mostly steam railroad cars with an occasional car built as an electric railroad car. These freight trains ran right down the street in many small towns.

Believe it or not, it is easy to wire an electric railway. There are no problems with reverse loops or frog polarity. All the track is wired together, and the trolley wire, or third rail, is the other side. You don't even need block control for your yards. To take the power away from a car, just lower the pole like was done on the prototypes. To my knowledge, no one has made a sound decoder yet for electric cars, but that will happen. For now, you just need 12 volts and an old fashioned power pack.

Phil Spencer's layout in Toronto has a lot of PCC cars. Toronto was one of the last cities to run a large fleet of these cars.

Phil Spencer from Toronto engaged in conversation with other traction modelers.

Power trucks were made in miniature as far back as the 1950's, and there are a few varieties on the market today. This gives you much greater swing on the trucks, and the ability to detail the whole interior.

Lastly, there is the availability of equipment. There are a lot of products available for the electric railway modeler, but you need to did a little deeper. The good news is you don't need a lot of it.

Where Do You Find Information

To start this section, we should go back to the Central Electric Railway Association in the late 1930's when the electric railway industry seemed to be just hanging on. The railfans descended on them. Fan trips were organized just like the steam excursions. The electric lines were all too willing to accommodate the fans for the extra revenue. The fans formed a group, and used the CERA initials. They called themselves the Central Electric Railfans' Association http://www.cera-chicago.org/. The organization is still around, and is noted for publishing many very good books on electric railways. Whatever

George Kanary's Chicago Surface Lines layout. Note the railfan taking photos of the equipment.

George Kanary, on the left, chats with Phil Spencer during a get together at Terrell Colson's house.

line or region you would like to model, the CERA has probably published a book on it. One of these books will give you some very good information. Another source I would recommend is the Hoosier Traction Meet every September in Indianapolis. The original founders of the CERA started having reunions in 1983 led by Dr. Howard Blackburn in Indianapolis, Indiana. These reunions grew into the Hoosier Traction Meet. The focus of the meet has become history presentations. For three days, there are presentations on electric railways, past and present. During the breaks, there is a trade room open with prototype ephemera and models. This meet is a good place to make connections, and acquire information for your models. Another good source is the East Penn Traction Club. They hold a bi-annual meet http://www.eastpenn.org/. The trade room at this meet is filled with prototype items and models. This is also a good place to meet people of like interest.

Another source of information is the many electric railway museums around the country. Besides being s source of information, the rides are interesting.

A North Shore car rounds the curve on Tom Froelich's layout. Note the tight curve that is prototypical for electric lines.

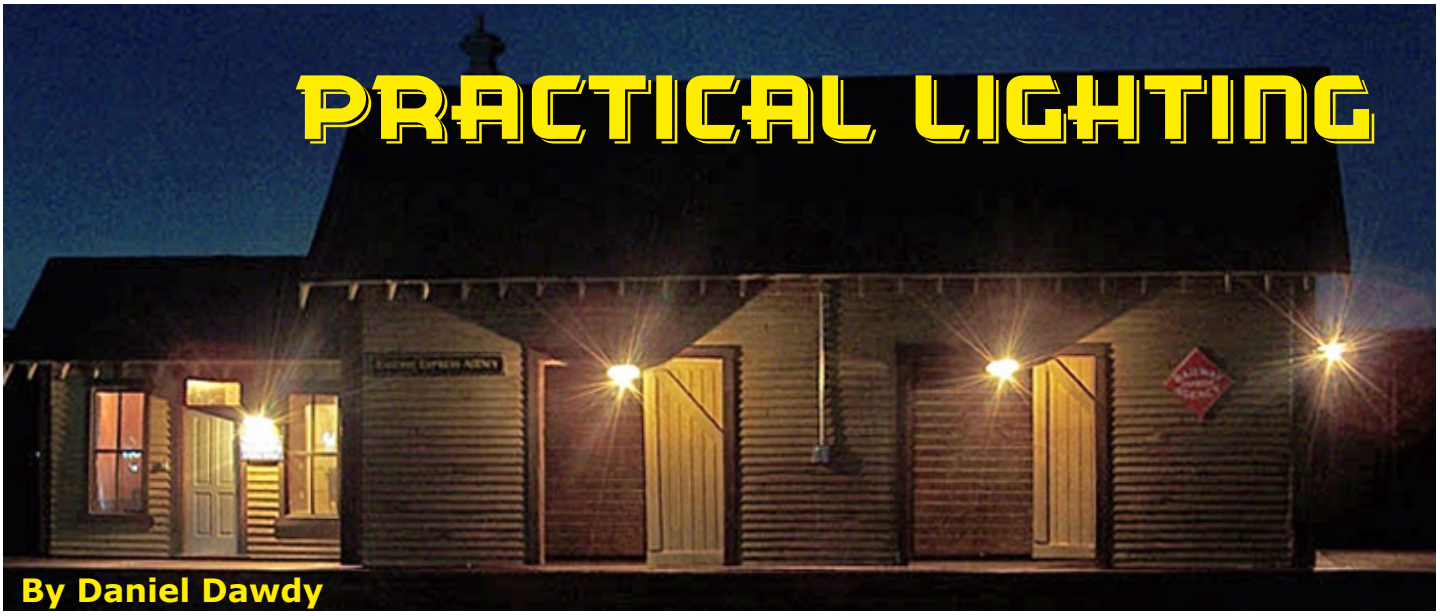
Tom Froelich, in the white shirt, talks with Rich Nielsen and Ralph Nelson. That's Tom's layout in the back, again showing you do not need a lot of room to model traction.

Electric railways had their own unique sounds. When sitting, the electric air compressor for the brakes will start and chug along. A few hits on the bell, and you are off. The straight cut gears growl, and the car creaks. The PCC cars are sprung so soft that it feels like getting on a boat when getting on one. Besides the museums, some cities still operate old cars as attractions. The F line in San Francisco is run with vintage equipment. This is a great ride for getting the feel of what went on. My favorite is New Orleans on the St. Charles Street line. This line has been in operation since 1837 as a horse drawn line. The cars run on it today were made in the 1920's. The hurricane brought down the overhead wire and some of the trees, but the cars are still there. The line goes by Audubon Park and Tulane University. At Carrollton street, the cars turn off of St. Charles Street. There is a college hangout on the corner that sells a dozen different kinds of daiquiris. Get yourself a 12 oz one, and walk up on the levee. Have a seat in the grass, sip your drink, and watch the boats go by on the river. Life is good.

This is a North Shore line station being built in Racine, Wisconsin by James Rindt. James is a young modeler, and all of this was gone long before he was born. Not only is this a good model, it's a good research effort.

The electric railway industry had publications that were directed specifically to the industry. *Electric Railway Review* and *Electric Railway Journal* were two of the more popular ones. Both of these magazines are available on CD by sellers on eBay. The scans are good, and you will find articles about your favorite line. In 1911, there was an Electric Railway Dictionary published like the Car Builders Cyclopedias of the steam railroads. There are many plans in the book, and it is a good source of other information. Not many detail plans have been saved, but many of the proposal plans have been saved. The Cincinnati Car Company plans are located at the Indiana Historical Society, as well as, the builders photos. The Indiana Historical Society also has the Bass Photo collections. Bass was a commercial photography house that did a lot on the electric railways. When I was working on the Ft. Wayne and Wabash Valley car for IRM, I went to the Indiana Historical Society to read the local newspapers, and found a lot of articles related to the car I was working on. I would assume other historical societies with newspaper archives would also be of help.

Another example of some of the nice work being done with traction models. These are being made by Mike Slater of Racine, Wisconsin.



PRACTICAL LIGHTING

By Daniel Dawdy

In the previous issue of *The O Scale Resource* magazine, I talked about LED vs. incandescent lighting, as well as, how to work with LEDs. This time out, let's see some ways to wire these small SMD LEDs, as well as, wiring buildings.

To solder or not to solder…

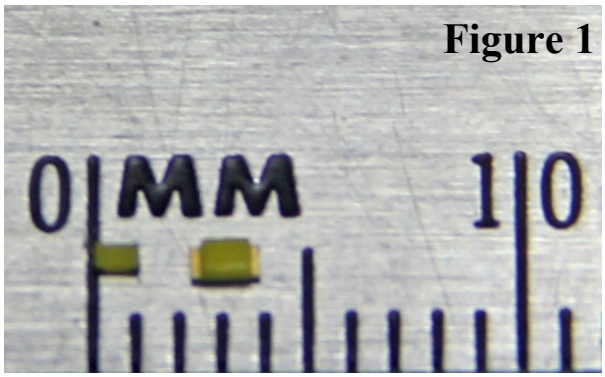


Figure 1

Soldering SMD LEDs can be a challenge. But, with some tips and your trusty Optivisor, it not very hard, and you can save a lot of money.

SMD LEDs are available in a few sizes. The two most common (and the ones I use) are the 0603 and 0402. You can see the size difference in Figure 1. You can buy them in bulk without lead wires very inexpensively, under $6.00 per hundred. Those already soldered with lead wires could cost as much as $5.00 per set. For that price difference, I'll do my own soldering.

THE O SCALE RESOURCE
NEWS, REVIEWS, INFORMATION TO USE
VIDEO EXTRA

I am a visual person. In other words, I have to see things being done in order to fully understand them. So, in the future when we have an article that I feel would benefit from a video, we'll create one. It will not replace the article, but will enhance the understanding of the article. In our first O Scale Resource Magazine Video Extra, I run through some tips I have found on the Internet along, with some of my own. I also go over tinning magnet wire, soldering 0603 LEDS, lighting ideas and painting LEDs. Although the 0402 LEDs did not arrive before I shot the video, I did solder some using the same techniques. Just crank up the Optivisor a bit, and you will do fine.

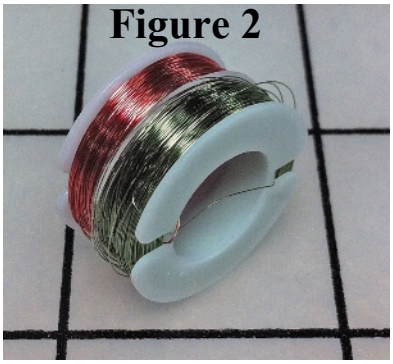


Figure 2

The two LEDs I mainly use for locomotives and buildings are the 0603 and its smaller cousin, the 0402. I start by using 3M 110 Double-Sided Foam Tape placed on my work surface. Using a tweezers, I lay the LED face down. The face is the smaller rectangular yellow colored side. I use a water-based flux to tin the

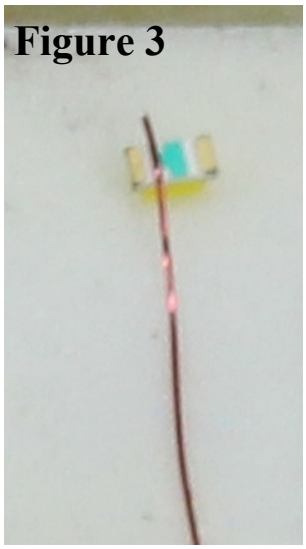


Figure 3

magnet wire, as well as, the the LED. I like to use colored magnet wire, red and green. (Figure 2) Because I'll build up a dozen or so in a single session, this helps later on so I know what is the Anode/Cathode. Once tinned, lay the small tinned magnet wire on the pad of the LED and just touch your iron or gun to the pad. (Figure 3) It only takes a quick second. We don't want to burn the pad. Depending on the use of the assembly, I like to place a dab of ACC on the pad I just soldered. This allows for a little rougher handling of the unit. It's a tedious job, but you can bang out a dozen in less then 20 minutes. Then, you will have some ready to go for your next project.

OK, we have a 0630 LED with our two wires soldered on and tested, so now what? Well, these will fit in any small lamp shade like Miniatronics Corp. Brass Lampshades. They are marked HO but look better in O. Ngineering also has a good selection of shades and sizes. These LED's are very directional, so if you are using them inside a building, you may want to use a clear bead to help diffuse the light. (Figure 4)


Figure 4

The good news is there are no municipal codes when it comes to wiring buildings on a layout. You do, however, need a plan for routing the 12 volt wire (or whatever you will be using) around the layout, keeping wire colors and sizes consistent. One of the smarter things I did when I started building was to run a 12 volt buss all around the layout on both the upper and lower sections. I chose 14 gauge for this, but depending on how far you are going, 16 gauge (and possibly even 18 gauge) will work. I also started to run a 1 ½ volt buss and extended it through most of the yard area. Later on, I thought this was a bit much, so I stopped using 1 ½ volt bulbs altogether. One of the nice things about having

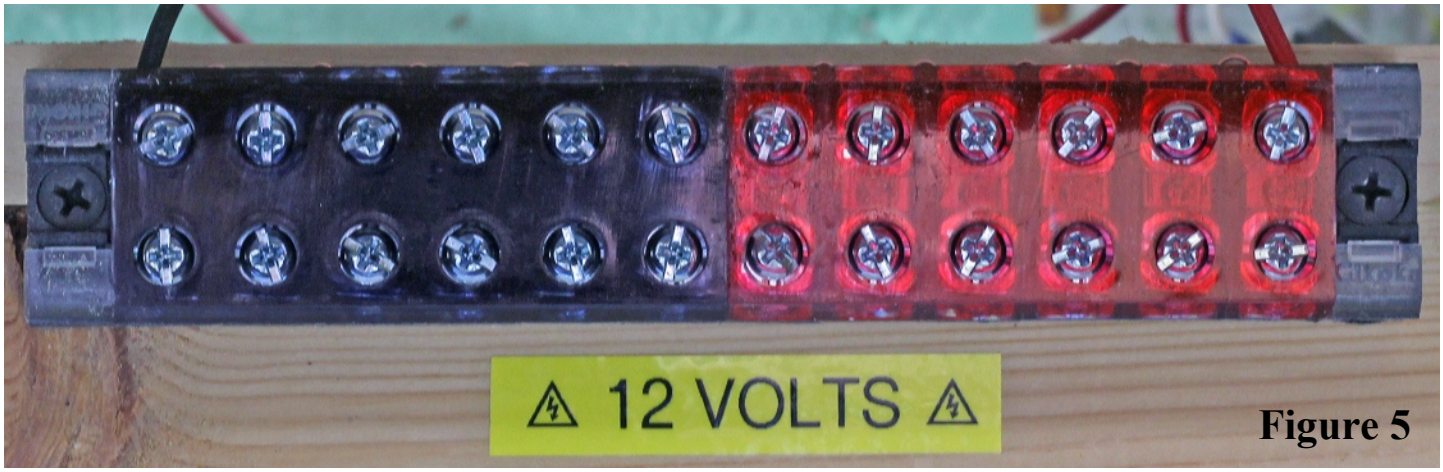


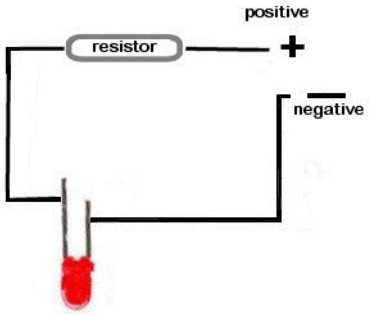
Figure 5

the buss in place is that you can tap off anywhere you need to. In Figure 5, I have a tap off set under a town that is still in the planing stages. This allows for many connections to go anywhere I need them within this area. Almost all of my buildings have the LED limiting resisters housed within the building knowing they would be driven at 12 volts. Most of my incandescent lighting is also 12 volts.

At this time, all of the LED lighting I have used contains the current limiting resisters inside the building based on a 12 volt feed. As I touched on in the January/February *O Scale Resource* article, the only possible danger here is using a resistor with a lower wattage rating than recommended. That will cause heat, and I have

actually burned myself on a resistor in the past. Resistors can get extremely hot before they fail. Sitting inside a wood or styrene "attic" could cause problems. I just made it a habit to use the next larger wattage so I didn't have to worry about it. We'll see a real world example of this later on when I talk about the roundhouse lighting.

Single led

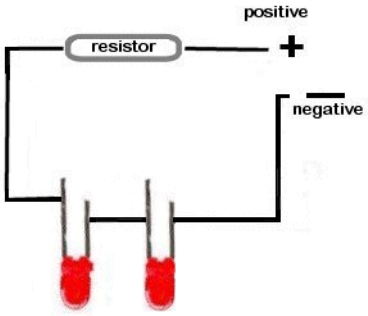


Supply Voltage
12 VOLTS
Voltage Drop Across LED
3.2 VOLTS
Desired LED Current
30 MILLIAMPS

Click To Calculate

Calculated Limiting Resistor
293.333 OHMS
Nearest higher rated 10% resistor
330 Ohm
Calculated Resistor Wattage
0.264 WATTS
Safe pick is a resistor with power rating of
0.44 WATTS

Leds in series



Supply Voltage
12 VOLTS
Voltage Drop Across LED
3.2 VOLTS
Desired LED Current
30 MILLIAMPS
How many leds connected
3

Click To Calculate

Calculated Limiting Resistor
80 OHMS
Nearest higher rated 10% resistor
82 Ohm
Calculated Resistor Wattage
0.072 WATTS
Safe pick is a resistor with power rating of
0.12 WATTS

Figure 6

I am normally a frugal person, but when talking about resistors that can be bought at less than $3.00 per hundred, I don't mind using them on a one to one basis. That is, if I have four LEDs lighting the inside of a building, I'll use one resistor for each LED. I could wire in series or parallel as we talked about in the last article, but then you get into some odd resistor values. I keep a good supply on 330, 470, 750 and 1000 ohm ½ watt resistors on hand. Using a one to one system allows me to cover 99% of my needs in building wiring. When we start using series wiring, we get into some low ohms and much higher wattage, and those can be harder to find.

For example, I have a building with four hanging LED lights. With my 12 volt input, I would need four 330 ohm resistors rated at .50 watts, one for each LED. (Figure 6) Remember the calculations will give us the lowest resistor needed to produce the the highest light output safely. Conversely, stepping up to a 750 or 1000 ohm resistor will just give us a dimmer light output which, in some applications, is not a bad thing. Just taking the stock price from digikey.com we are at $.08 a piece. Yeah, I can afford $.32 for this. Even Radio Shack's $1.49 for five I can handle. But, if we went and wired this in series it wouldn't work because the LEDs are rated at 3.20 volts, and four of those surpassed the 12 volt buss. So, let's try just three LEDs in series. We end up with an 80 ohm .25 watt resistor which, while available, is not that common, and you still have to go back and wire the last one by itself. Granted, there are sometimes were we have to do this (series/parallel) wiring as we'll see later; however, for most builds, I stick with one to one.

Of course having said that, I did do one building in series because I had the resistors, and I just wanted to try it. I did not do this to save anything, definitely not money as we have seen, but just to demonstrate how it would work.

Figure 7


Figure 8

Let's start by looking at Guerra's Grocery. (Figure 7) This is a Thomas Yorke kit I bought back in the late 1970's. Living in an apartment, and chasing women (this was back in the day), I had a friend of mine build this. There was no thought to lighting or any interior. He did an OK job, and I boxed it up for use on a layout some day. Fast forward to the present. There were some problems with the building, and things I did not like. I wanted an interior and lighting because the large windows lent themselves to it. The problem was, he mounted the building on a board and there was no way to get in. This bugged me for awhile until I decided to cut into the roof. Luckily for me, it was cardboard from the original kit. Once the roof was off, a new one would be built, I found the easiest way to get two floors was to build a three sided box that could be dropped back into the building shell. (Figure 8) The first floor has four LED fixtures. I simply put a 603 LED in a bead to help diffuse the light. I did wire these in series, two sets of two with a 270 ohm resistor. The upstairs was modeled just enough to give the impression that there is something going on up there. A single 603 LED was used upstairs. Yes, the brass rod is a bit on the large side here, but stepping back and looking through the windows, it works. The lights on the main floor are nice and bright while the light in the room above is dimmer, just bright enough to give the illusion that there is something up there.

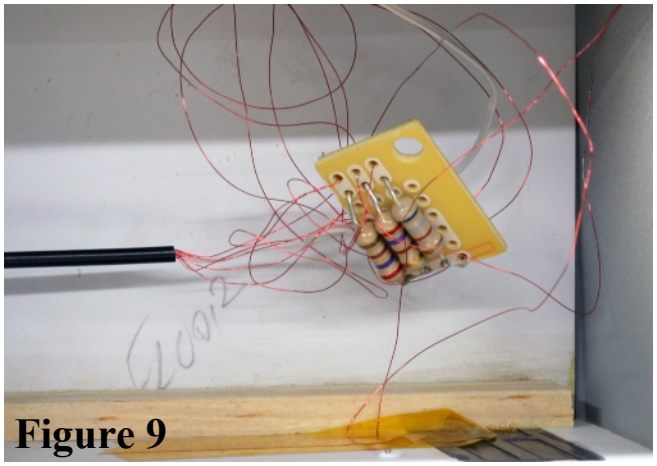


Figure 9

I tried to keep this neat by using some "project boards" from Radio Shack for soldering the resistors to along with the wiring. (Figure 9) This was housed behind the upper storeroom.


Figure 10

Because of the small amount of current, I was able to use fairly small wires going into these buildings. My wire of choice is 38 gauge magnet wire. Magnet wire (or enameled wire) is copper wire coated with a very thin, but tough layer of insulation. I buy it with green and red insulation which makes it easier to work with once soldered to the smaller SMD LEDs. For larger LEDs, such as 3mm, I use 32 gauge, 2-conductor wire such as Cir-Kit CK203. I also use that for the main feed wire.

Let's look at a few other buildings, and how they were lit. The small scratch built building in Figure 10 uses a single 0603 LED inside a brass

shade. For the outside lamp,I cheated and used a Walthers Cornerstone lamp. These were sold as HO, but are much better suited to O scale. I bought a bunch of these back when the price was low. Unfortunately, they are no longer produced.

Schnepf's Warehousing and Storage (Figure 11) was all done using 12 volt incandescent lighting. This is an old Magnuson Models kit I tried to build back in he 1980's. It had some warping problems, so I never finished it. A few years ago I pulled it out, and tried again. In Figure 12, the red stained inner ceiling for the first floor was added. All the lighting is small 12 volt bulbs and shades from Miniatronics. All I did was use small diameter tubing stuck through the inner roof with the wires fed through the bottom. A single row of bulbs was strewn across the upper floor. All the lights were tied together, fed down through a hidden wall, and brought out through the bottom of the building. I also used Miniatronics plugs, which can be fed through the layout allowing me to disconnect if I

have to move a building for any reason. The small dividers jutting out next to the window allow the viewer from the outside to be fooled into thinking there are rooms and more in the building than there actually is.


Figure 13

Balue's Tavern (Figure 13) is typical of how I add lighting to most of my smaller cast building kits. There is a sub roof that sits just below the outer roof. This sub roof lays on top of the stained siding material I used to finish off the interior. Again, using small diameter tubing through the sub roof allows me to drop the wires down with the lamp and shade in place. There only needs to be enough room between the roof and sub roof for the wires, and in this case the resistors, to lay flat. Note the "vent pipe" in the upper right. Almost invisible from the outside, it allows all the wires to go through the building and out the bottom.

Howard's Super Service is an Evergreen Hill wood kit. (Figure 12 and 15) The plan will be to also light the pumps, but that will have to wait for its final place on the layout. Lighting here is very simply. Again, using the bulb and shades. You have to remember that back in the 1940's for

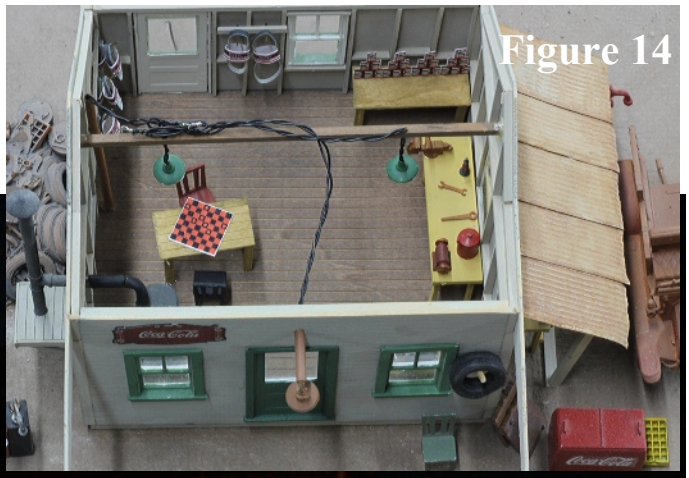


Figure 14


Figure 15

buildings like these there was not a great selection of fixtures. Bare bulbs hanging from wires would also work in this era.

The Roundhouse was a big challenge. This is an older Korber Models kit that I needed to shorten to fit my space. That could be a whole article in itself, so for now I'll stick with the lighting. The outside lights are not yet finished, but I'll simply make the standard old time gooseneck lamps over the doors. It was the inside that made me think. In the new instructions for the redesigned kit from Korber Models, there was a section on how someone wired their roundhouse. It was done in series, limiting the number of LEDs on a set. Although it looked nice, I used a simpler way. One thing I want to make clear here is that my buildings are not what some would call museum quality. I have seen some fantastic modeling on the forums, and some of these people go to extremes in their detailing. I love that, but it's not for me. My feeling is that if the people looking at the layout can't see it, I don't model it. Now, I know that many of you will say "but I know it's there" and that's fine. That's the great thing about this hobby, we can do as much as we feel is needed or that you are comfortable with. I don't tell anyone how to do something, I let people see what I have done, mistakes and all, and then they can use my ideas or other's ideas, or better yet, come up with new ideas of their own.

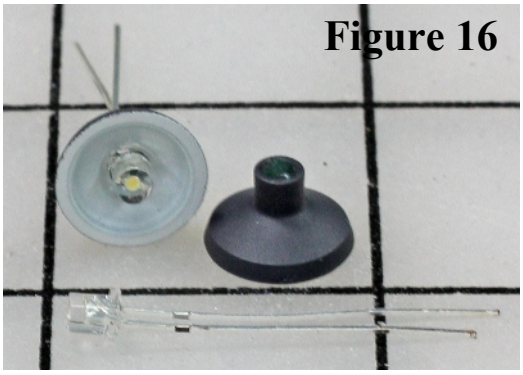


Figure 16

Let's get back to the roundhouse. The one thing I did take away from the instructions was to use 3mm flat top LEDs. They are a little larger, but the disperse the light in a much wider pattern. (Yes, I tried sanding a 3mm LED flat, and it just does not look right.) Figure 16 shows the 3mm flat top LED and the Plastruct lamp shade which is just large enough to fit the LED. I also like this set up because if you look from eye level, you see the light from the shade, but don't notice that there is no real bulb there.

The roundhouse has three stalls, and I wanted two lights for each track, one on each side. That gave me six LEDs across, and I needed three rows. Trying to wire this in series was not going to be pretty, so I looked at parallel wiring. What I decided to do was drill two small parallel holes in each beam going across the roundhouse. Then, I cut and strung .055 music (piano) wire through these holes. I simply bent the end of the LED with the shade attached and hung them where I wanted them, remembering to keep all the anode and cathodes on the same side. Once placed, I used a dab of solider and I was all set. (Figure 17) I then used a small brush and painted the wires flat black. That was the easy

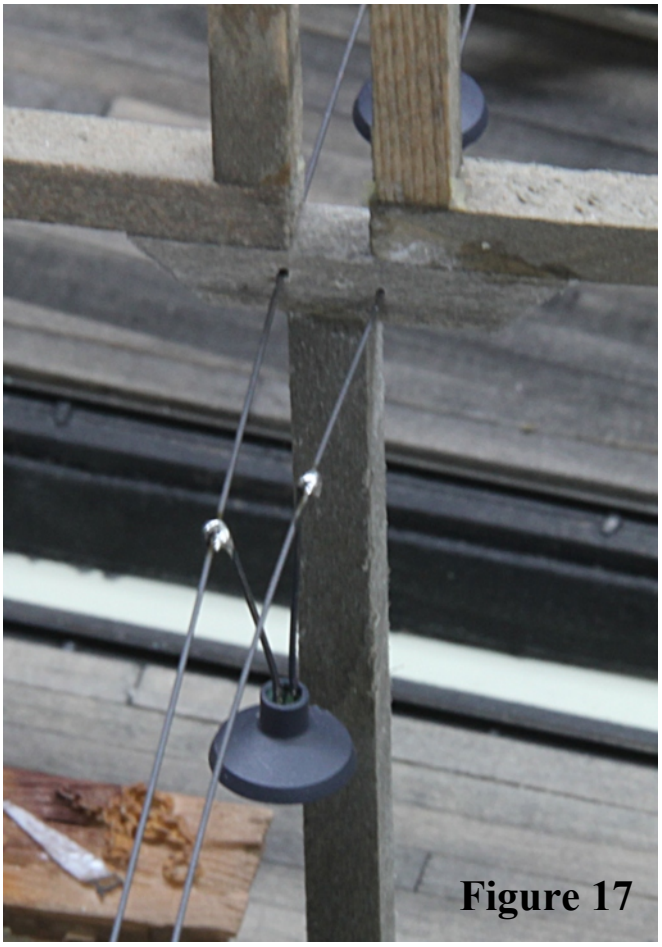


Figure 17

Leds in parallel

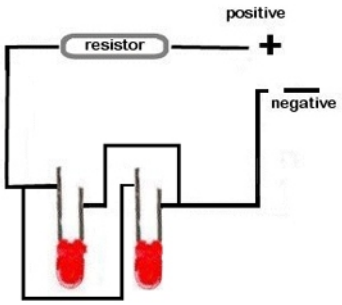


Figure 18

Supply Voltage
12 VOLTS
Voltage Drop Across LED
3.2 VOLTS
Desired LED Current
30 MILLIAMPS
How many leds connected
6

Click To Calculate

Calculated Limiting Resistor
48.889 OHMS
Nearest higher rated 10% resistor
56 Ohm
Calculated Resistor Wattage
1.584 WATTS
Safe pick is a resistor with power rating of
2.64 WATTS

Figure 19

part, but how was I going to power these and where would all the wires need to go? Well, let's go back to our LED calculator. (Figure 18) I knew this was not going to use the resistors I normally have on hand. Three LEDs with a forward voltage of 3.2 volts rated at 30 milliamps with a 12 volt supply gives us one 56 ohm 2 watt resistor per set of six LEDs. You're not going to Radio Shack to find that so, back to digikey.com. They had them and in stock at $.19 each. Well, there is always something else I can add to that order, and within three days I had them. Now I needed to figure out how to wire and hide these rather large resisters.

Thinking about some of the old buildings I worked in back when I was a "rent-a-cop", I remembered old electrical cabinets along the walls. That would work for me. I scratch built three cabinets, complete with doors and door handles. I had three sets on six lamps, so each set needed it's own resistor and cabinet to hide in. Using brass tubing that I had on hand, I carefully drilled a hole in the sides of two of the cabinets, and one in the last. The tubing was measured, cut and added to the cabinet sides. Small tubing was then run out the roof of these cabinets up to the wires. (Figures 19 and 20) All of this was assembled on the bench after careful measuring.

Now the wiring. After testing, I used three sets of magnet wire so each light set would be fed from it's own set of wires. This allowed me to use the very thin wire to fit my conduit.

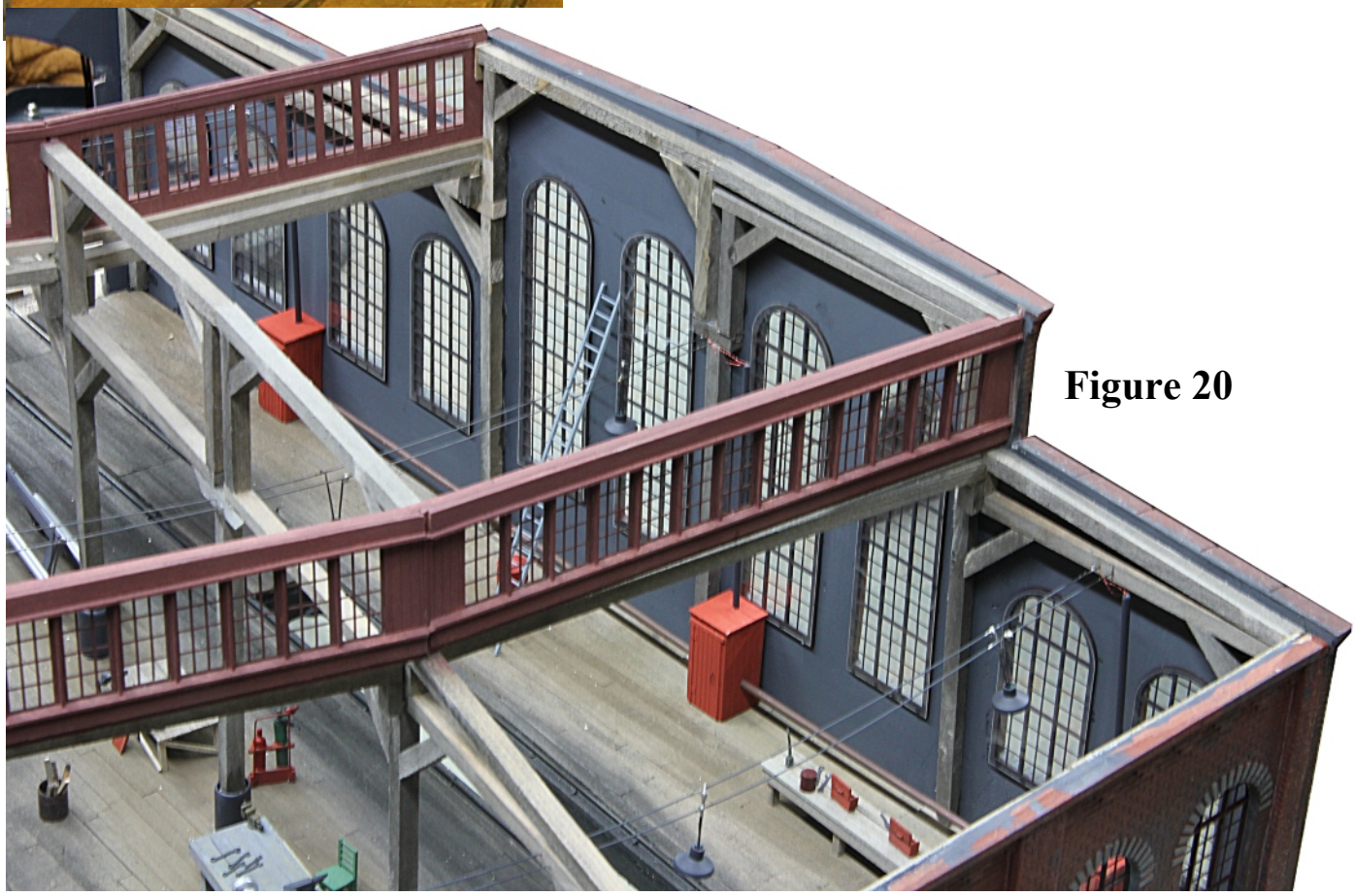


Figure 20

One set of two wires feed the resistor and then up to the the first bank of six LEDs. Then the other four wires (two sets of two) continued to the next cabinet where another pair of wires was used for the resister and then sent up to the second bank of six LEDs. The last set of two wires did the same in the third cabinet. When looking at eye level from the layout, the effect is very nice. I'll finish off with a few more pictures of my lighting. In the next issue, we'll take a quick look at using LEDs in rolling stock and locomotives.

Using incandescent outside lights with SMD 0603 LEDs inside.

Warehouse lighting looks just right using 12 volt incandescent lamps.

Sometimes things get real challenging to wire, but even in this Mullet River Model Works C&NW Crossing Tower, I was able to add lighting and run the magnet wire down a "vent stack".

Postscript:

Here is some clarification from the last article in the January/February issue. Wayne from the MTJ Forums had a few things to add, and also correct. He corrected me in that it was not color temperature that made for green pictures using film under fluorescent lighting, but rather high intensity green phosphors that made film pictures look green. I also said "You may need a current limiting resistor depending on the voltage." I came to that conclusion because, running from my 3 volt battery pack and my 3 volt transformer, I did not not need a resistor. Wayne's point is that you always need a resistor. In my case, the internal resistance of the batteries inside, and the test lead resistance read high enough to limit current to safe levels. I sometimes try and keep things too simple, but at least people are reading!

Bill Pistello's Switching Layout

By Glenn Guerra

Bill Pistello is a retired Canadian Pacific signal foreman who works a few days a week at Des Plaines Hobbies. Bill was an aircraft engine mechanic in the Navy working on the big R3350 radial engines. He likes hot rods, worked for a race team, models other thing besides trains, installs battery power systems in model trains, and generally tinkers with a lot of other things. Bill has an N Scale layout that runs on a fast clock with a computer dispatcher interface that fellow modelers Rich Weyland & Bill Jahnke designed for him. He has operating sessions on the layout with a round robin group of friends. Working around the hobby store has exposed Bill to a lot of O Scale, and since he likes to tinker with things, he decided to build an O Scale switching layout. I went to see what he has so far, and thought you would like to see some of it. The layout has no scenery yet, but that is good because it will show you the construction better. I thought there were some clever things here.

Let's start with the concept of what the O Scale switching layout represents. Bill's N Scale layout represents the Union Pacific from East Los Angeles to Riverside. Around the Los Angeles area is a city known as the City of Industry (just north of Pomona if you are looking). The Southern Pacific served that city, and since it's all Union Pacific today, there is a Union Pacific local that goes to the City of Industry. The railroad has a branch that goes into the industrial area and winds around serving different industries. The O Scale switching layout represents the end of one of the branches in the industrial area. There is a team track and food processing plant towards the front of the layout. There will be a backdrop on the rear with Craptex Mfg and a roofing shingle manufacturer. The roofing shingle manufacturer has a spot for short covered hoppers full of roof granules and a spot for tank cars full of asphalt. So what does this have to do with the N Scale layout? Well, when you are operating on the N Scale layout, you go to the City of Industry on a spur that disappears into a staging yard. Once in the staging yard, you take your waybills over to the O Scale switching layout, and finish your operation by spotting the O Scale cars and making up the train to return. Yes, the car numbers are the same on both

Once Bill had decided on the size of the modules, he started messing around with different track ideas.

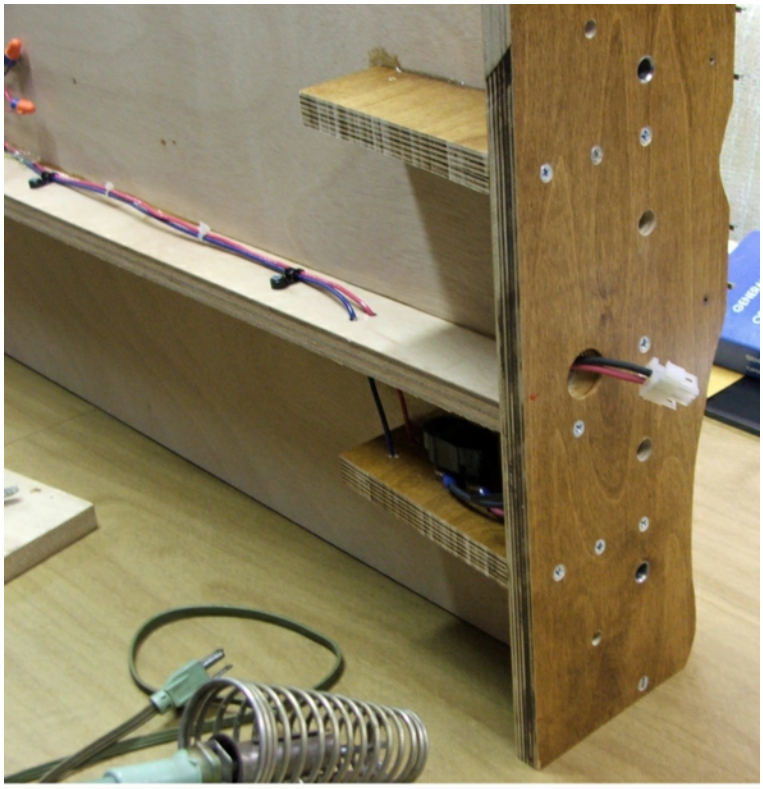
This view of the shelving unit shows how the modules are stored when not in use. Note the casters on the shelving unit so it can be rolled around.

layouts, and the spot locations are noted on the waybills. While Bill was explaining this to me, I was standing there looking confused. He pointed to an HO Scale switching layout on a shelf and said "it works we have been doing it for a few years on the HO Scale layout".

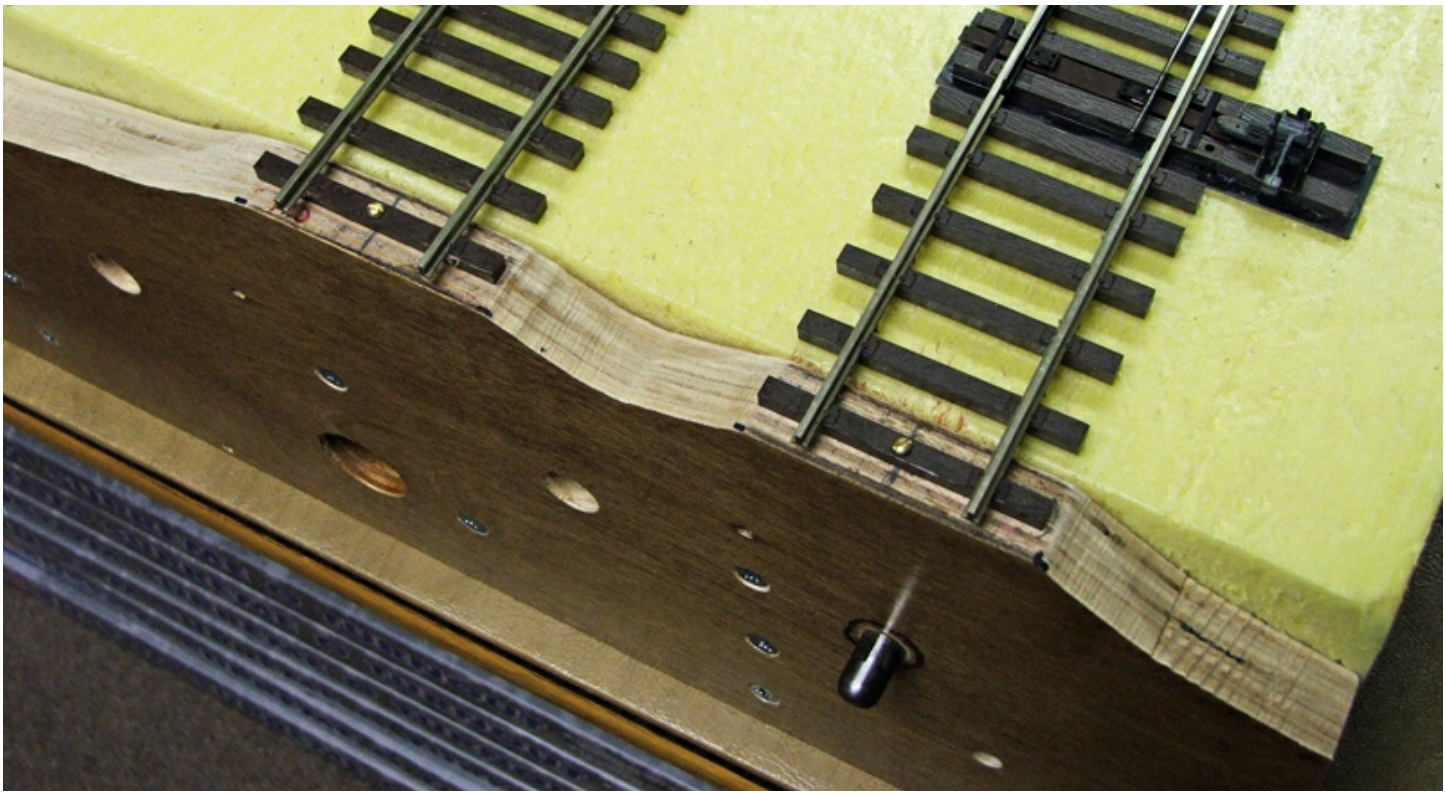
So with a concept of what he wanted to do, the next thing was to figure out how to do it and fit it into his basement. This was another clever idea that Bill picked up from Art Koch, another O Scale modeler. Bill went to a big box store and bought an 8' long section of heavy duty shelving. With a little fooling around, he put some casters on it and two shelves. Next came the surface the track would be on. Bill bought two 18" X 80" hollow core closet doors. When the modules were finished, this would give him slightly over 163" of length which is longer than the 96" of length for the shelving. The idea was to have two modules that would fasten together during operation. These two modules would hang over the ends of the of the shelving by about 3' on each end. When not in use, the modules would be separated and one stored on the top shelf and one on the bottom shelf, thus saving Bill about 12 square feet of room. The hollow core doors are light and ridged so they would be easy to handle. Now, to work out the track details.

Bill laid the doors on the table, and played around with some track ideas to see what he could come up with. He used Atlas switches and track. Now, he was ready to make modules out of the doors and fit them to the shelving unit.

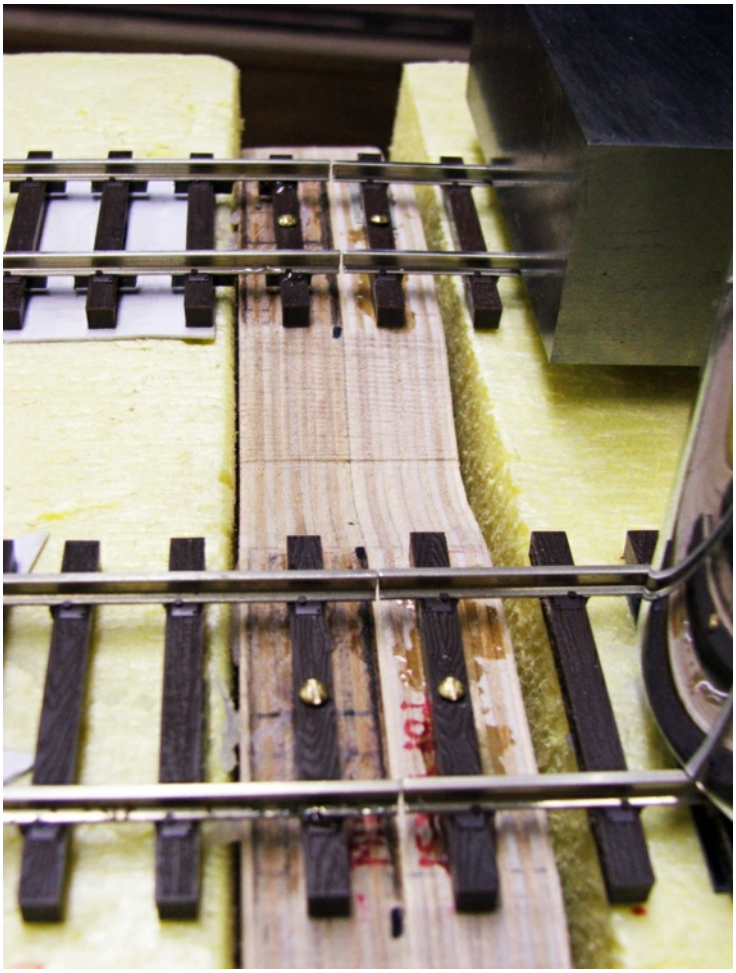
To join the modules, Bill used a system similar to what Jerry Huth came up with a few years back. Most module systems use rail joiners and a small piece of track between the modules. What Jerry proposed, and did, was to have pins on the ends of the modules that would align them exactly each time they were put together. Then your track is mounted right up to the end of the module on each module. You will not need rail joiners because each module will line up exactly on the pins each time. It works. I have seen Jerry's modules, and now Bill's. Bill put an end plate on each end of the doors. Where the two doors would meet, he made some pins and sockets to align them. The end plates stick



This view of the module end shows the spine on the underside, along with the electrical connections. The locating pin holes are the open ones.



In this photo, you can see the contour of the end plate. The foam will be sanded to match, and the road bed will have ditches next to the track. You can also see the locating pin in the end plate. Note also that the track is screwed tight to the end plate so it will not move. This is what makes this system work.



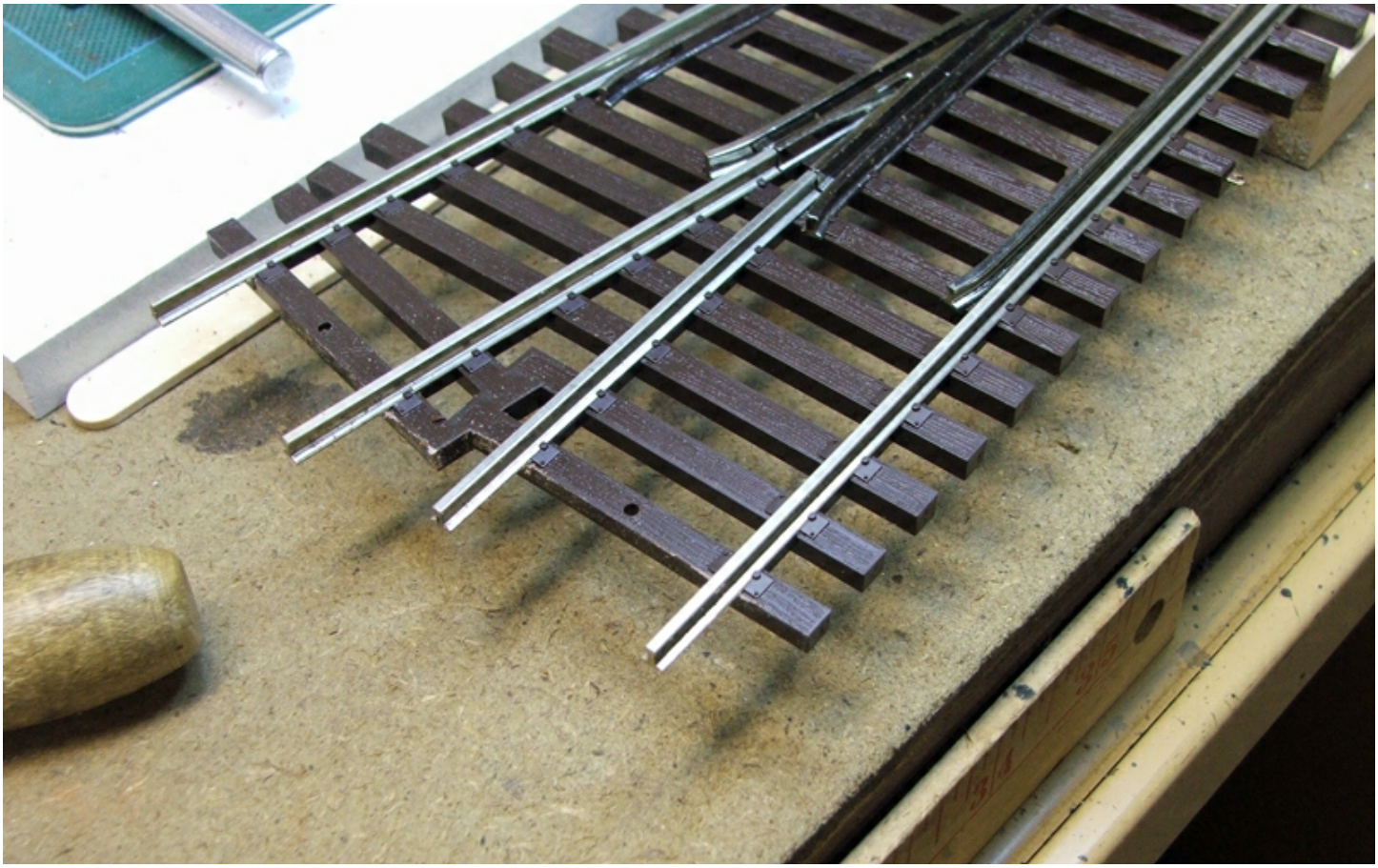
This view shows the two modules connected. Note how well the track lines up. You do not need rail joiners. When the steel wheels roll over this joint you cannot hear them.

up 2” above and below the door. This gives room on the top for 2” of foam for a scenery base, and 2” of clearance underneath for wires and things. There is a piece of plywood about 1-1/2” tall glued to the underside of the doors on the center line of the long length. On each end of the shelving unit, Bill made a piece of channel facing up for the 1½” plywood spine under the door to fit in. This locates the doors to the shelving unit when the modules are assembled, and prevents them from coming off the shelf if you bump them.

Now it was time to glue the foam on. Many people use insulation foam for a sub base on their layouts. Bill tried some construction adhesive to glue the foam to the doors, but it didn’t work. Air could not get to the center of the joint and the glue never dried. It all had to come off, and a new piece put on. Bill found some adhesive in a tube called Power Grab made by Loctite, and it worked. Bill glued the foam on, and held it down with boxes full of books. When it was

This view shows the modules being set up. You can see the channel on the end of the shelving. The spine under the module drops in this channel and keeps the module on the shelving unit. A nice, simple, easy to set up solution to keeping the module on the shelf.

Here, you can see the modules ready for use on the shelving unit. Note how they overhang on the ends. By stacking them on the shelving unit, Bill saved about 12 square feet of storage space. The modules are sitting on the shelf, and are only bolted together with two carriage bolts at the end plate. The whole thing is very stable.



This photo shows how Bill trimmed the last tie off of the ends of the stock switch. The cut off ties were used to extend the point ties.

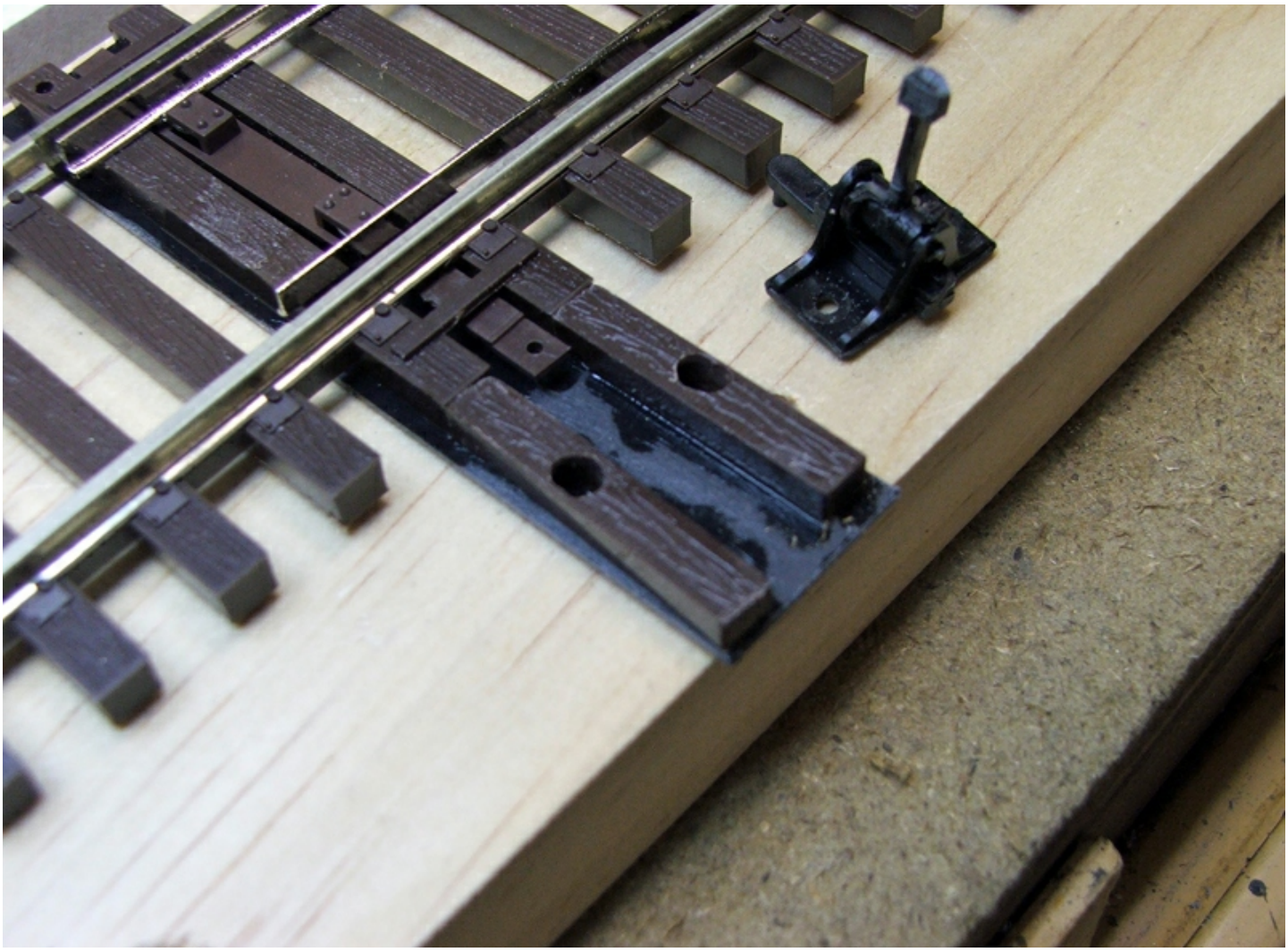
set, he trimmed the edges flush with the doors. One of the advantages to the foam is it can be sculpted easily. Once the track is on, you can sculpt in drainage ditches and low spots using rasps or sand paper. To raise a track, Bill used a commercial product that is styrofoam, and is made for elevation changes. On one track, he is going to dig down a little so the siding is lower than the main for some effect. Most of the track is glued down using the same glue as the foam to door joint. The end plate on the module is sanded to the exact height as the foam, and the drainage ditch has been contoured into the end plate. At the end plate, the track is screwed through the tie into the plywood end cap so the rail is firmly fastened. Bill uses metal wheels, and you cannot hear a click when the car rolls over the gap between the modules.

Bill worked on the track a little before he put it down. On the sidings, he cut all the connectors between the ties off. This allowed him to widen the gap on the ties a little, and to make them a little irregular. It looked nice, and I

Bill used the ties he cut from the end of the switches to extend the point ties. He trimmed them as shown in this photo.

Bill said this was the secret stuff to use when gluing down the foam. We got the secret out of him though.

This was the switch stand which Bill thought the HO Scale hand throw would be a good representation of.

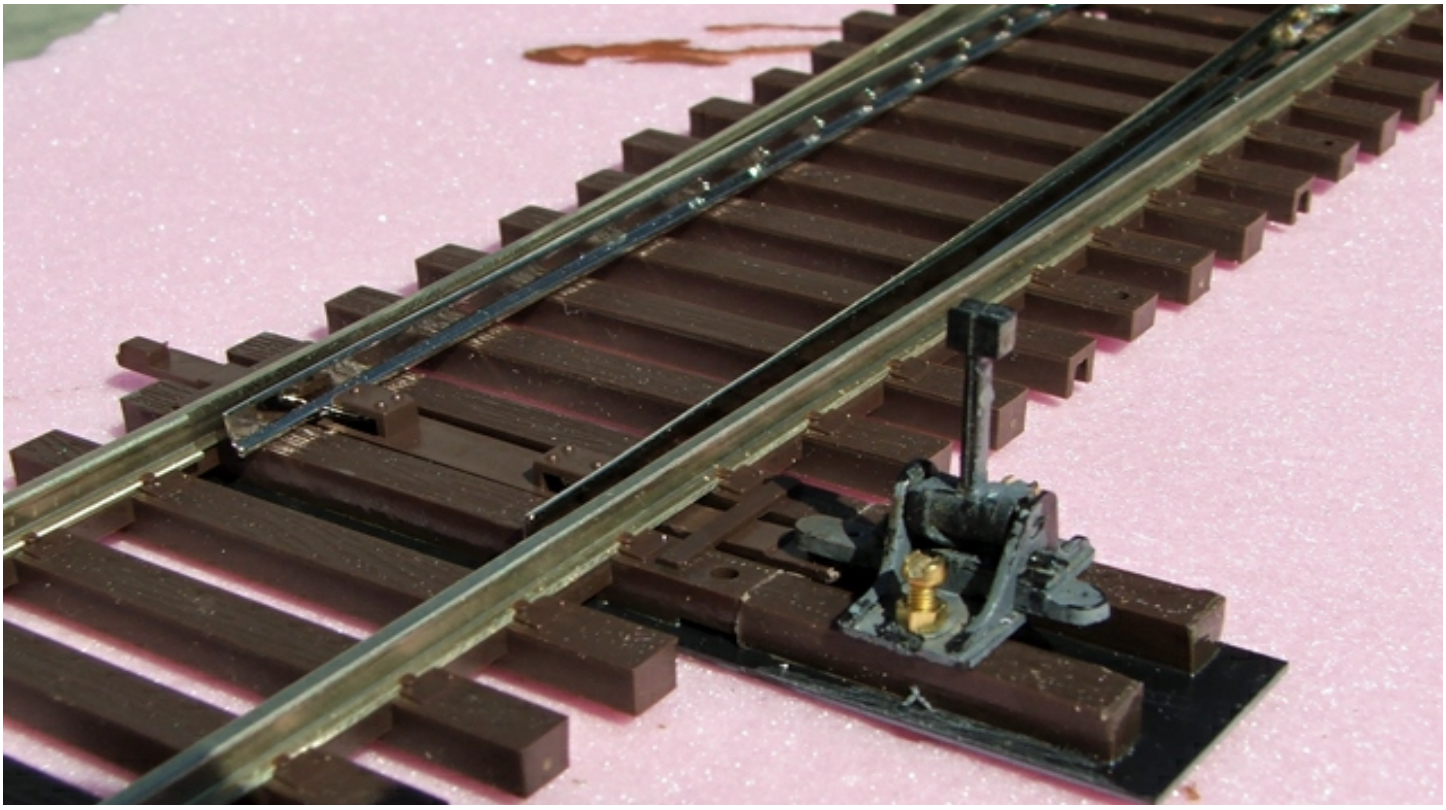


This photo shows how the tie extensions need to be splayed a little so the switch hand throw fits on them. Also, note how Bill made the holes larger than the #1-72 screws he was going to use. This was to provide adjustment of the switch throw. The switch throw has just barley enough travel to throw the switch and adjustment is critical.

think it will be a nice effect when ballasted. Bill worked from the main line first and located that track and switches. Once that was in, he was able to put the sidings in. The switches are a story in themselves.

The first thing Bill did to the switches was to cut the last tie off of the ends of each route on the switch. This was done for two reasons. One reason was Bill did not like the looks of the gaps in the tie for the rail joiner. The second reason was that he wanted those ties to extend the point ties for a switch stand. Bill uses hand throws to throw the switch, and the stock switch does not have ties long enough to put a switch stand on. He looked around at some prototype switch stands, and also what was available for models. Most people who use hand thrown switches use the ones made for O Scale. Bill wondered if the Caboose Industries #202S HO Scale switch would work, and tried one. The first thing was to measure the throw on the switch. It looked like the switch needed about .177" of travel from one side to the other. Bill measured the hand throw switch stand – it was .190". It was very close, but he made it work. Here is how he did it.

The first thing Bill did was to trim the salvaged ties from the ends of the switch. These were used to extend the point ties, and since they were the same tie as the rest of the switch, the joint would not be as noticeable. Next, he had to get a rough idea where the stand was going to be placed, and drill some holes in the ties for mounting screws. Bill found that the hand throw needed to be adjustable, but once set in place, it had to stay there. He decided to use #1-72 screws. The other concern was the end to end joint of the tie extensions. This is



This view shows the hand throw in place. When the hand throw and screws are painted the whole effect looks very good. You can see the black styrene under the ties. This gives the whole assemble a lot of strength.

not a very strong joint. What Bill did was to cut a piece of black styrene and glue it under the point ties.

The extensions were glued on next. They needed to be splayed a little so they would sit under the hand throw and the mounting screws would go through the center of the ties. The splaying is very slight, and not

This is what Bill's layout looks like so far. The SOO locomotive is sitting the styrofoam incline mentioned in the article. This raises the siding a little for some interest. The track with the transfer caboose will be lowered a little for interest also. The rest of the foam will be sculpted to give the land some contour, and scenery will be added. We will show more photos as work progresses.

noticeable. Bill used philister head slotted screws, and opened the slot up a little for the throw lever to rest in. There is a nut threaded most of the way up the screw. The screw goes through the hand throw, through the ties, through the black styrene, and has a nut on the bottom. The height of the screw is adjusted using the top nut to suit the throw of the hand throw. You want the hand throw to actuate fully, and the handle to just rest in the screw slot. Next, you need to adjust the hand throw so that when it is thrown, the switch points will be snug to the rail. There is hardly any play to work with, but it does work when you get them adjusted. Once it is adjusted, tighten the bottom nut to lock the hand throw down. When you mount the switch, you will need to dig out a little of the foam to clear the black styrene and the nuts. In case you were wondering, the black styrene is so you will not see it when the switch has some ballast. You usually don't put ballast between the point ties and white styrene would show. I thought this worked very well, and I liked the looks. The small size looks very convincing.

Bill has some interesting things going on here, and as he gets farther along we will keep you posted.

Scenery - On Our Own

by Daniel Dawdy

In the September/October 2013 issue, we went to visit Gary Engle's layout with its impressive scenery. His rock work is a sight to behold. That's the kind of rock work I wanted to do on my layout. So, for the November/December issue, Gary agreed to come to my place and demonstrate his techniques. You will note that in the pictures we were working on a blank canvas of white Hydrocal®. We never showed you how we got to that point or the lessons learned in the process. So let's go back in time to the basic prep work, and then skip ahead to after Gary left and Amy and I tried to remember all he taught us. In other words, it's time for an update and reality check!

The picture below shows what we had to work with. Beautiful 1950's green basement walls, curtains to die for, and an upper deck which should have been installed after the scenery, not before. Lesson one learned.

We used the tried and true cardboard patchwork for the foundation. Now, I know there are many other ways to do this; and I am not saying one is any better than the other, but this is just what I chose to do. I had been saving cardboard for years just waiting for this day. We cut the cardboard in strips and used a hot glue gun to attach them all. Let's talk about hot glue for a minute. It's hot, no it's *really really* hot. The good thing is that it only hurts for a few seconds. The bad thing is, it hurts again as you later try and peel it off your skin. Take your time. Since Amy hates to listen to me whine, she took over the dangerous part of this project. Lesson two learned.

We continued this patchwork all across the wall. Note the size of the open grids. We now know they should have been smaller as we needed more strength. More on that later.

At this point, it was looking pretty good, and did not take that long to finish. Now came the messy part, covering the cardboard. Because this was such a large area, I did not want to spend the extra money on plaster cloth. I may rethink that now. Plaster cloth is easy to work with. It's the same stuff that doctors use to make casts. Cut it to size, lay it in water, and then spread it out over the patchwork. There are supply houses that sell it at reasonable prices. But, being the unreasonable person that I am, I went with the paper towel soaked in Hydrocal® method. The blue or brown shop towels work best as they don't sag as much as regular paper towels. Remember when I said the patchwork should have been a tighter weave? That would have definitely helped with the sagging problem.

The idea is to mix up a small batch of Hydrocal®, soak the paper towel in it, and then drape it across the webbing. Neatness does not really count here, and it would be impossible to be neat anyway. It take at least two people to pull this off because as the Hydrocal® begins to get hard, someone needs to be making the next batch. With Glenn's help, we finally got into a rhythm.

As the first layer was drying, we used a spray bottle of water to re-wet it before beginning the second layer. Some spots where our webbing was so large got a third layer. If you plan on doing rock castings like I was, the end result of this whole process is not critical, and does not need to be picturesque. If, however, this will be the basis for ground cover only, you will want to make it smoother, with less paper towels sticking up.

Yes, there were some miscommunications along the way and Hydrocal® ended up many places Hydrocal® should never end up, including the dog.

The picture above shows the finished wall. You can still see some overlay of the towels and their texture, but again, I was going to cover all of this with rock castings. If you are not, you can re wet the Hydrocal® and lay more towels down or re-wet and "paint" a thicker mix of Hydrocal® over what you have already in place.

It was at this point at Gary came over and we we did the second article. For a refresher, please see Making Rocks Part 2 the November/December issue here.

Gary was very patient, and explained everything as he went along. I tried to take everything in as we worked. It didn't look that hard. Fill the mold, slap it up and wait a few minutes. I got it!

On Our Own…

Well it's time to get started with these castings. Remembering our experiences from the our first bout with Hydrocal®, we went out and found some cheap but very flexible containers for mixing. Yes, they do make special containers just for this but they are expensive, and since a single mold will take as much as 8 cups of water and 17 cups of Hydrocal®, we needed something much larger. We found some at Hobby Lobby. I think they were sand buckets for the beach or some such thing. Anyway, once the Hydrocal® dried, you

could push the sides together and the left over Hydrocal® would break apart and fall out. Now, bear in mind that eventually you will break this container, so that's why we want something inexpensive.

Did you know that once Hydrocal® dries in clothing it is hard to get it out.? Really hard… So even though I can be cheap, I sprung for a two Tyvek suits. You find thee at most hardware stores for under $10 a pop. They are not that flattering, but do seem to make anyone in them happier. Well, almost everybody. These can be used over and over. So far, they have not torn so it was money well spent.

Get yourself some cheap paint brushes. I'm talking under a buck for a three brushes cheap. We use these for spreading the Hydrocal® around the mold. A bucket of water for rinsing out the brush is also necessary, but after doing this a few times the brush will be beyond hope, and need to be replaced.

The last item I found and really like is a nylon whisk. I found this while wandering aimlessly around my local Do-It-Best hardware store. It mixes much better than a stick of wood, and after the Hydrocal® dries you simply push the ends and the Hydrocal® cracks and falls off so it's ready for the next batch. A bargain at under $4.00!

We were now ready to rock and roll!

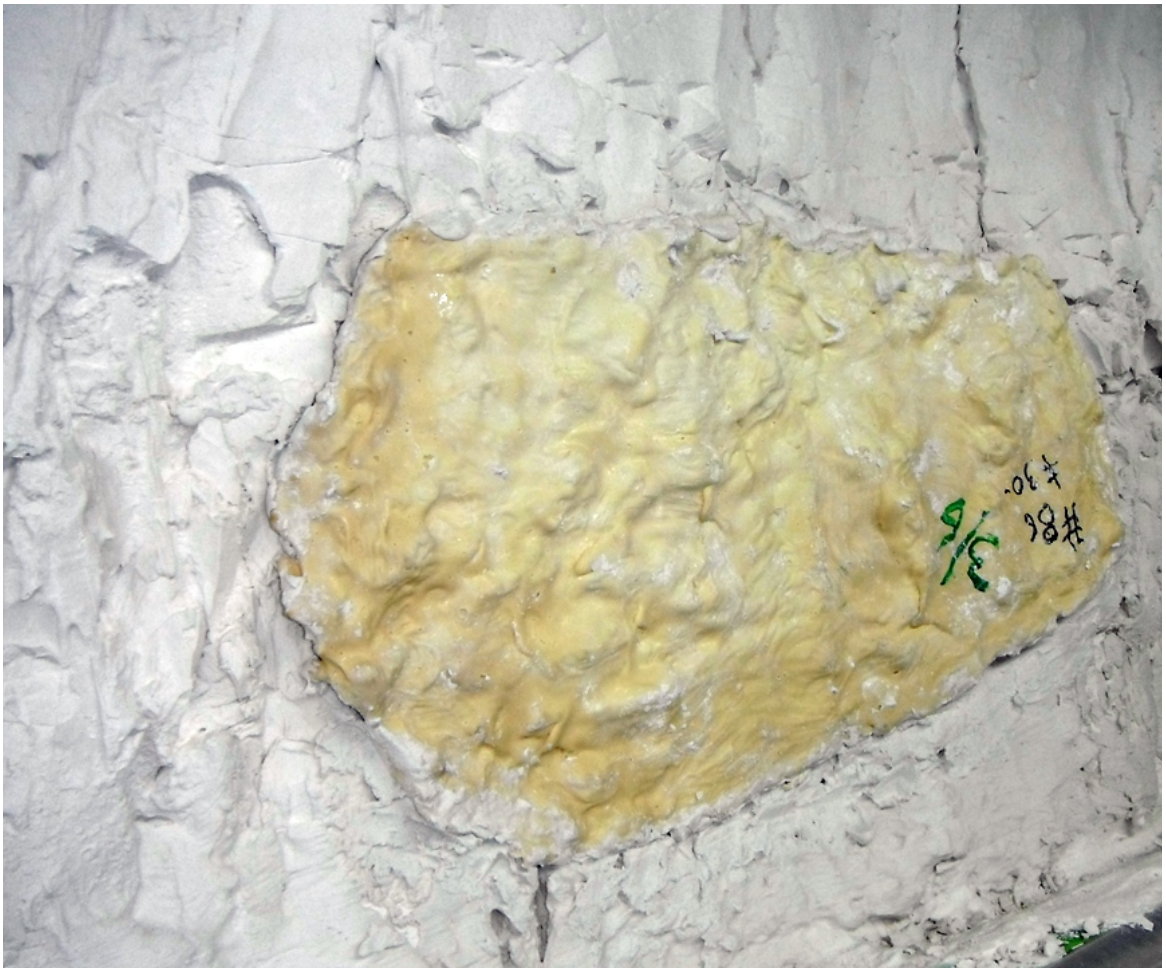
Remembering everything Gary told me, Amy and I set about to pour the first mold. We based the amount of water off the mold that Gary used. Next, we slowly added the Hydrocal®. We know from experience that the rough formula is two cups Hydrocal® to one cup water. In our case, it was always a little more Hydrocal®. Don't forget to spray some wet water on the mold before the pour. We want that mayonnaise consistency as we pour the mold. Also, more is better. I would rather have more Hydrocal® left in the bucket after the pour knowing the mold is full. Otherwise, you will have some thin spots that will not adhere and chip off. While the mold is setting up, use any extra to "paint" some on the foundation where the towels did not fully cover, or areas that may be "soft". When the mold is ready, place your finger on it. If it leaves a print and does not run, the fun begins. Be sure to spray the part of the wall where you will be placing the casting well with water. (See the November/December issue for wet water and wetting down the area before placing the casting.)

Since these are large molds, you need two people to carry them to the layout once filled, and to place them against the surface. It takes some teamwork to get these large molds in position. It's best to have a plan, and both be on the same page before slapping the mold on the wall. That part did take some practice, and another reason for the Tyvek suits. If the mix is not too soupy, and has not run out the bottom of the mold, you can hold the mold in place and press gently all around the mold. The mold should adhere to the foundation, and you will now need to wait until it gets warm. Because of the thickness of some of these molds, we hard a hard time feeling the warmth. It was very subtle, but we always waited at least 10 minutes.

When unmolding, let me give you a few tips. Wear safety glasses or cheaters, anything to protect your eyes. As you remove the mold, little bits of Hydrocal® will fly off the mold, and they will find you eye. If you are a mouth breather, you better hold your breath for this. Hopefully, the mold releases without a problem. We did have a few missteps along the way where the mix was too soupy, but we went ahead anyway. We had one where the mix sat too long, and much of the Hydrocal® stayed in the mold as we pulled it off. If there was a way to screw this up, we found it. The good news is, it's easy go simply go back over the mistake with the next

mold. If something does not look right, don't worry about it.

The picture on the left was a problem area. The Hyrocal® was not set up enough. (Yes dear, it was my fault.) It was a mess. After filling in parts to make it level, we simply went right back over with a new mold.



Turning and switching molds as we went down the hill gave us a nice look, for awhile. Because we did this whole wall over a few nights, we didn't notice that the flow from mold to mold needed attention. Once we realized this, as the mold began to set up on the background, we was to tried to feather the edges of the mold to the one next to it to it looked more natural. A putty knife worked really well for this. Unfortunately, we did not figure this step out until we were almost finished.

In the photo above, Amy is filling in and feathering in the side of the mold. This was s lesson we learned later in this endeavor.

In the image below, you can see where sometimes we had to go back and make a fix. Notice the mold in the upper left of the photo that was being reapplied.

The image on the next page gives you an idea of the size of some of the molds we used. This particular mold used 8 cups of water and 17 cups of Hydrocal®. Like I said before, moving and placing something this unwieldy and heavy takes teamwork or you will picking Hydrocal® out of the dog. (Sorry Bubbles.)

When we were finished, we let everything sit for a few days. At this point, I saw another problem. Some of the molds just did not look right next to each other. We needed to fix the transition from one mold to another. Now, if we had used the same mold through the entire wall this would not have been as big of an issue, but we were playing with transitioning types of rock as we moved down the hill. We also has many voids where the mold did not fully take. Actually, they looked more like little caves from some old extinct civilization.

Gary recommended using Durham's Water Putty and a small pastry bag to fill the voids. I am guessing it's just me, so I we won't go into the mess that created. Instead, I thought I would mix a small batch of Hydrocal®, but make it thicker. One cup of water and almost three cups of Hydrocal®. This gave me a nice heavy mix that I could use along with a paintbrush to fill the voids and smooth out the transitions. The first time I did this, I was running around trying to remember where I wanted to put the mix. By the time I figured it out, the mix was too hard, and another paintbrush had given its life for the cause. OK, so now using a pencil, I put little X's where I wanted to fill. This worked well. I had about two minutes of working time, and if I rinsed out the brush in a pail of water I could use it least three to four times before it was no longer pliable. There is one thing to be careful of. I don't like what I call "ice cream" scenery. That is, perfectly smooth plaster with shinny paint on it. It worked back in the day when I was 10, but not anymore. Too much of the wet paintbrush was giving that look. So as the Hydrocal® was just beginning to pass the point of no return, I filled the brush and stabbed the hillside

This gave me the rough surface I wanted, and helped to blend in the transition between molds. The staining, groundcover, trees and grass will take care of the rest.

Wow, we were finally finished. It looks good from the front, so I decided to place my Iphone on a flatcar and run it up the hill to see how cool it looked. Was I in for a shock! You will never view it from this angle, but it still showed a lot of flaws that needed to be addressed. This was a great lesson in itself. If you think you have completed a project, take a few pictures and really look at it. I went back at it for a few nights, and I think I am pretty much completed.

THE O SCALE RESOURCE
NEWS, REVIEWS, INFORMATION TO USE
VIDEO EXTRA

I shot a video going up the hill before all the fixes and after. Here, you can see a side by side comparison. I am much happier now, and once we get on with the painting/staining and groundcover, it should look great.

We learned a lot, and still have more to learn, but by building on Gary's helpful hints, we are on our way.

In a future issue we will continue with the staining and ground cover using Gary's techniques as well as other we come up with ourselves.

Model Contest Awards

THE O RESOURCE
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The O Scale Resource will be awarding gift certificates to the winners of the model contest at the 2014 Chicago O Scale Show. Certificates can be redeemed for purchases equal to or greater than the face value, and will be valid until June 1, 2014. The certificates will be issued at the show, and can be redeemed for purchases from the list of The O Scale Resource advertisers that appear on the certificate. To redeem the certificate, the holder must purchase the product or service from the advertiser, and submit a copy of the receipt(s) to The O Scale Resource. Once the receipt is received, The O Scale Resource will award the certificate holder a gift in the form of a check.

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Converting 3 Rail Cars

By Glenn Guerra

There are a lot of good cars made today that are set up to run on 3 rail track. These cars have scale proportions and good detail, but are not compatible with scale 2 rail track. They are going to need wheels and couplers. The conversions vary by manufacturer and car, so they need a little thought before starting. When you make the conversion, the coupler height above the rail will need to match the NMRA standards. The coupler height above the rail is affected by the trucks you use, the height of the center bearing (where the trucks mount), and where you mount the coupler to the body of the car. You can do this by trial and error until you get it, but sometimes that gets to be too much error and a lot of trying. I thought we would look at this from a generic conversion and not a specific car first, and identify five steps that will get you where you want to be. You may or may not follow these to the letter, but I think it is a good way to see what you are getting into. Once you have done one car, you will know how you want to do all the other cars you have from that manufacturer. So let's look at the five steps first and then some conversions that have been done.

Step 1. Get a pencil and paper. You need to write down some dimensions and do some figuring. This may not seem necessary, but I have seen so many projects go bad because there was no planning up front. Even the best model builders have notes on how they intend to do the project. All the cars are bit different, and if you do not make some notes and do some figuring, the job will be a lot harder.

Step 2. Get the NRMA standards for coupler height, and write them down on the paper. This is very important because the couplers need to match your other cars. The NMRA standard coupler height for O Scale standard gauge cars in .688" from the top of the rail to the center line of the coupler. Some people make a gauge by screwing a coupler to a block of wood or you can buy one of the manufactured gauges from Kadee. The NMRA sells a standards gauge with all O Scale clearances, track standards, and coupler height on one gauge.

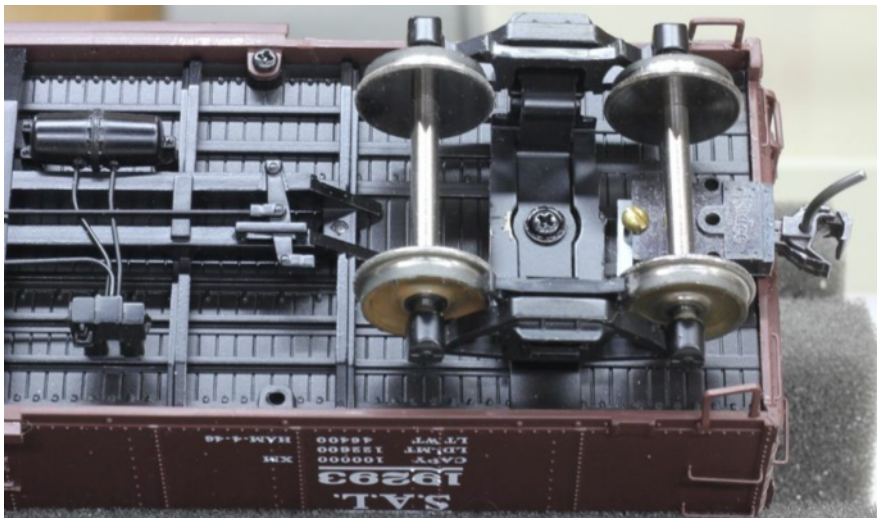
Step 3. Once you know the center of the coupler, you need to determine the height of the top of the coupler box above the rail. This will determine the height of the car floor above the rail. If you are using a coupler with the shank centered on the head, you can measure the thickness of the box, then divide that by two, and add that number to the coupler height. Now, you have the car floor height. There are offset shank couplers that you may need to use, but for now let's stick with the standard shank. This exercise only needs to be done once for the coupler type you are using. Again, this may not seem necessary since the coupler height gauge from Kadee will show you where the car floor height should be. The reason I would recommend coming up with the number is in case you need to change the bolster on the car.

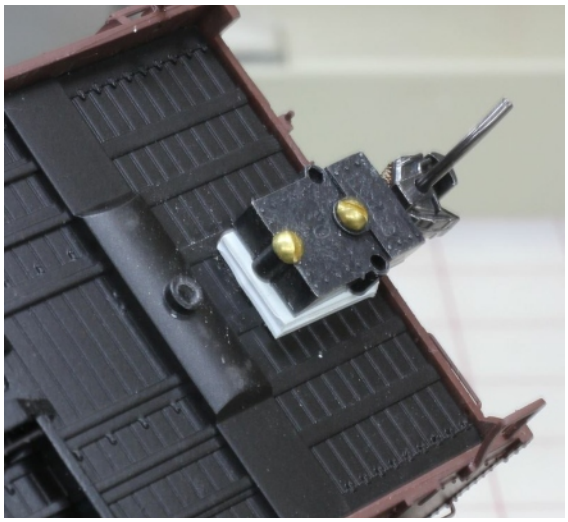
Step 4. Set the trucks you will be using on the rail. Determine the height of the center bearing above the rail. The center bearing is where your car will be sitting. This is important to know whether you are using the trucks that came with the car or using a different type. You can now subtract the height of the center bearing from the car floor height, and you will now have the height of the bolster. Some 3 rail cars do not have bolsters, so you will need to make them. That is another reason you needed to do step 3 above.

Step 4. Determine how to mount the coupler. Some cars come with a pad that will take a Kadee or Atlas coupler box. Other cars will require some fabrication to mount the coupler to the body. From the dimensions you were able to get in step 3 and step 4, you will know if you need to shim the coupler box. Many 3 rail cars sit high to get the clearance for the wheels on the tight curves. If you need to shim the coupler box, I would recommend looking at a way to take some material off of the bolster so the car will sit lower.

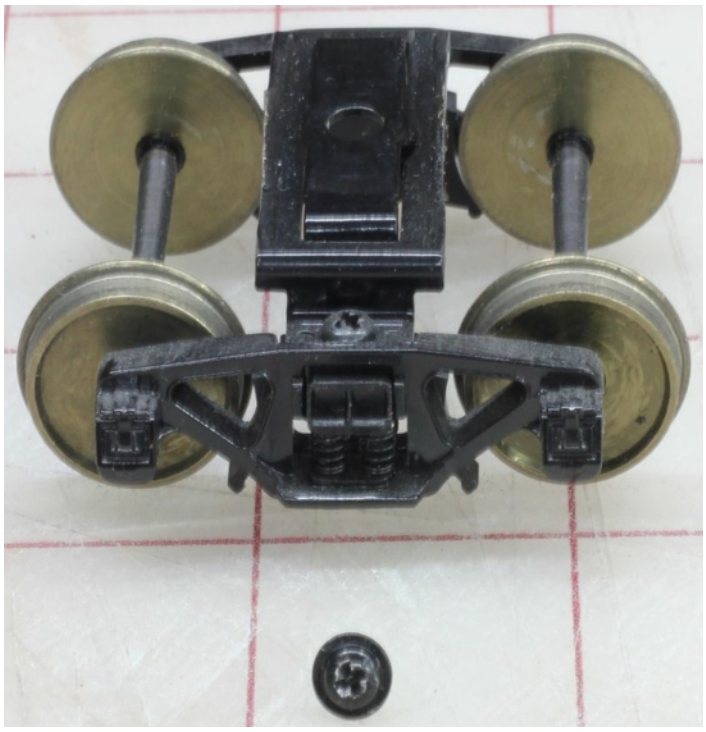
Well, I hope that doesn't sound insulting or look like unnecessary work, but I think it gives you some idea of how everything is related. I would recommend going through the whole exercise once just for practice. The more you modify the car by changing trucks or adding bolsters, the more the calculations will help. They will also tell you up front whether you want to change trucks or not. It may not be worth all the other work that may be required. Once you have converted a car, all other cars of that manufacturer should be the same, and you will not need to go through all the steps. The rest of this article will show some different conversions, and the captions for the photos will tell the story.

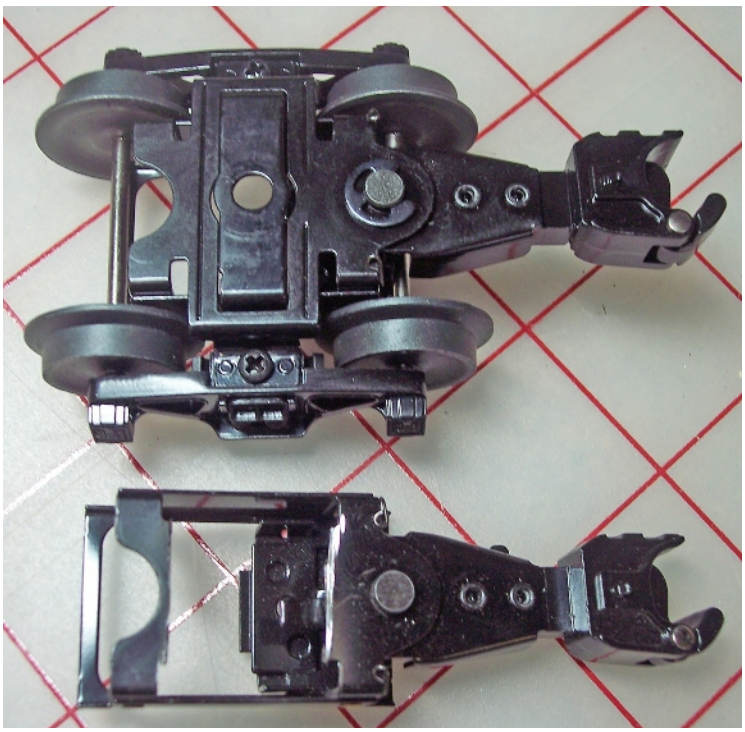
This is a Lionel box car that Dan Dawdy converted. These are nice looking models.





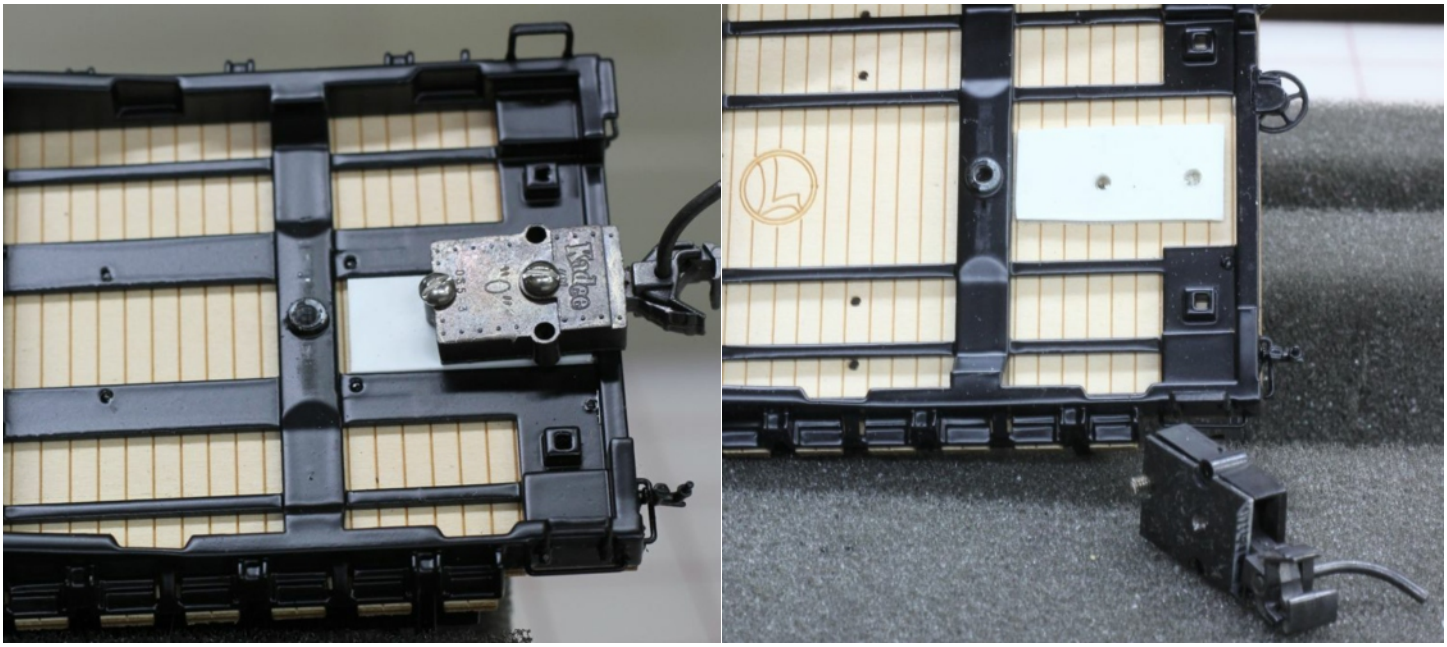
In these two photos, you can see that Dan used the Lionel trucks, but put scale wheel sets in them. Since the 3 rail trucks are designed to give the wheels a lot of swing, the car body sits high and there is no center sill at the bolster. Dan needed to mount the coupler box on some pads to get the coupler height right. To mount the coupler, Dan drilled the die cast frame and tapped it for some 2-56 screws. If this conversion was done using trucks made for a 2 rail car, the car body would probably been too low, and Dan would have needed to shim the bolster or make a new one to get the car floor height correct to mount the coupler. These are trade offs you make in modeling. Right now, the car sits a bit too high on the trucks, but the conversion was simple and the car runs.



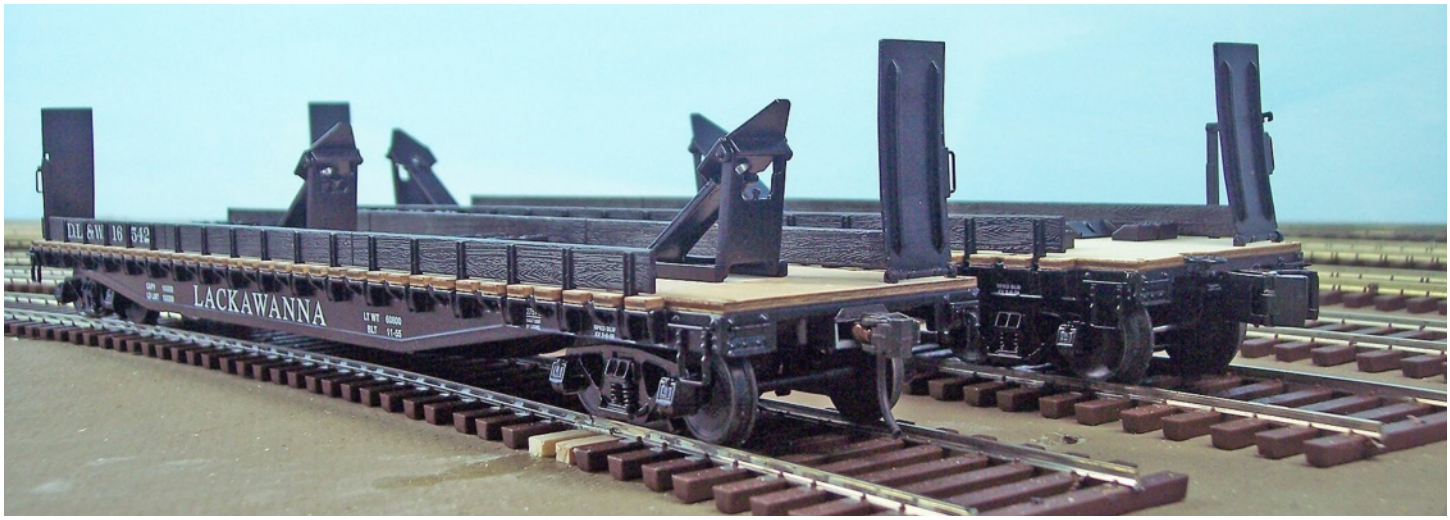


These two photos show the Lionel truck before and after Dan converted it. The mount for the coupler was on the truck, and Dan cut it off using the abrasive cutoff wheel with his motor tool. On the photo to the right, the part Dan removed is shown below a complete truck so you can see what was removed. He was then able to use some commercial wheel sets, and they dropped right into the Lionel side frames. This simplified the conversion, and saved a little money not having to buy another set of trucks.

This photo shows the Kadee coupler height gauge in use. The flat car is a Lionel car that Dan converted to 2 rail operation, and he is checking the coupler height to see that it is correct. The shelf to the left on the gauge is for checking the car floor height where the coupler will mount. This gauge works for the Kadee coupler box, and may not work for other coupler boxes, but the coupler center line will be the same. The trucks are Lionel trucks with scale wheels.

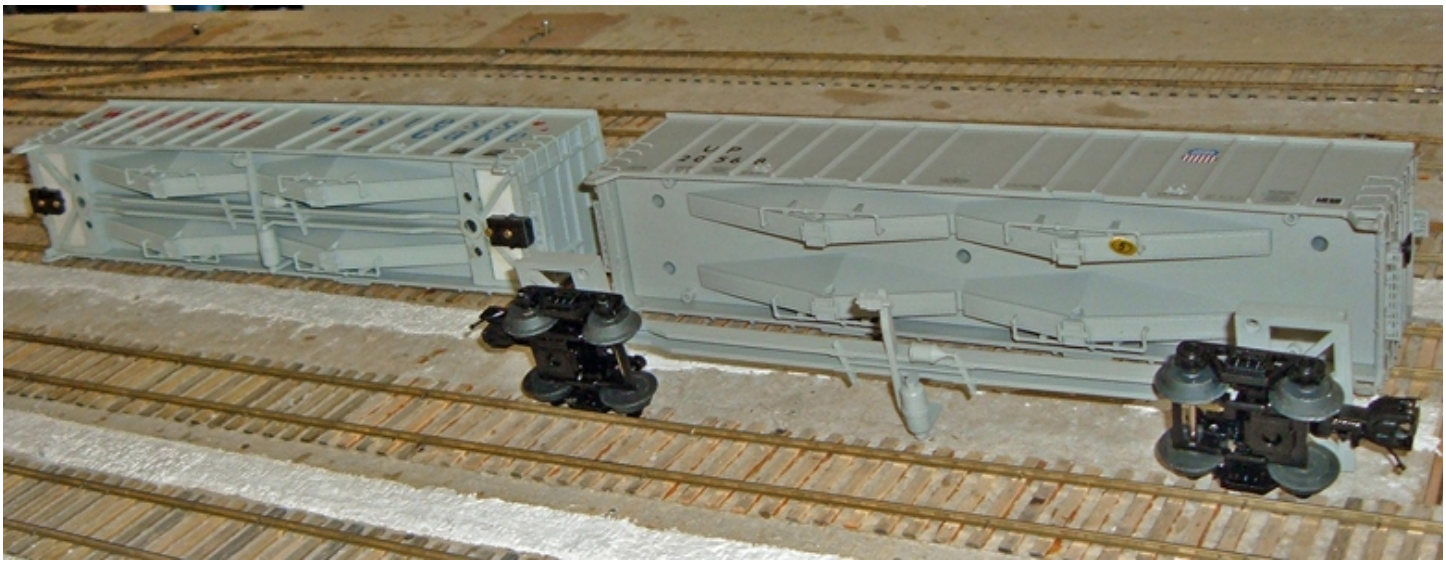


These two photos show how Dan mounted the coupler box to the car. A shim of styrene was glued to the wood floor. Once it was drilled and tapped to mount the coupler, Dan was ready to go. The trucks were converted the same way as the boxcar trucks on the previous page.

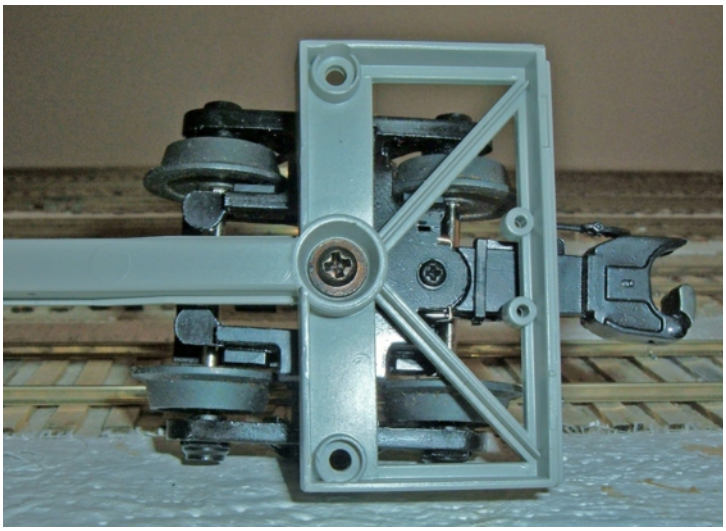


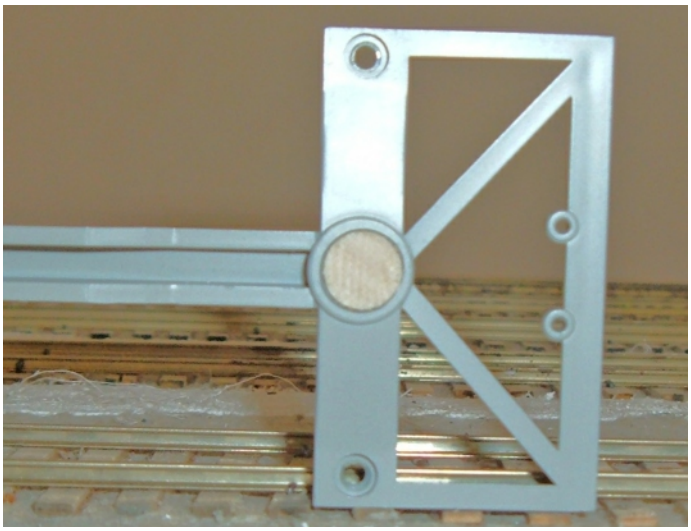
This is a good illustration of how the flatcars Dan has looked before and after he converted them to 2 rail operation.

An MTH gondola that Dan converted to 2 rail operation. The car needs some steps at the corners, but other than that, it will look fine in the train.



I went to see Don Degner in Nennah, WI, and he was working on converting some MTH air slide hopper cars to 2 rail. On the MTH cars, the trucks are attached to the frame from inside the frame. You need to remove the frame, and the truck mounting screw is in the frame and screwed into the truck.





The photo on the left shows the truck mounting screw, and how you need to remove the frame from the car to get at it. Don wanted to use some other type of truck, and scale trucks mount by screwing the truck into the car. To do this, he needed to plug the hole in the frame with something to screw into. We used an Irwin unibit to drill out the hole, and put a wood dowel in the hole. The unibit worked good for this application. The cutting surface on the bit will scrape the material away and will not dig in like a twist drill will.

Don used his homemade coupler height gauge to check his car with the trucks he is thinking about using. It looks like the couplers can mount to the car floor, and the height will be about right. A small amount of material may need to be removed from the bolster to get the car floor lower.

The frame on the MTH air slide hopper that Don was working on required some filling to mount the coupler box. Don did this using some styrene. He drilled it with the tap drill, and the screws tapped their own hole.

This is the unibit made by Irwin. These are good for drilling thin or soft materials because they do not dig in like twist drills do. This is what we used to drill out the bolster on the MTH cars. We used a hand electric drill set to run slow, and it worked well.

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Some Photos From Theo Rehak

By Glenn Guerra

Theo Rehak from New Jersey sent us some photos of a few models he has been working on. I called Theo to see how he painted the models, and what they were. It was interesting, so I thought I would put it all into a short article.

First, the Northern Railroad of New Jersey was an actual railroad; and even though the name is long gone, the track is still used today. Theo sent me a short history of the line and that follows the photos. If you do some internet searches, you will find more. Theo likes the Erie Railroad, and while reading some of the history, he came across the Northern Railroad of New Jersey. It turns out the railroad had only one piece of rolling stock – a second hand New York Central 19000 series caboose. Theo decided to make a model of the caboose.

Theo started with a kit and modified the interior to match some descriptions of the car that he found in his research. He painted the car with Floquil spray cans. I know another modeler near me here in Wisconsin that also paints this way. The paint job looked very good, and I'm impressed with what they can do. To weather the caboose, Theo used washes of India ink thinned with alcohol. He was telling me that there are different India

inks, and you need to try some to get what you want. They are not all just black. I have used alcohol soluble aniline dye, but that does not hold up well to sunlight. There are commercial model stains that will also work. The alcohol stains are good because they will dry fast, and not affect the paint on your model. In addition, you can brush alcohol onto the weathered area to soften the edges, or lighten the weathering a little. The prototype car was worn out when the Northern bought it, and it received almost no maintenance from them; therefore, Theo went heavy on the weathering. While researching the car, he found a reference to copper flashing being added to the windows, so Theo used some copper foil and made the flashing. Look closely at the trucks on the model and you will see that one of the journal box lids is open. A nice touch to add to the general feeling of neglect. The interior details are little bits from various manufacturers. I like the polished treads on the wheels also. It's always fun finding a prototype and then modeling it.

Another photo Theo sent was a Western Maryland hopper car. I had a good laugh when Theo told me how he painted this car. The car is a brass model that Theo bought as a damaged model. He said that he put the car in a vice and squeezed it to straighten it out. After much crackling and groaning, the model straightened out with nothing coming loose. This model was also painted with spray cans. My hat is off to the people who can do these paint jobs using spray cans. That is one technique I have not done well with. As you can see from the results in the photos, it can be done. Next, Theo told me how he did the rust – that is what made me laugh. Using weathering powders is a common technique, and there are a lot of varieties of powders for sale. I have used ground up artists chalk and that works, but I have never heard of Theo's technique. He said that they had an old well at their house, and he noticed that there was some real fine rust residue at the bottom. He saved it, and uses it for weathering powder. This shows you what can be done with a little imagination.

Nice models Theo. Looks like you had some fun with them. Thanks for the photos. Next is Theo's short history of the Caboose.

A HISTORY OF NRR of NJ CABOOSE X-1

By Theo Rehak

The Northern Railroad of New Jersey was an Erie Railroad subsidiary commuter line, and served a few significant industrial customers as well. Unlike the comparable New Jersey and New York Railroad (also Erie controlled), it was in better financial shape. In the late '30s, its trustees sought to break away from the Erie and made an attempt to better their position by aligning themselves with the New York Central. In theory, they could attempt this because of the Northern's potential NYC connections in Bergen and Rockland Counties. Operated since 1899 (on paper) as The Nyack and Southern Railroad, it was not until 1943 that the Erie bought out their assets. The Northern's owners could not come up with the funds required to remain independent, and the Erie finally filed with the ICC for a "merger" after practicing a long history of predator capitalism.

It was during this period that Cameron Blaikie, Jr., a lawyer living in Englewood, New Jersey (whose family ties included investors and owners of the Northern), was engaged to pursue this plan for leaving Erie control.

That the principals involved were serious about this is shown by the fact that the Northern acquired a retired 19000 series NYC caboose. It became Blaikie's "rolling office", and was painted and refurbished as befitting (modestly-speaking) a Railroad Vice President's private car. A photo dated 1940* showed this caboose with Blaikie himself standing on the steps of what was the Northern Railroad's only piece of rolling stock.
The car was numbered X-1, and bore the Northern's unique logo. It rode on obsolete T-section Bettendorf trucks, and was fitted with a new coal stove. Painted caboose red with a black cupola and a fresh-tarred roof with new roofwalks, Blaikie also had copper flashing added to the sliding sash in the cupola and middle side windows. The interior was painted with the same cream-colored enamel used in the Erie's Stillwell commuter coaches. The existing bunks were removed and/or changed into bins for light maintenance of way tools and the storage of cans of kerosene and other supplies. For a short time, it was fitted with passenger car safety chains (the front end only) so as to be safely coupled at the rear of a passenger local or mixed train. At the height of its glory, it was spotted at various points and sidings along the Northern's route, but did little other travelling. The legal issues involved were eventually decided in the Erie's favor. By the time of the 1943 merger, it had been relegated to a permanent siding, as it was expensive to move. The Erie had insisted on its unofficial status (non-Erie: non-interchange). It charged "rent and use" when it was parked on any active sidings, and also demanded freight car delivery and surcharge rates to bring it to any new destination.

REQUIEM

The following has not been corroborated or confirmed, and may be confused with other wooden caboose histories stored at the location below.

One source has it spending its last years (late 50s) in the NYS&W Little Ferry, NJ yard on a storage siding, along with an old 36 foot NYS&W wood-sheathed boxcar which was leased or owned by the Bergen Evening Record newspaper.

There are two accounts of its demise: 1] destroyed by fire (it had been used as living quarters by trespassers); 2] dismantled and scrapped. No dates given.

*The photo image of Mr. Blaikie and his caboose was sold at auction on eBay to an unknown buyer, most likely a NRR historian. The item brought over $100.00 in December 2007.

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Web: btsrr.com

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