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Features

4 The Connecticut & Ohio Railroad – George Muller
A modest sized O Scale layout that fits the author’s needs.

12 Details Under Cover – L. Lee Davis
An often overlooked detail that adds character to a scene.

15 Got Trash? – William Nesbit
Another overlooked detail that adds realism to a scene.

21 B&O Concrete and Steel Coal Trestle – Ed Bommer
Need a small business on your railroad? This one fits any layout.

27 The Case for a Better Wheel Profile – Gary Schrader
It’s time O Scale moved into the 21st century with a better wheel design.

34 MoW Flat Car #X-926 – William Davis
Basically a bunch of sticks, this flat car is an easy build.

39 A Closer Look at P48 – Mike Cougill
Is modeling in P48 really as difficult as many believe?

50 Lighting Switch Stand Lanterns with LEDs – Charlie Morrill
Another use for those tiny marvels of lighting.

Departments

9 The Art of Finescale – Mike Cougill

11 The Modern Image – Gene Clements

17 Reader Feedback

42 Product News & Reviews

60 Buy-Sell-Trade Ads

60 Events Listing

61 Advertiser Index

62 Observations – Joe Giannovario
The Connecticut & Ohio Railroad

Text by George Muller
Photos by Doug Scott

I’ve been a model railroader since I got my first train set at age 7. After a period of modeling in HO, I discovered 2-Rail O Scale at the New Haven Society of Model Engineers.

I built the Connecticut & Ohio Railroad in my Middletown, Connecticut basement between 1961 and 1985. I moved the layout from Middletown to Eastham, Massachusetts in 1996. The experience of cutting apart and moving what I thought was the ideal layout was painful.

The railroad is mostly rebuilt now. The idea of building the benchwork in sections paid off, saving me lots of time in reconstructing the layout. Of course, it doesn’t fit in my Eastham basement the same as before, so some sections were reused and others had to be completely disassembled and parts saved for new sections. The new layout is still the Connecticut & Ohio RR, but the modeled part of it is moved a little farther west by the elimination of Middletown, Connecticut which was modeled on the old layout.

Minimum radius on the main line is 48 inches, with 27 inch long easements between every curve and straight track. Most of the track is handlaid using code 172 steel rail and quarter-inch thick basswood ties. Sidings use 1/8-inch thick ties and code 125 rail. Code 148 rail was used in the Port Jervis yard. Modular sections use Atlas flex track and Roco switches. Most switches are number 6, with number 5 in the Waterbury yard, and curved switches and double slips where necessary. I run first and second generation Diesel power, with passenger equipment, and freight cars up to 89 scale feet in length.

The Layout

The Connecticut & Ohio “just grewed” like Topsy in Uncle Tom’s Cabin by necessity and to fit the available space (See Fig. 1). The Waterbury section (saved from a previous layout) was to go against the back wall, but the builder didn’t leave enough room between the wall and the outside door. After much head scratching, I decided to turn the section around and put it along the center posts. Seventeen inches had to be cut off the passenger terminal so a two foot aisle could be put in around the other end. The rest of the layout was built from salvaged track and track boards or built new.

The layout is built as a walk-around design. I follow the train using Crest radio control while operating switches and block power at local control panels.

Almost all of the track is laid, and some scenery is in. Backdrops of 1/8-inch hardboard were hung from the center beam behind Waterbury and on the other side behind Port Jervis. They were painted sky blue, along with the basement walls. Clouds were dry brushed on with white paint. A suspended ceiling was installed with fluorescent light fixtures.

I grew up around the Erie and Erie-Lackawanna Railroad near Cleveland, Ohio. My father worked there his entire career, so it has been infiltrating my Connecticut & Ohio Railroad slowly. There’s a close affiliation, like the Chesapeake & Ohio and the B&O at one time. The E-L uses the Connecticut & Ohio to enter New England, and vice versa, the CO uses the E-L to enter Cleveland. The E-L runs the passenger service on the CO.

There are two interchanges between the CO and the E-L at Maybrook, NY and Port Jervis, NY. The E-L comes into Maybrook and then continues across the Hudson River on the CO, branching off to New Haven, CT. At Port Jervis, there is another junction with the E-L’s New Jersey line.

The E-L is a loop around the basement with two holding
Sept/Oct ’09 - O Scale Trains • 5

tracks hidden along the left side wall. The Connecticut & Ohio line is point to point between a reversing loop at the west end and a wye at the other end. The loop and wye tail track are used for staging trains.

Taking a trip around the railroad, we start at the CO East holding track which represents Providence, Hartford, Springfield, and Middletown. It has room for two 18 car trains, including engines and caboose. The trains are necessarily parked end to end, meaning that the farthest train must enter the holding track first before both trains are turned around. Trains are turned around by reaching over a low backdrop, which hides the holding track, and swapping the engines and cabooses.
From the holding track, we go through the wye and enter Waterbury. The six track yard features the interchange to Paul McKay’s South Guilford Railway with arrival and departure tracks and engine service tracks, an intermodal, coach, and caboose yard, a two track passenger terminal, and an industrial siding and a team track.

One switcher handles the classification yard and the interchange. Another switcher handles the intermodal, coach, and caboose yard, as well as the sidings and passenger terminal. Engines are turned using the wye, if necessary.

Westbound from Waterbury, we take the other leg of the wye and proceed to Danbury. Danbury has a long passing track from which the Danbury Power & Light Company siding branches off. At the far end of the passing track is another siding for the Railway Express, Muller Industries, City Litho Company, and Sanborn Lumber & Coal Company.

The junction with the Erie-Lackawanna’s line to New Haven is near the west end of Danbury. Off this line are sidings for the team track, Western Connecticut Co-Op, and interchange with Al Lagocki’s CNE Railroad.

After passing Danbury station, the joint line crosses the Hudson to Maybrook, NY where there is an interchange yard for the E-L. An Erie switcher works the yard and the industry sidings. The sidings serve Valley Oil Co., City Litho, the freight station, team track, EIS Automotive, and Farmer’s Co-Op. At the west end junction, the E-L line splits off to go west into two holding tracks.

The CO line continues west to Port Jervis, NY. At the east end is the junction to E-L’s southbound line. Here there is another yard classifying east and westbound CO cars, Maybrook, E-L southbound, and local industries, which include the team track, Horn’s Building Supplies, and the Brook Hill Farm Dairy. Engine service tracks take care of CO and E-L power. A small turntable turns locomotives as necessary.

West from Port Jervis Station, we continue into a reverse
loop with two holding tracks and three more tracks on a 10 foot long sector plate reached by a switch off the loop underneath Waterbury station. The other end of the loop holding tracks represent the E-L's southbound line as it enters the Port Jervis junction with the Connecticut & Ohio.

The loop holds two nineteen car trains including engines and caboose; and the sector plate holds thirty cars, but usually holds a twenty car freight train and a six car passenger train.

**Operations**

I learned that operating way freights, through freights, and passenger trains in a point to point fashion is more fascinating than just running trains in circles.

I operate the layout by a schedule, using a check-off list. There are fifty-four train movements per day, including local and express passenger trains, local and through freights. So I can come down to the basement any time whether it's for an hour or all day, and just look at the list to see what is to be run next. I even scheduled in two maintenance periods to force myself to tackle repairs or work on more extensive projects, like scenery, buildings or assembling locomotives and cars from kits.

The schedule was set up by writing down train movements as they were run, and modifying it when necessary. Entering the movements into my computer made changes easy. At the top of each new schedule is the effective date of the change.

Four columns to the left of the list are used for checkoff marks to give four complete “days” of operation (See Table 1).

Checkoff marks include “X” for on time, “L” if late, “O” for extra unscheduled trains, and “A” for annulations. There is no time, only the sequence set up by the schedule, so late just means out of the normal sequence. Extras are run if too many cars pile up. If the same extras are being run over four cycles, they may be included as scheduled trains in a new schedule.

**Car Cards and Waybills**

Freight and express cars each have a car card with the railroad name and number and type of car on top, and instructions as to where to send the car when it is empty. Foreign road empties get sent to the appropriate interchanges; home road empties get sent to the nearest yard. Each card is placed in a clear plastic envelope made from photo album pages. A waybill is put in the envelope over the card to hide the empty car instructions. The waybill is folded in two, one side tells where to send the empty car and on the other side is where to ship the car.

I just penciled in the spaces on the waybills as needed until no more were necessary. Sometimes I removed waybills if too many cars were arriving at the destinations.

I made up train cards for each train with the train's name on top and the departure and arrival cities printed underneath, placing them in the same type of envelopes as the car cards. A packet of cards for a train consists of the train card placed on top of the car cards, which are stacked in the order of the cars in the train. A rubber band holds them together.

**Portable Modules**

The Maybrook portion of the layout is made of portable modules, four of them, each 6 feet long and 2 ½ feet wide. They were built from the NMRA specs put forth in the '70s. My friends and I built a 24’ by 12’ double track loop layout with sidings using my two Maybrook Station modules. We used the proposed original specs with a 3 ½ inch track centers and an 8 inch setback from the front edge. We went with a 48 inch railhead height to help keep little kids' hands off the trains.

The NMRA approved 4 inch centers and a 6 inch setback. But we could connect with each other. Later on, I built the two Maybrook yard modules. At home the main line slants towards the rear of the yard modules, so the yard includes the two main tracks used for exhibitions. A double slip switch had to be built to accommodate the change from home to train show arrangement. The four modules are now exhibited with the MetroWest club, who built 2 foot transition sections to connect with my modules. The photo below shows an overall view of them looking west from the yard.

We usually set up a 60 foot long modular layout at the Hub Division's two day train show in Marlboro, Massachusetts the first weekend in December. We set up a smaller layout for a train show in Lowell, MA in the spring.

So that’s the story of the Connecticut & Ohio Railroad so far. There is still much fun ahead, I trust. There's lots of work and play to keep a retired widower busy.

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**Table 1:**

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>Remarks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WT1</td>
<td>Exchange cars between Waterbury and yard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHE33</td>
<td>Transfer Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EW83</td>
<td>Exchange cars between Waterbury and yard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC97</td>
<td>Transfer Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#16</td>
<td>The Owl, Local</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC97</td>
<td>Transfer Run</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: O - extra, X - on schedule, L - Late, A - Annulled effective Sept 13, 2008.

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We don’t normally do “theme” issues of O Scale Trains but the focus on track and wheels in this issue sort of came together by happenstance. Joe and I have talked about an online conversation he monitored over whether a finer profiled wheel would work on regular NMRA track. Then we got the piece from Gary Schrader dealing with that subject. Out of curiosity, I posted a question to the P48 Yahoo group wondering if the lack of ready-to-run P48 track and turnouts was a barrier to modelers considering P48. I’ll let you draw your own conclusions about the premise of Gary’s article and Joe’s thoughts from his column later on. I’ll just stick to the question of ready-to-run P48 track components.

My question drew a number of responses and I’ve included two that were typical. The first comes from Trevor Marshall who models in On2. Trevor is a long time contributor to Railroad Model Craftsman and his layout is superb in its quality and execution. Here are Trevor’s thoughts:

“I have used P48 for the wide-gauge connection on my On2 layout for the same reason that I’m using On2, and not On30, to model my freelanced Maine two-footer - namely, that I decided I wanted to do it as correctly as possible. I should stress that this is entirely my opinion. I know a number of people who have done a fine job of modeling a Maine two-footer in On30 and I absolutely appreciate what they’ve done. It’s just not the way I could do it and be happy. Having gone this route, I’m glad I did. Learning to handlay my own track (something I’d never seriously undertaken before) to tighter tolerances than RTR track from commercial suppliers would present more challenges than using Standard O.

The extra work involved means I’m learning something new and I’m happier with the results.

Given that, I think it unlikely that I would be happy with commercial P48 track, for the same reason that I’m unhappy with commercial On2 offerings. I like learning how to do this stuff myself, I like having the ability to adjust the track if I find I’ve built it incorrectly, and I like the fact that - if I have really botched the job - I can sand things back to the roadbed and start over.

What I do really, really appreciate in P48 is the cast frogs, guardrails and points. I acquired some from a friend who is doing a P48 layout and they made for the easiest turnout I’ve ever built. I wish someone did the same thing for On2 modelers, using Code 70 rail.”

It seems from Trevor’s thoughts that those who enter P48, or any kind of niche modeling, do so with their eyes wide open and are willing to deal with the headaches a lack of commercial products present. That attitude is characteristic of most folk I know working in this scale. For many working in P48, it’s the modeling challenges involved in working to higher standards that are the source of their enjoyment, a theme that ran through many of the responses I got. A different viewpoint is offered by Jim Wolf, also from the P48 list.

“I think the availability of well-made, prototypical, and accurate flextrack would be of some value to the hobby.

I am planning a large layout when I retire in 3 years. I could certainly use a whole bunch of Code 125 or Code 100 flextrack at that time in order to spend more of my modeling time on other projects. An advantage to Code 125 is that it is appropriate for yards, industrial and even some secondary main tracks. I think well made flextrack and turnouts in Code 125 would encourage growth in the hobby because we have tracks and wheels, and then we would also have the track. Track and wheels are the cornerstones of any real P48 growth, I believe. Code 125 track and turnouts as 100 lb. rail would be useable on any layout since even the PRR and Santa Fe had their share of secondary trackage. Sorry to ramble, but I just think at least some flextrack and switches would encourage others to try the hobby. Once hooked they, like me, will be inspired by the work of the master modelers already in P48.”

One could surmise that for modelers like Jim, time might be the real issue. Handlaid track in any scale does take a lot of time to do. My experience on the I&W showed that doing track right and including all of the details found on prototype track takes even longer. Even though I laid my own track, I also see the value in a line of well executed flextrack, and Code 125 would be an excellent choice to start with. However, I think the real barrier to a wider audience for P48 isn’t so much the lack of commercial track as it is the lack of direct exposure to P48 and lack of understanding of what prototype modeling is about. Maybe the lack of ready-to-run locomotives, especially steam, or other rolling stock could be a factor too. Who knows?

The lack of commercial track in any scale will be a barrier to some who, for whatever reasons, just don’t want to handlay track. Whether this is a barrier to P48 modeling for you or not, the real questions, as always, center on individual choice and what you want from this hobby. For those who are determined to pursue clearly defined goals like Trevor or who want to pursue a wider spectrum of activities like Jim, the only thing really standing in the way is your own unwillingness to do the work required. You can’t blame some poor manufacturer for that, can you?

Best regards,
Mike
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Track Maintenance

A Class 1 railroad like the BNSF has an entire department dedicated to the track and its supporting structures. System gangs such as Steel (rail) Tie, and Surfacing (roadbed) to name a few, are work groups that travel the entire system performing maintenance projects. Also each subdivision has patrol gangs plus surfacing and other work groups that handle regular maintenance on the main line as well as the yards and industrial tracks.

Shortline operations are usually different in the fact they may have a single maintenance group that handles all track projects. As an O Scale layout operator, once our track is down and in place our biggest maintenance project is usually keeping the ball of the rail clean to promote good electrical contact. The theme of this column is my version of an old idea: a home built track-cleaning car and methods I use to keep the track clean since this is usually a one-man show.

First thing, every model railroader should own is a Walther's "Bright Boy" track cleaner, and a track-cleaning car. While there are several commercial cleaning cars on the market, I'll explain how I built my own.

The cleaning pad is a piece of ¼" Masonite® hardboard. The mounting hardware is #8-32 x 1 ½" flat slotted bolt, nuts and flat washers available from any home supply store. I also use ½" tall springs with flat washers that slip over the bolt ends and ride against the car frame in order to apply a slight amount of pressure to the pad improving contact with the rail. The modified car is a Weaver 50 ft. boxcar, which is weighted and equipped with metal wheel sets and Kadee® couplers.

I started by cutting a 2'x4' piece of the hardboard into strips 4' long by 1-7/8" wide on the table saw. This produced about 11 strips. Next I cut the strips into 7 ½" long pieces beveled in toward the rough side at a 20 degree slope with a miter saw. This slope allows the pad to ride over any uneven rail ends or turnout frogs. You should get 70+ pads out of a 2'x4' sheet that costs 6 bucks.

Next I marked the centerline of the pad and drilled two 5/16" holes spaced 5 ¾" on center and 7/8" in from the ends of the pad. Use a hobby knife and cut a beveled edge on the two holes on the rough side of the pad in order to countersink the bolt heads. This prevents them from catching on turnout rails. Insert the two bolts from the rough side of the pad and secure with a flat washer and nut. You can repeat this process to produce as may pads as you wish at one time.

The finished pad is now ready to mount to the underside of the car. Using the pad bolts as a guide, center the pad from the underside of the car frame making sure you have equal clearance from each truck. Mark and drill 5/16" holes through the center of the car frame and floor so the bolts slip freely through the frame and into the open body space with a bit of slack to spare. This allows the pad to ride over any irregularities without derailing.

The last step is to install the springs and flat washers to the topside of the pad, weight the car floor and reinstall the car's body. You are now ready to install the pad to the car and place it on the track for a test run. Slight adjustments may be necessary if you encounter problems.

I've operated one car like this for several years with no ill effects. Recently I built several more so I could include a track-cleaning car in several different trains. Occasionally I'll spray the pad with "Gunk - Electric Motor Contact & Brake Cleaner" to assist in rail cleaning. This cleaner also works well on a paper towel or “Q-Tip” to clean locomotive wheels without any horrid smell or after effects. Last but not least, about once a year I clean the rail top with paste type silver cleaner polish, you will be amazed at the oxidation it will remove that you can’t see.

This project cost around 10 bucks and about 3 hours to produce several track cleaning cars, plus I now have a lifetime supply of pads. The nuts to fit ¾" bolts used for weights were free; bet you can’t guess where they came from, so until the next time: Clean track = Great operation.
Details Under Cover

In my efforts to build a loading dock for Vindex on the Chaffee Branch, I ran smack dab into the question of what to put on the dock? I know, I know, there are lots of detail parts like crates, boxes, barrels, oil drums and assorted railroad products that would be at home on any railroad facility.

But exactly what would have been ordered for that loading dock or town? To put it another way, who would be getting what from whom? So I started investigating what businesses were in town and what would be brought in by the railroad. This sounds like a case for Inspector Gumshoe, Railroad Detective!

On the Chaffee branch of the Western Maryland Railway, the Vindex station, also served as the general store, and the Post Office all rolled into one. Roads were nothing more than rough fire trails at best. Being a mining town, with some logging going on, most supplies would be geared towards that end. So what would we have?

We would have packages from REA, machinery parts for the mines and lumber camps, mail bags and all the things you would have in a general store from millenary, pots and pans, to brooms and tools.

How were they packed for shipment and delivery? Usually in rectangular wooden crates and boxes of all sizes and shapes. As a rule, you would not have a pallet jack, maybe a jib crane, and/or block and tackle. However manpower was the mode of the day for loading and unloading the dock.

A canvas tarp would be thrown over the items to give them some protection from the elements until they could be picked up. The making of a canvas tarp, has been covered (pun intended) several times in various craft publications by some eminent model builders and is relatively easy to accomplish. We will detail that later on.

It’s the details under the tarp we are dealing with now. We all have some details, and most of us have scrap building materials lying about be it wood, plastic or brass. I find it a shame to hide nicely detailed crates, drums, barrels, and boxes under a tarp. They are of better service out front where you can see them. What we are looking for is the illusion of that item under the tarp.

Take your trusty scale ruler and start measuring pieces of scrap material for possible use as crates, boxes, drums, and barrels (Photo 1). The sizes are 2’ x 3’, 2’ x 4’, and larger. Drums and barrels are about 3’ tall by 2’ in diameter in the middle, tapering to about 16” at the ends. Oil drums and spike kegs are about 12” x 18” to 2’ x 3’. Again the measurements do not have to be exact only close, once under cover the eye will imagine the size as correct.

Measure, mark off, and cut some scrap material. Glue and clamp pieces together to create the sizes of crates and boxes you want, Wipe off excess glue with a wet rag (Photo 2). Any wood glue will do if you are working with wood as I am.

To make the taper on the pickle and cracker barrels, place a piece of your round stock, into a drill chuck (Photo 3). I use a cordless drill, but any 3/8” drill will do. You can do it by hand, it just takes longer. Attach a piece of 100 grit sand paper to your work table, bench or just a block of wood. Sand a taper into the stock piece, at about a 35 to 40 degree angle, again it does not have to be exact, we are looking for the illusion of a tapered barrel. Paint exposed ends a wood color, and allow them to dry. If working with wood, a wash often times is all that’s needed to convey the effect.

After the pieces have dried, sand the sides smooth. Now assemble the pieces in a pile that looks like stacked crates, boxes, and barrels (Photo 4). Glue together and allow to dry.
Canvas tarps as a rule come in several sizes 8’x10’; 9’x12’, 12’x15’, and 20’x30’ are standard. Often times you will see cut up pieces of larger tarps for special purpose or reuse. Olive drab and tan were the most common colors.

Cut plain tissue paper to scale size tarp you want. Drape the tissue over the load and lightly spray with “wet water” (Photos 5-6). Apply a mixture of 50/50 “wet water” and white glue gently to the tissue and allow to dry.

Apply paint to tarps (Photo 7). I used Polyscale Sand and Olive Drab. You can choose any make you desire, but use a flat finish or cover with a matt medium afterwards. Allow the paint to dry, and spray with a shadow wash of 50/50 of India ink and denatured alcohol (Photo 8). Blot the excess with a Q-tip. You may need to do several applications. I suggest you allow each application to dry first before applying another one. Weather to taste and there you have it.

So, there’s a detail or two for your loading dock, or anywhere else on your layout, at virtually no cost to you but your time. •

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Got Trash?  William Nesbitt

I recently completed a siding to service a warehouse on my layout and sent a photo to a friend who is also a former brakeman. His response was: “Nice, but where’s the trash?”

Going back in my own memory 40 years, I do recall that most sidings and yard tracks did have trash, ranging from light to heavy, and sometimes hazardous. The trash in the Port Jersey R.R photo is light (Photo 1), but note the steel strapping band in the right foreground. Photo 2 is at Wilson Avenue in Newark, NJ. The catenary on the right is the former PRR Passaic and Harsimus Branch between Waverly and The Meadows. I would call this a moderate amount of trash.

It is very easy to make realistic looking trash (Photo 3). The cardboard appliance boxes are cut from a brown envelope. The GE logo is from an advertisement for appliance insurance that came in the mail. The other one is a wild guess what a Philco TV logo might look like. Bend the paper over a railhead and hold with a dab of glue stick. Don’t worry, they are too small to interfere with the loco’s electrical contact and they do look very realistic. Paper scraps of various sizes and colors can be scattered around. The black steel strapping bands are 1/64” ChartPak Graphic Tape which is or was used by draftsmen prior to CAD. A substitute is to place scotch tape on a piece of glass and spray it glossy black, then slice off thin pieces when dry (Photo 4). You could even use black thread. Discarded beverage cans are painted pieces of round toothpicks. Sticks and bits of wood were everywhere and were sometimes used by brakemen to hold a car in place on level track. An empty 40’ boxcar weighs over 20 tons so it doesn’t move easily. The stick was wedged between wheel and rail and when the car was coupled to, the stick drops off the rail and out of the way (Photo 5).

Another idea is to take a 1/2” piece of black insulated #20 wire, expose about 3/32” of copper, add a drop of solder, file one side flat, paint the solder a rust color and the hose grimy black and you have a discarded air hose. Drop it along the shoulder of the track. Take a look around. You will probably find lots of other things to simulate. Have fun with it!
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Make Tracks to SoundTraxx

I very much enjoyed Tom Mix’s article on DCC sound. I installed the original Soundtraxx sound decoders in my steam engines when they first came out. At that time, it was the best DCC sound available (and for awhile, the only sound decoders available), but it had certain limitations. The biggest problem, in my opinion, was that the exhaust volume was constant, whether pulling a heavy load upgrade or running downgrade. Fortunately, I had already installed low amperage Canon motors in two Overland Western Maryland H-9 Consolidations, so when the Tsunami decoders became available, I grabbed a couple and installed them. The decoders and speakers were an easy fit in the boilers. After a complete reading of the almost 70 page instruction manual, I started the programming process. There were a few false starts.

When I finally got the decoders programmed to my satisfaction, the sound was (and is) absolutely superb! When pulling a train up my 2% grades, the engines exhaust is loud and deep. As soon as the engine and about half of the train starts down grade the exhaust becomes much quieter and one can hear the clanking of the rods. There are, of course, many other features that can be programmed by the user, including the bell sounds, safety valve frequency, etc.

We have a round robin O Scale group here in the Washington area. A few weeks after I installed the Tsunami decoders it was my turn to host. As soon as the group heard the Tsunami equipped engines, three of them immediately ordered decoders. I have now remotered all three of them immediately ordered the Tsunami equipped engines, to host. As soon as the group heard A few weeks after I installed the group here in the Washington area.

quency, etc.

sion of the Tsunami is will be avail-

ers programmed to my satisfaction,

ers to avoid remotoring I suggest that

ers and sound great. They have two ver-

ners to the human spirit. All over the world there are architects who’d like nothing better than to annihilate existing wood, stone and marble structures to put up their own Tinker Toy visions slapped together out of concrete, plastic and glass.

So, I’d just like to thank you, the magazine, and many of your adver-

ers for the respect you continue to show to historical accuracy. This is difficult to find in the modern world. Gener Hersch, Spokane WA via email

Really Liked #45

I just received my July/August issue of OST and found it the best I have ever received. Warner Clark’s article brought us up to date on his engine service area, which was not finished at the Indy/National meet. Charlie Morrill’s article on lighting the number boards on his PFM SP Consolidation is something I have been putting off for several years. Joe’s article on loco modifications, John Gizzi’s rivet machine, and Larry Kline’s Atlas boxcar upgrades all had info I need and are right up my alley. Every article had something for me, and that is really unusual for any model RR magazine I buy. Thanks for a great issue. Jim Harper via email

About That On30 Railbus...

A check of Interurbans Without Wires (Edmund Keilty, 1979, ISBN: 0916374386) indicates the following: “1920 - one car for the Kanawa, Glen Jean & Eastern was built and later sold to the Buffalo Creek & Gauley RR. The trailer built for this order was made by the St. Louis Car Company (order #1278).”

The only Brill bodies were built for the Cape Fear RR (two motors, #18 & #19, and one trailer #20). Further, all motors had Wisconsin 62 hp engines.

It’s always fun to add to the confusion! Ron Diedrich, FL

Comments on Standards

The subject of standards and transparency does warrant pursuit. Your take on it was appropriate, and the comments timely. I was also interested in your comments regarding what locomotives manufacturers decide to build. In fact I think these subjects are interrelated.

Simply stated, one can assume a smaller prototype model can, and likely will run on smaller radius curves. This would, to a degree, nullify the radius usage/performance expectation issues larger steam models frequently cause us. Surely a typical Ten-Wheeler will get around 48” radius curves unless, as you note, the manufacturer is bent on an absolutely prototypical working equalization and suspension. This doesn’t suggest they are “off the hook” with respect to transparency, but does create some relaxation since they would not be building engines which operate at the very edge of curvature tolerance.

This leads us to the never ending matter of why they steadily build Big Boy and Allegheny’s. Why they build a dozen versions of popular

(continued on page 19)
More Kits from B.T.S.!

Company House
This company house was inspired by one from Pickshin, WV. The kit includes the piling to build it for a level surface or for a sloped location. Interior partitions are included as are positionable doors and windows. This kit consists of laser-cut basswood, plywood, and detail castings. Approx. Size - 31' x 35'.

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McCabe Lumber Co. MoW Speeder
An old boxcar body, a truck chassis, and some great planning on the part of the crew provided the main ingredients for a unique and handy speeder. The body kit consists of laser-cut basswood, plywood, cardstock, and brass, urethane, & white metal detail castings. And the driver, load, and decals are included. The fully-assembled mechanism is American Made by David Hoffman. It features a sheet brass frame, lost-wax brass end steps, NWSL gears and wheelsets. Scale 27' long over footboards. On3/On30 versions also available.

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Bridge Crane
Overhead bridge cranes were located at various places including the team track, large industries and the freight house. The model is a brass import. The hoist trolley is positionable on the bridge. Painted black and ready for you to simply hang the hook and chain on the hoist. Approx. Size - 20' wide with 16' clearance from ground to the bottom of the bridge.

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Elliott and Sons Supply
While it is a freelanced structure, the Elliott & Sons Supply was based upon a tomato packing house in Sarasota, Florida. As for the model’s use, well, that is up to you. The kit features laser-cut basswood, cardstock and plywood; tabbed, easy construction; loads of Detail Castings; laser-cut, self-sticking shingles & sashes; laser-etched nail holes; optional skylights; and a 40' x 60' Footprint.

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Anderson Pulpwood Yard
At the yard, small truck loads of pulpwood, small logs cut into about five foot lengths, are loaded onto pulpwood cars for shipment out to the mill. The Anderson Pulpwood Yard kit includes the office, storage shed, truck scale, oil drum rack, two wood racks, and metal detail castings. Office and scale footprint is 34’ x 40’.

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Evans Gondola
In 1975, the Southern Iron and Equipment Co. started building a 52'-6", 100-ton gondola. Evans took over SIECO and continued building the cars through December 1981. A total of 1,730 cars were built with three minor body variations. This model represents the second, and most common, version of the car.

The unpainted kit consists of high-quality, no-odor urethane castings for the one-piece body and separate frame, hidden weights, and brass & white metal brake components. Easy assembly with ACC or epoxy. Less decals, trucks, and couplers.

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MEC (#12720 $7.95) and CNW (#12721 $5.95) decals are available.

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prototypes, and disregard the myriad of smaller prototypes; the locomotives that we hobbyists are forever pleading for (but rarely get) from the big builders. We all recognize the economics of this quandary. It’s not rocket science that popular prototypes sell best and represent the most likely path to profits for a builder. The small population of O Scale modelers, and its potential for spending is apparently viewed insufficient to cause a greater diversity of what’s being offered. The precious few who test these uncertain waters and build us an oddity are going to charge a higher price to take up the slack in the fewer sales. Such is the state of motive power availability in 2-Rail O Scale unfortunately. A difficult egg to crack!

Since my comments are partially about operating these engines, whether they be a simple RS-1 road switcher or a complex Challenger articulated, I need to put in a final two cents here. I cannot fault a manufacturer for maximizing his production capabilities with crossover components as long as they do not compromise the integrity of the build in a way that makes the model into a design failure instead of that perfect little jewel. However, I can say that there will never be a good reason to accept poor performance characteristics for the sake of making it easier to build or protecting proprietary concerns. Two prominent examples here, first being the so-called China Drives which are so often a lousy performing arrangement that often run in a jerky surging fashion so unlike any locomotive would. This is O Scale, and such performance is just plain unreasonable. It doesn’t occur in HO and that’s smaller! Secondly, some versions of knuckle couplers just plain stink with unreliable coupling and frequent breakage in addition to minimal compatibility with more reliable couplers such as the ever popular Kadee. We 2-railers want and are willing to pay for better although many times we just want the quality we are already paying for, but not getting. Manufacturers please take note! We talk with our dollars.

Bob Ring, via email

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Coal dump trestles were common in most communities well into the 1950s. By the end of that decade, oil and gas was rapidly replacing coal as a heating fuel for homes and small businesses. Many coal yards were small and some were combined with a lumber yard. These businesses relied on local freight runs to bring in loads and take out empties throughout the heating season.

Coal sizes varied and were shipped in carload lots. The largest for home and business use was lump. This was followed by egg, nut, pea, rice and buckwheat, each smaller than the last. The smallest sizes were generally used in furnaces having automatic stokers. A small yard might offer three sizes of coal, each dumped into a separate trestle bay. Hopper cars on these trestles were often mixed among various regional anthracite carriers such as CNJ, D&H, DL&W, ERIE, L&N, LV, NYS&W, PRR and RDG. Railroads such as B&O, C&O, NYC, N&W and VGN were primarily bituminous haulers. It would be unusual to see one of their hoppers at a local coal dealer, even on their own lines. To be sure, there were always exceptions!

This coal dump trestle models a dealer who receives one or two hoppers at a time. Such trestles at larger dealers could hold as many as four or five cars. For modeling, simply make the trestle as long or short as space permits. However, it should be able to hold at least one large three or four bay hopper car.

The 1945-1955 B&O Maintenance of Way book, has a drawing for a concrete and steel coal dump trestle, which this model represents (See Figure 1, page 22).

A Berkshire Valley coal trestle kit was the start, but because of its location on my layout, the B&O plan was chosen instead, as it is open on both sides. Wood, plastic structural shapes and code 125 rails were used in this model. Most dimensions are in scale feet and inches with actual inches given as noted. Three changes were made to simplify modeling:

1: Rather than having the grillage (transverse) beams embedded in the tops of the concrete supports as shown in the B&O plan, they were mounted on top of the supports.

2: In place of back-to-back “I” beams for the grillage, a single thick “I” beam is used.

3: Instead of tapering all four faces of the concrete supports, only the sides are tapered.

The height of the concrete supports for your setting must be determined so that the track will be at the correct height when the trestle is finished. Coal dump trestles were generally between 6’ and 12’ in height from ground to the underside of the stringers (Photo 2).
B&O coal dump trestle drawing of 1947. The specification table shows the dimensions of members required for various sized and rated installations. These concrete trestles usually replaced older wooden trestles that had become unsafe. A B&O Railroad Historical Society drawing.

**Concrete Supports**

From 1/2" x 6" wood, cut five (or as many as needed) supports to the pattern shown in Figure 2. I used poplar because the lumber yard was a lot closer than the nearest hobby shop, over 40 miles away. Poplar is a fine-grained wood that works easily and takes paint nicely.

These supports must all be exactly the same size and shape. They were cut with a radial arm saw but a modeling table saw would also work well. The two batters (sloping end braces) were cut from the same material. The exact height of these supports must be calculated for your installation. To do this, measure the distance between the top of the railhead on the siding that will serve the coal trestle and the base of the scenery below. Subtract the height of the rail, plus a ½" for the stringers and another ¼" for the transverse beams. The result will be the needed height for the concrete supports.

The thickness of each support is a scale 2'. The top width is 10'. The batter, or slope on each side, makes the base of the support one foot wider than the top, at 11'. The side slope is about 1 degree of angle from vertical. Maximum height for concrete supports according to the B&O plan is 12'. If your installation needs supports that are shorter than 12', move the bottom line up accordingly. Use the first support as a pattern for the others.

The two end buttresses have a slope of 4" per foot. For a 12' long batter, the base is 4' wide. They are 1'6" thick according to the specifications. I thinned a small piece of the ½" thick wood by about 1/8" on a belt sander for these parts. They can just as well be made with ½" thick stock.

Draw both end batters full size on the wood. If they need to be shorter, move the bottom line up accordingly so they will match the height of the supports. The slope is about 19 degrees of angle from vertical. Each batter is glued a scale 1'9" in from the topside edge of the concrete support.

The supports were painted a concrete color. In this case, a quart of inexpensive paint mixed to a color called Sahara Sand. Afterward, each support was given a thin wash of black acrylic artist's paint for a dirtied, streaked look.

The Berkshire Valley kit's stone wall was used as a retaining wall at the end of the railroad embankment. This trestle was modeled as a replacement for an older wooden one. Using wood for modeling a concrete retaining wall would also be appropriate.

**Steel Frame Work**

Specifications from Table A of the B&O plan were used for a trestle with 15' spans. Here, the stringers are 2' deep. The struts or spreaders are 1'3" and the grillage beams are 1'.
Instead of trying to model back-to-back “I” beams for the grillage, I made them from 16’ lengths of Plastruct’s thicker ABS “I” beam. This trestle can be made longer if needed. Preferably, the length should be in multiples of twin bay hopper cars. The styrene “I” beam stringers I used are 15” long. Add length by cementing additional “I” beams as needed. This joint should be placed where it will be on one of the grillage beams. Splice plates made from 0.020” thick styrene can be cemented over the butt joint on the outer side. A strut, or spacer, will be inside. Stagger the extension joints of these stringers, so they are not on the same grillage beam in the finished structure. Make sure the end cuts are square and true.

The spacers that fit between the stringers are made from 5/16” styrene channel cut 1-7/32” long. Test fit the first strut. Make certain the “I” beams are centered under the track rails. I used a short scrap of prefab track for this. Struts are located directly over each concrete support, with two others evenly spaced between them. Check the B&O diagram to see which way each strut channel faces. Cut as many as needed for your trestle, taking care that they are all exactly the same length and have square-cut ends.

Mark the stringers with a pencil where each concrete support will be placed; with one at each end and the other supports evenly spaced between them. In no case should centerlines for these supports be more than a scale 16’ apart.

Cement struts between the ends of both “I” beam stringers with their backs facing out. Make sure they are centered top to bottom on the “I” beam walls and that the assembly is square and flat. After these end struts have dried, the intermediate struts can be installed. Make sure they are evenly spaced, and face in the correct directions.

The grillage, or transverse beams are next. One is needed for each concrete support. These are made from ¼” ABS “I” beams cut 16’ scale feet long. Cement one to each end of the steel work assembly. Take care that they are square, centered on the concrete support marks on the stringers and have an even overhang on both sides. This is a bit of fussy work. Using a small machinist’s square and ruler will help. Once the end beams are in place, the intermediate beams can be attached, taking the same precautions.

The steel framing is ready for paint. Rustoleum high-heat flat black was used because it dries quickly to a flat, dark charcoal hue and does not harm styrene. Due to all the little nooks and crannies in this assembly, it took a few coats to make sure everything was covered.

After the paint dries, any desired weathering or rusty streaks can be applied. Cement the finished concrete supports to the underside of the grillage beams. Take care that they are set square and the overhang of these beams is equal on both sides (Photo 3).

A 1/4” square by 1 ½” long wooden stop block with a 3/32” wide chamfer on one edge fits under the curved rail ends. A 3/16” wide and 3/32” deep notch was cut into the top side to clear Kadee coupler pins and then it was stained or weathered. The retaining brace is 1/8” x 1/8” styrene angle cut six scale feet long. Painted flat black, it’s glued to the outer face of the block as shown. The stop block and retaining brace are cemented to the outer end of the trestle, and centered with the edge of the “L” brace flush with the end of the steel framework (Figure 3).

Fitting The Rails

The rails are about two inches longer than the trestle. This allows them to be spiked to the roadbed. The outer rail ends are curved upward, following the B&O diagram. This is done by clamping the rail in a vise and heating the end to be bent with a torch until it glows yellow (Photo 4).
With pliers, bend the glowing end up into a curve taking care it does not twist as it is bent. Cool by dipping it into some water. Check the bend and the length of the curve after both rails are done. Trim the ends and cold bend to make any final corrections so both rail ends match.

Clean and paint the sides of the rails or if pre-weathered, touch up the heated and bent ends. Be sure the bottoms of both rails are clean and free of paint where they will be glued onto the stringers. Using a track gauge, cement the rails to the stringers with Walthers GOO using a Micro-tip. The curved ends of the rails should rest against the chamfered edge of the stop block.

**Foot Walks, Railings and Ladders**

Foot walks were made from 3/32” x 1/4” stripwood, cut so they span each bay. The butt joints and ends are on top of grillage beam spiking pieces. These spiking pieces measure a scale 4” x 8” x 24” and are made from the same stock. The grain runs lengthwise. Cement a spiking piece on the top ends of each grillage beam as shown in Figure 4.

Foot walks and spiking pieces were stained with thinned Rail Brown paint and weathered with chalks. Marks were made with a pointed tool to represent bolt heads and the boards were glued in place on both sides of the trestle (Photo 5).

**Installation and Final Details**

The trestle was temporarily located on a 1/8” plywood scenery base painted an earth color. The trestle rails were matched to those on the embankment and trimmed as needed. Index card shims were fitted under any concrete support that needed better footing and marked as to location. Spaces for the concrete supports were marked on the scenery base by drawing around each with a pencil. Masking tape was applied over the support marks and the area was sprayed with thinned white glue, and then model coal and grit was applied for ground cover. When dry, the tape was removed. For securing the trestle to the layout, holes for 1/2” #4 wood screws were drilled though the scenery base into two of the concrete supports.

On re-installing the coal trestle, the previously marked shims were slipped into place under the supports. The rail height and level was checked again and the track and trestle rails were spiked in place. A block of wood and a piece of real B&O rail used as an anvil was placed on the trestle for a weight (Photo 6).

Working alone on this project, nine pounds of B&O rail firmly held the trestle in place while putting in the fastening screws from under the layout.

A bit of touch-up with a small brush, thinned white glue and more coal was added to blend it together. This included putting some spilled coal on top of the struts between the stringers and on top of the concrete supports.

A coal pile in the second bay was made from a 4x6 index card, cut and glued to a conical shape. The sides were trimmed so it would fit inside a bay. The cone was sprayed with flat black paint. When dry, a spray of thinned white glue and covering of coal was applied (Photo 7).

The B&O plan does not show handrails or ladders to the ground as they were not always used. However, they were sometimes required by local building codes. The length of this trestle fits the handrails in even sections. As with the steel framing, the end ladders and railings were painted flat black before cementing them in place. The ladders were left off until the trestle was in its final place on the layout.
The scale house/office and scale platform are Berkshire Valley items. Similar structures can easily be made from wood and/or styrene, or adapted from other small models (Photo 8).

More coal yard details are needed. They will include a few workers, a chain-link fence with gates, equipment shed, a loading conveyor or a tractor with a front bucket loader, a gas pump, light pole, more weedy shrubbery and one mean-looking guard dog.

---

**MATERIALS AND SUPPLIES:**

- One 2' piece, ½" x 6" clear, fine grained wood. Be sure it is really ½" thick!
- Plastruct B-8: ¼" ABS I beam 24" long, one needed. No 90024 for a pack of 4.
- Plastruct CFS-10: 5/16" styrene channel, 15" long. One needed.
- Plastruct AFS-4 1/8" styrene angle 15" long. One needed.
- Plastruct 90473 ABS handrail, 24" long. Two or more needed. No pack available.
- Plastruct KL-8 ABS ladder 15" long. One needed.
- Plastic-Weld cement
- Walthers GOO Micro-tips
- Two lengths of rail 2" longer than the trestle are needed. Because the rails will be heated and bent on one end, code 125 or smaller will work best.
- Two rail joiners and a dozen or so spikes
- Short scrap of pre-fab track
- Three point track gauge
- Model coal (HO coal is good for modeling finer sizes of anthracite)
- Dirt or grit (I used some sifted concrete driveway sweepings)
- Water-based white or scenery glue with a spray bottle
- Small artist’s brush
- Concrete color paint
- Earth color paint
- Flat Black spray paint
- Black water-based acrylic artist paint
- Rail Brown paint or weathering compound
- Weathering chalks
- Stripwood, 3/32"x 1/4" x 24" Four pieces for a 15" (60') trestle.
- Stripwood ¼ x ¼ x 3" One piece.
- Two ½" # 4 RH wood screws
- Two or three index cards
- Pliers
- Propane torch
- Vise
- Work gloves

---

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I would like to present an argument and specification for improved wheel profiles in O Scale. The NMRA 0.175" wheel profile is truly ancient history, and very few importers or domestic manufacturers actually adhere to it anymore. In this discussion, I will explain the three components of wheel gauge. Most modelers and some manufacturers simply do not understand how complex this subject really is, let alone understand how it interacts with the wheel profile. This has led to many models, domestic and imported, having problems running on NMRA trackwork. If you have laid your track in accordance with the NMRA specification, you have every right to assume that any O Scale model manufactured anywhere will run properly on your layout.

by track gauge. First of all, you have to realize that there are a myriad of different wheel profiles which will work just fine on NMRA standard track. I personally run NMRA .175 standard wheels, imported .160 profile wheels, and NWSL .145 profile wheels simultaneously on my layout with no problems. I have also tried NWSL .118 profile wheels, which are nearly exact scale wheels like P48 modelers use except they are gauged to run on 1-1/4" track. The key is making certain that the wheelsets are gauged correctly based on their wheel profile.

So that I do not lose anyone in my terminology, Figure 2 shows what I mean by such terms as the outside and inside of flange. Notice that “inside” always means nearer the centerline of the track, while “outside” always means farther from the centerline of the track.

So what, exactly, do we mean by wheel gauge? Many modelers assume that we are talking about the back-to-back spacing of wheels. Others think it is the distance from the outside of one flange to the outside of the other flange. Very few people realize that there are three critical measurements that determine wheel gauge. It is important to realize that as long as you satisfy those three elements of wheel gauge, any reasonable wheel profile will work just fine on NMRA standard track. But if you fail to satisfy even one of them, it will not work. The three elements of wheel gauge are:

1. The distance from the outside of one flange to the outside of the opposite flange.
2. The distance from the outside of one flange to the outside of the opposite wheel treads.
3. The distance from the outside of one flange to the inside of the opposite flange.

I will refer to these as Wheel Gauge 1, Wheel Gauge 2, and Wheel Gauge 3. I cannot stress enough that all three must be met in order to guarantee that a given wheel profile will run properly on NMRA track.

Figure 3 illustrates how to measure Wheel Gauge 1 and how it relates to track gauge. Wheel Gauge 1 determines whether or not the flanges on the wheelset will fit between the railheads. Since the distance between the railheads can be as little as 1.250” and still be within specification, Wheel Gauge
1 must never be greater than 1.250°. If Wheel Gauge 1 is at its maximum of 1.250° and Track Gauge is at its minimum of 1.250°, the flanges will just barely fit between the railheads. Anytime Wheel Gauge 1 is allowed to be greater than 1.250°, there is the possibility that a flange could be forced out of the railheads even though the track itself is within specification.

The second component, Wheel Gauge 2 (Figure 4), guarantees that wheelsets will not drop between the railheads even when the track gauge is at its maximum distance. Since NMRA track can be gauged as great as 1.285°, Wheel Gauge 2 must be no less than 1.286°. In Figure 4, the shelf gauge is at its maximum of 1.285° and Wheel Gauge 2 is at its minimum of 1.286°. As you can see, the wheelset cannot quite drop between the railheads.

The third component is Wheel Gauge 3, shown in Figure 5. It is referred to by the NMRA as “Check Gauge” and is the least understood. This element guarantees that your wheelsets will pass smoothly through turnouts without bumping or even picking the frog point and causing a derailment. It does this by guaranteeing that the guard rail is far enough away from the frog point that the left wheel flange, as shown in Figure 5, will hit the guard rail, thereby preventing the right wheel flange from doing little more than barely touch the frog point. This is, of course, at the extremes. If the track’s check gauge is any larger than 1.179°, or if the wheel’s check gauge is any smaller than 1.179°, then the right wheel flange is pulled even farther away from the frog point so it cannot even touch it. Please note: Even though the value is the same for both track and wheels, for track, it is the minimum allowed and for wheels, it is the maximum allowed. Those are two entirely different specifications; so do not confuse them as being the same.

It needs to be noted at this point that any reasonable wheel profile that can be made to meet the three parts of wheel gauge specified above will work on NMRA standard track without requiring any modification whatsoever to the track. There are a lot of old wives’ tales running around in the O Scale community about how you cannot use finer wheel profiles on existing track. That is utter nonsense. I will show below how much finer a profile, what I call the .145 Wheel Profile, will work splendidly on NMRA track. Again, if your trackwork does not meet the NMRA standards listed above, you have no right to complain about any wheel profile, right on down to exact scale wheels. It is your fault if those wheels do not work when properly gauged. Fix your trackwork. All that is necessary is to apply a proper specification to any given wheel profile that guarantees the three elements of wheel gauge are met over all allowable production variations. I will show in illustrations below exactly how that works for the .145 Wheel Profile.

Let us define what the wheel profile number means. It is the nominal (or design) thickness of the wheel as measured from the outside of the tread to the inside of the flange. On the prototype, this is 5.625", which translates to 0.117" in O Scale. An exact scale wheel would have a .117 wheel profile. The NMRA standard wheel is .175, which means it is 0.058" thicker or 50% oversize.

For over 20 years now, many importers have been using what I term a .160 wheel profile. There was an early attempt by Westside Model Company in the 1970s to introduce a more realistic looking wheel. Unfortunately, the Korean manufacturers and the importer did not understand the three components of wheel gauge and the resulting wheels were gauged too narrowly and would actually fall between the rails on some layouts. These wheels had a .145 profile similar to the drawings in Precision Scale Company’s O Scale Parts Catalog. Many people concluded, erroneously, that .145 wheels were too narrow and settled on .160. An exception was Northwest Shortline, who continued making their very fine 0.145" wheelsets.

What NWSL realized was that the .145 wheel profile was not to blame for the problem. The error was in the way that the Koreans measure wheelsets for gauge. They always measure back-to-back (the back of one wheel to the back of the other). Of course, this makes perfect sense for manufacturing. The problem enters when one fails to recognize that changing the wheel profile requires changing the back-to-back spacing of the wheels. That was the reason the original effort at using the .145 wheels was unsuccessful. The reason the .160 wheels were immediately successful was that the slightly wider profile could get by without changing the back-to-back spacing of the wheels, even though that really should have been done.

Notice that none of the three components of wheel gauge is the back-to-back measurement that the Koreans and other manufacturers commonly use. That measurement actually depends upon the wheel profile used. Specifically, it is dependent on the tread width and flange width chosen. Assuming the manufacturer controls all the other dimensions closely, the back-to-back measurement is completely valid and is much easier to use in manufacturing than doing all the other measurements. However, the back-to-back dimension must be specified based on the tread and flange widths of the particular wheel profile chosen. It is not a fixed number and is dependent on the variation allowed in the tread and flange widths.

The drawings below are all done using the .145 specifications at the end of this article. Figure 6 shows the ideal situation where all the dimensions are exactly in the middle of the specification (the nominal). We usually talk about having a five

![Figure 4: Wheel Gauge 2 Illustrated](Image)

![Figure 5: Wheel Gauge 3 Illustrated](Image)

![Figure 6: Illustration of Nominal .145 Wheel Profile](Image)
pressed completely against the left railhead, the right wheel
down between the rails. Notice that when the left flange is
\[ = 1.305 \text{ in} = \text{minimum flange thickness} + \text{minimum wheel thickness} \]
calculated below:

calculated between the front of one flange and the front of
the other flange using the .145 wheel profile is calculated as
below:

\[
\text{Maximum Wheel Gauge 1 dimension} = \\
\text{maximum back-to-back + two maximum flange thicknesses} \\
\text{Maximum Wheel Gauge 1 dimension} = \\
1.132 \text{ in} + 0.082 \text{ in} = 1.220 \text{ in} \\
This maximum distance of 1.220" is still well inside the
distance between railheads as seen in Figure 7. In other words,
with all dimensions at their worst case, there is still 0.030"
of play left for the wheelset to slide back and forth
between the railheads. There will never be a problem
with the flanges not fitting between the railheads.

Figure 8 illustrates the opposite extreme in the specifications
which is addressed
by the requirement of Wheel Gauge 2. When the track gauge
is at its absolute minimum of 1.250", the flanges still need to
fit between the railheads. The greatest distance that can be
achieved between the front of one flange and the front of
the other flange using the .145 wheel profile is calculated as
below:

\[
\text{Minimum Wheel Gauge 2} = \text{minimum back-to-back + minimum flange thickness + minimum wheel thickness} \\
\text{Minimum Wheel Gauge 2} = 1.126 \text{ in} + 0.037 \text{ in} + 0.142 \text{ in} = 1.305 \text{ in} \\
Since 1.305" is greater than 1.285", the wheels cannot fall
down between the rails. Notice that when the left flange is
pressed completely against the left railhead, the right wheel
overlaps the right railhead by 0.020". Therefore, there is
no way that 0.145 wheels can ever drop between the railheads.

Figure 9 illustrates the more complex
situation of Check Gauge. What is happen-
ing here is that the back side of the
left wheel flange is riding up against the
guard rail; so the wheels cannot move
any farther toward the frog point. On
the right side, the
front of the flange
is just missing the frog point. This situation guarantees that
the right wheel cannot hit the frog point and either bounce over it or slide to the right causing a derailment. Obviously, this is
important for good operation. For O Scale, this is 1.179". For
trackwork, that is the minimum distance allowed. For wheels,
it is the maximum allowed. For the 0.145 wheel specification,
Check Gauge is calculated as:

\[
\text{Maximum Wheel Gauge 3} = \text{maximum back-to-back + maximum flange thickness} \\
\text{Maximum Wheel Gauge 3} = 1.138 \text{ in} + 0.041 \text{ in} = 1.179 \text{ in} \\
Since the absolute maximum number is 1.179", the .145
specifications satisfy this third requirement also. There is no
way that .145 wheel specifications will ever have trouble with
NMRA standard turnouts. Hence, I am recommending adop-
tion of the .145 Wheel Profile specifications at the end of this
article by importers and domestic manufacturers. You will be
giving the modeler a product that entails little risk of opera-
tional problems.

Already, two importers have made the switch to these new
wheelsets and customers have been really impressed with the
appearance and operation of them. All the recent Key Model
Imports SP GS-1 and GS-2 4-8-4 steam engines were so
imported, and Key has committed to using .145 Wheel Profiles
on all future products. The wheels look so good that a few
people mistook them for P48.

The latest Wasatch passenger trucks also use these wheels.
These spectacularly nice trucks look and operate even better
with the new wheelsets. Other manufacturers are considering
switching as well. There has been so much actual use of these
.145 wheels that the NMRA should seriously consider adopt-
ing this specification as at least an alternative and, preferably, a
replacement for the existing specification*. Certainly no previ-
ous NMRA standard has ever received such extensive testing
prior to adoption.

**Proposed O Scale 0.145” Wheel Profile Specification**
(Figure 10)
• This specification applies to O Scale, standard gauge
model railroad wheels.
• All dimensions shown in both inches and millimeters for
the convenience of the builders.
• All wheel dimensions must fall within the minimum and
maximum limits shown in the table and drawing on Page 30.

(*In fact, as of July 3, 2009, a 0.145” wheel design was
added to the NMRA specs and approved by the BoD - Joe)
<table>
<thead>
<tr>
<th>Measured Dimension</th>
<th>Minimum Allowed</th>
<th>Nominal (Best)</th>
<th>Maximum Allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange Depth</td>
<td>0.033 in / 1.09 mm</td>
<td>0.035 in / 1.14 mm</td>
<td>0.037 in / 1.19 mm</td>
</tr>
<tr>
<td>Flange Thickness</td>
<td>0.037 in / 0.95 mm</td>
<td>0.039 in / 1.00 mm</td>
<td>0.041 in / 1.05 mm</td>
</tr>
<tr>
<td>Total Tire Width</td>
<td>0.142 in / 3.50 mm</td>
<td>0.145 in / 3.68 mm</td>
<td>0.152 in / 3.86 mm</td>
</tr>
<tr>
<td>Back-to-Back Wheel Spacing</td>
<td>1.126 in / 28.60 mm</td>
<td>1.132 in / 28.75 mm</td>
<td>1.138 in / 28.90 mm</td>
</tr>
<tr>
<td>Tread-to-Flange Fillet Radius</td>
<td>0.018 in / 0.45 mm</td>
<td>0.020 in / 0.50 mm</td>
<td>0.022 in / 0.55 mm</td>
</tr>
<tr>
<td>Flange Radii R2 &amp; R3</td>
<td>0.021 in / 0.53 mm</td>
<td>0.023 in / 0.58 mm</td>
<td>0.025 in / 0.63 mm</td>
</tr>
<tr>
<td>Wheel Tread Taper</td>
<td>2.8 degrees</td>
<td>3.0 degrees</td>
<td>3.2 degrees</td>
</tr>
</tbody>
</table>

For two or three-rail. Comes in straight, 0-54 (27°r) and 0-72 (36°r) curves. Two sets per package. Straight: $17.95/pkg; curved $19.95/pkg.

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<thead>
<tr>
<th>Item Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>323 3-Drum Steam Hoisting Engine O</td>
<td>80.00</td>
</tr>
<tr>
<td>505 The Weekly Record O</td>
<td>66.95</td>
</tr>
<tr>
<td>503 Bill's Place O</td>
<td>62.95</td>
</tr>
</tbody>
</table>

**Main Street Heritage Resin Kits**

- 5 x 9-1/2" w/ boardwalk
- 5-1/2 x 8" w/ sidewalks
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**2005**

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- 2011 Pool Hall with Table O (5.25 x 6") | 69.95 |

**308 Fixed Boom Crane O**

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**308 Boom Crane O**

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- Wvr
- 40' & 50' flat cars
- Stock cars
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- $52-$55
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- RV, SF, UP, NW, Rdg
- B&M, MEC, PRR
- $28
- Atlas Track
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- 3 rail steel
- Industrial Rail
- Locos cars trolleys sets track
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- e-mail us: mtdrain@earthlink.net

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- 30+ roadnames
- 40'+
- 50'+
- 60'+
- 70'+
- 80'+
- 90'+
- 100'+
- $50-$119/car
- Head end sets
- $359
- SW's
- $199-$359
- RS-1's, GP 7/9
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- F-3's
- $249-$289
- SW's
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I was visiting my friend Mickey, a fine O Scale modeler with an extensive collection and the start of a very nice layout. About the time I was leaving he gave me an old Simpson blue box full of wooden pieces and some On3 trucks. I excitedly took my new treasures home to see what I had. I inspected the wooden pieces and discovered that I nearly had all the pieces to build a standard gauge flat car. Cool! I have wanted to build a MoW flat car for my railroad and the old Simpson kit would be a perfect starting point, even though I would have to add a lot of castings and some wood pieces.

These kits are not readily available anymore, but can be found on eBay, at conventions, model railroad swap meets or at estate sales. They can be costly but this is a very simple car to scratchbuild. Here is a cut list of the pieces needed to build this car.

- Side sills - 6” x 12” x 34’ 6”
- Intermediate and center sills - 4” x 12” x 34’ 6”
- End Beams - 6” x 12” x 9’
- Body Bolsters - 8” x 15” x 8’ 3”
- Buffer Block - 6” x 8” x 2’ 9”
- Needle beams - 4” x 8” x 8’ 3”
- Coupler draft gear - 4” x 8” x 5’
- Decking - 2” x 9” x 9’
- Stakes - 3” x 3” x 2’
- Side Boards - 2” x 12” x 34’ 6”

Even though I started with an old kit, I had to cut several missing pieces. So in a way, this is more a scratchbuilt car than a kit built. I cut these pieces on my table saw with a veneer blade.

Since there was no instruction or a set of plans, I needed to draw something to use for building my car. Now I’m no draftsman, but then you don’t really need to be one to develop a simple plan. My first step was to check my photo collection to see if I had a flat car I could use for a guideline for my drawing. I found a picture of a Dardanelle and Russellville flat car that fit my needs (Photo 1). I designed the car based on the parts I had in the kit. My car ended up being 36’ 6” long and 9’ wide. As you can see in my plan (Figure 1), I simply made a line drawing showing the locations of the sills, the end beams, needle beams and the body bolster. I also made a drawing that shows the location of the stake pockets. This is really all that was needed to assemble my car. The other details were located using plans and pictures I have of other cars and general knowledge. This is especially true when building a freelance car like this one.

Now that I had a plan and all the pieces cut, I started the weathering. I first gave each piece a wash of Builders in Scale “Silverwood”. When dry I decided they were too gray, so I gave them a very thin wash of Brown Oxide Apple Barrel craft paint. This gave me the tone I wanted and made the pieces look like they were very weathered with a little paint residue remaining from better days. Next I started adding the many nut-bolt and washers (NBW) needed for a wooden car. There were many repeated drilling operations. So, to help with locating the holes, I built some simple jigs out of scrap styrene. Making jigs is simple and can greatly help with building a model (Photo 2). Several of the jigs were made by simply cutting a piece of styrene “I” beam to length, removing one side of the flange, adding stops and drilling the hole arrangement. By using an “I” beam, I was able to use the jig...
on either end of the piece I was drilling by simply turning the jig over.

After completing the drilling operations, I decided to complete the detailing of the various pieces before I assembled the flat car frame (Photo 3). I needed to make the queenposts for the outer paired truss rods. I did this by modifying a pair of Grandt Line 10 inch queenposts. I cut the end of one queenpost even with the end of the post and the other at the edge of the casting so the end would be square, then glued them in place (Photo 4).

With all the parts detailed to the level I wanted, I took the plan and pinned it to a piece of Foamcore (Photo 5). Before gluing make sure you add the air line and the pipe fitting as it is really hard to add them after the frame is assembled. With everything ready I glued the frame and then I added the truss rods. The kit came with monofilament fish line which I used for the truss rods. With the truss rods done, I added the decking and side boards to hold the parts, tools, etc. which would

be on the car in service.

Since there was no hardware with the kit, I dug through my parts box and was able to find enough pieces to assemble the brake rigging. I decided on K type brakes and could have used a Grandt Line 8"x12" cylinder, but I used a standard gauge cylinder from San Juan Car Shops which is larger. For the rest of the brake system I used Grandt Line parts, except the air hoses which were from Backshop. I had to modify the air hoses to install them. The Backshop air hoses come with a long pipe section and a union. I didn’t need that; so I cut the casting, leaving a short piece of the air line remaining and I made a pipe coupling out of a piece of tubing (Photo 6).

For couplers I chose San Juan Car Shop’s AAR type E working couplers and a set of brass coupler lift bar brackets to pull the pin. To mount the couplers I had to build a special mounting system to hold them in place. This consisted of a piece of plastic that I glued between the centersills to form a mounting block. Next I drilled that block and added a piece of tubing the size of the coupler mounting hole. I then added a cap held in place by the coupler pocket straps.

The car I based my model on had Fox trucks which I really wanted to use. However, the only pair of Fox trucks available is from the old IHC Casey Jones 4-6-0 kit which is long out of production. I found a pair of San Juan Car shops P-48 Vulcan trucks in my parts box. I decided they would work and give the car a modernized look (Photo 7).

This was a fun project. Thanks Mickey! One of these days I will fill the decking with tools and parts used for railroad maintenance work, but for now it’s done.

Materials and Parts List

- Simpson Standard Gauge flat car kit (can still be had on eBay or hobby shops)
- Simpson 0.015 x 3’ brass strip stock
- NWSL P48 33” wheels for San Juan Car Shops trucks
- San Juan Car Shops - Vulcan trucks
- San Juan Car Shops - AAR type E couplers
- San Juan Car Shops - K brake cylinder
- Grandt Line - pipe fitting set
- Grandt Line - brake cylinder release set
- Grandt Line - brake detail set
- Grandt Line - brake wheel
- Grandt Line - coupler lift bar brackets (brass)
- Grandt Line - turnbuckles
- Grandt Line - 10” queenposts
- Grandt Line - 1¾ nbw
- Grandt Line - 1½ nbw
- Grandt Line - single U-bolt stake pockets
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The history of our hobby has seen a consistent and growing trend toward greater accuracy in modeling standards. As manufacturing abilities have increased and become more cost-effective, better models made to more precise tolerances keep coming to market. You don’t have to go back in time very far to the days when just getting models in any of the popular scales to stay on the track or run smoothly was a major focus of one’s hobby activities. However, even in those early days, there were those who had a vision of track and wheels that looked and operated as well as the real thing. In O Scale, finescale modeling or P48 has been around for over forty years, yet there still seems to be a lot of mystery and confusion about this aspect of O Scale. If the comments and questions I hear on-and-offline are any indication, a closer look at the basics of P48 modeling are in order.

**Definition and Bit of History**

Just what is P48? The term refers to a set of dimensional standards that defines a wheel profile - the flange depth, the width of the tire and the tread angle - all taken directly from prototype specifications in this case, the Association of American Railroads, or AAR. It also defines the correct track gauge of 4’8-1/2”, as opposed to the NMRA gauge of 5’ (Photos 1-2). This also includes the correct flangeway clearance and depth for turnout and crossing frogs and guardrails, along with the proper spacing of switchpoints, which again are a major refinement of the NMRA dimensions for standard O Scale (Photo 3, page 40).

As many of you may know, P48 got its start in the 1960s and at the time was known as 1/4” AAR. Some of the earliest supporters were Lee Klaus, Al Henning and Bill Clouser among others. These pioneering modelers had to work entirely from scratch, manufacturing their own wheels and other needed parts since no commercial components were available at the time. In fact, a set of cohesive, prototype based standards for O Scale had yet to be established by anyone. Their efforts and the work of others, who were inspired by the...
possibilities, gradually began to get the attention of the model press of those days. Many of you will remember the articles by Lee Klaus on converting standard O gauge locomotives to the new prototypical tolerances, and who could ignore the magnificent traction models with accurate wheels Bill Clouser was building in the 1960s? Perhaps most significant was the first publication of prototype based dimensional standards by Bob Brown in his *Finelines* magazine.

In time, accurately dimensioned, commercially made wheelsets became available from individuals like Bill Clouser and companies such as Grandt Line and Northwest Shortline, making this refined level of modeling more accessible. Today you can get trucks and replacement wheels from a number of sources, along with track components making the entry into P48 relatively easy. There are several websites devoted to P48 modeling that are excellent resources for information such as the [Proto48 Modeler](http://www.p48.org) and the P48 Yahoo group [http://groups.yahoo.com/group/p48_modeler/].

**A Concept and a Commitment**

During the 1980s, much work was done to encourage the NMRA to recognize and formalize 1/4"AAR Standards as an alternative to 1-1/4" gauge. The term Proto48 came to be understood as a concept that encompassed accurate modeling of the whole scene, including the detailing of the track and right-o-way, as well as the rolling stock, which included accurately modeling the entire car with regard to details like ladders, grab irons, brake systems and running boards - parts that were often grossly oversized or even non-existent in some cases. P48 is a commitment, too, in the sense that more work will be required to convert ready-to-run cars and locomotives (especially steam) to prototype based standards. Gene Deimling, a well respected P48 modeler, relayed the following: "There wasn’t much available in the late 1960s in the way of finely detailed kits for either locos or cars. Scratch-building became a necessity rather than an option. Today, you can get accurate models without resorting to building. You still have to make the effort to convert the equipment and to adopt a track gauge different from others."

I would also suggest that the finescale concept is being extended by some beyond track and rolling stock into areas such as scenery, where trees and ground cover are more faithfully rendered to resemble their full size counterparts (Photo 4).

**Why Switch to P48 Standards?**

Today we have a much greater knowledge base of prototype practices. It’s this emphasis on prototype accuracy and quality of craftsmanship that characterizes much of the work in P48 today. This is attractive to many modelers who have grown bored with the ready-to-run, shake-the-box aspects of other scales. Former HO modeler and P48 newcomer Robert Henniger states his reason for switching scales:

“I decided to make the switch to P48 from HO because I became frustrated when assembling HO resin freight cars. I couldn’t see the details as well as I would like. I found that often the details are less durable than I would like. The P48 models I have seen are so realistic that for me it was a no-brainer. I am willing to tolerate the relative lack of availability and conversion hassles to build fewer but better detailed models.”

Robert’s sentiments are echoed by many who work in P48 such as Warner Clark, whose Maumee Basin Lines layout is well known in these pages. Warner states:

“I chose P48 as I was coming out of HO. Since I like to build models (vs. complex operations) any time I spend more than four hours on a given model I want it to be accurate, not with a 5 foot gauge and 8” wide wheels with deep flanges. Not having a large investment in O gauge, made the choice easy for me. For my taste, quality is more important than quantity.”

Clearly, many who work in P48 have made a commitment to a degree of detailing and craftsmanship that goes far beyond what most modelers are satisfied with. It really boils down to the choices of what one wants out of the hobby. For many, P48 expresses the fullest potential of what O Scale offers: models big enough to render and appreciate fine details, the opportunity to hone model building skills to a high degree and rolling stock that works as well as it looks. Which gets us to an issue I’ve heard many questions about: Does this stuff really work?

**Operational Reliability**

When you gather a bunch of O Scalers together to discuss P48, invariably someone will ask: “Does this stuff really work?"
or just sit there and look great?” As someone who has an operating P48 layout, I can answer with an unqualified: “Yes. It runs as good as it looks.” If one takes care in building good track and cars—as you should do regardless of what scale you model in—there are no more complications to achieving reliable operations than you would find in standard O Scale or for that matter, any other scale. In fact, my experience has been that P48 track and wheels are often more reliable because they are designed to operate as an integrated system just like the prototype.

There has been some discussion about curve radii centered on the question of whether one needs wider radius curves for reliable operation in P48. The answer is: “It depends.” It depends on what type of locomotive and rolling stock you want to run. Obviously, large steam engines with a long rigid wheelbase like a 4-8-4, 2-10-2 or even a 4-12-2, will need the widest curves you can possibly manage, just like their full-sized counterparts. The same holds true for close coupled, full-length passenger cars. A fact we modelers seem to forget is that even the prototype often had to restrict their largest locomotives to certain divisions because of tight curves. Even the widest curves (80-100+ inches) on a model railroad represent very sharp curves by prototype standards.

To sum up, is P48 for everyone? At this stage probably not, due to the current lack of ready-to-run components such as track and locomotives. Those who have an extensive roster of 1-1/4” gauge rolling stock with an existing layout will basically have to start over, an expensive option to say the least. Those whose enjoyment of the hobby is just watching a train go will likely find the conversion work frustrating. However, for modelers just entering O Scale, or who want more than passive entertainment from their hobby and are seeking to learn about the prototype along with some new skills, P48 may prove very satisfying. It’s a matter of choice. Gene Deimling probably sums it up best:

“Proto48 or 1/4”AAR developed from a set of wheel and track standards to a way of looking at my modeling. I was able to think in terms of the model I am building and making it as good as I can.”

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Highlands Station, LLC, 600 Dudley St., Lakewood CO 80215 www.HighlandsStationLLC.com

Highlands Station LLC has released their 11th and 12th digital books. Book #11 is GP20: The First Turbo Geep by George Melvin. It contains George’s exceptional series on EMD’s GP20, their first turbo Geep. It documents the GP20’s use by original owners and many of their subsequent owners and provides a photographic record of these engines. The CD contains 57 high-resolution photos, 30 in color, of GP20s in use by all of its American buyers. A valuable research tool for Diesel modelers and railfans alike, it is presented in PDF format.

Their 12th book is Alco PA: The Burly Beauty by George Melvin. This CD book contains George’s outstanding series on Alco’s PA, which he refers to as “the Burly Beauty.” It documents the PA’s use by ATSF, D&H, D&RGW, Erie, E-L, GM&O, LV, MKT, MP, NdeM, NYC, NKP, NH, PRR, SOU, SP, UP and Wabash, and provides a photographic record of these engines. George also covers the history of the development of early dieselization on the roads that purchased the PAs. You’ll find photos of PAs in use by its American and Mexican buyers. Series contains 89 photos, of which 40 are in color. Also included as a Special Bonus are 15 additional pages that contain five of Rich Picariello’s Diesel Detail Close-Ups for ATSF, D&RGW, MP, SP and UP PA (and PB) locomotives. This CD book is a valuable research tool for both Diesel modelers and railfans alike.

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NEWS: Model Railroad Structures from A To Z by Wayne & Mary Cay Wesolowski
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Carstens Publication Inc. is pleased to announce the release of Model Railroad Structures From A to Z. Veteran modeler and authors Wayne and Mary Cay Wesolowski share the information modeler railroaders need to design and build great structures for their layouts. The book retails for $15.95 (Plus S/H, please see website or call for details) and is available at hobby shops, or can be ordered online at [www.rmmodelcraftsman.com/depot-new.com] or by calling toll free (US & Canada) 1-888-526-5365. Printed on 80# paper and 100# coated cover stock, this vertical-format (10.875’ H x 8.375’ W) perfect-bound softcover book features detailed photographs and diagrams to help modelers get the most out of scratchbuilding.

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Retail price for each book is $12.95 plus $4.85 S&H per order (US). S&H via International Priority Mail to Canada and Mexico is $10.95; $12.95 for all other countries.
Model Rectifier Corporation has announced the Tech 6 that combines their power pack technology, reliability and control, with their DCC BlackBox. The Tech 6 will allow you to operate either an analog DC or a DCC decoder equipped locomotive. Two versions will be available; 2 amp capacity for HO Scale and a 6 amp capacity for O Scale. A mode switch selects between analog DC or BlackBox DCC technology. The Tech 6 features full NMRA 28 function access.

Model Rectifier Corporation has also been named the exclusive distributor and marketing agent for the U.S. and Mexico for JTT Scenery Products. JTT is one of the world’s leading makers of handmade miniature trees and landscaping materials for model railroad layouts, model dioramas, and craft projects. JTT offers hobbyists the largest variety of tree species and sizes on the market. Depending on the species and the series, these remarkably realistic trees are available in a range from 1” to 18” tall, useful from Z through G scales. The JTT lineup embraces trees as well as ground covers: grass mats, gravel and rocks for ballast and landscaping, turf coverings, chopped leaves, foliage clusters, field grass and more.

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<th>Price</th>
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<tbody>
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<td>New 403022 Boston &amp; Albany Caboose</td>
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REVIEW: Accucraft On30 Plymouth Diesel Switcher, #AM55-013; (Also available in On3, #AM55-011); MSRP: $220
American Model Supply, 32268 Central Ave., Union City CA 94587
510-324-3399 • www.amstrains.com

Reviewed by Al Askerberg

The Prototype
Plymouth produced industrial switchers in a wide range of sizes ranging from 2½ to 70 tons and in any gauge the customer desired. They have been used on all manner of mining, logging, and industrial railroads and many are still in service. According to Accucraft, this model is based on a 3-foot gauge 18 ton HLC type 3 Plymouth built in 1927 as construction number 2522. It was originally built as a 2-4-2 and later converted to a 0-4-0. It is presumed to have been scrapped by its last owner, although some sister HL units are probably still working. I found the model to be an accurate and faithful replica based on studies of numerous photographs and a description of the class in the book, Critters, Dinkys, and Centercabs, by Jay Reed.

The Model
The Accucraft model is made mostly of brass and stain- less steel. The DC powered motor drives the locomotive through a gearbox and the model is DCC-ready. The model weighs eight ounces and I measured it at 17”-6” long over the pilot steps, 7”-6” wide exclusive of rear marker lights, and 9”-8” high from railhead. The superstructure is very well crafted with excellent detail that includes interior cab detail. I especially like the open flared louvers and lift rings on the hood. The model is finished with a nice matte yellow finish that should make weathering with dry chalks easy and effective. Because the cab walls are prototypically thin, window glazing would add considerably to the realism of the model. It should not be difficult for the modeler to add the glazing if desired. The body is fastened to the frame by four small bolts.

The instructions provided indicate how to remove the shell safely and to perform other maintenance operations. Additional information on installing DCC and sound is available on the support page of the web site at [www/amstrains.com]. I recommend referring to this on-line document before attempting to remove the shell. I would like to have seen this document included with the kit.

An unusual and delightful touch is the working marker lights on all four corners of the locomotive. Unfortunately, the rear markers are apparently soldered to the cab by only a small tab about 1/16” square. One of the markers was missing when I opened the package. I found later that it had fallen inside the cab, so it was not lost. Re-soldering it would be difficult without damaging the paint, but I suspect a dab of CA would affect the repair. All the markers are lit by grain-of-wheat bulbs, and the headlight and backup light are directionally lit.

Fidelity
The prototype HL models were built with girder beam side rails to which weights could be bolted. The model represents the beams with weights installed with correct bolts arrangement. I could not locate any plans to verify measurements, but I saw nothing to suggest any significant deviation from the prototype other than the coupler pockets discussed below.

Compatibility
This model is available in both On3 and On30 versions. Most On30 modelers use HO coupler height as a standard while On3 couplers are mounted somewhat higher. Accucraft has provided for this difference in an interesting and effective way. Photos of the prototype that I found had four coupler pockets aligned vertically on the buffer plates to accommodate various coupler mountings. Accucraft has provided two slightly larger pockets designed to accommodate Kadee® No. 5 coupler boxes. The lower pocket is at standard HO height while the upper pocket is at the On3 standard height. Mounting of the Kadee® box is simple and secure. Two bolts, already in place, are loosened to insert the coupler box and then re-installed. It is not necessary to remove the bolts entirely from the frame which lessens the chance of losing them during installation. The wheels were in proper gauge as measured with an NMRA HO standards Gage.

Performance
The model is DC and was tested with an MRC® Tech II 2500. The lamps began to glow at about 2 volts and increased in intensity to about 6 volts. At 2.5 volts the locomotive began to crawl while drawing 0.1 amps. At 12 volts the locomotive drew 0.2 amps. Although I did not measure the scale speeds, the locomotive appeared to run at appropriately slow speeds throughout the voltage range. I believe the prototype was limited to 20 mph.

The instruction manual recommends lubrication every few hours. It does not state whether the model was shipped with factory lubrication. I suspect it might not be factory lubricated as the model sometimes ran with some hesitation, particularly in reverse. I suspect proper lubrication and running in would correct this. Generally, the model ran smoothly and quietly. Pulling power seemed appropriate. The engine easily pulled six cars on level track.

Conclusions
This is a very fine model of a type of narrow gauge workhorse that you might expect to find on almost any narrow gauge line. It runs well and looks great. Regrettably, I must return the review model but if it were mine to keep, I would try to add window glazing, some light chalk weathering, and put her to work.
There is more to building a layout than simply benchwork, track, structures and scenery. There is also a different dynamic to building a layout depending on the scale it is being built in.

Mike Cougill has started a series of booklets called the Master Class Modeling Series. The first book titled *Pieces of the Puzzle* is 45 pages long and is divided into five chapters. In addition, you get a photo CD with the pictures in color and additional material not in the book. This book covers the various aspects to building a layout in ¼" scale as it relates to finescale modeling. However, if you are not a finescale modeler, do not pass on this material as it is usable for building any O Scale layout. In the book Mike takes the reader through the process of how he designed and built his Indiana & Whitewater Railroad.

Chapter 1 covers the prototype line Mike chose from it’s beginning as a canal in the early 1800s to present day. Seeing the history explained the “whats” and why Mike built his railroad the way he did. It showed that having a history for one’s railroad really adds to the layout’s design and execution. This is true whether you are building a prototype or a freelanced line. As Mike states in Chapter 2, even the shortest of shortlines present problems when reduced to model form. So in this chapter he explains why he included or didn’t include the different features from the prototype. He explains what worked, what didn’t and why.

Chapter 3 covers the actual layout design. Mike covers the design features of his railroad, but also, many features of layout design in general are presented here. He explains why he didn’t build a duckunder at the door to expand the layout to the other side of the room as originally planned. He also covered how you don’t need a barn sized space for O Scale and how you could achieve a realistic scene in a space as narrow as 16” wide.

Chapter 4 tells about what he actually built. Mike describes scenes he liked and why. He also covers size limitations and other layout issues as they relate to O Scale. For example, there is the fact that using a #10 turnout can take up 4’ of layout space to get two cars to clear each other. Wow! I didn’t know that. He also covers the structures and why he couldn’t include all he wanted. There is much information on the scenery construction too. He explains how we rarely consider the vertical elements of layout design and how to place trees and other details in such a fashion as to not interfere with operation, but still look prototypical. He covers how additional scenes he didn’t include in the design became obvious when building had begun. For example, there is one scene where you can see the trains through the trees. Mike explains how that scene came to be and how it’s his favorite photo spot on the layout. This is very often an element not seen on most layouts. It was nice to see trains passing through a scene and not “by one” as is so often modeled. Scenery elements don’t have to be sacrificed in favor of operation.

Chapter 5, as the proverbial saying goes; “the best laid plans etc.” covers changes to the layout. This is always a difficult thing to do but often necessary when building a layout. Mike describes the things he discovered that didn’t work and how he was going to change them, such as the additions to the grain elevator scene that are covered in detail. I’m really glad Mike included this information in the book.

I found this book very interesting and easy to read. It is written with the same informative and friendly style that Mike writes in his *O Scale Trains* column. He actually includes references to his articles that offer additional information which I considered a nice addition to the book. The only major negative to the book is the black and white pictures. These leave much to be desired. They are unfortunately dark, muddy and it’s hard to see what is being presented. This even more true when it comes to the track plan which was hand drawn. This would be fine anywhere else but didn’t transfer to print very well and was actually unreadable.

To the rescue is the CD in the back of the book. This CD consists of 34 pages in a PDF format. All the pictures that are in the book are on this CD except for two. The original track plan as well as a second one which shows the layout as it was actually built is included here. There are also extra pictures and additional information on the CD to enhance the book. I’m very glad that this CD was included with the book. Besides correcting the printing problems of the book, it is in a format that allows you to enlarge the pictures. I was able enlarge many of the pictures on my computer to nearly full size O Scale without losing quality. The track plan that was unreadable in the book was readable and able to be enlarged on the CD. This was a very nice feature and helps to really see what was being presented in the extra pictures and the book.

I would recommend this book to anyone building, or like me, contemplating building a layout. The next book in the series will be on building trackwork. I’m really looking forward to it and any future books in this series.
REVIEW: Kit#101, Harriman 40’ RPO; MSRP: $125 plus $10 shipping
Southern Car & Foundry, 970 Sunshine Ln, Ste D, Altamonte Springs Fl 32714
407-389-3100 • www.southerncarandfoundry.com

Reviewed by Joe Giannovario

Background*

According to Kyle K. Williams Wyatt, Curator of Railroad Operations, at the California State Railroad Museum, 8 Class 40-P-1 40 foot RPO cars were built, 5 for the Texas Lines of SP and 3 for the SP itself. The Texas Lines cars were numbered: Houston & Texas Central (later T&NO) 251 (or 250), H&TC 250 (or 251), ML&T 191-192, and LW 193. The 3 SP cars were numbered 4239-4241.

The five Texas Lines cars were converted to baggage - 15 foot RPO cars in the 1920s. H&TC 250-251 were converted in June 1925. The Texas Lines were consolidated under the T&NO name in 1931, with cars retaining their numbers. Most were converted to baggage-express service, with the mail compartment removed.

LW/T&NO 193 was sold to the Yosemite Valley RR as #107 in 1938. It went to the Virginia & Truckee as #23 in 1946. It is presently preserved by the Pacific Locomotive Association, painted as YV #107.

ML&T/T&NO 191-192 remained on the Texas Lines and were eventually scrapped there.

H&TC/T&NO 250-251 were transferred to the Pacific Lines in 1944, renumbered as 6008-6009. It is unclear which Texas Lines car received which Pacific Lines number, although it seems likely that they were renumbered in sequence. The cars were used frequently on the San Francisco Peninsula.

SP 6008 became (MofW?) caboose 2132 in 1956, and was retired in Merced in 1964.

SP 6009 became caboose 475 in 1956 and was used as a transfer caboose on the San Bruno branch. It was retired in 1972 and acquired by the Pacific Coast chapter, R&LHS. In 1979 it was purchased by the California State Railroad Museum. It was originally planned to restore it as a baggage-RPO for the museum, but the GN RPO was acquired and was nearly complete, so that car went into the museum. SP 6009 remains stored, and is not on display. The number SP 6009 was found on the car body by the museum during paint research.

The Model

The kit consists of fine resin castings with a one piece body and one piece underframe, cast resin and brass detail parts, plus laser-cut acrylic windows. The modeler must supply trucks, couplers, paint and lettering. A few extra parts are included so the modeler can choose between an as-built version or the modified Yosemite Valley version.

Assembly

The body casting requires minimal clean up, mostly the window openings require some flash removal. The same can be said for the frame. Test fit the frame to be sure it fits easily into the body.

The laser-cut windows are a nice touch. The front side of each window has the release paper trimmed for “glass” and “non-glass” areas. The idea is to mount the window in its opening, finish the body detailing, paint the body and then remove the paper from only the “glass” areas. This leaves the painted “non-glass” paper to act as the window frames. Do this only with the 6 main windows, not the windows that fit in the doors. Each of the six main windows had to be filed on one long edge to fit centered into the window opening.

I had a bit of trouble with assembly in that the CA glue I used (2 different types) did not want to set instantly against this resin. I found I had to hold parts in place and wait for the CA to set. I tried to use CA to hold the windows in place but this didn’t seem to work well and I was afraid the CA might glue the release paper to the acrylic. I used carpenter’s yellow glue to hold the windows in place.

Many of the detail parts are delicate and require a light-handed touch to work with them. Although the resin is quite flexible it does not take much to break a piece. The cast brass steps are also quite delicate. They all require a twist at the top for mounting to the body. Make sure you twist in the correct direction because you only get to do it once.

As I am relatively unfamiliar with passenger equipment I had trouble figuring out how to mount the steps at the ends of the car and ended up substituting different steps than came with the kit.
I mounted PSC #9118 brass 8’ wheelbase passenger trucks to the model but the new MTH 2-Rail trucks for their 64’ woodside passenger car (P/N 20-89012) would work as well and be less expensive.

Because of the way in which SC&F designed the underbody you need to use Kadee 806 couplers with the short draft gear box designed for use with F-units, otherwise you will have to carve back the centersill casting for the standard Kadee draft gear.

**Fidelity**

I was unable to find any drawings for this car but, comparing it to photos online, it looks very good.

**Conclusion**

The original instruction were brief and assumed you had experience in assembling kits of this type. Many photos were substituted for written directions. These instructions were too brief and the photos too small. Figuring out where parts went was taxing.

While I was assembling the model I communicated with Jon Cagle at Southern Car & Foundry and suggested rewrites/changes to the instruction sheets. Jon made almost all those changes and the result will be a better experience for the model builder. He has added more assembly instructions, a full parts layout, a full size diagram of the underbody detail, and larger photos. Jon will also make a PDF of the instructions available on his website. The advantage of a PDF version is that the photos are in color which helps distinguishing details and you can zoom in on a photo for a closer look at parts and assemblies.

While this may be a unique Harriman prototype, it’s short length makes it an ideal model for smaller O Scale railroads and every road needs an RPO. I’ve painted my model Tuscan red and it will be lettered for a free-lance railroad to run on my new branchline layout.

**References**

*My Espee Modeler’s Archive* [http://espee.railfan.net/sp-rpo-475.html]

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**REVIEW: Atlas O Trainman U23B 2-Rail; MSRP: $249.95**

Atlas O, LLC, 378 Florence Avenue, Hillside NJ 07205
908-687-9590 • www.atlason.com

Reviewed By Gene Clements

**Prototype Information**

Built by GE (General Electric Corp.) from August 1968 until June 1977, a total of 465 units were produced for American and Mexican Railroads. The U23B concept was GE’s answer to EMD’s GP38 for an intermediate sized horsepower unit for mainline service. Equipped with the FDL-12, 12-cylinder Diesel engine rated at 2,250 horsepower, the frame and car body was borrowed from the U30B. The U23B came with GE type B trucks but could be ordered with GE’s floating-bolster trucks, while some units that were produced used the EMD Blomberg B trucks from trade in locos.

**The Model**

Originally announced by Atlas O in July 2008, the U23B is the latest offering in the Trainman line of locomotives. Current paint schemes offered are Lehigh Valley (review model), Delaware & Hudson, Louisville & Nashville (L&N) and Santa Fe. The engine is available in 2-Rail DC, conventional 3-Rail and 3-Rail TMCC control and sound.

Three different truck sideframes are available according to the version modeled: GE Type B, GE Floating-Bolster and the EMD Blomberg B Truck. The review model comes equipped with Atlas O metal Kadee compatible couplers in a new design draft gear box, conversion to Kadee’s #805’s should be possible and easier than before. Also worth mentioning are the smaller pilot openings for the coupler and draft gear boxes.

**Fidelity & Compatibility**

For reference, *Railroad Model Craftsman* has an excellent article and scale drawings of the U23B in its June 1988 issue. No need to beat a dead horse concerning the paint and lettering work. The review model matched photos from the library concerning Lehigh Valley units from the 1960s & ’70s. The colors appear correct and expertly done, and the lettering is sharp and crisp. It has become obvious from past experience that Atlas does their homework prior to releasing a decorated model.

Body mounted details include the front and rear plows, grab irons, horn, coupler lift levers on the pilot and safety railings. Walkway railings are attached to the body giving the unit a more prototypical appearance. Details such as the windshield wipers and body louvers, while cast into the body, are highlighted with paint to enhance their appearance. The model matches the prototype dimensions of 60’2” over the drawbars with truck centers at 36’2”.

**Performance**

Equipped with the usual twin vertical can motor system, I must make note of some new engineer-
ing and what I consider to be improvements. The truck's gearbox assembly appears to be the new type used for the 3/2 rail wheel set conversion that is currently being used by other companies such as MTH. It should be possible to create a 2-Rail TMCC version by changing out the 3-Rail wheelsets and couplers for 2-Rail items.

In testing this engine, it is definitely stronger and will pull more than the MP15 simply due to its weight. Weighing in at 4 pounds 8 ounces the engine will develop 6 ounces of drawbar pull prior to slipping. On my layout this translated into 15 weighted freight cars on a 2% grade. The engine will start moving at 1 volt, while the directional LED yellowish tint headlights illuminate at 1.5 volts. Slow and medium speed performance was excellent. High speed appears to be faster than the prototype's rating. Rated at O-36 for 3-Rail and 36” radius for 2-Rail, the model negotiated 36” radius industrial track and no. 5 turnouts on my layout with ease. Mainline operation was excellent.

The conversion to DCC is not complicated but it is more than plug and play. Detailed instructions are included that walk you through a DCC decoder installation. A sound decoder could also be installed as the fuel tank is set up to house a speaker. An upgrade to the “Gold Series” standards would not be complicated and should be possible to complete by a moderately experienced modeler.

Conclusions
The U23B is a very impressive model that looks and operates great. If you’re a GE or Atlas fan in the market for a medium-duty 4-axle road switcher from the late ‘60s that can still be found in operation on various shortlines today, then this engine will fit the bill.

It appears the people at Atlas O are listening to their customer base and have delivered. Not only do we now have a 1960-70s era GE road Diesel, but the model includes new engineering that I hope will become an industry wide standard, plus the smaller pilot openings are a requested modification by many modelers. In the Atlas O Alco 630 review I said: “How about some EMD and GEs from the same time period for competition purposes? Those I have experience on as a Hoghead.” I would like to think Atlas O was listening.

REVIEW: Milw. Rd Baltic F6a 4-6-4, MSRP: w/o Sound $995; with Sound (2 or 3-Rail) $1095
Weaver Models, PO Box 231, Northumberland PA 17857
570-473-9434 • www.weavermodels.com

Reviewed by Joe Giannovario

Background
The Milwaukee Road’s 4-6-4s were considered the road’s best steam locomotives. Class F6 (#6400 - #6413) consisted of 14 engines built in the first quarter of 1930. The eight engines that became class F6a (#6414 - #6421) were all built by Baldwin and delivered in October and November of 1931. Rather than use the more common nickname of “Hudson” for the 4-6-4 wheel arrangement, the Milwaukee Road called them Baltics. All of the F6s were renumbered into 100 series road numbers in 1938.

The F6a was 4,000 lbs. heavier than the F6 and had a driver diameter of 80” and a driving wheelbase of 14ft. Cylinders were 26 x 28 inches and the locomotive made 45,250 lbs. tractive effort. Other differences included Baker valve gear vs. Walschaert’s, Wilson feedwater heaters vs. Coffin, and various appliance locations. The tender had a cast steel water-bottom frame and welded sides riding on 6-wheel Commonwealth trucks and held 15,000 gallons of water and 20 tons of coal.

The Model
The model I tested was numbered 139 meaning it is a post-1938 version of #6419 built in November of 1931. The model is made of brass and constructed in the typical manner with factory paint and lettering. The paint is very nice and the lettering is crisp. The model was tested on DC only with no sound, although Weaver does offer it in 2-Rail with sound (TMCC) and 3-Rail with sound and smoke for a $100 premium.

The model had one nice touch you don’t often see, cab curtains. The curtains are a molded plastic piece on the back wall of the cab. A little bit of paint and weathering would make them look pretty good in my opinion. Another nice touch was the provision of two pilots: one boilerube
and one sheet metal with drop coupler. These are not just pilots but the entire front deck assembly including the air pump.

**Fidelity**

I compared the model to drawings in the June 2000 *Mainline Modeler*. Almost every measurement I took on the locomotive and tender came out exactly as in the drawing. The only place I found a discrepancy was in the tender truck wheelbase. It should be 8’ 4” and the model’s was 8’ 9”. This led to a discrepancy in the spacing between the tender trucks to compensate for the model’s slightly longer truck. This slight difference is not noticeable. Overall, the model matches the drawing’s dimensions very closely and was detailed as shown in the drawings.

**Compatibility**

The model came with Weaver’s scale coupler installed and it coupled up to my standard Kadee-equipped test train with no problems. All of the wheels and drivers were checked with an NMRA O Scale gage. The drivers were a bit tight but there were no operational problems with the locomotive running on my layout.

**Performance**

Running light, the F6a ran very well. It started moving at about 1-1/2 volts drawing 400 mA. At that low voltage none of the lights would illuminate. The lights finally came on at 5 volts. At 5 volts and drawing 800mA, the model was running at about 20 scale miles per hour. I rate this as excellent performance. Hudsons are generally passenger locomotives and I do not have a “standard” passenger consist, so I coupled the 4-6-4 to my test train of 10 mixed freight cars. Under load the Hudson drew about 800 mA at 8 volts.

I cannot test on a grade while the new layout is under construction but based on past experience I will bet this engine needs more weight in the boiler for optimum performance. The removal of the smoke unit in the 2-Rail locomotives makes them light-footed.

Under stall conditions, the locomotive drew 1.2 Amps which is well within the range of many DCC decoders should you wish to install one.

**Conclusion**

I am sure more knowledgeable modelers will let us know if this is an accurate model or not. It does run extremely well and looks to be painted and lettered correctly. It has most all the features we have come to expect from a brass steam locomotive. If I were “into” passenger steam engines, this would be one that I would add to my collection.

**References**

Specifications found at [http://www.steamlocomotive.com/hudson/?page=cmstpp]


Shown with alternate pilot.
In the time of steam locomotives and even the first generation of Diesels, the switch stands in yards and major industrial trackage were topped with oil burning lanterns. At night, green and red (or yellow) lenses on the lanterns signaled the position of the track switch to the train crews. Switcher headlights were off most of the time because they would interfere with night vision and a boxcar in front would negate the usefulness of a headlight anyway. For my model railroad, I prefer to make the signals, switch stands, and the like as operational as possible. This includes the lights in caboose marker lamps and switch lamps. Fortunately, since the 1970s, light bulbs small enough to fit in most O Scale railroad signal equipment have been available. However, because of the bulb and wire connection length, the installation can sometimes be difficult. The availability of a white light emitting surface mount diode in size smaller than a common pin head, and with ample lead wires already attached, has solved that problem for me.

The Light Emitting Diode (LED) in the #603 size shines a white or yellowish white light which is about as bright as the much larger 1-1/2 volt miniature bulb I used previously for switch lamps and marker lamps (see OST #13). Photo 1 compares the size of the 603 LED (on the left) with a 1-1/2 volt miniature bulb and the O Scale lamp casting. The LED shown in the photo is the Golden White with six inches of twisted wire lead purchased from Richmond Controls. [www.richmond-controls.com] Richmond Controls also sells another white LED called Sunny White. The Golden White LED seems to me to have a more suitable color temperature and intensity for an oil lantern. The twisted wire leads easily fit down the inside of the small diameter brass tubes that I used for the staffs on the switch stands in Photos 2 and 3. More about making these switchstands later.

I use Tortoise switch machines to operate the turnouts so the switchstands are turned by the point’s throw rod instead of the other way around. Rather than using a separate accessory power supply for the switch lamp’s LEDs, each lamp is connected to the Tortoise through a bridge rectifier and resistor (Figure 1).

The 603 LED emits light out of all surfaces except the bottom where the two wire leads are attached. So for the LED to light all four lenses in a lantern requires positioning the LED horizontally on top of the staff. The LED’s base is a rectangle about .06” by .03”. Drilling the bottom of the lantern casing with a #49 (0.073”) drill gives adequate clearance for slipping the lantern over the LED.

A small amount of CA applied to the bottom of the LED serves as extra insulation from the brass lamp and staff. A bit of white glue holds the LED at the top of the staff before attaching the lamp (Photo 4).

Richmond Controls makes the positive lead in the twisted pair a little longer to identify it. In Figure 1, R is a 1/8 or ¼ watt resistor to limit current to the LED and BR is a full wave bridge rectifier to keep the LED current polarity constant when reversing the Tortoise machine. The value of R is determined from $R = \frac{V}{I}$ where $V$ is the voltage drop across the resistor and $I$ is the current needed by the LED to emit light at the desired intensity. The exact value for $R$ does not seem to be too important. A 1000 ohm resistor is recommended to start with. What is critical is that a resistor must be in the circuit to limit the current to the LED to about 3 milliamps. I tried some 4700 ohm resistors because I had a large supply for signal detection of freight cars on hand and they worked quite well for this application.

Switch Stands
The high switchstand of Photo 2 is constructed from brass castings from the former Timber Creek Railroad Supply switchstand kit. The Southern Pacific used a single wide tie for the head block, which required some modification to the Timber Creek base and crank/link rod assembly. Modeling other switches that used two ties for the head block could probably use these castings as is. The castings are still available direct from Gordon Briggs. [www.timbercreekrr.zoomshare.com] For details, Gordon says to contact him by e-mail at [timbercreekrr@yahoo.com]. The Timber Creek stands were designed for manual operation of the turnout if you prefer not to use switch machines.

I used Special Shapes Co. [www.specialshapes.com] 0.047” diameter brass tubing for the staff and 1/32” by 3/32” flat brass bar to make the crank. The lenses are made from punched colored celluloid and a drop of clear epoxy. The ground throw stand shown in Photo 3 has a switch lamp casting from Keil-Line Products (part #48-439) and the body is modified from a HO switchstand from Rix Products. Whether or not I am doing any “night” operations, I think lighted switch stands that rotate to indicate turnout position are an interesting addition to the layout. Hopefully, this article shows that it is not very difficult to do.
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2009 O Scale National Report

The 2009 O Scale National convention is history. The BOSS committee did a great job producing the convention, even if the weather did not cooperate. The venue was great. The food was outstanding. The staff of O Scale Trains Magazine had a great time. Here are some of the highlights: 2009 O Scale Hall of Fame Inductees

- John Eichmann - P48 modeler
- Ken Henry - O Scale modeler from Baltimore area
- Mike Hill - March Meet producer
- Rod Miller - O Scale West producer

Model Contest Winners

Steam 1st Place: B&O E-27 2-8-0 by Bruce Aikman based on a Pearce 2-8-0 with a new cab, valve gear and lots of detail. The tender is an import with extra detail.

Steam 2nd Place: John Glaab entered this C&O G9 2-8-0 built by John Gascoyne. The engine is scratchbuilt except for the drivers, motor and a few commercial castings. John worked without plans using only an erection diagram and photos.

Traction 1st Place: Lake Shore Elec. Rwy #27 was built by Dick Manning starting with a LaBelle kit and adding details and Wagner power trucks.

Traction 2nd Place: Richard Crooks’ 80 series Brill Car.
Diesel 1st Place: SR GP9 built by Dave Friedlander from a Red Caboose GP kit with many extra details.
Diesel 2nd Place: (no photo): A trio of MTH CSX Diesels detailed and weathered by Mike Pitogo. (Sorry about the no pix Mike!)

Passenger 1st Place: B&O 8-1-2 Pullman by Nick Powell built from an American Standard Car Company kit with extra details.

Passenger 2nd Place: This On30 doodlebug was kit-bashed by Chris Crane from a Bachmann combine. Chris added extra details, power and lighting.

Freight 1st Place: Mike Rahilly took a Red caboose NKP flatcar kit and added a full AB Brake system and the farm equipment loads. (My apologies for the out of focus photo. -Joe)

Freight 2nd Place: SFRD refrigerator entered by Matt Forsythe. No details were given on construction.
Non-revenue 1st Place:
Jack Bartman built this O Scale replica of Tony Koester’s Allegheny Midland caboose.

Non-revenue 2nd Place:
Dave Friedlander built this Southern Rwy. Radio Control car.

Above center — Diorama 1st Place (and People's Choice):
Civil War train scene by Ramesh Bishop.

Above left — Diorama 2nd Place:
John P. Dunn, Sr. scratch-built this scene he calls Godbold Creek.

Above right — Structures 1st Place:
This gas station by Bruce Blackwood started as a kit and Bruce added lots of extra details.

Left — Structures 2nd Place:
Martin Brechbiel (no stranger to these pages) scratchbuilt Johnson’s Small Engine Repair.
Coming Attractions!

For Sale: One-of-a-Kind, N&W Y6a

This center-cab Diesel was scratchbuilt in P48 by Capt. Tom Mix. Tom has promised to share how he built it starting in the January 2010 issue of O Scale Trains Magazine. Stay tuned!

This model was built by master craftsman Harry Hieke, Jr. with the aid of “Mr. N&W”, Tom Dressler. The basis is a Max Gray Y6b. The engine was stripped and completely rebuilt which included a new extended smokebox, exposed sander valves, Worthington BL feedwater heater and associated piping. Every old casting was replaced with new PSC lost wax. Over 1000 castings in all were added in the process. The model is powered by a Pitman can motor. The chassis was tuned by Baldwin Forge and Machine. The cab has a removable interior fully detailed and lined with real wood. Nearly every hatch opens and reveals more detail. The coal bunker has a stoker screw in the bottom. The engine includes an auxiliary A tank built from a custom etching. The model is fully painted, weathered, lettered and lighted. Here is an opportunity to own a unique and magnificent model.

Price: $4695 — Contact Allegheny Scale Models, 908-684-2070 or OScale@Alleghenyscale.com
WANTED: Small N&W custom-built or scratchbuilt steam, 4-8-0, 2-8-0, 4-6-0. Also looking for N&W brass parts, e.g., pilot, cylinders, domes, tenders, etc. Contact Joe Giannovario, jg@oscalesmag.com or call 610-363-7117.

WANTED: Indianapoasl special run 50’ MOW, boxcars, Hallmark comp gons, Sunset WWII emergency boxcars, PRB WWII comp gons, Loughba 50’ reefers, WWII era boxcars what have you? Mail only. Jim Seacrest, PO Box 6397, Lincoln, NE 68506-0397

FOR SALE: AFFORDABLE ORIGINAL railroad oil paintings and prints by artist Christopher Jenkins. Steam, Diesel and electric. Join mailing list for new painting announcements by emailing Allons43@comcast.net. www.trainsshipsplanes.com

WANTED: Plans and complete instructions for all Diesel and electric. Join mailing list for new painting standards guide from: oscale2rail@live.com

FOR SALE: New Sunset 2-Rail UP Big Boy, $1800; UP 4-12-2, $1800; B&O EM1, 2-8-4-8, $1800; 2 Santa Fe 2-10-4, $1000. Each. Email: woodsbymartus@msn.com, or call 505-898-6956. Manus Vallecorra, 4704 Sandpoint Rd NW, Albuquerque, NM 87114-4533

FOR SALE: O SCALE ENGINES and freight cars from the 1970s in good to excellent condition. AHM 0-8-0 yard switcher and freight cars; Two Atlas F9s, industrial switcher and freight cars. Contact Chet Thomas at 904-220-0593 or at etrastrains@aol.com.

WANTED: Steam/Diesel era, DM&IR, Soo Line, switcher and freight cars. Contact Chet Thomas at 904-220-0593 or at etrastrains@aol.com.

FOR SALE: O Scale layouts, white elephant table, O Scale trains, Southern New England 3: Gardner, MA

TABLES: $20 each. Contact John Dunn by email at jdunn888@hotmail.com.

FOR SALE: Brass and die-cast parts for All Nation/ Babbitt steam locomotives, frames, drivers, rods, valve gear, boilers, cabs, tenders, and details. Also restoration and repairs available. Some complete kits available on a limited basis. Some older kits and built up kits also available on a limited basis. Write and include $1 for a catalog. Babbitt Railway Supply Co., 715 Barger St, Mayfield KY 42066. Call 270-247-0310 between 8 am and 8 pm CST, or email bocyeates@bellsouth.net.

WANTED: The O-Scale 2 Rail Club is a modular train club looking for members or those to follow this standard and start a club. We are using a portable 2’ x 4’ foot table format. Follow the modular standard for placement of the two track mainline, wiring, and table height. Visit the web site at: www.oscale2rail-club.com. Request a free PDF of the O-scale 2 rail club standards guide from: oscale2rail@live.com

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<table>
<thead>
<tr>
<th>AAA Turntables</th>
<th>16</th>
<th>Irish Tracklayer</th>
<th>52</th>
<th>Rails Unlimited</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allegheny Scale Models</td>
<td>37, 56</td>
<td>Just Trains</td>
<td>57,58,59</td>
<td>RGSRR Hobbies</td>
<td>10</td>
</tr>
<tr>
<td>Atlas O</td>
<td>IFC</td>
<td>Keil-Line</td>
<td>10</td>
<td>Scale University</td>
<td>30</td>
</tr>
<tr>
<td>Bachmann</td>
<td>26</td>
<td>Key Model Imports</td>
<td>14</td>
<td>Scenic Express</td>
<td>13</td>
</tr>
<tr>
<td>Baldwin Forge &amp; Machine</td>
<td>10</td>
<td>LaBelle Woodworking Co.</td>
<td>31</td>
<td>SMARTT</td>
<td>25</td>
</tr>
<tr>
<td>Brummy's Ballast</td>
<td>30</td>
<td>Micro-Mark</td>
<td>52</td>
<td>SMR Trains</td>
<td>36</td>
</tr>
<tr>
<td>BTS</td>
<td>18</td>
<td>Model Rectifier Corp.</td>
<td>10</td>
<td>Southern Car &amp; Foundry</td>
<td>36</td>
</tr>
<tr>
<td>Bullfrog Snot</td>
<td>10</td>
<td>Model Building Services</td>
<td>30</td>
<td>SpecCast</td>
<td>20</td>
</tr>
<tr>
<td>Custom Signals</td>
<td>14</td>
<td>Mt. Albert Scale Models</td>
<td>41</td>
<td>Stevenson Preservation Lines</td>
<td>10</td>
</tr>
<tr>
<td>Deichman's Depot</td>
<td>52</td>
<td>MTH Electric Trains</td>
<td>IBC</td>
<td>Sumpter Valley Depot</td>
<td>31</td>
</tr>
<tr>
<td>East Gary Car Co.</td>
<td>52</td>
<td>Mulett River</td>
<td>43</td>
<td>Suncoast Models</td>
<td>10</td>
</tr>
<tr>
<td>Get Real Productions</td>
<td>61</td>
<td>NCE Corp</td>
<td>38</td>
<td>Sunset/3rd Rail</td>
<td>8</td>
</tr>
<tr>
<td>Golden Gate Depot BC</td>
<td>19</td>
<td>O Scale Realty</td>
<td>19</td>
<td>Underground Railway Press</td>
<td>52</td>
</tr>
<tr>
<td>Gorilla Glue</td>
<td>52</td>
<td>O Scale Trains</td>
<td>14</td>
<td>UpBids.net</td>
<td>36</td>
</tr>
<tr>
<td>Guide to Modern O Scale</td>
<td>16</td>
<td>P&amp;D Hobby Shop</td>
<td>14</td>
<td>Valley Model Trains</td>
<td>31</td>
</tr>
<tr>
<td>Hackworth Model Trains</td>
<td>38</td>
<td>Pieces of the Puzzle</td>
<td>16</td>
<td>Wasatch Model Co.</td>
<td>41</td>
</tr>
<tr>
<td>Howard Zane</td>
<td>10</td>
<td>Protocraft</td>
<td>16</td>
<td>Western Reserve Meet</td>
<td>43</td>
</tr>
<tr>
<td>Indianapolis O Scale Meet</td>
<td>19</td>
<td>Public Delivery Track</td>
<td>31</td>
<td>Weaver</td>
<td>20</td>
</tr>
</tbody>
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Wheel and Track Standards

As you can read in this issue, a new O Scale wheel standard has been proposed by Gary Schrader. In actuality, what is new is the proposal to codify the wheel parameters, not the wheel design itself. Northwest Shortline and several importers have been using a 0.145” wheel design for quite some time.

Last issue I talked about NMRA Standards. The NMRA “standard” wheel profile for O Scale calls for a 0.179” thick wheel which is way over-size. The P48 standard calls for a 0.115” (up to 0.120”) wheel which is prototypically close to actual size. What Mr. Schrader has called for is a compromise wheel design that looks much better than the NMRA standard but doesn’t require the precision trackwork of a P48 wheel profile. But is that an accurate assessment?

Actually, no, because it is not feasible to change the wheel standard without affecting the corresponding track standard. Mr. Schrader’s “145 wheel” requires a change in the O Scale flange-way standard or else the wheel can drop into the gap of the frog created by the wing rails. Of course, many modelers already deal with this issue by filling up this gap so that the wheel tread rides slightly above the frog. But, to be technically consistent, the track standard should be adjusted accordingly and it has.

The NMRA board of directors voted on July 3rd on a broad set of updates to the standards. Among those updates were Mr. Schrader’s suggested wheel parameters in RP-25, Wheel Contour, and a corresponding change in S-3.2, Trackwork Standard Scales. This came about because of a lengthy wheel discussion online that developed as a side thread to the wheel controversy I mentioned in the last issue. The new discussion was pointed out to Didrik Voss who is part of the NMRA Standards Committee. Mr. Voss brought it to the attention of Ed McCamey who is also on the Standards Committee. They invited several O Scale manufacturers to participate in private technical discussions of the standards before finalizing the proposal to be taken to the NMRA board.

I emailed a copy of Mr. Schrader’s wheel specification to every major locomotive importer and three track manufacturers. I included Mr. McCamey’s and Mr. Voss’s email addresses and urged them all to participate in the discussions. I hope they took the opportunity to do so.

One thing I found most interesting while discussing the thinner wheel design with Mr. Voss is this: regardless of how thick or thin the wheel is the Check gauge measurement stays the same. Check gauge is the distance from the front edge of one flange to the back edge of the opposing wheel. For 1.25” gauged track, the proper Check gauge is allowed to be between 0.166” to 0.179”. Any wheelset falling outside these measurements is considered “out of gauge”. There has been a spate of locomotives delivered recently with wheels out of gauge so, when you are out buying a new (or used) locomotive, keep that little square NMRA O Scale Standards Gage handy and make sure what you’re buying is “in gauge” before you shell out any money.

And Another Thing...

Also in this issue is Mike Cougill’s article “A Closer Look at P48”. Mike’s article made me think about why we don’t have a single track standard in O Scale. O Scale is the only modeling scale that has 2 different track standards for so-called standard gauge track: 1.252” for standard O Scale (5’ gauge), and 1.177” for P48. Why are we stuck using legacy 5’ gauge track? Why hasn’t any manufacturer made O Scale track to the correct gauge?

I sent out emails to three track manufacturers, Atlas, Trout Creek Engineering and Old Pullman. I asked all three what it would take for them to manufacture flextrack and a pair of #6 turnouts to the correct gauge for O Scale. None responded to my query. So, I next asked John Parker of San Juan Car Company about the feasibility of making flextrack and turnouts to the correct gauge. San Juan recently produced On3 ready-to-lay turnouts so I figured John would have some insight. His response was informative in that he mistook my query to mean would he consider making P48 track and turnouts. His reply was that he felt P48 modelers enjoy building their own track so there was little market desire for ready-made items.

And therein lies the problem; I was not interested in making P48 track. Like Mr. Schrader’s compromise wheel specification, I’m interested in a compromise track specification. What I would like to see is flextrack and ready-to-lay turnouts that are made to the correct gauge for O Scale (i.e., 1.177”) but with the standards for the flangeways that we currently use with 5’ gauge track.

What would that accomplish? First, manufacturers (and modelers) would have only one standard to contend with. O Scale track would be properly gauged for 4’8-1/2” (1.177”) and the differences between standard O and P48 would be the same differences as there are between HO Scale and P87, a matter of degree. Modelers could start out with the ready-to-lay track and turnouts and later move to P48 without the huge hassle they have now.

I already hear the wailing and gnashing of teeth from those who just can’t deal with the idea of change. No one is forcing anyone to change. Keep doing what you’re doing if you enjoy it. But, I believe that a good portion of O Scale modelers would change to realistically scaled track if it were available. I believe this so deeply that I am willing to make this offer. I will give a free one-half page color ad for a year to the manufacturer who makes for sale at least code 125 flextrack and a pair of ready-to-lay #6 turnouts to the correct track gauge of 1.177” (+0.012”, -0.002”). Code 148 will do in a pinch but 125 would be better.

If a major manufacturer like MTH or Atlas O were to do this along with providing motive power designed to operate on the new track they’d revolutionize the O Scale segment of the hobby. If a brass importer were to make the leap to track products along with motive power, they’d have a lock on a niche market that would expand rapidly.

I know I’m dreaming based on the state of the economy but I once dreamed about an O Scale magazine that came out on time and look where we are now. It’s time O Scale grows up and decides what it wants to be as an adult.

Keep Highballin’
M.T.H. Premier Line engines are full O scale models, 1/48 the size of their prototypes. Premier Line engines, like the ES44DC shown in this ad, are as detailed as we can reasonably make them, and feature a large number of added-on details. Premier engines also come equipped with elaborate lighting features including flashing ditch lights, lighted number boards and cab interior illumination.

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