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Cover: Another day of operations on the Great Western Railroad. Photo and models by Bob Boelter.

Centerspread: “N&W Pit Stop” – The photographer had to get up very early to catch this shot of N&W Y6a #2156 as it approached the water tower. As he shot the photo he could hear comments coming from behind asking him to please get out of the picture. It seems another photographer had set up a wider shot. Some guy named Link from New York. This scene captured the moment. The model is a Max Gray Y6b 2-8-8-2 that was converted into the Y6a, super detailed, and weathered, by Harry Heike, Jr., for OST publisher Joe Giannovario. See page 30 for details by Jeb Kriigel on the photo set up.

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70 Observations – Joe Giannovario
The Great Western Railroad (GWRR) is a prototype-based freelanced O Scale model railroad. Although the layout is large, measuring almost 1,400 square feet, I did build the railroad myself.

The Great Western is designed with an operating purpose and plan. Some modelers advise getting started with operations as soon as possible, even if only the track is in place. Concerned that I’d not have the time or inclination to finish scenery and structures once the railroad was operational, I chose to keep working on the layout. While “operations” has had to wait, I’d like to share the operations scheme that the layout was designed around, and that I’m anxious to implement.

The railroad is a line that connects Milwaukee with Omaha, thus avoiding Chi-
Unique to each division is some distinctive local and captive traffic. That is particularly true of the modeled segment of the GWRR, the Dodgeville Division that runs between Madison and Dubuque.

Through trains, originating at a hidden staging/fiddle yard called “Fairgrounds”, stop at Dodgeville to drop off local traffic and pick up freight to be forwarded to either east- or westbound destinations. MCB-1 arrives in Dodgeville at 10:00 a.m. and MCB-3 at 4:00 p.m. CBM-2 arrives at 5:30 p.m. about the time MCB-3 departs. CBM-4 arrives at 11:15 p.m.

Daily turns work from Dodgeville to both Madison and Dubuque, which means that there is considerable back-hauling. For example, a through train from Council Bluffs with freight destined for Dubuque will carry it through that city to Dodgeville, a point 45-50 miles east. Then the Dubuque turn will take that freight back west to Dubuque. It’s all about keeping

cago. The line consists of mostly abandoned segments of the Milwaukee Road, Chicago & North Western and the Chicago Great Western, with newly constructed track connecting Lancaster, Wisconsin with Dubuque, Iowa.

The 1970-era Great Western survives by moving freight expeditiously from points in southern Wisconsin and Iowa to the West, connecting with the Union Pacific at Council Bluffs, Iowa, across the Missouri River from Omaha. Westbound traffic consists of manufactured goods, agricultural products and, of course, beer. Eastbound traffic includes perishables such as meat and produce, agricultural products, and manufactured goods.

Two manifest freights operate daily each way between Milwaukee and Council Bluffs (MCB-1 and MCB-3 westbound and CBM-2 and CBM-4 eastbound). To maintain an aggressive time schedule these through freights stop only at the three division points, Dodgeville in Wisconsin, Oelwein and Fort Dodge in Iowa. There, cars are set out and pickups are made for local points in either direction within the division. Locals (out of the two terminals) and turns (out of each of the three division points) serve to distribute local traffic.
crosses the Mississippi River and heads into Dubuque, Iowa, arriving at 10:00 a.m.

At Dubuque, the turn drops off local cars and picks up cars for Dodgeville and points in between. Train 121 departs Dubuque at about 11:30 a.m. heading east, crossing the Mississippi back into Wisconsin. There, the CB&Q interchange is switched, but not the power plant. The train waits on the passing track to meet MCB-1 (eastbound for Council Bluffs) at Potosi, and then heads east back to Dodgeville, arriving at 2:00 p.m.

Dubuque has an Alco S-4 switch engine that has considerable work. It switches local industries, both adjacent to the yard and downtown, including FDL Foods, producers of Dubuque-brand meats.

It also switches the river front dock where grain and coal are transloaded. Grain comes from various Wisconsin and Iowa sites through Dodgeville to Dubuque. There, it is loaded on barges for New Orleans and export destinations. At the dock, coal is unloaded from barges and loaded in hoppers destined for customers in Madison and for the power plant at Dickeyville. Twice a day, at 3:30 p.m. and 11:00 p.m., the switch engine carries a cut of loads across the river to the power plant and returns with a cut of empties. 121 takes Madison-bound coal loads on to Dodgeville to be handed over to the Madison Turn.

The Madison Turn (Train 120) departs Dodgeville at 1:15 p.m. It travels east through Ridgeway, Blue Mounds, and Mt. Horeb, switching trailing points along the way.

At Verona Junction, the train is handed over to the fiddle yard operator. Here, the cars destined for Madison are removed and cars originating from Madison added. The crew takes control of those manifests moving on a fast schedule.

A switch engine working Dodgeville keeps quite busy. It sorts traffic for, and switches, the through freights. It then assembles the daily turns. Four of the yard tracks are assigned to west/local, west/through, east/local and east/through freight cars. There is also a caboose track and a track reaching local businesses including a cheese factory, a produce warehouse and the grain elevators.

Two sets of engines (usually aging Alco and EMD cab units) are stationed at Dodgeville to work the Dubuque and Madison turns.

The Dubuque Turn (Train 121) departs Dodgeville at 7:00 a.m. heading west through an area called “hidden valleys” (under the bench work), to emerge from a tunnel at Lancaster.

An F-unit is stationed at Lancaster. It switches two local businesses and services a branch to Fennimore. Its primary job is to provide pusher service out of the hidden valleys up to Potosi and Dickeyville. In addition to helper duties, the Lancaster engine switches the power plant at Dickeyville after performing a shove, then runs light back to Lancaster.

Meanwhile, 121 continues west through the hidden valleys (receiving a push by the Lancaster engine, if necessary) emerging at Potosi, site of Potosi Brewing Company, where the trailing point spur is switched (a task that has to be carefully coordinated with the pusher). Then, 121 continues on to Dickeyville past a power plant and an interchange with the Chicago, Burlington & Quincy. The train passes these two traffic-producers because the switches are facing-point, making them difficult to switch. Then 121 Engine crews are sharing assignment paperwork. The FAs will return light, back to Dodgeville, after handling a special extra train.

On a different day, FAs are handling the Dubuque Turn. The engines are heading west into the Dubuque yard, Note the tracks. A double-slip switch on the mainline leads to a yard lead. The track to the right is the downtown team track. The tracks seen in the upper left go to FDL Foods, meat packers of Dubuque Hams bacon, and other products.
the train at Verona Junction and returns to Dodgeville, again switching trailing points at intermediate towns, arriving home at 10:30 p.m.

During its round trip journey, 120 will meet westbound MCB-3 at Blue Mounds at around 3:15 p.m., and eastbound CBM-2 in Mt. Horeb at 8:00 p.m.

This operational scheme should keep 8-14 people busy. The operator at Fairgrounds will have to be almost acrobatic in the ability to keep a parade of trains moving. Jobs for experienced hands will be the yard assignments at Dubuque and Dodgeville, plus the engine at Lancaster. Engineers running the Turns will have fun, because of the variety of work. The four through-train assignments are perfect for crews learning the railroad and its operations.

I have a group of friends, experienced model railroad operators, who are waiting for me to stop messing around with construction and get to what the Great Western Railroad was meant to do... move fast freight. ◆
All kits include brass etched grills, appropriate detailed parts, and preformed grab irons for indicated model. These kits include only the parts above the frame.
You, the bright-eyed and bushy-tailed denizen of our modern world, are leaning back in your Swedish office chair, admiring that flowing trackplan you just created with the Nifty-CAD trackplan software you’ve installed on your turbo-charged wide-screen high-definition 25GHz Micro-Mac (with the optional chrome trim package). As you sip on your latte, you dream about those SD90’s sweeping through the last curve, entering the combination helix/staging yard through a double-track tunnel portal. Now hidden from view, they speed through the double-crossover and...

Well, they picked the points, crashed into the uprights supporting the next level of the helix, and you have to quickly run to the bathroom to sponge all that hot so-called coffee from your crotch. When you return to the trainroom, there is an acrid smell of burning something hanging in the air. After a quick check of the area of your physique recently assaulted by that most lamentable waste of perfectly good coffee beans, you determine that you’ve roached one of the switch-motors. After several hours of sweat and incantation, you collapse in a dripping babbling heap of defeat, muttering something about “... make the Bad Man stop...” as they haul you away for pot-holder therapy.

Some points can be made here. First, CAD packages for trackplanning don’t take maintainability (let alone build-ability) into account when they gin up those lovely drawings. To be honest, pencil-and-paper plans don’t, either. You’ll do well to consider the locations of such things as switch-motors and other “under the benchwork” features that may require your attention at some later (and most inconvenient) date. Add to that some thought about the accessibility of turnouts. You have to maintain ‘em, so you might want to reconsider the curved double-slip you intend to put behind three feet of locomotive servicing facility.

Of course, there is that one switch that just has to be in an awkward place, or the whole concept of your trackplan is unacceptably compromised. Then, there is the inevitable switch-motor that you totally missed when you were thinking through the construction and maintenance issues of your design. This brings up a second point. You have a couple options in these cases. Let’s assume a groundthrow is not an option, simply because you chose to use a switch-motor to mitigate some convenience issue with handthrown operation of that particular switch. If that isn’t the case, consider a working switchstand and groundthrow.

The Revered Ones had a marvelous trick up their sleeves, back in the days of yore. They just went down to the Ford dealer and bought a choke cable. You don’t even know what a choke cable is, if you’re drinking that latte swill. The choke, on a car, was a knob you pulled that opened or shut a baffle in the carburetor to... Oh, right. You never saw a carburetor.

Okay, for our purposes all you need to know is that a choke cable is a thin flexible rod that slides in and out of a sleeve. Hook one end to your throwrod on the switch, and bring the other end out through the fascia of your benchwork and put a knob on it. Pull it, and the points throw. Push the knob back in, and the points move back where they were. There is now no motor to burn out or maintain. You can still get choke cable from the antique car restoration people, or you can go to the lawn-mower repair shop and get the throttle cable for a hand-mower. These even come with a nifty lever attached, rather than a knob.

If a choke cable won’t reach around all the convolutions of your situation, you really screwed up. That’s okay, because the R/C and control-line model airplane people have really useful bellcranks and pushrod material you can use. A bellcrank is an L-shaped plate with a bearing in it. You move a pushrod attached to one leg of the bellcrank; the bellcrank rotates and pushes another pushrod with the other leg in a different direction. You can snake pushrods up and down the benchwork in this fashion so that the work-source (be it a choke cable or a now-conveniently placed switch-motor) is in a totally different location than directly under the points of the inaccessible turnout in question.

Think about maintainability issues before you build to your layout design. You can save yourself from a lot of frustration when you smell smoke for the first time. Keep thinking about maintainability as you’re building. If you see something that needs revisiting, don’t ignore it. Revisit it. Remember, the most inconvenient switch-motor self-destructs first. The furthest frog always shorts, and the solder only lets go on the throwbars in the hidden switchwork. The easy ones never, never die.

Lastly, if you really must have it, the cream goes in the coffee, not on it. Let’s go Exploring!
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Steam Locomotives

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<th>Model</th>
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<td>WS C&amp;O T 1-10-4 UP New</td>
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<td>WEAVER NH J5 4-4-4 FP Late Version, Streamlined</td>
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<td>SS 3rd Rail PRR S2 4-6-4 Steam Turbine FP New</td>
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<td>KEY UP PE8-2-4-8-4 UP coal, Rare - 1 of 10</td>
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Diesel Locomotives

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<td>$2,095</td>
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O SCALE TRAINS - Sept/Oct ’05
You've been a happy member of the O Scale, two-rail community. You control your trains with DC (direct-current) power, where the voltage sets the speed and the polarity sets the direction. Maybe you've looked over the fence at the 3-Railers, but their goals were different and their equipment was different. But now the world has changed. Many of the clubs and more of your friends are now using command control, and 2-Rail and 3-Rail are no longer so different.

My first question was, “Why would I want command control at all?” I’ve spent thousands of dollars on locomotives and they work fine. Why do I want to spend hundreds more? For me, the answer was simple. Once I ran trains without block switching, I wouldn’t go back. Once I ran trains with sound, I wouldn’t go back. But that’s me; how do you decide?

Step one is to try it. Command control is not all that useful if you have only one locomotive; it gets much more useful when you have more locomotives. Go where there are several trains running and experience the difference first hand. I haven’t visited a club layout in the past several years that didn’t have some form of command control, and many individual modelers have also installed command control. Get familiar with what they have by visiting someone who will let YOU run their trains with it. You will very likely decide that you definitely like or don’t like their system.

The Basics

All command control methods use a hand-held controller per locomotive as shown in Figure 1.

The engineer (you) can follow the train, operate turnouts and perhaps even operate the couplers, all from the unit in your hand. The hand-holds are vendor proprietary, but no matter, they all work in a similar manner. Available hand-holds are either wireless or on a wire-tether, communicating with a the same brand of master control unit or encoder.

The master controller broadcasts the commands, with locomotive addresses, over the rails to the whole layout and, therefore, to every locomotive on the layout. Each locomotive has an internal control unit, called a decoder or receiver. That unit knows who it is (e.g. NYC 999) and listens for, accepts and acts on commands intended for it. In the same manner, special capabilities such as lights, sound, smoke, and couplers can be controlled. Multi-locomotive (hence multi-decoder) lashups can be created and managed. Once you have locomotive command control, it is easy to add equipment to control turnouts and other electrical features from the same hand-held unit.

The problem is that there are three major players in the command control game in O Scale. They are Lionel’s TMCC system, the M.T.H. Digital Command System (DCS), and the various NMRA protocol Digital Command Control (DCC) systems. Unfortunately, they are largely incompatible with each other, so you need to make a choice. When I thought about this question, I created a table showing the pros and cons of each (See page 14)

There is no one magic solution that makes everyone happy. There may come a day when any O Scale train will run on any O Scale layout, but that day is not today. You’ll need to choose which way to jump (if you want to jump at all), but your present situation and goals may help with the decision:

- If you have command control in the smaller scales, if you want to run O Scale narrow gauge (especially the booming On30), or if you build and modify your own locomotives, then DCC is a natural choice for you.
- If you have three-rail locomotives and a three-rail layout, then you may already have Lionel’s popular TMCC.

Fortunately, you can carry most of your TMCC hardware over to the two-rail world because of a company you may not of heard of, Train America Studios, which makes a two-rail adapter for TMCC. Also, several manufacturers, such as AtlasO and Weaver, offer two-rail locomotives with TMCC already installed.

- If you are attracted to M.T.H.’s Premier line of locomotives, then you probably know they have decided to support both 2-Rail and 3-Rail with convertible locomotives. They have a command control system that runs either (or both) 3-Rail and 2-Rail, AC and DC and even interfaces with TMCC. You cannot mix on the same track, but you can interleave several styles in the same layout.

None of these options are cheap, but they are not as expensive as you might guess, because you’ve probably based your choice on already having some of the control equipment on hand.

So, let’s say more about all three options. This will not be a full how-to-do-it story, those already exist and I will point you to them.

Digital Command Control (DCC)

As shown in the table, several vendors make DCC-compatible equipment. This is because an NMRA committee adopted an electrical and logical format for digital messages to go to, and be interpreted by, locomotive on-board decoders. These are expressed in the NMRA S-9 Standards and RP-9 Recommended Practices. Every brand of DCC master controller, made to NMRA Standards and RP’s, is compatible with every brand of locomotive decoder (well, almost). The issue to be aware of, as O Scale modelers, is that only a few of the vendors build equipment capable of O scale power needs, and no one builds decoders of appropriate capacity with sound generation at this writing, so you have to add your own DCC-compatible sound unit. By the way, the NMRA did not attempt to standardize the front end, from the operator to the master controller, so each manufacturer has its own scheme.

DCC recognizes that a model railroad layout is electrically noisy, for example small arcs between wheels and dirt on the track, so it sends the commands over the track as the power itself to overcome any noise. There are 18 volt pulses going out over the rails. This is a built-in bias against larger scales. It is difficult to switch a 10 ampere power supply off.
and on (actually, positive and negative) as often as 16,000 times per second. Therefore DCC controllers cost more, and are current limited, and the recommendation is to use multiple power units to divide up the load, like an automatic version of block switching.

Specific parameters and settings are placed into the decoder by putting the locomotive on a special “programming track” that has a dedicated connection to the master encoder. The first task is to tell a locomotive who it is, so it can be addressed by commands off the programming track. DCC decoders have additional function leads that can be wired to control features such as lights or horn. Almost any parameter can be changed, for example to linearize motor speed.

The DCC committee is composed of model railroad people, so there has been an emphasis on capabilities that better mimic real railroad operations. But the committee naturally tries to please its constituents and almost all of them are HO or N modelers, so they are working on new features that are appropriate for the smaller scales. There is no use having DCC methods to generate smoke or control couplers, because those won’t fit in the small locomotives. They also want to make DCC simpler so it can be provided in out-of-the-box train sets. Also, the committee is a committee; it works slowly through meetings and consensus building. Therefore the manufacturers tend to get ahead of it with their own special capabilities. The NMRA is working now to add several capabilities, such as eliminating the programming track and providing two-way communication (i.e. back from the locomotive).

A typical DCC 10 ampere configuration would consist of an NCE ProCab hand-held (to provide both engineer and general oversight capabilities and display status on a small screen), an 18 volt 10 ampere AC power transformer (e.g. MH538 from Digikey), a master encoder connected between the transformer and the rails consisting of a Command Station and Power Booster 10, and one D408SR decoder (4 amp, 8 amp peak) in each locomotive. With one decoder, the cost would be approximately $650. One or more other cab hand-holds dedicated for engineers could be added. A larger layout might have several 5 or 10 ampere power boosters. There would be one decoder per additional locomotive at $90 each. Adding sound costs about $130 per locomotive. SoundTraxx is a company that makes sound units. Of course, your cost would depend on what you already have on hand.

Digitrax is another company that makes systems and decoders powerful enough for O Scale. Several exist that are sufficient for On30, and many that are underpowered for O Scale. A retailer, Tony’s Train Exchange, acts as a clearing house for all of them. They are an excellent source of information regarding what works with what and are always willing to be helpful and send literature. They also discount prices. If you call them, say right away that you are an O Scale modeler.

**TrainMaster® Command Control (TMCC)**

Lionel’s proprietary TrainMaster Command Control has become the de facto standard command control system in the three-rail world. For conventional three-rail locomotives, it moves control from the transformer to a wireless handheld unit called a CAB-1 and hides E-unit ugliness. This is sufficient for lots of multi-train three-rail layouts, where the trains run on separate parts of the layout and don’t interact with each other or reverse direction. Contrary to DCC, the locomotives conventionally run on AC power.

Further, TMCC also talks through the same CAB-1 and Command Base to command-equipped locomotives, providing a full range of locomotive addressing options and features. Lionel tends to emphasize features that their customers like, such as smoke generation and station announcements. TMCC is also known for the realism of its sound.

The CAB-1 generates a high frequency radio signal, somewhat like a citizen’s band radio or cordless telephone, to communicate with the Lionel Command Base. While an existing variable transformer, such as a Lionel ZW, can just be turned up to full voltage for power, Lionel also supplies a non-adjustable unit called the Powerhouse.

All this would be of no interest to two-rail modelers except that a company called Train America Studios (TAS) has built an adapter, called the Signal Enhancer, that allows Lionel TMCC to operate in the two-rail environment. Everything that TMCC does in 3-Rail can also be done in 2-Rail. Today, Atlas and Weaver also offer 2-rail TMCC locomotes usable with an unmodified system, and Train America Studios will convert 2-rail locomotives to TMCC.

The TMCC Command Base sends commands to locomotives by sending a low frequency radio signal on the track power, and so does not use the power itself as a signal (This is at 455 kHz, a frequency just below the bottom of the AM broadcast band.) The advantage is that the controller is simpler and independent of power load. The signal can be picked up near the track by a small antenna in each locomotive, perhaps a wire under the plastic shell or the tender body itself. A caution is that there may be dead spots where the signal is not picked up, just like any radio signal, and the signal fades with distance. It is necessary to ground the equipment properly, both to provide a ground plane to enhance the signal, and to attenuate it elsewhere to minimize interference.

A typical TMCC 2-rail system would consist of: a Lionel CAB-1 hand-held operator unit and Command Base, a Lionel Powermaster transformer (8 amperes), a TAS Signal Enhancer to synchronize and adapt the control signal to two-rail operation, and one TAS decoder board for each locomotive. This would cost about $450.

**Lionel TMCC Basic Components**

One Powermaster and Signal Enhancer should be added for each additional loop of track. Each additional locomotive would require another decoder for $100, and either Diesel or steam sounds and possibly light, coupler, and smoke can be added for another $100. Since most of this equipment is the same as for 3-Rail, you may have much of it on hand. (If you are a Diesel-era modeler, and are using pre-installed TMCC systems such as that supplied by AtlasO, no additional TAS...
components are required, significantly reducing the start-up costs.—ed.)

**Digital Command System (DCS)**

M.T.H. has become a formidable competitor in the three-rail market. In achieving this, they created a control system for three-rail locomotives that is fully competitive with the other players. Again, this was of no interest to two-rail modelers until, in 2004, M.T.H. announced their Premier Line ProtoScale 3-2™ locomotives that can be adapted by the owner to run on either three- or two-rail track. So, suddenly, M.T.H. is in the two-rail business.

The centerpiece of their control system is the Track Interface Unit (TIU) which is inserted between the existing power supply and the track. It receives commands from the wireless hand controller and passes those commands to the trains on any of its four control channels. With these four channels, it can control four unconnected sections of track. Two are for AC three-rail use and control the voltage on those tracks. But the other two channels are for AC or, in our case, DC two-rail use, and send full power along with digital signals to locomotives on those tracks. It can control any AC three-rail locomotives that use variable track voltage, or AC three-rail command-controlled locomotives or DC two-rail command-controlled locomotives (but, of course, not all on one track). In fact, the DCS TIU can connect to and drive a Lionel TMCC Command Base to control Lionel as well as M.T.H. locomotives.

Contrary to the other systems, communication with a locomotive is two-way; it can search for a locomotive and the locomotive can tell the controller who it is (e.g. CNJ 932), so programming is more natural.

The hand-held Remote Unit can do so much that you will never remember how to do it all. There are many capabilities that a two-rail modeler would not tend to use, but maybe you do want to record a message and have it broadcast out of a locomotive cab, or maybe you want to run a set of locomotives all at exactly the same speed in a parade. You will home in on what you do want to do and the DCS system will do it. Although the controller has a small display, you have to get used to the meaning of the responses. “No locomotive on track” irked me as I knew there was a locomotive on the track. But that leads to the need for grounding.

DCS is the newest system and still has some growing pains. You may have heard of the reverse loop problem. Like Lionel, a DCS system must have careful grounding. If there is not a good ground (really grounded to Mother Earth!) the system will not be able to communicate with locomotives. In particular, the left rail must be grounded. If you don’t want to run your trains in that direction you can reverse this with a switch under the locomotive. But suppose you have two locomotives on the track and one goes through a reversing loop. With careful switching you can insure that the left rail stays grounded. When it comes out of the reversing loop onto the main track again, either it, or the other locomotive, is going to have the wrong side grounded. In three-rail applications, for which this system was originally designed, both outside rails are grounded, and the center rail is the insulated return, hence no need to consider return loop wiring; it is easy to see how it might have slipped by. Two-rail modelers must consider polarity issues with return loops, hence the issue. In any event, M.T.H. is committed to fix this by 2006. DCS depends on M.T.H.’s continued ability and desire to support it.

A typical DCS two-rail configuration would consist of the DCS hand-held Remote Unit with its many controls and a small display screen, an 18 volt DC power supply (not AC!) that must have one output lead grounded, the Track Interface Unit (TIU) that goes between the power supply and the track, and one or more M.T.H. Premier Line ProtoScale 2-rail locomotives equipped with DC Proto-Sound 2. The cost, without the locomotive, is about $450. MTH ProtoScale locomotives cost about the same as any quality locomotive.

**Summary**

Whichever way you go, several general comments are appropriate. Switching to command control is a frightening and expensive idea, if you have dozens of locomotives. Then again, you probably also have many separate blocks of track. You might want to divide your layout into a power controlled section and a command controlled section, perhaps with a switchable transition track connecting them. Then you can evolve slowly.

Understanding any of the documentation is a hassle. With DCC, you have to dig out the O Scale relevant information from the much more abundant smaller scale information. With TMCC or DCS, you have to dig out the two-rail information from the much more abundant AC three-rail information. From my years in the Bell System, I can tell you that the absolutely worst book on how transistors work was written by the inventors of the transistor. Get instruction, documentation and help from someone other than the vendor.

Before switching to any form of command control, make sure your layout is electrically sound. Those metal wheels that sometimes touch the car body have to go. You may ignore a few arcs and sparks, but the computers will not. In particular, use turnouts with electrically switched points and frogs. Having the backs of wheels touch the back edge of the points is bad news. Don’t eliminate your block wiring. It works, so leave it alone. It will help in isolating troubles.

After you purchase your own system, get someone who is familiar with that equipment to help you set it up. It won’t work at first, and you will not know if there is something wrong with the locomotive, with the controller, with the handheld, with your layout, with the instructions, or if it just doesn’t like you.

Put fuses (not slow-blow) into your power leads. It is better to sacrifice a fuse than a command control unit. Fuse holder assemblies can be obtained from Radio Shack (part number 27-1217). Have spare fuses on hand.

Okay! Rev up the Diesel engines, turn on the lights, and don’t forget the ditch lights. Oh! Sorry... I meant start generating smoke, synchronized with agonizing slow chuffs and ring the bell. “Beep-Beep”. Now you’re ready to start moving forward on your layout.

**Sources**

Lionel: 1-800-4LIONEL to find a local dealer

MTH: call 410-381-2580 to find a local dealer

National Model Railroad Association, 4121 Cromwell Road, Chattanooga, TN 37421, site: www.dcc.info

NCE Corporation, 899 Ridge Road, Webster, NY 14580, 585-671-0370

DigiStar DCC, PO Box 3337, Spring Hill FL 34611, 677-531-5275

Soundtraxx, 210 Rock Point Drive, Durango, CO 81302, (970) 259-0690

Tony’s Train Exchange (TX), 57 River Rd. Box 1023, Essex Jct. VT 05452, (802) 878-3472

Train America Studios, 4137 Boardman-Canfield Rd., Suite LL02, Canfield, OH 44406, (330) 532-7181. www.scalecommand.com,

**References**

Digital Command Control, Stan Ames, Rutger

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Notes:

(1) 4 and 10 amp
(2) 8 amp w/o sound, 15 amp w/sound
(3) Proto-Sound 2 upgrade board only. MTH recommends factory certified installation at $99 to $150

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NMRA Infopak, Volume 1, CD ROM 2000, National Model Railroading Association

Railroad Model Craftsman articles by Don Fiehman over the past several years coming out as a book. “Scale Command: Lionel TMCC Adapted for 2-rail

O Scale Operation”, Don Woodwell, O Scale Trains

Issues 8, 9 and 10, May/June, July/August and September/October 2003

Interactive TrainMaster Command Tutorials: http://www.coilcouplers.com/tmc/tmc.html

Command Control for Toy Trains, Neil Besougloff,

Modern Relics

In this issue, I hope to shed some light on the “modern” freight car. The term “modern” is relative to all freight cars based on their era. Wasn’t the PS-1 boxcar a modern marvel for shipping goods in its day? Two things to consider here are:

• You may not have the latest articulated auto carrier on your layout, but it is still modern to have 1970s cars according to the prototype.

• Once the investment is made in a freight car, the owner or lessor isn’t making money when it sits still. Freight cars are ideally always on the move, being loaded, or waiting to be loaded. Since freight cars cost as much as they do, it’s not hard to understand why many cars with build-dates as far back as 1966 are rebuilt and still making money today.

Even if modeling the 1930s, you should consider some of your rolling stock “modern”. The 40’ wood boxcar of that era, such as the USRA cars made by Atlas, lasted for better than 30 years. It was new in 1920 and made money into the 1950s as a standard shipping car. Of course, there are none on the rails today. That is due, in part, to maintenance and materials costs in 1950s and 1960s dollars. (The Federal Railway Administration regulation provides for a finite lifespan for interchange freight equipment. Currently, the “50-year law” removes freight equipment from the interchange pool 50 years after initial manufacture, though waivers may be granted.-ed). Also, let’s not forget the advances in technology. When the 40’ PS-1 boxcar was introduced, it was steel and was easier to manufacture, and it took advantage of the increases in railroad clearance dimensions. It could, simply, haul more revenue freight for the effort expended than the USRA box could. Steel lasts longer than wood, and so the 40’ PS-1 served for more than 40 years. So if you run 40’ PS-1 boxcars with 36’ or 40’ wood boxcars, that makes the 40’ PS-1 “modern” for your era.

The photos I’ve included show only two examples of what was on the rails in May of 2005. These are just two random cars in the nationwide freight car pool. The close-up in Photo 1 shows a build-date of 1-70 (January, 1970), for this waffle-side boxcar. Pair this with a few 50’ PS-1 boxcars and you have a modern train for the 1970s. The lube plate in Photo 2 is from a tank car built in May, 2000. This is definitely a modern-era car, actually a 17,360 gallon tank car. You can place this car in a train of 50’ waffle boxcars and you could represent over 30 years of railroading. Model manufacturers are increasing the list of modern rolling stock available. Just about any car measuring 50’ or greater could be considered “modern era” by model standards.

This shows you can own almost any model freight car currently made and still use it with the most modern looking building or accessory. Do give consideration to the span of life of the car. If you are trying to model as modern an era as possible, and have rolling stock at 40’ lengths such as flatcar or gondola it can still be used in maintenance-of-way service, as I have witnessed.

By the way, I had an email conversation with Mr. Jim Weaver, of AtlasO (www.atlason.com), about the soon-to-be-released Berwick Hy-cube™ car. My question was simple, what drives AtlasO to produce a specific model, either engine or freight car? Mr. Weaver’s answer was elegant, “The customer.” If repeated requests are received from the O Scale community for a specific model, it is then researched for production. If that research shows that it could be a viable product, then it makes it into the product queue. Secondly, consideration is given to the requests for products that fill gaps in the AtlasO line-up, as well as the product lines offered by others. Mr. Weaver says, “It has always been my intention to offer something a bit different than what everybody else has.” It shows in AtlasO’s diverse product line. Finally, of course, consideration is given to what Jim, himself, wants to see! As a modeler and operator, Mr. Weaver wants to see certain models produced, as well. If AtlasO has produced a particular model you were hoping for, then great minds must indeed think alike. I’m going to meditate on a GP38!

Next time, we’ll look at some of the modern methods of operation, such as robotic car routing, system-wide tracking capabilities and cross-country dispatching.
CEMENT CONTAINERS TO NEW YORK CITY.

In the mid-1930s, there was a change in the way powdered cement was hauled by US railroads. Instead of labor-intensive cement bags in boxcars, large cylindrical containers that could be loaded and unloaded by compressed air were hauled in gondolas.

These containers could carry ten tons of cement, and could be taken off the gondolas at job sites. They were a common sight in New York Harbor up until the late 50s, when the increased use of covered hoppers spelled the end of the containers.

Since my Bay Ridge Harbor Railroad is based on a terminal in New York Harbor, I figured that some of these unique cars would look right at home, especially so that I built an open pier and crane to load and unload the containers.

When MTH brought out their cement gondolas, I was over the moon. Here was the answer for my pre-60s cement traffic needs. Apart from converting the gondolas to 2-Rail, the containers sat too high in the gondola due to the nature of the floor design.

A fellow O Scaler, Joe Foehrkolb, gave me the idea and the amount to cut off (¼”). Joe machined his in a lathe. I decided on milling mine, though anyone with a steady hand could carefully use a razor saw and small finishing file. The milling machine, if you have access to one, does a better job. It takes about four hours to do 18 containers.

If you use a milling machine, I found that taking a 1mm cut at a time using an 8mm endmill was safe due to the fragile nature of the containers. Use a vee-block and a piece of cloth in the vise to protect the plastic and held the containers tightly. NOTE: For safety, make sure the cloth is away from the spinning tool.

I now have some snazzy cement gons, thanks to Joe.

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Building a Small O Scale Layout
Part Five
Michael Culham

In the first four parts in this series, we have discussed building benchwork, laying track and wiring. With all this completed on my layout, I was able to start running trains, but there was still something missing.

As you can see in Photo 1, this is what the layout looks like at this point. It has that typical “Bare-Board Central” look to it. This leaves much to be desired as far as a realistic looking layout goes. If you compare it to Photo 2, with scenery and ballast completed, the same scene now has a more realistic look to it.

Starting in this issue, I will be discussing the techniques that I used on the layout to get it to look like Photo 3.

Before we start you will need to get:

- White glue.
- A spray bottle that has a fine spray
- A 2” wide paint brush
- A small brush
- An eyedropper

I consider ballasting as part of scenery, so I will start off this series on scenery with showing you how I ballast my trackwork. I use Woodland Scenics Part # B13900 Coarse Cinder Ballast (it comes in a shaker bottle). As you can see in Photo 4, the trackwork is all ready to start ballasting. I have created the following step-by-step list on how to ballast trackwork, so let’s get started.

Ballasting the Trackwork

Start by pouring the ballast along the track as shown in Photo 5.

Use a clean, dry 2” wide brush to spread out the ballast until you get the desired effect, as shown in Photos 6 and 7.

Once you have the ballast shaped the way you want it, mist it
with “wet water”. To make wet water, fill the spray bottle with water and add three drops of liquid dish soap to it. Use a spray bottle that has a fine mist. Wetting the ballast helps the glue to flow better (See Photos 8 and 9).

Next, make a 50/50 mix of white glue and water, and add a couple drops of liquid dish soap. I use an old margarine tub as a mixing bowl, but you can use any sort of container that you wish. Then, use an eyedropper to dribble the white glue mixture all over the ballast, as shown in Photo 10, making sure that all the ballast is glued. You will know where you have glued, as it will have a white cast as shown in Photo 11. Once the glue has dried it becomes clear and does not show.

Ballasting a turnout is done using the same steps as the rest of the trackwork (as shown in Photos 12-15). It is as simple as doing regular trackwork, but there is one thing you should bear in mind. Make sure that no pieces of ballast are between the stock rail and the points! I use a small brush to clear any of this away (See Photos 16 and 17.) The same goes for the area.
through the frog and the guardrails (See Photo 18). Once you’ve gotten the ballast the way you want it to look (See Photo 19) mist it with the wet water and then apply the glue mixture as we did on the other track work.

Now that you have ballasted all your track work, allow the glue time to dry (I allow it to dry overnight.) Once the glue has dried, you can clean off the top of the rails with fine grit sandpaper or a sanding sponge.

This is how I ballast my trackwork and you will find that it is quick and easy. With the ballasting done, we are one step closer to making the layout look more realistic, however there is still more to be done to complete the picture. In Part Six, I will show you how to complete the scene around the tracks with groundcover.

---

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Really Obvious Tips

A Quick Truck Paint Job
By Ron Gribler

Here’s a quick way to hold plastic O Scale trucks and to “mask” the axle journals when you want to spray on paint or flat finish. Remove the axles from the trucks.

Find a couple of short lengths of 2 x 4 lumber. Stand the first length on edge.

Place the truck frames on it as shown. Put the other 2 x 4 on top of the truck frames. Spray one side. Rotate the 2 x 4’s around and spray the other side.

Then turn everything upside down and repeat for complete coverage.

The trucks just fit over the 2 x 4’s, so that no paint can get into the journals.

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24 • O Scale Trains - Sept/Oct ’05
The Story Behind the Trees of the Granville Island Model Train Museum's Layout

by K. Job Kriigel

A visit to the Vancouver British Columbia area was a real eye-opener for me as an Eastern U.S. modeler. The rugged and picturesque landscape is much different from what I had ever seen. Of particular note were the magnificent trees of the area, old growth Douglas fir, western red cedar, hemlock, and poplars. The height and girth of these giants make the large trees where I live look like mere brush in comparison.

A visit to the Granville Island Model Train Museum is also a real eye-opener, for what you experience there is just as spectacular. The museum’s 80’ layout has captured the look of those same rugged and picturesque surroundings. The trees, over 6,000 of them, were all handmade. Each one was constructed on the museum premises specifically for the layout. The trees were created by master diorama artist Warren Jones. He is a self-taught local modeler who is considered to be one of the very best in the world at what he does. Jones worked with a staff of 12 to accomplish this great task, which took them a year to complete.

The actual process involves carefully sculpting master tree trunks in clay, with particular attention paid to the bark texture of each specific tree species. These master clay trunks were then used to make molds. From the molds, several other trunks were cast with resin. These were sprayed the correct natural colors and drilled for each individual branch. The largest tree trunks measure over three feet in actual height, which calculates to over 150 feet in O Scale. These models took the team two to three days to complete.

The smaller trees and evergreens were made up of many wooden dowels of various sizes to fill in the landscape. They were also sanded, painted, and drilled for each branch location. Branches for all of the tree models were made up of nine different kinds of dried and preserved fern from South East Asia. These ferns precisely capture the look and texture of the prototype and make the diorama look very realistic, right down to the smallest branches and needles.

Warren Jones and his crew certainly have built a masterpiece, and have accomplished their goal of re-creating the rugged physical elements of this region. Their model trees are exquisitely detailed, and certainly help capture the magnificence and grandeur of British Columbia. All of their skills and efforts prove that details really do make the difference!

Credits
Tree artist: Warren Jones, Langley, British Columbia.
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Railroad bridges are marvels and monuments of engineering. Their design and construction are incredible, when you consider the amount of weight they are required to support. They are fascinating structures and, just like in the prototype world, model railroads often have at least one bridge, if not several of various types. It really is a fact that no model railroad would be complete without at least one bridge.

This old hobo has always been passionate about railroad bridges. That passion was recently revived on a trip through Louisville, Kentucky, that took me past several major bridges from railroad lines entering this once major railroad hub. Traveling by auto (not by a boxcar, this time) one can only imagine what these structures would look like from the rails. Although some of the bridges are no longer in service, it was still very impressive to see these magnificent structures of steel. Arch truss bridges in multiples, truss bridges in multiples, girder bridges in multiples, were all very impressive. Just when I thought I had seen it all, there appeared a huge lift bridge complete with all of the mechanical trimmings!

On one of my other recent trips through old issues of model train magazines, I noted that model bridges do add a lot of detail and visual interest on a layout. Whether crossing a wide river or spanning a deep gorge, they allow the trains to pass over some very interesting scenery. I found quite a variety of bridges ranging from heavy-duty girders, long arch, and double-track trusses. I found photos ranging from wonderful scratchbuilt bridges, built to fit a particular situation, to commercially made ones used right out of the box.

This column is dedicated to providing tips and techniques, so here are Hobo’s thoughts. Bridges need to be painted. Even just a flat black will do. It just looks more real. The flat paint takes that shiny appearance away and transforms your model bridge from toy-like to scale. After all, that is the whole point for a HiRailer progressing towards scale. We want to make things look more prototypical.

Bridges, in real life, are subject to weather. Model bridges need some weathering. A little rust paint splashed here and there will add a lot of interest. I noticed, in my trip through the magazines, some great model railroads with superbly weathered rail. Then along came the photos of the bridge, brand new like the day it was born, straight from the box with clean shiny rails. Try being consistent in your modeling. Do not be afraid to weather your bridges to match your trackwork.

Bridge shoes or bridge feet, as they are sometimes called, are most important in scale modeling. Many times they are left out. I have notice many photo-featured layouts with their bridges (usually in an attention-getting centerpiece location) sitting right there flat butt on the abutment, as in Photo 1. OUCH!

Bridges are designed to hold weight. That weight rests on the abutments.

Bridges do not rest flat on the abutments. They rest on the bridge shoes or feet. The feet then rest on the abutments at key stress points. Observe a real bridge the next time you see one. It has feet. These absorb the shock, allow for movement/ expansion, and distribute the weight load. These are most important to the bridge design and no scale model bridge is realistically complete without them (See Photo 2).

OK, so I have your attention. My tip, this time, is to get some bridge shoes for your bridges. They are available from two advertisers in this magazine, Keil-Line and Auel Industries (See the ad index on page 67). It will make a big difference, and we all know that details do make a difference. That’s all for now. Stay tuned, for scale modeling means adding more and more details. The best is yet to come.
New products and techniques can refit old basements into spaces perfect for O Scale model railroads. For years after I bought an 1810 farmhouse, I operated a point-to-point shelf layout upstairs in the family room. A maze of massive cast-iron pipes and fieldstone walls made the damp, drafty, cold cellar useless for railroading. But my wife encouraged me to sit on the cellar stairs and dream, and dreaming led to discovery.

I dried out the concrete floor by cutting channels, then digging ditches that I lined with drainage hose and crushed stone. A few hours work with a 20# sledgehammer sent me despairing to a tool rental store. Thirty-five dollars rented an electric jackhammer and bought two minutes of advice about using it at an angle. I returned the tool five hours later, amazed at its quiet efficiency. It not only split the concrete, but loosened the soil beneath it so I could easily install the plastic hose. Next, I slid 21 bags (80# each) of concrete mix down the outside stairs, and spent another Saturday covering the drainage hoses leading to the sump pump.

Four weeks later, having let the new concrete dry thoroughly, I vacuumed the entire floor and covered it with two coats of Thompson’s Water Seal. This product blocks dampness, eliminates the concrete dust that ruins layouts, and makes a good subsurface for floor paint, which I applied two weeks later.

Track plans have intrigued me for decades. After forty-five years of study, I chose the oval. On the floor, I marked in chalk the outlines of the round-the-walls benchwork, then painstakingly planned the rerouting of the heating pipes, marking the new locations with string and numbered tags. Before the heating contractor arrived to estimate the cost of the work, I started drawing the O Scale track plan full size on the floor.

After staring at the string and tags overhead, then the lines chalked on the floor, he asked me what I intended to accomplish. I told him. My dream layout. “We see a lot of railroads in this business”, he told me, looking down at the track plan. “You could have a bigger freight yard if the furnace was over there.” I pointed out that the furnace was not over there. He told me he could plumb the entire heating system in copper tubing, following my numbered strings, and give me plenty of headroom. The cost estimate staggered me. Then he chuckled, and told me what he did to build railroad rights-of-way.

UPC Radiant Heating Hose is a trademarked heating-system tubing, about the diameter of garden hose. Its per-foot cost is much higher than traditional copper pipe, but the cost of
installing it is far lower, in my case four-fifths lower. In less than one summer day, the contractor removed all the cast-iron piping, moved the furnace, and snaked UPC along the joists, connecting it to the pipes leading upward to the radiators. He also installed a tiny second-hand radiator, since the heating system would no longer waste heat into the cellar. I arrived home just in time to hear him telling his apprentice to position the expansion tank above the boiler, not beside it, so “the switchmen can walk along cuts of cars in the yard”.

Emboldened by furnace moving, I asked a plumber about moving the hot water heater. He too looked at the chalked lines, and said “Railroad?” I nodded. Following his orders I shut off the heater, and drained it myself; he moved it in less than an hour, making sure it remained six inches away from the wall, just the width for O Scale single track.

Then came the most innovative improvement, Icynene insulation. I had originally intended to stud the fieldstone walls, staple fiberglass insulation between the 2 x 4s, and put plasterboard over everything. But, in a friend’s basement, I saw Icynene for the first time, and decided to try this non-toxic, organic, sprayed-on foam invented in Canada. The crew arrived, ran hoses into the cellar, and began spraying. I thought “scenery”, ran upstairs, and returned with a model railroad magazine. The three men stared, then said they could try. My wife brought them iced coffee and they tried harder. Two hours later the cellar looked like the inside of a warped wedding cake, its walls smothered in white frosting from floor to ceiling at a fraction of the cost of traditional insulation and paneling.

I bought an airless sprayer for $39 and sprayed on latex paint tinted sandstone. As soon as it was dry, with windows open and fans humming, I donned the respirator again and tried some spray-can coloring. For the first time in my life, I had backdrop scenery before I built a stick of benchwork. An hour later, I had carved a bit of the Icynene, and stuck in a few trees.

To save every quarter inch of headroom, I bought Masonite 4 x 8 panels prepainted gloss white on one side. For $30 I rented a plasterboard jack, a wheeled dolly with four arms that rise on a crank. I put each sheet of Masonite on the jack, cranked it up against the joists, wiggled it exactly into position, and installed the sheets using drywall screws, the heads of which I painted white. I was done in less than six hours, including time spent musing on the trackplan chalked on the floor. Again to save headroom, my wife and I installed inexpensive track-lighting around the perimeter of the cellar, screwing it through the Masonite into the joists.

Suddenly I had an entire basement open and well-lit. During the first winter I discovered no need for the second-hand radiator. The UPC tubing and Icynene cut our home fuel consumption by almost a fourth while keeping the basement toasty ‘round the clock. In less than two winters, the renovation paid for itself in fuel savings alone, and the third season began subsidizing a railroad always in need of more rolling stock (Pullmans especially). Now and then my wife comes down the cellar, glances around, and says, “See, I told you there was room for O Scale down here!”
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How Did He Do That? Notes on the Centerspread.

The centerspread this issue was composed and photographed by K. Jeb Kriigel of Get Real Productions. The scene was composed after studying several scenes along the N&W Railroad. All of the structures were built, painted, and weathered by Jeb and are representative of the early 1950’s prototype. The figure with the lantern offered a modeling challenge. After marking his exact location for the shot, Jeb drilled out a small hole in the non-lit lantern and inserted a grain of wheat bulb. By carefully concealing the wire leads he was able to make the scene believable.

Using a Nikon F3 HP with a Nikkor 55mm lens Jeb shot this scene from a low angle to emphasize the massive locomotive. He used Fuji ASA 100 print film. One flood lamp was used high overhead. After lighting the lantern and buildings, he experimented to use their light to highlight the side of the locomotive. He used a smoke unit to create a hint of fog. Several rolls of film were used to calculate the exposures necessary to capture the moody atmosphere. This final image was shot at f32 for 30 seconds.
Background

I was in the midst of assembling articles, plans, and drawings of wooden open-frame pickle tank cars when Tom Houle’s excellent article on scratchbuilding this very car came out in O Scale Trains. We had obviously converged on nearly the same literature set, Steven’s Model Railroader article from November, 1956, and Kalmbach’s book, Easy-to-Build Model Railroad Freight Cars. I also had a selection of the old HO Ambroid plans and an additional outstanding set of reference materials, several photocopied issues of the Heinz 57 NMRA Special Interest Group newsletter, Pickles in Miniature. If you have any interest in how these types of products were transported by rail, these are outstanding assemblies of information of everything related to the shipping methods of Heinz and other pickle manufacturing companies. Details on plans, numbering, painting and lettering of cars, construction details, rosters, more references, and even recipes are included. I was fortunate to have these provided to me by Bill Sanders. Since Tom Houle brought this question up, I did look for, but was unable to find, more details on loading/unloading practices and how plants dealt with variable car roof heights. Maybe this is in one of the issues I do not have as yet. More research is in order for a future article.

Well, with all this information in hand, I merged them into my version and I promptly built two pickle cars, one each of the 900 bushel and 1300 bushel variety. It seems that if you’re building, you might as well build two. Having completed these cars, I started eyeing up the car to complement their colorful presence (I painted both of mine as Heinz cars). Of course, this meant I wanted a Heinz vinegar tank car. Fortunately, the same references supplied all the information that I needed, and Volume 1, Issue 5 of Pickles In Miniature has plans for this car in HO, S, and O Scale. There is an article by Bartholomew in Railroad Model Craftsman (May 1962) for a Spea’s vinegar car, and drawings of a Richter vinegar tank car in the December 2000 Railroad Model Craftsman by Harold Russell. I also had a set of the Ambroid HO plans.

Planning

I had initially planned this to follow the same basic strategy used to build the pickle tank car (all wooden construction) since I build the majority of my cars from wood. I routinely mix and match Northeastern, Kappler, and Mt. Albert scale lumber. When I cannot find what I need, pine or whatever is handy from the scrap box gets run through the band saw to fill the order. Some of the plans I have showed the superstructure ends surrounding the tank to be fashioned, in part, out of structural iron or steel. That being the case, I decided that this was going to be a Styrene and wood car.

The next requirement was that I wanted this to be a fast and simple project. To do this, I decided to use all commercially available raw materials, such as wood from Kappler and Styrene structural shapes from Evergreen Scale Models (It’s what I had on hand.) I figured that not everyone has or wants to use power tools to cut strip wood, so I decided on a few shortcuts. First, I’d start with a nice flatcar as my base to build on. Second, the tank would start from materials courtesy of the local home improvement store’s plumbing department. Third, the two end assemblies could be built independently of the rest of the car and the parts assembled convergently.

The Flat Car Base

I wanted a really nice flatcar from which to execute my first shortcut, so I pulled a 40’ 6” Berkshire Valley resin kit that I had off the shelf. These have great detail, a sharp looking fishbelly center sill, and provide a great starting point for building other cars. You could substitute any other flatcar you would prefer that has a similar underbody profile. Building this was exceptionally straightforward since it is a one piece casting. I will limit discussion here to say that I installed all of the underbody brake details, held off on those delicate cast metal air hoses and the brake wheels, and tossed the supplied Styrene decking into my scrap box. I replaced the supplied decking with Northeastern 1/8” thick 1/8” spaced scribed siding. I also drilled out and tapped the
bolsters at this point for trucks. I set this sub-unit up on some blocks to protect those underbody details and moved on.

The Tank

I started off with a piece of 1 ½” plastic plumbing pipe for the 34’ long tank (see Photo 1.) Your local home improvement or plumbing store will sell you enough to build several cars. I could have cut two disks and built up a tank, having done just that in the past, but that’s an approach best left for those with coopering talents. Build a few barrels the old fashioned way, and you acquire a deep respect for the craftsmanship of cooperers. Next, I sealed up the ends with HO 3 x 18 boards. I also scribed two parallel lines on the outside of the tube to ensure that the alignment of the boards on each end matched. With this done, I made two end-flanges of 0.010” sheet Styrene using a compass for the outer diameter, measuring slightly oversize. The radius of the inner circle is three scale inches less than the outer. After cutting out the inner circle, I attached these to each end (with ACC) and sanded the excess flush to the tubing. Now it’s time to turn that tube into a wooden barrel (See Photo 2.) I used HO 3 x 14s, starting from one of the scribed lines making sure of a nice tight edge-to-edge fit, with each board close to flush at both ends and with a minimal overhang over the Styrene flanges. This size of wood looked right and, while using a smaller width would minimize the gap effect from the lack of beveled joints, the results are not objectionable. The HO 3 x 14 actually came out exceptionally close to being exactly the right size to go all the way around the tube. You could try wrapping scribed siding around the tube, but I doubt it would look as good and board-by-board is how I learned to build barrels. I trimmed and sanded off the overhang, flush to the styrene flange, after the glue was set. I paused here to use the tank for some direct measurements and to build the two end structures.

The End Structures

I set the finished tank centered on the decked car, and marked the limits of the tank to define where the end structures would be placed. I built both ends at the same time starting with ¼” x ¼” dimensional lumber to make two end blocks the width of the car (See Figure 1). There are two ⅜” x ⅜” blocks with 45 degree beveled ends glued on top of the end blocks, flush at one edge. The tops of the beveled boards were finished off with a piece of ⅛” channel (Evergreen Scale Models #266). Next, eight ⅜” I-beams (Evergreen Scale Models #275) were cut a scale 3⅛” for the four uprights at each end. Each end of these I-beams was trimmed just enough to become a “T” so that the “T” portion fits down inside the ⅛” channel while the remainder of the “I” of the cut away portion sits on the lip of the channel. Make sure to do this on the same side of the “I” or you’ll end up tossing out a lot of Styrene! I marked the channel (for gluing the modified I-beams into the channel) at one scale foot in from each end of the channel and then another 1 ½ scale feet in from there. I drilled holes, centered between these marks, for some nut-bolt-washer (nbw) castings that I had handy. (PSC #48217)

Next, I cut a second length of ⅛” channel matching the one on the ⅛” x ⅛” block and glued it to ⅛” x 3⅛” lumber cut to the full length of the beveled pieces. I marked it identically to the previous channel and add more nbw’s to match both within the channel and opposite “through” the beam. Then I did it all over again to make the second one. I assembled the two end structures on a piece of plate glass so that everything would be on a clean flat surface. I glued four of the modified I-beam uprights into the ¼” channel beam unit, spaced as marked and fitted inside the channel at 90 degrees, with it all laid on the side that would be facing the end of the tank. Just before the glue was set, the four opposite ends of the modified I-beams were glued into the channel on the end blocks. I made sure that the uprights were square and flat on the glass, since this surface of the assembly will be flush up against the end of the tank. This was a good place to pause and let the glue set up solidly while thinking ahead a bit. Then I cut eight pieces of ⅛” channel; four were ⅛” long and the other four were ⅛” long. The ⅛” pieces were glued to the outside base of the end blocks and the ⅛” ones were glued to the top of the end assemblies. These were carefully drilled through for 0.028” wire and completely through the wood beam for accepting the diagonal trussrods that will connect these two end assemblies and restrain the tank. I capped off the outside of these holes on the channel sections with more nbw’s (I used the same type throughout the project.) Since I had the tank length marked on the flatcar, at this point I also cut the two side boards (⅛” x ⅛”) that are set on their edges in between the end blocks. Photo 3 shows a mock-up of the unfinished tank on the flat car with the trussrods holding the ends upright and together.

Back to the tank now...

I formed the two center- and two end-bands from 0.015” x 0.090” brass cut to length and pre-curling around a smaller...
dowel. I ACC'd them in place one flush at each end with two side-by-side at the center (See Photo 3 and Figure 2.)

There are no exact castings or detail parts for the tank hatches (at least I have yet to locate any), so one has to creatively scrounge for something that provides the look and feel of what should be there (See Photo 4 and Figure 2.) While replacing an exterior light fixture, I noted the end caps that went over the threaded tubing for mounting the fixtures to the electrical boxes looked like one of those items that might prove useful in a future project. Fortunately, I managed to recall where I tossed them into my parts bins and, oddly enough, these brass fittings looked plausible for hatches with a little imagination. I center-drilled them for a 0.033" brass wire that I soldered in place. Then, I formed a latch from 0.015" x 0.060" brass stock (Detail Associates) pre-wrapped and test fitted about three quarters of the way around the tank. Then, 0.022" brass wire (Detail Associates) was soldered to each end along with a brass turnbuckle (PSC or Grandt Line) such that the turnbuckle on each side would be visible above those side letter boards. These were a “cut, test fit, and adjust until I get it right” exercise. These were then secured with ACC, spaced 4½, 9, and 15½ scale feet in from each end. I test fitted the tank, ends, and those side boards, securing everything with some rubber bands to get some idea how it was going to turn out. Now, before any assembly of the car, the tank, ends, sideboards, and flat car have to be painted and decaled.

Finishing

I realized early on that everything would have to painted and decaled prior to assembly, adding those diagonal trussrods, and installing the handrailing stanchions, to get a clean looking car. I handpainted the tank, the two sideboards, and end assemblies with a 50/50 mix of Floquil Reefer Yellow and Armour Yellow. I actually jumped the gun on painting, as

Photo 3: Mock-up assembly of tank and assembled end units.

Photo 4: Tank (prematurely painted!) with end- and center-bands installed and with both hatches mounted.

Grandt Line brake wheel set (#43). Then, after getting the latch in place, I slid on the matching brake wheel. Drilling out the plastic brake wheel for 0.033" wire is slow and delicate work. Eventually, I will replace these with brass as I expect they will get broken soon. I made two of these units and mounted them on top of the tank (with Walthers’ Goo) 13 scale feet in from each end in line (See Photo 5.) Now the tank has a defined top and bottom.

There are six bands that secure the tank to the car, and all have visible turnbuckles for adjustment (See Photo 6 and Figure 2.) I used 0.015” x 0.042” brass stock (Detail Associates) pre-wrapped and test fitted about three quarters of the way around the tank. Then, 0.022” brass wire

Photo 5: Close up view of the hatches.

Photo 6: Tank with all mounting bands installed, painted and decaled, and cables with fasteners added ready to assemble.

Figure 2

Views of the tank (1/2 and end) showing locations of bands, mounting straps, cables, tank hatches, and end flange.
you can see in the pictures. I just had to see how it was going to look in advance, but this is not recommended since it wreaks havoc trying to glue brass to painted wood. A little light sanding with 600 grit paper to remove “fuzzies”, a second color coat, and a clear gloss coat left me satisfied and ready to decal the parts. The underbody of the flat car was given a coat of flat black with the rest of the car being painted Floquil Roof Brown, being careful to leave unpainted that portion where the tank and the two ends would sit. The sides of the car were also finished off in a gloss clear coat, in preparation for decals. I luckily had what just had to be the oldest Walthers decals I have ever used, that were also just perfect for this car. I took the lettering pattern right out of the Pickles In Miniature plans for Heinz car #203. A dull clear coating sealed the decals and blended the edges nicely.

I decided to add the handrail stanchions before mounting the tank. I did another test fitting before securing the ends in place and measured a scale 4/” up from the flatcar deck. The stanchions are mounted through those six bands that also secure the tank car. I used some PECO 4198 stanchions that I had on hand in the parts bin, drilling first with a #74 followed by a #65 drill. The stanchions were secured in place carefully aligning them for accepting the handrailing. Now, there are cables that wrap around the tank; I used 24 made out of #0 black surgical silk with Grandt Line tank hoop fasteners (#48). It is very tedious gluing silk thread to these parts, wrapping the tank evenly, and then securing the ends, but now is the time to get this done. Having done all this, I put it all together!

I ACC’d each of the end structures flush up to the line that marked the end of the tank dimensions. This made for a very tight fit of the tank and I ultimately never actually secured my tank with anything other than friction. I could have glued it in place, but I found that after I put in the trussrods I could not get the tank back out, so I left it alone. This completed, I threaded some 0.022” brass wire through those stanchions, wrapped the wire around the ends, and securing the ends together to make this a single unit.

I then ran two diagonal trussrods for each side, made from 0.028” brass wire (Detail Associates) inserting the ends into those four pre-drilled holes on the inside of the end structures (through those holes that were drilled and capped off with nbw’s). I debatted using a single wire thread with a turnbuckle or to use two wires connected by a turnbuckle. The latter is acceptable with a soldered brass turnbuckle or if these will never get bumped. Otherwise, I don’t recommend that option since these will get handled and will be prone to damage. I actually had a few soft whitemetal crimp-on ones that looked just fine to me, since I could not see their other side for the tank. I then realized that I had forgotten to put those pesky sideboards on before I had installed the trussrods and the handrailing. I managed to slide them through the maze of wire from the end, securing them with just a trace of Goo on the edge meeting the flat car decking just in front and below those six visible turnbuckles centered in from the side of the car.

**Final Details**

To wrap it up, I added the brake wheel and those delicate air hoses from the Berkshire Valley flat car kit and touched up all of the handrails, stanchions, truss rods and turnbuckles with some Engine Black. After touching up any scrapes elsewhere, I added another coat of dull clear coat over the entire car to secure that surgical silk in place. I added a pair of Athearn Andrews trucks and the car was ready to roll (See Photo 7.) Now all I need is to finish building my pickle factory!

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**MTH 2-Rail Locomotives**

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**NEWS:** Tamiya ¾th scale Road Sign Set #32509
see your local hobby shop or www.tamiya.com

submitted by Mike Culham

I thought I would pass this on to you so you could pass it onto our fellow O Scalers. It is a new kit brought out by Tamiya for the Military modelers in 1/48 scale, part #32509. As you can see in the photo showing the sprue (there are two in the kit) it has all sorts of useful items for your layout such as lamp posts, picket fences, power poles and sign frames. Although the decals included are in German for the military guys, you can easily make your own signs. The kit cost $12 Canadian (about $9.85 US). I got this one at my local hobby shop that carries trains and military modeling supplies. Tamiya also has kit #32510 which includesJerry cans and oil drums.

A check of the Tamiya website shows they also have aircraft and other vehicles in ¾th scale.

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**REVIEW:** Nickel Silver 2-Rail Track System
AtlasO, LLC, 378 Florence Avenue, Hillside, NJ, 07205
908-687-9590 • www.atlaso.com
reviewed by Ted Byrne

AtlasO is adding 45° and 49½° radius curved sections to their line of 2-Rail nickel silver track. I thought it would be useful, at this point, to re-review the entire line of track. Your first thought might be, “Who cares? I’m a scale modeler, not a toy train operator, and so I don’t use snap-together track”.

My first train layout was a disaster, though it made good firewood. You probably have a similar story. I have been using Atlas track for the past year and have found a great deal of inspiration and insight by experimenting with layout design. I have tried out ideas and, when they didn’t work, I just unsnapped the track and tried again. In total I’ve tried dozens of layout variations.

You may want to view the system as a tool to try to out your ideas and, when you are happy with the operational characteristics, replace the sections of track with “permanent” track. Then, you can re-use the sections for the next part of your evolving layout.

Of course, the track is also useful for temporary layouts. You can easily set up, as an example, an 8’ by 16’ weekend layout with a sheet of plywood at each end and two narrow, module-like sections connecting them.

Contrary to your initial reaction, this is not toy train track. It is not appropriate for a circle around the holiday tree (unless you have a LARGE tree). Note that there are no equivalents to O-32 (a 16” radius!) or other tight curvatures as in toy-train practice. Also, although it is durable, it isn’t made to be tossed into the toy box or stepped upon.

AtlasO makes 2-Rail straight track in 1¾”, 4½” and 10” lengths, and curved track in 36”, 40½”, and now 45° and 49½” radii. Each piece of curved track is ¾ of a circle or 22.5 degrees of curvature. They also make #5 left- and right-hand turnouts, as well as #7½ left- and right-hand turnouts. Also featured is a wye turnout, and both 45 and 90 degree crossings. The turnouts and crossings are all gapped to eliminate short circuits, so they are appropriate for use with computer control. The points are connected to the adjacent stock rails. The frogs and diamonds are isolated and their power can be switched with the direction of travel. Every piece of track has electrical continuity from the stock rails on one end to those on the other end (or ends), so they carry track power from one piece to the next. All this equipment comes in Atlas gray boxes.

These are not compatible with Atlas 3-Rail track, which comes in blue boxes, because both the ties and rails are different sizes.

The sections are code 148 solid nickel silver rail and connect together with spring clips that slide onto the rail bottoms. There are corresponding plugs and sockets in the plastic tie material. The ties are brown with a wood grain finish and connect together under the rail so the sections are solid and will not bend. The sections will not come unplugged and the rail will not slip out of the ties.

AtlasO also makes compatible flexible track in 40” lengths, with the same rail, ties and connections. Like any flex track, the plastic tie material is not all connected together and the rails can bend and slip along the ties. Any of the track sections can be cut in the usual way, but you are certainly more likely to cut the flexible track to fit a given situation. As you disassemble and reassemble the track, you will gradually loosen or lose the metal rail joiners. I’d suggest that you buy a package of replacements. Atlas also sells insulated rail joiners, terminal power takeoff mechanisms, turnout controllers, and even a plug-in signal system.

To be most successful, you should remember that AtlasO has designed each piece to a specific geometry within the complete system. All parallel tracks are meant to be 4½” apart, on centers, both tangent and on curves. That is why the curved track radii differ by 4½”. The #5 and #7½ turnouts are designed compatibly so that two like numbered turnouts, placed back-to-back to cross over between parallel tracks, will result in the same 4½” spacing, and the wye turnout will create two yard or passing tracks spaced 4-1/2” apart. The curvature of the #5 and #7½ turnouts is 11.25° and 7.5° respectively so there are ½ and ⅛ sections of the 36” and 40½” curves to complement them. Of course you can also follow your own conventions; you will find that you get good at knowing which short section or partial curve to insert to make the track go where you want.

There is no corresponding roadway from Atlas, such as found in some 3-Rail, HO or N systems. I have found that two layers of cork, the upper one being about ½” wider than the ties, and the lower one being about another ½” wider, works quite well. The Atlas 3-Rail bumping post works for 2-Rail with a little trimming. The track is compatible with Old Pullman track and their #10 turnouts should go nicely with the new larger curves. If you cannot tell the curved sections apart by their curvature, make marks on your wall to identify each of the six types by its length. Also, each piece of track has its part number underneath one of the ties.

When you nail or screw the track down in its “final” configuration, leave the fasteners somewhat loose so that you don’t create a bow in the plastic ties and thus change the gauge. By the way, the ⅛” sections work well as joiners at module ends. I could go on and on but the review cannot, so try these and good luck. Tell me your experiences.
A Bit-of-History
Between 1936 and 1937, the UP received its first batch of 4-6-6-4 articulateds from American Locomotive. Their nickname, “Challenger”, went on to become the sobriquet for all locomotives of that wheel arrangement. A dramatic increase in rail traffic brought on by World War II led the UP to acquire even more Challengers, in three batches between 1942 and 1944. The simplest way to distinguish “early” and “late” models is the tender. The early design had a short 37” tender with six-wheel trucks. The later design had a 45” long tender with a four-wheel truck in front and a ten-wheel pedestal frame at the back (4+10 in tender nomenclature). The newer designed 4-6-6-4’s had a higher boiler pressure and increased grate area, allowing slightly smaller cylinders. Drivers were 69” in diameter, allowing for use in both freight and passenger service. The big 4+10 tender held 28 tons of coal and 25,000 gallons of water. Engine weight was 627,000 lbs. and tractive effort topped 97,000 lbs. It was not unusual for a Challenger to make 70 mph on passenger runs.

M.T.H. has chosen to model a “late” Challenger, numbered 3985, placing it in the batch built during 1943. Interestingly, most of 3985’s siblings were converted to oil in 1952 and renumbered in the 3700s. 3985 last operated in “regular” train service in 1957. It was retired in 1962 and stored in the roundhouse at Cheyenne, Wyoming. In 1975, it was placed on display near the Cheyenne depot. A group of Union Pacific employees volunteered their services to restore the locomotive to running condition in 1981 and, in the process, converted it to burn oil. 3985 is the only operating example of a 4-6-6-4 in the world today.

Because of a War Production Board decision, an order of near-identical Challengers for Rio Grande was produced at the same time as one of the wartime UP 4-6-6-4 lots. These were later sold to the Clinchfield. This allows M.T.H. to offer their Challenger in UP black paint, UP Greyhound (two-tone grey), D&RG and Clinchfield paint schemes.

Prototype to Model
The first thing you notice when you take this model out of the box is that it is big, over 125 scale feet long (31.25 inches). That’s a bit longer than the prototype, but the loco doesn’t look excessively out of proportion. In order to operate on tight curves, some liberties have been taken with the dimensions of the front engine, lead truck and pilot. There is about 40 scale inches (0.83”) of extra length distributed between the first set of cylinders and the pilot face. From the rear cylinders back, all my measurements were within a scale inch or two. All the wheels and drivers were dead-on to scale, which helps contribute to the pleasing appearance. However, the pilot sits a scale 18” off the railroad, about twice what it ought to be. Overall height above the rails was 16 scale feet, within two scale inches of the prototype. The tender overall length is a scale 44”. The only compromise I could find in the tender is an extra scale foot (1/4”) between the front tender truck and the pedestal.

Not being a UP fan, I was limited to photos in the two books referenced. As far as I can tell, the major details are accurate and located properly. The engine and tender diecast alloy with added additional details. Some of the smaller piping is cast in, but most are added on. Given all the extra space between the front cylinders and the pilot, the piping for the twin pilot-mounted compound air pumps is conspicuous by its absence. Packed in the box are smoke deflectors and flags, for those who wish to run this baby in passenger service. To M.T.H.’s credit, the class lamps DO NOT light up; they simply have clear lenses. The paint and finish on the test model was flawless.

Operation
Since my last review I’ve actually completed a twice-around, up-and-over loop of track on my layout with 54” minimum radius curves and about a two percent grade. I put the M.T.H. Challenger through its paces using the M.T.H. DCS command control system powered by a 1970s MRC DC powerpack. I added an ammeter to make current measurements.

At 1 scale-mile-per-hour (smph) on the DCS controller, the Challenger actually crawled along at 1.22 smph drawing 0.8 amps (with smoke on but running light). I coupled up a train of nine or ten cars from various manufacturers and pulled out of the yard at 15 smph drawing exactly 1.0 amp. I notched the throttle up to 20 smph with no increase in current draw, until the train hit the start of my upgrade. Peak current draw on the steepest portion of the layout was 1.8 amps. Current draws on plain DC were comparable but the grades required me to constantly adjust the throttle to keep a steady speed. The DCS system includes rotational feedback from the motor to maintain constant speed on both up- and downgrades.

The Challenger ran flawlessly. In fact, I got so excited seeing the train run around the layout, I hauled out a very expensive Korean brass articulated only to be severely disappointed. The brass import stumbled frequently, highlighting every little flaw in my trackwork that the Challenger had blithely ignored. I put the brass import away and went back to playing with the Challenger and my M.T.H. PRR H3 2-8-0.

In Summary
Fans of scale accuracy will want to lower the pilot and, perhaps lacking sharp curves, eliminate that extra 0.8” in the front engine. Overall, this is a great value for such a large locomotive, painted, lettered, and with sound. Were it a Korean brass import, it would cost at least two-and-a-half times as much and wouldn’t come close to running as well.

It’s hard to argue with the take-it-out-of-the-box-and-run-it philosophy brought over from the 3-Rail market. M.T.H. seems to paying attention to O Scalers who want scale locomotives that both look good and run well. Now if they could just include a little bit of prototype info in their User Guides, it’d be near perfect.

References:
Model Railroader Cyclopedia, Vol 1, Kalmbach Publishing.
The history of this model is probably well known to most of you, but I’ll bore you with the repetition anyhow (because I can!). Back in the mid Plastic-scene era, Intermountain Models and Red Caboose collaborated on the production of this locomotive. The result was a Styrene kit using drive components of the earlier Atlas Roco F9. This was a mildly complex and highly detailed kit, the result of which was beautiful, but a little delicate for my tastes. The Roco drive was also a little strained trying to deal with my varied roster of brass, wood, and depleted uranium freight cars. Pat Mucci, of P&D Hobbies, came out with drive replacements that really helped resolve that issue.

When AtlasO bought the Intermountain O Scale line, one of the treasures involved was the diework for these locomotives. Their version, reviewed here, is a mingling of the Intermountain/Red Caboose bodies with the current mechanism configuration found on other Atlas offerings. The one we received for review is equipped with the latest version of the TMCC control system, which features a constant-speed system. Quickly, I got hold of a TMCC control system and clipped it into my railroad, which features the afore-mentioned freight car roster, two-per-cent grades, #6 switches, and 54” minimum radii.

The assembly, paint, fit and finish are up to the standards we have seen in previous Atlas Diesel offerings. Since I don’t have one of the old Red Caboose Geeps anymore, I can’t run a head-to-head comparison, but I found the Atlas version to be much more “handle-able”, with a hefty cast frame and fuel tank, metal handrails, and the like. All in all, the only visual objections I had to the overall appearance of the unit were the airspace between the trucks and the frame, and the length of the couplers. The former can be dealt a cruel blow by the addition of some frame rails (Plastruct works well here), and the latter requires a choice on your part.

Operationally, this was quite an enlightening intro to TMCC-equipped Diesels. This is one of the vertical “power-truck” drives. The instruction book had all the info for an electronics moron, such as myself, to operate this unit with a minimum of pain. With no major mistakes, I was able to get going quite handily without having to rely on the calming effects of the demon rum. The sound is nice and clear, without dominating the conversation.

One unit marches up and down the hill with a healthy mix of rolling stock. By the way, the constant-speed control works well. I tried various multiple unit combinations, after a quick call to Atlas yielded an SD35 with the same equipment. The real test was to “consist” the two units and put one on each end of the train. In this scenario, one can very successfully run pushers (snappers, for you Pennsy types) through curves, uphill and downhill, even stopping and starting with the train split on either side of a summit.

I found the couplers to be a bit long for my tastes. Putting two units together with these things makes for an awfully long leap between units. They are coil-operated from the handheld controller. Push the coupler buttons, and the selected coupler opens. I found them to be a bit problematic with my Kadee-equipped rolling stock. I, personally, would pay an extra couple of bucks for Atlas to include a set of non-coil couplers and boxes from the DC/DCC-ready version in the box. The TMCC version comes with coils only, and a big hole in the pilot that needs to be dealt with by those of us who can’t hack the look of the coil coupler, and find the operating feature not worth the visual distraction.

I, otherwise, had a lot of fun switching with this guy. You can run the engine RPM up and down independently from the loco speed (AUX 3 and 6 on the handheld), so with a little practice, you can play this thing like a fiddle. I absolutely love that, as it solves one thing above all else that I loathed about Diesel sound systems. I’d gladly swap those remote control couplers for the sound of dynamic brakes, though!
Russia during the early Cold War. Other stories talk about their tremendous power drain. When double-headed, substation operators had to be very careful making changes, and the overhead brass wires would get so hot they would begin to sag, until replaced with aluminum overhead.

The locomotive carrying the same number as the model reviewed here made the final electric run on June 15, 1974.

**Weaver Options**

Weaver offers several models of this distinctive engine. You can choose different paint schemes (orange and maroon, orange and black), 2-Rail and 3-Rail, with sound and TMCC, or without sound.

All versions include twin can motors, flywheel coasting drive, detailed cab interior, and operating pantographs.Operating directional headlights, back-up lights, and marker lights are included. A removable roof hatch allows access to the digital electronics for programming and adjusting volume, etc. Front and side windshields are in place.

**Unpacking And First-run**

Carefully packaged to resist shipping damage, my first impression was, “This is one big, heavy, engine!”

Weaver’s Little Joe is immediately ready to run; couplers are included and installed. The engine starts very slowly, with a nice growl, and speeds up smoothly and quietly.

The best part, however, was the coasting drive. Turn up the power, and it starts without lunging. Turn power off, and the engine slowly coasts to a stop. Traction was sufficient for all normal layout needs. Motor noise and the multiple clicks as its 24 wheels went over rail joints and turnout gaps was quite satisfying. After break-in, operation will probably be even smoother.

**Paint**

The body paint was very smooth, just the right balance between brightness and reflectivity. There was no outline to lettering or Milwaukee Road decals.

My only disappointment was the way the trucks and underbody were painted. Because the trucks were painted a glossy black, I found it very difficult to appreciate the detail built into the trucks. (I learned some interesting new words from a digital photographer trying to bring out truck details while not over-exposing the orange body.)

Under normal room lighting, the black paint eliminates most of the truck’s cast-in detail. If I owned the engine, I would apply some discrete earth and dust weathering to bring out some of the detail.

**Quality**

The Little Joe looked great under all circumstances, and, during direct comparisons with printed volumes, no inconsistencies were identified.

The only disquieting note during the testing period was when I noticed one of the marker lights was not operating. I don’t remember whether the light ever operated, or stopped operating during testing. Either way, it was a disappointment, as I didn’t feel qualified to disassemble the engine and find out if the bulb had burned out, or a wire had come undone.

**Conclusion**

Out of the box, in whatever configuration you desire, this Weaver model offers a lot of pleasure at a very competitive price. It’s a fairly priced engine, smooth running, and can be had ready for the latest digital technology. It’s an ideal choice for those who want to immediately begin operating.
**REVIEW:** GE 25-Ton Industrial locomotive, MSRP: $245, in O, Proto48, On30, and On3

Rich Yoder Models, 7 Edgedale Court, Wyomissing, PA 19610

www.richyodermodels.com

reviewed by Brian Scace

Rich is again regaling us with another small GE, this time the diminutive 25-ton end-cab version. These little guys hark back to the 1950s, and were a relatively standard design.

The drive is a single motor with a worm to one axle, chain-coupled to the second axle. The result is very smooth and quiet. The electrical pickup is quite positive. The model crawls through my dead-frog turnouts with nary a flicker of the lights.

Our sample was neatly assembled, with a nice convincing cab interior. The gray paint (Should I letter this for the Boston Navy Yard?) is nicely applied. All in all, the fit and finish are most satisfactory.

These critters probably have a fight on their hands controlling (in the real world) one or two cars at a time; indeed there is a certain earnest midget quality about this model struggling in the shadow of a full sized 40’ boxcar.

The model actually will bat three cars of average brass weight and sled-factor about with an air of capability.

The model looks good, is solid, and operates with aplomb. The detail level is excellent, and there is even a reversing constant-lighting circuit installed in this tiny Goliath. For those with industrial districts, tight quarters, or limited space, Yoder’s 25-ton GE bears a good look. While looking for a star for your shelf railroad (You did decide to get out of your chair and build a little switching railroad instead of whining on your favorite Internet forum about the room O Scale requires, didn’t you!), audition this one.
First, as the old recipe goes, build your carbarn. Then transfer its footprint to the site and lay the appropriate track. My carbarn is a Korber three-track building, so I laid three tracks. I used code 100 rail joined by shim brass “ties” every several inches. The ties bond the track electrically and provide a way to fasten it to the 1/2” plywood surface. I divided the tracks into several blocks, controlled by toggle switches, to allow the overhead to be one electrical unit.

The overhead is a rack which uses 5/32” brass channel, open side down, as the conductor. The channel captures the trolley shoe as it comes off the wire and eliminates “dewirements” inside the barn. It even allows backup moves into or out of the barn.

Ok, let’s put it up.

1. Drill 1/4” holes in the track baseboard between the tracks (not between the rails). See the pictures for spacing, and do it to suit yourself.

2. Insert 1/4-20 x 6” round-head stove bolts. Push them all the way down and let the heads rest on the table.

3. Lay lengths of 5/16” channel, open side down, between the rails on the center line of the track. This will become the conductor for the trolley shoe.
Lengthen the channels, if necessary, by splicing 3/4" channel on top/outside. Pre-drill #70 holes in the outer ends of the channel for the trolley wire.

4. Place code 70 rails across, in the slots in the bolt heads, and on top of channel.

5. Solder it all up. Pre-tinning helps mightily!

6. Pull the frame up out of the baseboard. Add a nut and a washer to each bolt. Reinsert the bolts back in the holes. Add another washer and another nut to the bottom of each bolt. Use the nuts and washers to adjust the height of the frame to match the doors of the car barn.

This car barn is a Korber three-stall building. Since it is visible from one side only, I assembled it with the far wall inside out, thus putting the outside in to look like the inside. It hardly shows, but I know it’s there. The complex will be named for an early Master Mechanic, one Lemuel N. Polk. They will be the Lem N. Polk Shops.
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The Union Pacific “7000” Class
4-8-2 “Sports Model”

On The Way in “O” Scale

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Always inquire about Key Imports models through your nearest Key dealer.
Tunneling Through New York City, Three Stories Up!

Here’s a layout idea for any traction modeler looking for an excuse to run a mixture of freight and passenger traction in a high-density urban environment spanning over three-quarters of a century. Although a “fantasy” project, the West Side Freight Railroad (originally part of the New York Central System) is firmly rooted in contemporary developments taking place in cities around the country.

In 1934, as part of Robert Moses’ West Side Improvement, the New York Central took to the sky in order to eliminate the miles of congested street-running required to bring freight to the lower Manhattan meat packing district. Tracks were elevated 14 feet above street level on a viaduct that tunneled through buildings on its way from what is now Riverside Park down to the St. John’s Freight Terminal. When completed, the West Side Freight Railroad line eliminated street-running, along with over 120 grade crossings.

The multi-track line was soon nicknamed the High Line, a name that lives on in the frequent newspaper and magazine coverage (i.e. The New Yorker). Efforts to convert the abandoned viaduct to an elevated pedestrian boulevard, against the desires of real estate developers hoping to further develop the former meat packing district, have divided the city. The Friends of the High Line even enlisted the aid of Martha Stewart to promote the preservation cause.

Here are some you should consider modeling the West Side Freight Railroad:

1. Historic Trolleys, Contemporary Environment

Although originally a freight-only line, some contemporary advocates are pushing to convert it into a light rail line connecting Mid-Town with Lower Manhattan. If this were to happen, it’s almost a “given” that historic trolleys would operate over the line, attracting tourist traffic. Cities as diverse as New Orleans, San Francisco, Seattle, Philadelphia, and Fort Collins have discovered the magnetic appeal of historic trolleys.

As a result, here’s an opportunity for the modeler to run a wide range of historic trolley models in a contemporary setting, miles from where the cars originally ran, and an answer to silence layout visitors who ask, “Why?”

From the “history and tourists” perspective, it would then be entirely natural to see a three-car North Shore train tunneling through a lower Manhattan meat packing plant, while refrigeration cars are unloaded on an adjacent siding.

2. Build Narrow and Vertical

A convincing model of the High Line could be built on narrow, around-the-wall modules containing (removable) buildings that reached to the ceiling. At numerous locations, the West Side Freight Railroad mainline and/or unloading sidings tunneled through buildings. Just like on the prototype, these buildings would dwarf the viaducts and tracks, creating an amazing sense of presence, without occupying much horizontal space.

3. Extensively Documented

Best of all, as mentioned in the Resources sidebar, there are numerous online photographic resources covering both the history and operation of the line, as well as its current status as a high-profile political cause célèbre. Internet coverage is extensive, including a free 90-page downloadable Acrobat PDF copy of historic and contemporary photographs and maps. There’s also Walking the High Line, a hauntingly beautiful book of photographs, by contemporary photographer Joel Sternfeld.

No matter what era you wanted to use as the basis, you’ll find a wealth of maps and revealing photographs at your disposal (See “Resources” sidebar.)

4. High-Density Imagination

Did I emphasize “high-density” and “built for operation”? The High Line was double-tracked for its entire length, ending at the St. John’s Park Freight Terminal which was New York City’s largest commercial structure. Given the numerous crossovers between the two main lines, plus passing sidings along the way, this would be a layout built for heavy and continuous freight and passenger action!

It would be up to you, of course, to design appropriate stations serving the various neighborhoods the High Line passes through (above?). You could have a field day either modifying the track plan of the St. John’s Freight Terminal to accommodate passengers, or designing an all-new passenger terminal further south.

There’s really no limit to how far and in what direction, you could take this project.

You could:
    • Follow an “historically accurate” scenario, modeling the viaduct as the electrified freight line as it was between the 1930s and late 1950s.
    • Model the abandoned contemporary viaduct, as it awaits the inevitable court trials and appeals before conversion to an elevated pedestrian boulevard.
    • Freelance model the High Line fifteen years into the future, when it could be a combination pedestrian boulevard and light rail line with a mix of historic traction and contemporary light rail cars.

Few layouts offer as much opportunity for “historically informed” modeling in condensed spaces.

5. Size Options

Your excitement over the High Line’s modeling potential will grow to the extent you view the wealth of photographs available on the Internet. Also, the nice thing is you don’t have to model the whole thing! You could model, as modules built to West Penn standards, a short length of the line, with tracks passing through, or by, one or more skyscrapers.

However, once you see the photographs showing high level views of the High Line snaking through several blocks of lower Manhattan buildings, with the Empire State Building in the background, your enthusiasm for a more elaborate layout will
probably consume you.

**Conclusion**

So, have fun. Visit the Friends of the High Line website at www.thehighline.org, get a hold of Joel Sternfeld’s book from www.amazon.com, and download some of the pamphlets and photographs listed in the Resources. As they used to sing on Broadway, “This could be the start of something great!”

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**Resources**

**Friends of the High Line**
www.thehighline.org
Numerous resources, including 90 page downloadable e-book, photo gallery, and latest news.

Link here to slide show of design options: http://www.thehighline.org/design/prelim_design/index.htm

**New York Central’s 1934 West Side Improvement**
http://www.railroad.net/articles/railfanning/westside/index.php
Historic pamphlet published during the 1930s containing full background and numerous photographs of the High Line in operation, links to thumbnails of numerous, detailed photographs.

**Jinx Magazine**
http://www.jinxmagazine.com/highline.html
Short, entertaining, and realistic story of a midwinter walk along the High Line by a contemporary photographer who has an unfortunate experience with his camera.

**New York Architecture**
Pleasing mix of historic and contemporary photographs by Joel Sternfeld, and others, including a few proposed drawings of the High Line converted to a pedestrian boulevard.

**New York City Artwork**
Contemporary, color-saturated, views of the High Line as photographed by John Rust in the summer and in the winter. A worthy complement to the Joel Sternfeld book.

**Kottke.org**
http://www.kottke.org/photos/highline0204/index.html
Yet another series of “walking tour” photographs of the High Line in its present, often surrealistic, state. Great “realistic” modeling detail shots of elevated tracks approaching bricked-up doorways, etc.

**Elevated to Nowhere**
http://www.forgotten-ny.com/SUBWAYS/Tenth%20Ave%20trestle/Tenth.html
A mix of both familiar and brand new photographs, with yet more views of the “High Line in transition.”

**Required Reading**

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B&O All The Way

It's great to see an Ed Bommer model grace the pages of O Scale Trains once again. It is amazing how Ed can take an ancient kit and convert it into a museum quality model. He is also a master model painter. I've seen Ed's work in person at a B&O conventions and the stuff is quite awesome. It is definitely some of the best work I've seen in O Scale, or, for that matter, in any scale period. Please keep his work coming.

Marc Pitanza, Old Bridge, NJ

Layouts For Model Builders

Just a note to say thanks for running my Pennsy woodside gon article. The article photos, everything, looked great. You guys have become a top quality mag. I thought your editorial comment about model railroaders shifting from being strictly model builders to railroad builders was very insightful. I'm probably still more of a model builder. I love bench projects. On the other hand, I enjoy having a place to stage and operate my scratch-built projects. to this end, I've built a relatively small around-three-walls point-to-point switching layout that is three feet deep except where it angles around the corners. Overall length is 32' though it will be extended another eight feet or so. The point is, it's a compromise. The layout is small enough to handlay a few switches and scratchbuild much of the structures and rolling stock, yet still be able to ultimately scenic and finish the thing in a reasonable time period. I'm pretty much a loner when it comes to building and operation so this suits me fine. It occurs to me the smallish O Scale layout, even though being relatively operations impaired, is perfect for those of us who love to build kits and/or scratchbuild rolling stock, structures, and even locos. The small layout becomes an operational show case for my creations. Whether or not I turn a wheel every weekend or I spend the time at the work bench is less important to me than putting out the latest creative fire burning in my head. In fact, there's something for all of us here in this great hobby. Keep up the fine effort.

Tom Houle, Mich.

Joe says: Tom, I feel exactly the same way. The OST layout I'm building is a showcase and test bed for my models rather than a serious attempt at prototype operations. Whatever floats your boat.

Die Guten Alten Tage

Jace Kahn's nostalgic trip in issue #21 of O Scale Trains — which by the way is getting better and better with each issue — talks about the advent of the hobby shop as we know and love it and the nature of doing business in the late 40s and 1950s. If you'd like to experience this feeling right here, right now on planet Earth, all you have to do is move to Germany. After spending over three years living with my wife in Düsseldorf the best way I could describe the experience is like reliving my childhood in Philadelphia in the 1950s.

Let me try to summarize. First of all, there are "real" toy stores and hobby shops in Düsseldorf and they are wonderful. They are not franchises and they are well-stocked. ToysRUs has hit Europe, but not much in Germany. Second, mostly all purchases are in cash or by check-card. According to my German friends, "Why would you buy something if you don't have the money in your account to pay for it?" If we took that approach here in the USA, we'd be in a full-blown Depression in about three months.

Another German retail characteristic (a la the 1950s) is no Sunday or holiday sales — period! Germans still do their shopping downtown in discrete stores. There was one mall in Oberhausen, but it closed at 4:00 PM on Saturdays and was closed on Sunday.

I built my railroad first in Germany (later dismantled and shipped here) and those store hours really presented a problem. I designed all of the sub-roadbed pieces on my PC and heard (erroneously) that German plywood was 1 X 2 meters in size. I designed the cutting patterns to fit this. When I got to OBI, their ply sizes were not that at all. In a difficult conversation (at this early period in my assignment "meine Deutsche was nicht so gut") the clerk told me that their ply sizes were 1.42 X 2.7 meters (or thereabouts). In other words, German ply sizes were still 4 X 8 feet simply converted to metric sizing. I had to redraw the entire cutting plan, but couldn't get back to the store until the next Saturday since they closed so early that I couldn't get there after work.

In all of these ways, life in Germany today is just like when I was growing up. In some respects it's better with the wonderful privately-owned shops and the great food, but in other ways it's way more inconvenient. Not being able to buy milk on Sunday unless you went to the one supermarket that was open at the main train station, was a royal pain in the rear. So was not being able to run your car through a completely automatic car wash on Sunday because Sunday was a "quiet holiday".

Like all cultural comparisons though, it's not that it's bad or good, it's just different. And nostalgia plays tricks on you. In many respects, the window to our hobby is so much better with the Internet than it ever was during the days when you had to depend on your one local hobby shop. My dad used to say, "The only thing about the 'good old days' is that they were old."

Myles Marcovitch, Newtown, Pa.

St. Louis Feedback

What a month. Two national conventions in two weeks. The first was the O Scale Convention in Collinswood, Illinois last week (June 16-18). The second was the Milwaukee Road Historic Association this weekend (June 23-25). Both were good meetings.

One gripe about the O Scale National is that almost everyone folded up and was gone by noon on Saturday. The show was advertised until 3 pm. Had I lived in St Louis and come late I would not have seen much. Only a couple stayed. This is a NATIONAL meet not just a small local gathering.

The Milwaukee meeting was great especially since it was held here in Sioux City, Iowa. The Saturday speaker was Dr. Rudi Daniels who has written about the railroads. There was an auction of Milwaukee “stuff”, great fun. One funny thing happened.
The train ride (which almost took an act of Congress to pull off) went from Harvey to Sioux Falls, South Dakota. The passenger cars were loaned to the group by the BNSF and were part of the Milwaukee 261 train from St. Paul, Minnesota. It was pulled by two chopped-nose Geeps from the Dakota & Iowa, (D&I). We got to Sioux Falls and there were no lunches. Oh, well, we boarded the busses (four of them) to return to Sioux City, and there were the lunches! The connections were missed in Sioux Falls. Well, we ate later and had a great trip.

I wonder what’s on tap for next summer.

Dick Donaway

Electric Over Issue #21

Overall, I think Issue 21 has an excellent mix of articles. As an admirer of the Piedmont & Northern’s homemade electrics, I especially enjoyed Gerald Brothers’ piece on interurban freight motors. Tom Houle’s gondola article brought back some memories. I like the old-style arrangement with the carbody ends recessed from the end sills, and have a photo taken through a train window in Dec. 1954 of one of those PRR prototypes.

A late friend of mine built a similar gondola for me some 20-odd years ago (see photo below) based on an AHM flatcar. I was and am still delighted with it, but my friend was ashamed of the model because he thought it should have had flush ends and could not seem to grasp that the style of the model was prototypical for older gondolas. This ties in with Gary Woodard’s article on kitbashing AHM flatcars, as a creditable early 20th century gondola (not necessarily PRR) could be made using the information from the articles by both Tom and Gary.

Lastly, I was both interested and amused to read the article on “Spring Power Transfer.” I also think it is a good system, as was proven by Scale-Craft when they introduced it during the mid-1930s! It is far from new. I encountered it some 30-odd years ago when using a Scale Craft Pacific chassis as the basis for a 1:45 ratio GN H4 4-6-2. One thing we learned is that the portion of the mandrels that fit inside the ends of the coil spring need to have a diameter small enough to allow the spring to slide over them without binding. While not as sophisticated as a ball & pin coupling or double U-joint, the spring coupling can work very well. It’s nice to see it re-discovered.

Woody Mathews, Seattle, Wash.

Fond Memories Of Arthur Ford

The July-August issue of OST (#21) brought back some happy memories for me as far as trolley models go. The article by Roger C. Parker on page 62 features the man, Art Ford, who sold me my first O Scale trolley. It was a Kidder 4-wheel open car which ran so well I got rid of my HO trolley cars and bought more O Scale, mostly from Mr. Ford.

A neighbor of his, John Rockwell, had an O Scale trolley line in his cellar and we all would go over there twice a month to run our cars and watch trolley movies or view slides. Most of the original gang are deceased now but there are a few of us still going strong, including Jean Deshines, who, along with many others, were members of the Bay State Model Railroad Museum in Boston.

By the way, the center spread shows the GP-9 is missing its front-right handrail. Maybe a yard accident caused this?

The magazine keeps getting better and better.

Roger Jenkins, Beaumont, Calif.
Here’s a nifty little flag stop station project that you can scratchbuild in just a few evenings. The project is made even easier by the availability of Grandt Line windows and doors that, with minimal modification, follow the prototype nicely.

Way back when, I spotted this project in Kalmbach’s soft-cover book, Easy-To-Build Model Railroad Structures. It was a one-page article with front and side elevations of the station, a single photo, and a scrap of text. This book is out of print now, but I’m sure you can scrounge a scanned copy somewhere online, or perhaps you can order a copy from Kalmbach Publishing. It’s worth finding because there are a number of other neat scratchbuilding projects in that book, one of which is a Midwestern grain elevator that would be perfect on my layout.

The prototype station for this model was located on the North Lake, Wisconsin, branch of the Milwaukee Road. Bob Brown, member of the Milwaukee Road Yahoo Group, told me that the Milwaukee Road, in the 1940s, ran a mixed train three days a week past this tiny station. Sadly the branch is now a bike path, but we can recreate those simpler days of yore with a neat little O Scale model of this station in basswood and/or Styrene construction.

I began the project by laying out the four walls on \( \frac{1}{16} \)" thick \( \frac{1}{8} \)" scribed 4" wide Northeastern Scale Lumber basswood sheet stock. The walls could also be constructed of scribed 0.040" thick Styrene, though they might require some interior bracing. I used \( \frac{3}{32} \)" square corner and eave trim boards, which are pre-painted and then added to the end walls after the walls are painted.

The window and door openings shown are sized to accept Grandt Line windows and doors, both of which are very close to the Milwaukee Road prototype. Before I cut the end wall door opening, I built a transom that sits atop the door. Do this before you cut the door opening to ensure that the modified door will fit snugly into the opening. See the drawing and Photo 1 for details on the transom framing and sash. The windows required a bit of trimming at their tops to render them accurate.

When the three doors and windows were done, I set them aside and turned to the eave braces. This is a fiddly project, but having gone through the Grandt Line online catalog I couldn’t find an eave brace that came close to the braces used on my station. The prototype braces are 4\( \frac{1}{2} \)" square straight lengths (which scale out to \( \frac{3}{32} \)" square). I used basswood strip, but 0.100" square Styrene strip would work as well. In all, there are 12 braces of three different configurations; six support the front and back overhangs, two right and two left-hand braces support the end wall corners, and two support the ridge overhangs. See the drawings for the three layouts.

I cut the braces on a North West Short Line Chopper, then built them up over copies of the brace drawings laid over ceiling tile covered with waxed paper. The pieces are glued with Elmer’s white glue. Note that the right and left-hand end braces and the two ridge brackets require tapering to match the slope of
Drawings are full size for O scale

**END WALL**

- **Walls are 1/16" thick**
- **1/8" scribed basswood**

**FLOOR**

- **1/8" x 3 5/8" x 4 1/2" basswood sheet**
- **(Notch corners to clear 3/32" sq. corner trim)**

**ROOF PANELS**

- **3/32" x 3 9/32" x 5 7/8" basswood sheet**

**GRANDT WINDOW #3706**

- **4 - places**

**NOTE:**

- Rear wall has door and window directly opposite those in front wall.
the roof. The completed sub-assemblies are shown in Photo 2.

I lightly sanded my finished brace assemblies to remove glue traces and then brush painted them with Floquil SP Lark Light Gray. You'll want to paint the braces before they're glued to the lighter colored walls. Floquil SP Lark Light Gray is a close match for the Milwaukee Road's dark gray trim.

Next, I sprayed the four walls, windows, and three doors with Floquil Gray Primer. A local Milwaukee Road modeler had told me that Floquil Gray Primer was a close match to the overall gray paint used on Milwaukee Road stations. In retrospect, the Floquil primer may be a bit too dark. Were I to do it again, I'd try for a lighter gray, adding drops of Floquil Black to a bottle of Floquil White.

The Milwaukee Road painted their station doors and win-
The prototype appears to have used asphalt shingling, which I replicated with strips of 180-grit waterproof black sandpaper. I cut 35 strips of sandpaper \( \frac{3}{8} \)" wide x \( \frac{15}{16} \)" long. With an old pair of scissors, I cut notches \( \frac{3}{16} \)" deep every \( \frac{1}{4} \)" or so to simulate the shingle notching and breaks. You can speed up this process by cutting four or five strips at a time. Vary your cut spacing so that the shingle breaks alternate from one row to the next. I began at the bottom edge of the roof with a starter strip just like a real roofing job (See Photo 6.) For roofing glue, I used Aleene’s Tacky Glue from Duncan Enterprises. This glue is available at craft stores like Hobby Lobby. I find this glue better suited than Elmer’s white glue when I’m doing a lot of gluing to basswood. Too much Elmer’s can cause warping of the basswood. Aleene’s Tacky Glue dries clear and flexible and won’t cause warpage. When the roofing had cured, I brushcoated the shingles with a heavy coat of Floquil Engine Black. Other shingle colors are also possible. I’ve successfully brushpainted sandpaper shingles with any number of Floquil solvents and acrylics as well.
I made up the Sussex station signage on my word processor, cut them out, and glued the paper printouts to a sheet of 0.015” Styrene. After cutting the signs to the correct outline, I framed them with pre-painted strips of 0.060 Styrene angle. Mounting the signs finished off the structure, as shown on Photo 7.

Now where are those paying passengers? Let’s hope a few show up before that mixed local comes whistling and chuffing around the bend.

---

**Bill of Materials**

**Northeastern Scale Lumber Company**
- 1/16” thick x 1/8” scribed x 4” wide Basswood.
- 3/32” Sheet
- 1/8” Sheet
- 3/32” Square Strip

**Evergreen Styrene**
- 0.030” Sheet
- 0.030” Square Strip

**Grandt Line**
- 3602 Door (1)
- 3603 Door (2)
- 3706 Window (4)

**Paint**
- Floquil Gray Primer
- Floquil SP Lark Light Gray
- Floquil Engine Black

**Roofing**
- 180-grit Waterproof Sandpaper

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**Practical Guide To Model Railroading**, Kalmbach Publishing p. 54

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**Easy-To-Build Model Railroad Structures**, Kalmbach Publishing p. 17.

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Sept/Oct '05 - O Scale Trains • 57
I thought I'd take a break from our overview of what I believe happened regarding how O Scale models obtained the materials to create their railroads from the beginnings to the present. I'll save the last chapter about the golden age of hobby shops in the 1950s and 1960s down to the twenty-first century for a future issue.

Before I get into this issue's topic about what the scale looked like in 1940, I'd like to touch on a few housekeeping items. First, I value all the information readers pass on to me as a result of past columns (Keep those e-mails and letters coming, folks!) I am much more likely to answer right away if it is an e-mail, simply because I have gotten lazy about old-fashioned pen-and-ink correspondence. Everyone anything sends me is grist for the mill. Even if it doesn't show up right away, it has not been lost and does go in the hopper for future columns.

Second, when I run into readers at shows or chat on the lists with them, I am always flattered when they say complimentary things about the column; but, modestly aside, I usually tell them it is more important to let Brian and Joe know how they feel. After all, that is the only way they can reasonably decide to keep including it.

Third, I probably should remind us all (and that means me, too) from time to time, that when I write about where I see us having come from, I am not presenting myself as the expert (most of us have working definitions of what an expert is worth) or last word. There are probably a couple dozen better-qualified and more knowledgeable people out there, but so far as Joe, Brian, and I know, they haven't been willing to write a regular contribution for OST. So if (or perhaps I should say, when) I offer incorrect or incomplete information, please do let me know. As I've said before, I have always intended this column to be a forum for sharing our common store of knowledge about O Scale history.

As a sort of slice of ancient history (from 1940, a time before most of us were born), I recently acquired a second copy of a fascinating sort of primer on model railroading as it was back then, *Model Cars and Locomotives*. Published by Al Kalmbach's Modelmaker outfit (the original corporate identity for MR and all books), a well-known English modeler, the Reverend Edward ("Teddy") Beal, and Frank Taylor, a long-time Kalmbach associate, author, and about to become editor of MR, discussed the state of model railroading. By the way, Frank was also the designer of the Walthers line of kits (His work is still present in the All Nation version of them.) This book represents a wonderful snapshot of model railroading in the late pre-war years; what it was, how to get started, and what was available.

Storm clouds were gathering, not only over Europe, but even in model railroading. "[O Gauge] is the oldest of the now popular standards and was for many years the predominating one…Evidences indicate that it will soon be no longer possible to claim pre-eminence for this gauge in the field of popularity." And what was new to me was the illustration of a quite nice two-track O Scale Shay built by Walthers "for use at the NY Fair." I wonder what ever happened to it?

But what is of particular interest, and the focus of this column, is their list of suppliers. Some of them I can identify from the text, some are familiar to most of us, but some are lost in the mists of time. Let's see how many you can get (and how many of my speculations you can fault me on). In fact, let's make this a contest. The largest number of correct identifications (I suggest checking these in contemporary MR and Model Craftsman issues) wins both bragging rights and my duplicate copy of the Beal and Taylor. Joe G. gets to judge; all decisions final. Please send all submissions, via e-mail or post, to OST so Joe can read them (and, incidentally, get some idea of the interest in the column), by the end of November.

**Adams Manufacturing & Supply Co., Los Angeles.** This is presumably the firm that did so many of the sand-castings that were a staple for almost a generation, some of which still exist, often in altered form, in Babbitt (ex-GMC, ex-All Nation) and CLW parts.

**American Model Railroad Co., Inc., New Rochelle, NY.** I believe this was the pioneer Edward Alexander's hobby business. He offered a nice 4-4-0, a PRR K4, a GG-1, and some unusual, for the time, older prototype rolling stock.

**Auel Industries, Irwin PA.** Excellent diecast trucks and parts. Many are, amazingly, still available today from the original dies. Westbrook used his detail castings and trucks in their optional additions to their basic body kits.

**M.B. Austin, Jr. Winnetka IL.** I believe this was "Manny" Austin, who subsequently relocated to California (as many did during and after WWII) and imported some brass from Japan, mostly HO unfortunately.

**Thomas G. Bedell, Windsor VT.** Apparently made locomotives, but no details in the book apart from some drives for electrics.

**William Beeman (Rail-Craft), Webster Groves MO.** Those who have read this column a while know of my fondness for this firm. The book is the first reference I've seen to his street address.

**D. N. Bradley, Joliet IL.** No idea.

**L. D. Cameron, Los Angeles, Cleveland Model & Supply Co., Inc. Cleveland OH.** The usual across-the-board (aircraft, boats, racing cars, crafts) vertically- and horizontally-organized manufacturer and distributor. I think they offered a few of their own O Scale specialties, but they are best known as the early advocate of what became S Scale (which they termed "CD").

**Charles A. Cole, Ventura CA.**

**Comet Model Co., Chicago.** Anyone else remember their ten-cent balsa airplane kits and their cardside HO freight cars (I think those were thirty-five cents, less trucks and couplers?

**Congress Tool & Die Co. (Min-I-Scale), Detroit.** Best known for their NYC Hudson, but also apparently made 17¼" car kits.

**H. J. Coventry, Baltimore.**

**R. D. Denise & Co., New York City.**

**A. De Pippo, Hoxsie RI.**

**Lynn Drummond, Augusta GA.**

**Merle F. Faber, Millbrae CA.** Excellent freight car kits with silk-screened metal sides, most of which were eventually absorbed into the Lobaugh line, I believe. I wish I knew more about his operation.

**Famous Model Co., Baldwin NY.** Better known as FAMOCO, producer of electric locomotive kits.

**A.C. Gilbert Co. (American Flyer), Erector Square, New Haven CT.** "Nuff said.

**Graceline Model Railroads, Minneapolis.** A major supplier of freight and passenger cars, trucks, track components, they deserve a full column if I ever learn enough about them.

**H&S Model Supply Co., Detroit.**

**Hawk Model Co., Chicago.** Another manufacturer/distributor/retailer with broad hobby offerings. EMC SC switcher, freight car kits, trucks, track components. Still on my list of columns-to-do. (If anyone has one of those SC's, I'd love to see one. --ed)

**Hobby Industries, Milwaukee.**

**Hoffman's, Philadelphia.**

**Icken Model Locomotive Co., Palisades Park NJ.** Although primarily a custom-build- er, Fred Icken did offer some of the parts he developed for his own use commercially.

**International Models, New York City.** Really came into their own after the war, importing from Occupied Japan.

**J-C Models, Brooklyn.** Passenger cars a specialty, first with compressed card sides, later with metal. Some of the line is still available from All Nation.

**K&W Shop, Cranston RI.** Early HO automatic coupler.

**Lafayette Model Co., Paterson NJ.**
Laconia Industries, Inc. Laconia NH. Another war transplant to California, only HO (so far as I know).

Lange’s Model Supplies, Chicago.

Lang-Cincinnati Cars, Cincinnati. No idea if this was connected to C. Charles Lang.

Lionel Corp., New York City. Inclusion of Lionel and Gilbert in the list suggest what model railroading was like in 1940.

Little Engines, Wilmington CA. I believe still in business, selling parts for live steam to those who have good machine shops or friends who do.

Rollin Lobaugh, San Francisco. One of the giants of O Scale history, there are several previously-published articles in RMC and OSN on the line.

Mantua Metal Products, Woodbury Heights NJ. Only HO, but Mr. Thomas was learning the business there to offer his O Scale line after the war.

Megow, Philadelphia. Another major manufacturer, distributor, mail-order house. A line of cast-aluminum freight cars (a few still offered in improved form from All Nation) and even locomotives (see below), although those don’t seem to have survived well (or perhaps there were never many of them made), as very few are around now.

Metzger Engineering Co. Harrisburg PA.


Model Railroad Exchange, Collingswood NJ. Motors and conversion kits for AC motors.

Model Railroad Laboratories, Jamestown NY.

Model Railroad Shop (H. Owen) Dunellen NJ. Started by Howell Day. Offered their own line of car kits and track supplies, mostly in HO but also at one time in O Scale. Reportedly offered an O Scale PRR K4. Still in existence the last I heard, although it has passed through a number of owners over the years.

Model Craft Co., Philadelphia.

Eugene V. Montross, Reading PA.

Paul Moore, Adrian MI. Crude wood and card kits for HO interurbans, sketchy drawings of traction, but still remembered fondly by older members of that fraternity.

Nason Railways, Inc., Mt Vernon NY. Major OO manufacturer. Useful for O Scale because early narrow-gaugers, such as Jack Alexander, used their mechanisms for On3.

M. Dale Newton, Los Angeles. One of the few suppliers who actually LEFT California after the war. Owner of Red Ball, which offered an enormous variety of kits for rolling stock—unfortunately for our purposes, all in HO.

O Pullmans, New York City

Parmele & Sturges, New Haven. I believe several sand-cast electrics locomotives (New Haven a specialty), a PRR B-6, and freight cars (including a crane, as I recall).

Picard Novelty Co., Westerly RI. Inexpensive (I think a dollar or less) basic wood body kits for freight cars. The builder provided his own trucks, couplers, and detail parts.

Pittman Electrical Developments Co., Philadelphia. Pittman moved to small-city Pennsylvania later and got into O Scale traction. In 1940, Charlie Pittman was offering only smaller motors.

Pomona Valley Model Supply, LaVerne CA.

Pratt’s Models, Ozone Park NY. Some freight cars kits, I believe.

The Roundhouse, Hollywood CA.

Scale-Models, Chicago. I assume this is the corporate identity of Scale-Craft (which is not otherwise listed, and would have been, as a major manufacturer in O and OO).

Scale Model Railways (Division of Megow), Huntington IN. A corporate takeover.

The Spot Hobby Shop, Baltimore.


Vanden Boom, Kansas City. A hobby shop and distributor, they offered a line of kits, mostly of wood construction.

Gordon Varney, Chicago. HO before the war, HO (and O Scale, very briefly) after the war, then the move to Florida.

Wm. K. Walthers, Inc., Milwaukee. How could Uncle Willy NOT be included?

Westbrook Co., Hasbrouck Heights NJ. Indispensable manufacturer of O Scale freight car kits at the time.

Here is one more related thought. Because O Scale has been around for so long, there is quite a bit of equipment out there. From time to time other O Scale builders contact me about identifying mystery cars or locomotives which they have found on Ebay, at shows or at estate and yard sales. While I can’t claim 100% clearance, I have had a fair success rate. With the blessing of our publisher and editor, if anyone would like to send in scans or photos of puzzling items, I will take the initial contact and then turn it over to the collective wisdom of the readership, as we do with topics in “The Good Old Days.” The better the views, the better our ability to figure out origins; a view of the underside is almost always critical. Tinplate is a highly-specialized field with experts of long experience (of which I am not one), so perhaps we could limit candidates to scale only.

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Steam Era - 1st Place & Editor's Choice

A high-wheeled SP Atlantic leaves the main station with a train of green Harriman cars in tow. For the shot two modules of Guenther Holzgang’s layout where moved outside. The warm evening sun produced the long shadows of the scene. The photo was taken by Juerg Luetscher. Both Juerg and Gunter model the SP in transition and both men live in Switzerland.

Steam Era - 2nd Place

GN 4-6-0 #927 waits at Waynesboro siding for the freight led by GN 4-8-2 #2510 to clear, while in the foreground a young lady waits for her car to be towed. The photo was taken by Dan Roswell on the layout of Wayne Paulsen. Both men are from Victoria, British Columbia.
Steam Era - 3rd Place

It is the summer of 1956 and the Great Central Railway is busy switching the east end industrial area of York. Photo by Mike Culham, Toronto, Ontario.

Narrow Gauge - 1st Place

Bill Davis shot this Grandt Line 18 ton Porter on a friend’s layout several years ago with a wet-film camera. He then scanned the photo and "Photoshopped" it to look like an old sepia-tone print. The side dump car is a modified Don Winter kit. Bill hails from Alaska.
A Bachmann On30 Climax was shot on Paul Templar’s Cooncreek & Tumbleweeds layout in Shropshire, England.

Narrow Gauge - 2nd Place

The 0-4-2 is a Bachman engine pulling a scratchbuilt gondola and work caboose up the Caddo Valley’s 9% grade. Ken Burney from Alaska took the photo.

Diesel Era - 1st Place

Train #25 and #26 meet at the Bigelow, Arkansas, siding going over the Fouche LaFave River. Photo by Tommy Little, Arkansas.

Diesel Era - 2nd Place

submitted Jim Bengert, Indiana.
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September 2005

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Cherry Valley Model RR Club Swap Meet held at the Grace Episcopal Church, 7 E. Maple Ave. Merchantville, NJ. 9:30 AM to 1:00 PM. Admission $4.00 (spouses & children under 14 are free), tables are $16.00 for the first table (includes one admission) and $12.00 for each additional table. Info/reservations, SASE – CVMRC PO Box 192, Maple Shade, NJ 08052. Harry Hieke (856) 625-5506 between 6 & 6 PM or Dave Richter (215) 639-3864. Email contact: harrys_trains@comcast.net

10: St. Louis, MO
Boeing Employees’ Railroad Club Railroad Swap Meet, Greensfelder Recreation Complex at Queeny Park, 550 Wiedman Rd, St. Louis, MO 63111. 10:00 a.m. to 3:00 p.m. (Sellers set-up at 8:00 a.m.), Admission: $3.00 (children under 12 FREE), Tables $15.00. Contact: Wayne Schimmel, 733 Hwy Y, Winfield, MO 63389-2206 636-668-6313 (after 6:30 p.m. Central Time) Email contact: wwhetehsrse@aol.com

17-18: Dothan, Alabama
Wiregrass Annual Model RR Show and Sale at the National Peanut Festival Fairgrounds, US 321 S, Dothan, AL. Admission: $5 adults, children under 12 are free. Open from 9 AM to 5 PM on Saturday and from 10 AM to 4 PM on Sunday. Contact Danny Lewis, 491 Ashley Circle, Dothan, AL 36305, PH: 334-792-0728. Email contact: dannylws@yahoo.com

23-24: Indianapolis, Indiana
Indianapolis O Scale Fall Meet, two day O Scale swap meet with over 250 tables in one large hall. New and collectible 2-Rail trains and products available. Also includes model contest and display layouts. Registration by August 15 gets custom name tag. Dealer tables $40 by 8/15/05, $45 after that date. Admission $15 per person, good for both days. Contact Jim Canter for more information: 1203 Rotherham Ln, Beech Grove, IN 46107, 317-782-3322. Email contact: jcanternkp@aol.com

24: Rutgers, New Jersey
The 2005 Mass Transit Modelers Convention and Trolley Meet presented by The NYC Model Transit Association & The Shore Line Trolley Museum at the Alan M. Voorhees Transportation Center at Rutgers University, Rutgers Student Center, 213 College Avenue, New Brunswick, NJ 08901. Email contact: sctransit@worldnet.att.net

October 2005

9: West Haven, Connecticut
New Haven and Derby Railroad Club Model Train Show, all scales represented - over 100 dealer tables - dining car - door prizes - wheelchair accessible - Railroadiana - ample free parking. Email contact: donbetnessrobi@att.net

14-15: Brevard, North Carolina
NarrowTrak 05, two day narrow gauge and logging convention to be held at the Silvermont Mansion, 455 E Main St. For a registration form, specify individual, operating module or manufacturer and send SSAE to: NarrowTrak 05, 216 Broad St, PMB405, Brevard NC 28712.

15: Gardner, Massachusetts
Southern New England Model Railroad Club O Scale Train Show at the Chestnut Street United Methodist Church, 161 Chestnut Street, Gardner Massachusetts. Show hours are from 9:30 AM to 4:00 PM. Free Parking. Show features Dealers, Displays, Food and Southern New England O Scale operating layout. Dealers and attendees please contact Larry Grant at: (508) 337-6661 or BigBrotherLar@netzero.com. Admission is $5.00 or Family max for $8.00.

November 2005

5: Wind Gap, Pennsylvania
Eastern “O” Scalers Swap Meet at the Plainfield Fire Hall, 6480 Sullivan Trail – 9:00 AM – 1:00 PM Adm. $5; (spouses & children under 14 are free), $16.00 for the first table (includes one admission) and $12.00 for each additional table. Dealer’s set-up Friday evening 6:00 PM to 9:00 PM and Saturday morning 7:00 AM to 9:00 AM. Info/reservations, SASE – EOS, PO Box 1781, Bensalem PA 19020, (215) 639-3864. Bring an index card with your name, address etc., for $1.00 off your admission. Email contact: eostrains@att.net

5: Kirtland, Ohio
2-Rail Train Meet of the Western Reserve dedicated to the memory of Gil Stovicz. Two-Rail only meet (no tinplate, Hi-Rail or other scales allowed). Admission $5, under 12 free. Show hours from 9 AM to 2:30 PM. Six foot vendor tables are $35. Vendor entry at 7 AM. Not affiliated with the former Western Reserve O Scale Committee. Contact Bob Frieden, 440-256-8141. Email contact: tworailscale@aol.com

19-20: Parma Heights, Ohio
Valley Forge HS Railroad Show. All scale model railroad show at 9999 Independence Blvd. Parma Heights, Ohio. Sat. and Sun. hours 10:00 AM to 2:30 PM. Admission: $4, children (6-12) $1, tables for 2 days only $35 each. Contact Bob Frieden, 9695 Chillicothe Rd, Kirtland, OH 44094, 440-256-8141.

19: Cincinnati, Ohio
Cincinnati O Scale Meet O Scale (2-Rail only) sponsored by the Cincinnati Model Railway Club at the Cincinnati Holiday Inn North at I-75 and Rt 42 (Sharonsville). Open 10 AM to 4 PM. Table $20. Admission $5. Contact Frank Koch, 4769 Silverwood Dr, Batavia OH 45103, PH: 513-634-4265. Note: This meet replaces and continues the 24 year tradition of the Western Reserve O Scale Meet of Robert Boeddner and friends. Email contact: fjkoch@hotmail.com

December 2005

16-18: Franklin, Tennessee
Annual Christmas Train Show at the Factory. Dealers and displays from around the country will buy sell and trade all brands of trains and railroadiana. Display layouts in O, HO, S, N and G. Special VIP passes for all 3 days. For dealer or show info call Patrick Edwards toll free at 1-888-844-4403. Email contact: patrick@southboundtrains.com

18: Parma, Ohio
Parma Senior HS Railroad Show. All scale model railroad show at Parma Senior HS, 6285 W 54th St, Parma, Ohio. Hours 10:00 AM to 2:30 PM. Admission: $4, children (6-12) $1, single table $25, multiple tables $19 each. Contact Bob Frieden, 9695 Chillicothe Rd, Kirtland, OH 44094, 440-256-8141.
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Gerald Brothers scratchbuilt this traction ice reefer from wood modeled after some rare pictures of this kind of car. It is lettered for a real company in Rapid City, S.D., whose owner gave Brothers permission to use his company name. The freight house in back is a Banta Modelworks kit with a bum from who-knows-where sitting on the dock. The town is Mystic in the Black Hills located on Brother’s Rapid City, Black Hills & Western. Is that an outside third rail? Yep, it’s a traction layout after all!

These photos were taken of the fine traction modeling done by Ron Hastie in the Chicago area. Ron has always been a master of super-detailing of his various O Scale cars as can be seen with the two CSL cars (a “Safety car” and a “Green Hornet” PCC), the Connestoga Traction #67, and, of course, his layout. His latest project has been the lighting and detailing of the structures on the layout. You might not be able to see it in these pictures, but inside the diner there is a cash register and cereal boxes on display. In the other picture note the dentist working in his second story office as well as the barber with a customer in his chair.
2K5 Digital Photo Contest

The results of our 2005 Digital Photo Contest are in this issue. We had 22 entries from five countries. I was very pleased with the steam-era and narrow gauge/industrial entries, but we only had two (count ‘em) entries for the Diesel era. That was quite disappointing, especially since we receive many photos for "Modeler’s Shelf" that are Diesel oriented. We gave our word, however, and the two top prizes have been awarded in the Diesel category. I sincerely hope that next year we will have many more entries in all the categories. Meanwhile, congratulations to everyone who won a prize and thanks to all who submitted a photo. We’ll do this again next year and hopefully have more entries.

A Tale of Track

My review of the M.T.H. Challenger in this issue brought me that much closer to an appreciation for why many HiRailers are so fanatical about their 3-Rail trains. Let me recap what happened to me. I was testing the Challenger on the OST layout I’m building in the basement here at OST Intergalactic Headquarters. Seeing this big articulated running around the layout inspired me to haul out all my N&W brass engines, some 14 in all, and run them on the layout, too.

The OST layout is supposed to be designed with 59" minimum radius curves on the mainline, 48" minimum in the yards. Many of the curves are 60" or larger. I started with a Kohs & Co. N&W Y6b 2-8-8-2. For those of you not familiar with this engine, it is the finest model of N&W’s “pocket battleship” articulated that has ever been built. The chassis is sprung and equalized as near to the prototype as possible. It has twin can motors and should pull the wallpaper off the walls. There are a lot more features to this locomotive but that’s not the point here. I’m only interested now in how it runs around my layout.

Well, it didn’t make it through the first curve. The lead truck hit the front cylinders. Three different M.T.H. unsprung locomotives had run through this area with no problems, so what, I wondered, was going on?

I started opening boxes and putting every locomotive I own on the track one at a time. Several of them wouldn’t even budge having sat in the boxes too long. I finally succeeded in getting a few brass engines around the layout but not without many hitches and stumbles. Only two brass locomotives made the excursion with no problems.

Back I went to the Kohs Y6b. This and the Y6a are the “crown jewels” of my N&W collection. If I can’t get them to run on the layout, I’m not interested in owning shelf-queens. I talked to George Kohs and he said the Ys were engineered for 60" minimum radius.

On closer examination, I saw that some of my trackwork had been sloppy and the first curve encountered had a severe kink in it which had the effect of creating a very, very sharp radius curve. I loosened the track and repositioned it to relieve the kink. The Y finally made it through the first curve only to derail in several other curves on the layout.

Oh, oh... My Bad!

Meanwhile, M.T.H. had sent us a WM H9 2-8-0 and a PRR J1 2-10-4 to test (Those reviews will appear in the Nov./Dec. issue.) The H9 marched around the layout pulling a nice string of cars. However, the PRR J1 popped off the rails on my curves in the same spots as the Y. Hmmm. I became curious about my trackwork. Was it really what I thought I had built.

I made up a 60" curve template from some \( \frac{1}{4} \)" foam and started checking out the curves. Oh, boy! Not even close. Out of eight curves that are supposed to be 60", only three passed the test. The rest are much tighter with the worst less than 54" in radius. Needless to say, I hadn’t used templates to layout the curves. I had tried to lay out the curves using reference points from the walls of the room. It was careless of me not to have checked these with a template before laying roadbed and track. Now I have to go rip up those tight curves, extend the subroadbed and relay the track correctly, this time with templates!

An Epiphany

However, I have to tell you that I am now quite envious of those people who can just open a box, put a locomotive down on the track and have it run well complete with lights and sound and not a lot of futzing around. I don’t think I will look at diecast locomotives with quite the same snobbish attitude I used to. And that’s a good thing.

Missing But Not Forgotten

For those of you who are fans of Bobber Gibbs’ “Narrow Minded” column and notice it’s missing this issue, fear not. Bobber was moving into a new home and couldn’t make the schedule this issue. He’ll be back in the next. Meanwhile...
Hey O Scalers! With New Paint Schemes and Features, the Atlas O GP-35 Locomotives are back, giving you another chance to add this fantastic model to your diesel locomotive fleet. Head down to your local hobby store and get yours today!

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