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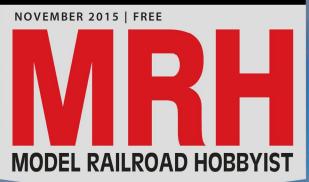- Layout Command Control
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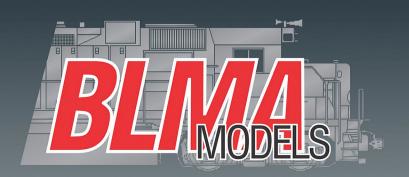
Gary Christensen builds his
Caldwell Blvd. diorama
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MRH STAFF CREDITS

MODEL RAILROAD HOBBYIST

Front cover: This amazingly realistic photo comes from Gary Christensen who took it on his Caldwell Boulevard diorama. See how Gary built this superb diorama in this issue.

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A - E column

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F - R column

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PUBLISHER'S MUSINGS
editorial

Joe Fugate

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The layout supersize fallacy

It seems most model railroaders believe that bigger is better when it comes to a home layout. I know I thought that in my early days in the hobby. It's been 47 years since I first got into model railroading, and I've learned that bigger isn't always better – in fact, thinking you must have bigger to have better is actually a fallacy.

To clarify the issues, let's talk about what I call "quality of run" versus "quantity of run." Also, I'm talking scale model railroading here, not tinplate.

Quality of run is key to getting a layout that's fun to operate. Newcomers usually think bigger is better, so they will search for satisfaction in *quantity* of run, not *quality*. But with some experience in the hobby, you will realize a small layout with a high quality of run can be far more satisfying than a large layout with a mediocre quality of run.

First, note that quality of run is *mostly visual*. If you don't believe that, try running your layout with a blindfold on and just listening to the trains run! Running trains blindfolded can be a bit more fun these days now that we have sound-equipped locos, but you get the idea.
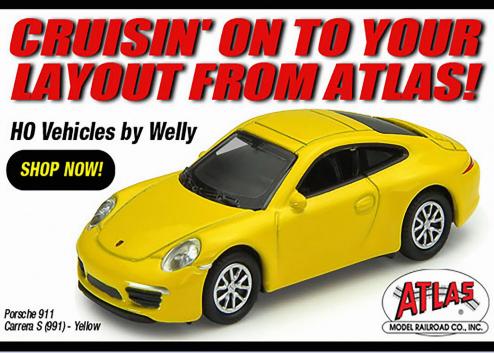
Publisher's Musings | 2

To get a good quality of run, you need:

- Trains are interesting to run
- Derailments are rare
- Trains run at realistically slow speeds
- Detailed right-of-way
- Locos look real
- Rolling stock looks real
- Scenery looks good

These are listed more or less in order of priority – so spend more time on the things at the top of the list than on those at the bottom of the list.

PUBLISHER'S MUSINGS | 3
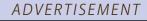
Let's look at each one of these points in more depth.

Trains are interesting to run: If the trains have a realistic purpose and a distinctive character, that really enhances the quality of run. If you run a train called "the Logger," and it's full of log bunks loaded to the gills with logs going to the lumber mill, you immediately identify with the train's purpose. If the train looks the part, quality of run goes up dramatically.

Notice *quantity* doesn't help much. More generic trains do little to increase the fun of operating the layout. But a few high quality trains with a well-defined realistic purpose and great character will be far more fun than a horde of generic trains.

Derailments are rare: This is obvious, but the larger the layout and the more turnouts it has, the more derailment-prone

it will be. Plan to spend time keeping things well-tuned if you want few derailments.

Here, quantity can really kill your fun. Lots of turnouts and equipment means more to carefully debug and tune. This is tedious grunt-level work and the larger the layout, the greater likelihood this maintenance and tuning will not be done well.

Trains run at realistically slow speeds: This one is huge and nearly a freebie. It pays to train your operators to run at realistically slow speeds – which is pretty easy to achieve with your equipment these days if you use DCC with well-tuned decoders. Watching two slowly-moving model freight trains meet is sheer delight!

Detailed right-of-way: Detail and weather the track and things close to the track because that's where you spend most of your time looking when running trains. Bridges and structures close to the track also fit this category.

The more quantity (the larger your layout), the more right-of-way you will have to detail, so this becomes more work. On a larger layout the temptation will be to cut corners to get the layout done. But cut too many corners on detailing your right-of-way and you compromise quality of run!

Locos and rolling stock looks real: The things you notice right away, like realistic weathering, count most here. If you have to study the equipment to notice the details, that doesn't count much on equipment that's running – because you can't see it as easily when it's moving.

Scenery looks good: This one comes last because when running trains you just don't spend much time looking all around – your attention is focused on the trains. Many people have reported having a great time operating on layouts with little scenery – and if the layout has the other items in this list already in

place, that is very true. Quality of run will still be very high, even without the scenery.

Because things like good looking scenery are at the bottom of the list, that means you can have great fun operating a layout even if it isn't scenicked.

The hobby press will seldom admit that, but it's true.

If you have to choose, you are much better off to build a smaller layout with a great quality of run than you are to build a supersized layout with a mediocre quality of run.

Focus on quality of run as your first layout goal rather than quantity of run. Downsize to get a better quality of run, if needed. You will find the hobby to be a lot more fun and satisfying! ☑

Click here for reader comments

MRH CONTEST: THE "ONE MODULE" CHALLENGE

GOAL: Design the first "module section" for a sectional home layout design.

Hypothetical room is 12' x 15'

Room 12' x 15'

Windows can be covered
(not shown because not relevant)

2 x 30" closet doors

60'

30'

6'

30" door

NOTE: This is a sectional home layout design, *no modular standard* required.

CONTEST RULES

ENTRY DEADLINE: January 31, 2016

- Module must be 18"-24" in depth and 60"-84" in length.
- Scale: Z, N, TT, HO, S, O - standard and/or narrow gauges.
- Connectable to a flattop staging section (or additional layout sections later) at each end. Design the two flattop staging yards with 3 to 8 staging tracks of at least 70" long.
- Rough out the outlines of the other layout module sections to be built for the entire room. No track plan needed, just an outline of the modules in the room is sufficient.
- Describe the theme, era (if any), and rationale for the module and its place in the layout that would eventually fill the room.
- Can follow a specific module standard (like Free-Mo) if desired, but that is not a requirement. Each module can be custom and only mate with an adjacent module.
- Module support method and height is up to you, but please describe it.
- Must be wired for either DC or DCC. Describe how you would interconnect the wiring.
- As the first module of a sectional home layout design, making the module removable once completed is not required, but innovation here will get extra points.
- As to construction methods & materials, surprise us. Extra points awarded for innovation.
- Include pricing for the module. There's no need to build it, this is a design contest. This includes module benchwork, legs, backdrop, roadbed, trackwork, wiring, scenery materials, structures, and details. Do not include a DCC system, rolling stock, or locos.
- The best submissions will be published, so extra points will be awarded for high quality text, illustrations, photos, and captions. Winners will get a bonus payment rate.

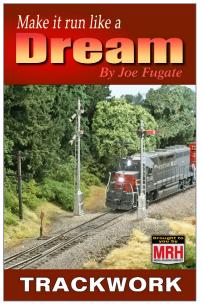**SUBMIT ENTRY (Choose "Contest entry")**

STAFF NOTES

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MAKE IT RUN LIKE A DREAM

... AND MORE

Make it run like a **Dream** *By Joe Fugate*

Brought to you by **MRH**

TRACKWORK

2016 IS THE 25TH ANNIVERSARY of Joe Fugate's Siskiyou Line. As part of commemorating his layout's 25th anniversary, Joe is compiling his 25 years of experience getting things to run well into a series of books we're calling: *Make it run like a Dream.*

There will be three books in total, one on trackwork, one on rolling stock and one on locomotives.

Joe says of these books: "These books are born out of my own experiences trying to get my HO layout to run as well as possible. The layout's still a work in progress, but this series takes real life issues I've encountered over the last 25 years and gives the solutions that solved these problems. I also share the preventative principles I live by so many problems never even come up."
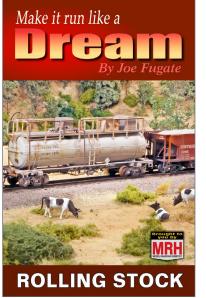
In Trackwork, Joe discusses his preventative measures, his trackwork wiring methods, how he cleans the track and tunes

his turnouts, and he outlines many of the specific problems that have come up over the years and how he's corrected them.
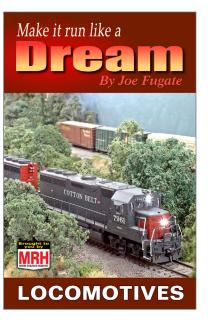
Rolling Stock will cover the importance of standards, and then deal with topics such as car weight, proper wheelsets, proper coupler installation and performance, truck/car body stability (wobble), and car sound. Joe will also discuss how to isolate the cause of car performance issues and what to do about them.

Make it run like a
Dream
By Joe Fugate
ROLLING STOCK

In the final volume, *Locomotives,* Joe discusses breaking in and lubricating locos, programming DCC decoders for optimum performance, installing loco lighting, and loco sound – both installation and the sound settings that give you the most satisfying layout experience. Joe also covers speed matching and how to deal with traction and loco slippage issues. Finally, Joe provides the decoder settings he uses in his locos on the Siskiyou Line.

We're expecting the first volume to be out around May of 2016 and it will be produced as both an eBook and as a print book. The other two volumes, Rolling Stock, and then Locomotives should follow, with

Make it run like a
Dream
By Joe Fugate
LOCOMOTIVES

★ LAST ISSUE'S RATINGS

The five top-rated articles in the of *Model Railroad Hobbyist* are:.

4.7 Allied Mills: An engaging mini-layout
4.6 Getting Real: Intro to SketchUp and 3D printing
4.5 DCC Impulses: SoundTraxx Econami decoders
4.5 SP&S switching layout
4.5 AAR open top loads

Issue overall: **4.4**

Please rate the articles! Click the reader comments button on each article and select the star rating you think each article deserves. Thanks! ■

each volume being about six months after the previous one. Joe may also do some video supplements to go with these books.

The 2015 St. Louis RPM meet report

Various Railroad Prototype Modelers' (RPM) meets take place around the US each year, and one of the more popular ones is the St, Louis RPM meet that takes place every summer. John Golden, one of the meet principals, provided this report on the 2015 meet:

"The 2015 meet was by far the biggest St. Louis RPM ever, with 385 modelers gathering in over 17,000 square feet of space in the Gateway Convention Center. Modelers brought 2,200 models for display including rolling stock, structures, non-revenue equipment, modules, vehicles, and other equipment related to prototype railroad modeling in all scales for display and discussion.

There are no modeling or judging contests at the St. Louis RPM. Instead, attendees bring models to share their best work, demonstrate their techniques and ideas, show work in progress, and discuss the prototype in a friendly, non-competitive environment.

Clark Propst brought his eight-foot operating table-top layout depicting the Allied Mills plant in Mason City, circa 1958. Clark

Clark Propst's Allied mills module

Dave Roeder, MMR, hosts the home layout tours for St. Louis RPM. In this photo, Dave (in the yellow shirt) talks over details with modelers. There were many young modelers at St. Louis. One is only nine – and he displays models every year.

designed short, 30-minute operating sessions and about a dozen attendees took the challenge on Friday and Saturday.

Planning for the 2016 St. Louis RPM Meet – the 10th annual gathering – is already under way. Exact dates that best fit the modeling community and the Gateway Division are still to be determined, but make plans to attend in late July or early August, 2016.

If you'd like to be a vendor or bring your historical society or modular layout, or if you want more information, please don't

hesitate to contact the hosts, John Golden at Golden1014@yahoo.com or Lonnie Bathurst at bathurst@litchfieldil.com.

What's new on the MRH website?

Here's our monthly listing of some interesting posts.

Converting a Tyco C430: mrhmag.com/node/8308

Splitrock Mining dock ops (w/video): mrhmag.com/node/24079

Polaroid cube for on-board video: mrhmag.com/node/24086

The Saga of Brian Pate's KMR: mrhmag.com/node/24099

Track as a model vs. bulletproof ops: mrhmag.com/node/23999

Track upkeep and cleaning: mrhmag.com/node/24013

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TT scale layout construction project: mrhmag.com/node/24078

Buildings made from old signs: mrhmag.com/node/24067

Modeling dirty windows: mrhmag.com/node/24048

1920s era HO plastic freight car guide: mrhmag.com/node/24046

Supersize the layout? mrhmag.com/node/24022

Enjoy the November MRH! ☑

Click here for reader comments

MRH Q-A-T column

compiled by
JOE BRUGGER

Click here for reader comments

❓ QUESTIONS AND ANSWERS

Focus-stacking software

Q. Does anyone know of a digital camera that incorporates stacking software in the electronics of the camera? It seems to me this would become a progression of camera technology.
—gogebic

A. Focus stacking involves taking multiple photos of one subject. Each photo has a different focus point. The software selects the points of sharp focus in each and combines the image data to create one with great depth of field.

Selector: Many cameras have image stacking, but it tends to be limited to smaller sensors that struggle with noise in low-light conditions. I have a super-zoom Fuji Finepix HS20 EXR that in one mode will snap three quick exposures of indoor scenes where a face is to be prominent. Internal software combines the three to render a decent composite.

▶ MRH QUESTIONS, ANSWERS, AND TIPS

Joe B.: While we wait for in-camera stacking to arrive, there are several programs to achieve great depth-of-focus in model photos.

Charlie Comstock wrote an excellent guide to using Helicon Focus back in the early days of MRH. Look at mrhmag. com/node/138 and heliconsoft.com/heliconsoft-products/ helicon-focus.

Don't miss Joey Ricard's video at youtube.com/ watch?t=51&v=yriynL5yEb8.

Hacketet: Two free programs available perform the same task, CombineZM and CombineZP. CombineZP uses a more

1. This black-and-white image is of a foreground diorama with an HO scale train posed in front of real trees and a distant range of mountains. This picture is drawn from four stacked images: the close edge of the diorama just visible at bottom, the left end of the bridge, the darkest trees (which were across a hidden paved road about 30 yards distant), and the Beaufort Range some 30 miles away. – *Crandell photo*

advanced algorithm, but both work well. They do not have the fancy user interface of Helicon Focus, but the internal workings are among the best out there and they are a free download.

For the CombineZP programs features and capabilities, look at dpreview.com/forums/post/31625599.

Andrew: Photoshop 5.5 CS and CS Cloud don't need a plug-in. Use Auto Align layers and then Auto Blend Layers. It's more of a technique than a single-click solution. Look at photographylife. com/how-to-focus-stack-images.

For Photoshop users, there is a good how-to at apogeephoto. com/dec2011/bsharp122011.shtml.

A more detailed discussion on model photography, photo stacking, and Helicon software offerings is at mrhmag.com/ node/23346 and mrhmag.com/node/22585 and mrhmag.com/ node/7766.

MRH: Thanks to Neil, Selector, AnEntropyBubble, Philip H., Logger01, Rick W., Crandell, and Andrew.

Acid flux

Q. A friend of mine did several track joints a few weeks back, and apparently he forgot to clean a few of them because they are now nice and green. Can he just go back and clean that corrosion off with some alcohol and a wire brush, or do I, er, I mean, does he, have to do anything else?

—Randy Seiler

(Note: Randy's "friend" used Kester acid paste flux SP-30 on nickel silver track. He cleaned a couple of the joints with alcohol and a wire brush and the green corrosion seemed to come right off.)

A. GregW66: In my 25-year experience I have never seen a solder joint turn green. However, it obviously does happen. I would clean the joint with alcohol and see if the joint appears to be nice and shiny. An old toothbrush should suffice. If the joint is pitted or anything like that, go back and touch it with the soldering iron, this time making sure to later remove any flux residue.

Rick Wade: When I haven't cleaned off the joints after soldering them I have had the green appear. I used an old electric toothbrush with a baking powder slurry to clean off the green and neutralize the acid.

Bill Brillinger: Acid flux is for plumbing work. It causes corrosion in electrical applications. Use rosin flux instead.

Randy Seiler: I got this flux from FastTracks, and it is what they suggest for trackwork. If it causes corrosion on track, why do they push it? So I assume a good cleaning with alcohol will take care of the problem, right? Wait, did I say I got it, I mean my friend got it. I obviously would never do such a thing.

From the Fast Tracks site: Kester acid-based soldering flux is what we recommend for soldering trackwork in Fast Tracks assembly fixtures. This type of flux ensures that surfaces are thoroughly clean and ready for soldering, making it easy for even the novice craftsman to get great results. Only the smallest amount of solder paste is needed, so a single can of paste will be more than enough to build hundred of feet trackwork and switches.

Brent Ciccone: I believe that Fast Tracks recommends acid flux since you can take the completed turnout to the sink and give it a good cleaning. That's a little hard with track that has

been installed. The suggestion to use baking soda and a toothbrush should do the trick, but don't use acid flux for that type of work in future.

Pelsea: Some fluxes clean off better than others. For acid flux, look for the words "water soluble." In any case, it takes a vigorous brushing to get it all. If you don't get both parts of the joint hot enough for the solder to flow between them, you can trap flux in a void and it will slowly eat its way out.

Rosin flux is transparent as long as you don't burn it, and does not attack metal, so it is preferred for things like electronics that you can't scrub under hot water. You don't want to come near the stuff they use in electronics factories to remove flux. Unfortunately, rosin is not as good a cleaning agent, so the joints have more internal voids and are weaker than those made with acid. So if strength matters use acid.

Bill Brillinger: Home Depot, Lowe's, and Menards all carry rosin flux in paste or liquid form.

Don Mitchell and **ND Holmes:** Avoid corrosion by using Supersafe Superior No. 30 Soft Solder Flux for all model railroad work. It works wonderfully. Once tried, you'll never use anything else.

Much more on solder, fluxes and soldering at mrhmag.com/node/23413.

Siding levels

Q. I believe that sidings and yards on the prototype were often slightly lower than the main line in order to prevent cars from running away onto the main line. I have also read that

emulating this on a model enhances the realism and helps to make the siding track look different from the mainline. How much depression of the siding was common practice? Would a 1/16" difference in the height of the top of the rails be noticed by someone looking at the layout? I use cork roadbed. How do I sand a smooth grade into the cork?

—ErieMan47
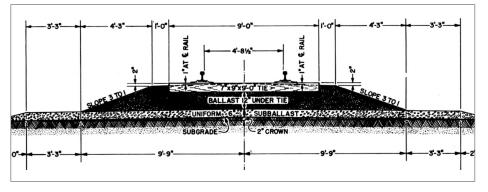
A. David Husman: Preventing cars from running away onto the main line is an urban legend. Sidings are lower because they have less ballast on them; they are lower-speed track. Plus they are lower for added drainage.
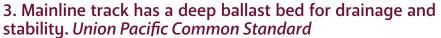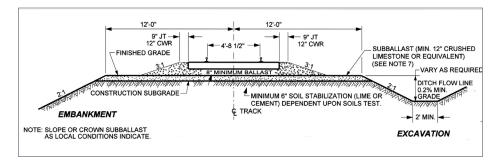
2. 2tracks uses left-over pieces of the Woodland Scenics incline starter set to transition from his main line to a siding. Cut off the incline ramp where it is level with the end of the cork, and then take the end piece and cut it into sections. Use thinned foam putty to fill the gaps, and upwards of three applications, because the upper end is so thick. Moisten the foam board before application so the putty will stay put while applying it. – 2tracks photo

3. Mainline track has a deep ballast bed for drainage and stability. *Union Pacific Common Standard*

4. Industrial track roadbed typical section. *Union Pacific*

Graham L.: Into the 1980s, Union Pacific main line design standards called for a 7-inch tall crosstie, 12 inches of ballast, and 6 inches of coarser sub-ballast on top of a 2-inch crown in the sub-grade. That makes 27 inches to the bottom of the rail. Specs for single-track branch lines called for the same height tie, 8 inches of ballast, no sub-ballast, and a 2-inch crown in the sub-grade, for a 17-inch build up. That's a 10-inch difference just from the main to a branch, about .115" in HO or a hair less than 1/8 inch. Year 2004 standards call for 8 inches of ballast on a new industrial siding.

Mountaingoatgreg: I model in HO scale. I usually use HO scale cork approximately one foot from the frog. Then I switch to N scale cork. I use a Surform tool or rasp to make the transition from the HO to N cork as gradual as possible. Really poor industrial track can slope down to the top of the benchwork.

Show the difference in tracks with the type and amount of ballast each track has. A proper siding will have slightly lowered track but the same ballast. An auxiliary may have the same ballast but it will appear older, as it does not have to be maintained like a siding. Many industry tracks have little or no ballast.

Graeme Nitz: I use 1/4" cork for the main and 1/8" for the siding and yards, nothing for industries. I buy flooring cork and cut what I want. I slope the 1/4" down with a Surform tool. Looking at the prototypes around here (BNSF and UP), the grade from the main to the sidings appears to be pretty steep. Not sure if that is the case or just the way it looks to me. As it is very short it shouldn't affect train operations much, as only one or two cars would actually be on the grade.

One thing that sticks out to me is rail size. In the past I used code 100 for main and sidings and code 70/75 elsewhere. In the future, to model the Pennsylvania in the '60s, I will use code 95 on the main and sidings, 70/75 for yards, and 55 for industries.

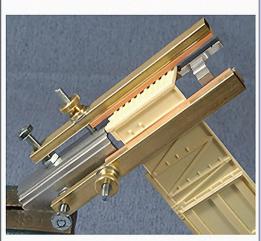**Dave Branum:** For my N scale layout I used 1/10" thin plywood under my main line tracks with cork roadbed and left the cork out on the sidings. It ramped down the 1/10" in about 4 to 4-1/2 inches, which gives a 2.5% to 2.2% grade. A smaller difference didn't seem to make it as apparent visually.

Peter Pfotenhauer: Be sure your ramps aren't steep enough to cause unwanted uncoupling. Working in N scale, I use a ramp
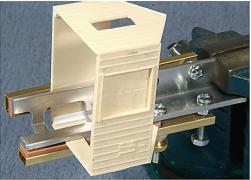
of cork which I taper to an incline with a grinding wheel bit in a cordless screwdriver, and finish with a medium drywall sanding sponge. I save the finely ground cork dust for use as a bonus benefit for landscaping. Vacuum or brush it up and keep in a container.

BruceNscale: I bought a package of door shims at Home Depot. They taper from 1/4" to 0". Just cut it off at the height you need (HO or N) and glue it in place.

Read the complete thread at mrhmag.com/node/23507.

💡 TIPS

Rock gaps

While viewing the rock walls and cliffs on several model railroads, I found that joints between rock castings or between rocks and structures left very visible seams. While creating my railroad, I used a food flavoring injector with

an added clear vinyl tube and various brass tips to fill and shape seams and borders. The plaster-of-Paris must be quite thin, and the areas to be filled must be damp. I load less than 1/2" into the injector body by sucking it from a bowl, then fill the voids, then clean up. Even small cracks and air pockets can be filled nicely. The injector MUST be cleaned quickly and often. While wet, the plaster can be wiped or brushed to blend in, or when dry it can be carved. I usually carve after a few hours. The brass tips can be shaped for various jobs and stuck into the tubing.

—Michael Anson

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DCC IMPULSES
column

BRUCE PETRARCA

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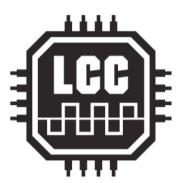
WHAT'S UP WITH LCC?

AT THE NMRA NATIONAL CONVENTION THIS August (2015) in Portland a lot of the buzz was about LCC. What is it? When will hardware be available? Software? There were several clinics. I got to a couple of them.

While I don't have all the answers, I'll try to blow away some of the clouds. Many of the answers won't be available for months or years, as things shake themselves out. Okay, let's answer some questions.

What is LCC?

LCC stands for Layout Command Control. It is a new NMRA standard for data flow on a model railroad layout. After many years of work, it was released in February 2015.

Previously there had been discussion about NMRANet. LCC is the accepted

▶ DCC TIPS, TRICKS, AND TECHNIQUES

name for that concept and includes the work that had been done under the OpenLCB banner, as well. If you have heard about a possible new network standard from the NMRA, this is it.

Note the term "layout" in the name. It is designed to handle all the communication with static items on your layout, leaving your DCC bus for only communication with the (hopefully moving) trains.

What will this do for me?

LCC will work on your layout whatever the track power and control is: AC, DC, DCC, or Dead Rail. In the DCC world, it matters not what brand of DCC system you use.

Whether or not you want LCC on your layout is a different matter.

LCC is designed to control the stationary items on your layout: turnouts, signals, building lights, telephone system, even room lighting. It will even stream real-time HD video. It has lots of what computer guys call bandwidth. That means it is a really big pipe, like a 10-foot high drain culvert, compared to the small water pipe size buses associated with current DCC systems.

In addition to the ability to carry a lot more data than any DCC bus, LCC is fast. Not only can it carry more water, to continue my analogy, it can carry it faster, about 10 times faster, than any DCC bus.

I have no need for it on either my HO (mrdccu.com/layouts/SMVRR) or garden (mrdccu.com/layouts/RMP) layouts. Both are small, modeling dark territory with no signaling and mostly Tortoise activated turnouts with fascia switches.

My HO layout will not come close to overloading the data on the NCE Cab Bus. There are a few yard turnouts which are planned to be controlled by stationary decoders and run by a macro on the DCC system.
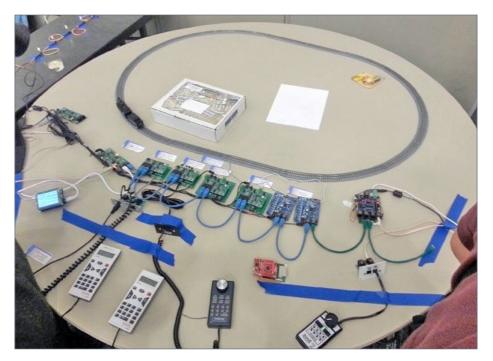
This could be moved to an LCC network, but there is no point in putting in LCC for such a small task. In fact, it probably would be more expensive.

Medium to large tasks seem to be where LCC shines. Tasks that need speed and move

large quantities of data. Later, I'll talk about special features for modular clubs.

While LCC is designed for the stationary side of the layout, it may find one, or more, use(s) in the DCC control side. I attended Steven Priest's clinic in Portland. He had a slide [1] that showed DCC throttles connected to nodes on a LCC bus. What was interesting was the three nodes shown: one with a Digitrax throttle, one with two Lenz throttles and one with a NCE throttle. They were all controlling the same layout at the same time. LCC may finally provide the way to use different throttles on your DCC system, just when the major migration is toward smart phones as the universal wireless throttle.

1. LCC nodes taking data from Lenz, NCE and Digitrax throttles and sending it out on one command station: a universal throttle solution.

2. RR-CirKits setting up their factory to build the first run of LCC hardware.

What does LCC define?

On the hardware side, the NMRA standard (nmra.org/index-nmra-standards-and-recommended-practices) only defines the connector for the bus.

The communication protocols and interfaces are the nuts and bolts and the majority of the LCC specifications.

When will hardware be available?

While the standard only covers the connector, nodes are needed to get things running.

Some hardware was shown in Portland. All I saw were prototypes, but they were close to production quality. I expect to see announcements soon.

RR-CirKits had many of the nodes and interfaces to show. Based on the photograph [2], they are investing time and money in this project. A good sign.

One thing that will drive manufacturers to build products for LCC, or incorporate LCC interoperability into current products, is for all of you to ask them. Nothing drives ingenuity like demand.

What is the hardware?

LCC connects between nodes [3] and [4]. Nodes are the stand-alone interfaces between the LCC bus and the external world.

3. A basic LCC node: bus connections on the left and external hardware connection on the right.

Configuring a network is as simple as connecting the necessary nodes (via Ethernet cable) and teaching them how to work and play well together. This teaching can be done without a computer by pressing buttons and such, but a computer makes it so much easier.

How about software?

JMRI will embrace LCC and provide at least some of the configuration and operating software.
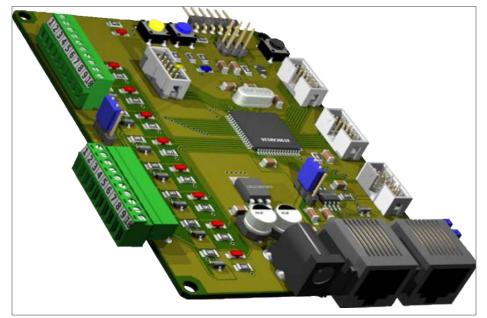
Individual node designs may need some specific software. I would expect that to be supplied by the hardware vendors.

There may be some software packages for layout control, similar to the current Railroad & Co. product.

4. A more complex LCC node board.
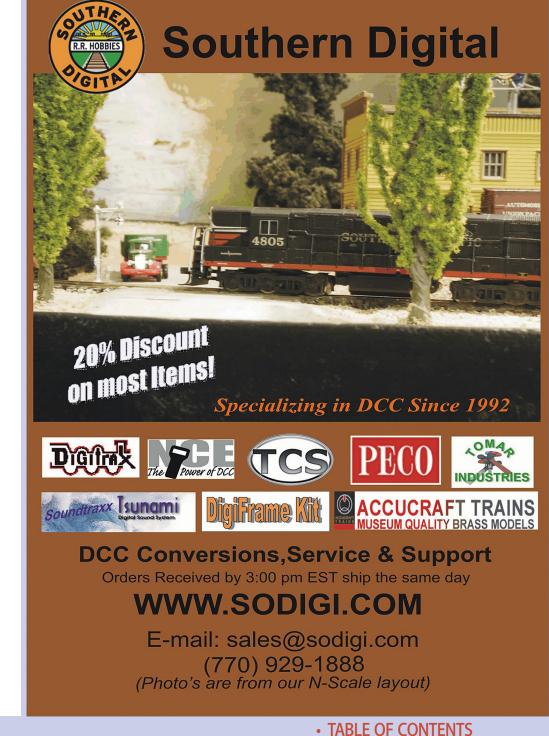
Anything else?

The OpenLCB work, which has been folded into LCC, included some special ideas, like a "hostler" board [5]. This touchscreen allows the hostler to set up trains (build consists) without knowing the details of the DCC system involved. All that is needed is just to punch some buttons and enter a few numbers.

Is there something special for modular clubs?

LCC was designed with modular or sectional layouts in mind. For example, when layouts using LCC are joined, any turnouts having the same ID number can be automatically renumbered, temporarily. That's right, the ID numbers can be restored automatically, once they are separated. Implementation of this will be the responsibility of the manufacturer of the nodes to control the turnouts.

5. A touchscreen hostler board to set up loco consists.

What are the grimy details?

LCC is based on the rugged CAN bus used in automobiles. Development on that bus began over 30 years ago by Robert Bosch GmbH. It was released in 1986. So, this is not new ground that the NMRA is plowing, but technology that has been around the block (literally) many millions of times.

This basic technology has been used many places, including transportation, industrial automation and, recently, entertainment devices. The components for the interface are readily available and inexpensive.

It is interesting to watch evolution. That's what we are seeing with LCC. Whether you jump into the melee or not, it will be fun to watch the ride. I'm looking forward to viewing my first DCC / LCC layout.

Folks always seem to have additional ideas to share. Just click on the Reader Feedback icon at the beginning or the end of the column. While you are there, I encourage you to rate the column. "Awesome" is always appreciated. Thanks.

Until next month, I wish you green boards in all your endeavors. ☑

Mr. DCC's Workshop on following page …

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Mr. DCC's Workshop

Digitrax "Slots" and DecoderPro ...

Alas, this is not Las Vegas or your local casino. "Slots full" is not good.

There is more than one way to skin a cat. That applies to DCC system design, too.

Digitrax has chosen a method that requires "dispatching" locomotives in order to remove the relationship between an individual throttle and a specific locomotive or consist.

"Dispatching" involves a couple of button presses for the DT series throttles. With the UT4 series, it is a bit more cumbersome: disconnect the throttle from the layout (unplug from fascia), press the DISP button and insert the cable into the UP5 panel.
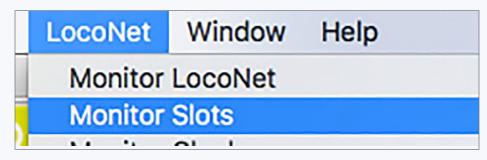
Not that any of this is terribly complicated, but it is one more thing for operators to remember. It is especially easy to forget if their normal system is not Digitrax.

What happens if you don't DISPATCH your loco? Most times things go along for days, weeks, months or years until the command station maxes out. This situation is indicated by a SLOTS FULL display.:

Then comes the laborious task of clearing the slots. This can be done through acquiring, one-by-one, locos and dispatching them. Or using the complicated OpSW configuration switches to clear all slots. If you are not careful, you can clear all of your consists, too.

However, if you have DecoderPro there is an easy way to clear the slots. Open DecoderPro with your Digitrax system connected, open Monitor Slots [6]. Your screens may look a bit different, depending upon your preferences settings, computer system and version of DecoderPro, but the functions are the same.

6. Open Slot Monitor in DecoderPro.

Depending upon your version, there may be two ways to proceed. The one that always works, is to press the "Free" button after every active slot [7].

7. Depress the "Free" button for every throttle registered in the Monitor Slots window – the black button in the screen shot.

Monitor Slots

m slots   **Estop All**   **Clear All Non-InUse Slots**

8. A quick answer is to press "Clear All Non-InUse Slots." This will clear slots that have no throttle assigned to them currently.

Your version of Decoder Pro may have the option, as seen in [8] to "Clear all Non-InUse Slots." If so, pressing it will clear all slots that are not currently in use [8]. This is not as clean as pressing the "Free" button for every throttle, but it is quick.

After every club operating session, I do the "Free" button for every throttle, leaving an empty sheet in the Monitor Slots window [9]. ■

☐ Show unused slots   ☐ Show system slots   Estop All   Clear All Non-InUse Slots

Slot	Address	Speed	Status	Use
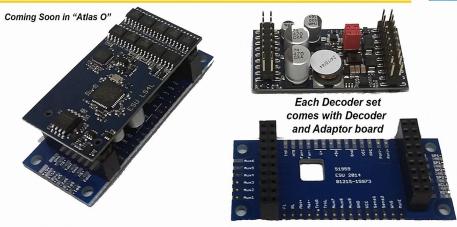
9. Clean "Monitor Slots" screen after pressing "Free" for every throttle.

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GETTING REAL
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MODELING THE KANSAS CITY SOUTHERN RAILWAY | MAINLINE SOUTH – CREATING THE "OZARK MOUNTAINS"

WITH BENCHWORK, TRACK WORK, AND wiring out of the way, it was time to bring the mainline to life with the addition of scenery.

1. First things first

After being away from scenery and structures for so long, it was tempting to begin with Grandview, Missouri as the first stop for the Southern Belle south of Kansas City. But that would mean I would be working over this area to create my section of the Ozark Mountains. I followed my own rule: start at the back and work to the front. Work on the most inaccessible portion of the layout first. For me that meant the far-back right section which was located over the helix.

I have used many different techniques to create scenery in the past. Plaster over screen wire, Hydrocal-soaked towels

▶ MODELING REAL RAILROADS AND WHAT THEY DO
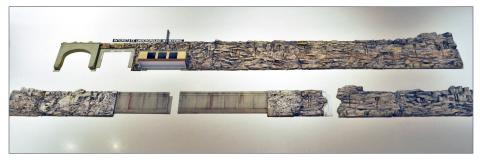
over cardboard risers and tape, extruded blue foam, and Sculptamold. However, I was done with water and mess in the basement! In the rainy Northwest winters, large areas of Sculptamold would often grow mold before they dried.

Fortunately I have seen Joel Bragdon's (Bragdon Enterprises, bragdonent.com) geodesic foam scenery demonstrations at the local shows. This technique can be used to create lightweight rocks and lightweight base for scenery with no water or plaster mess. Ever had to clean out the P-trap in a utility sink?

The first place I used this technique was for the limestone areas to the west of Union Station. A section of this rock work would need to be removable to access tracks hidden behind it. I glued the lightweight rock castings to 1/4" foam-core backing. The bluff looked great and was easily removable.

1. Foam rock background bluffs.

2. The foam rock sections in place.

The second part of this technique involved using fiberglass window screen and expanding foam to create foam hardshell scenery which in the past would've been accomplished by using plaster-soaked towels.
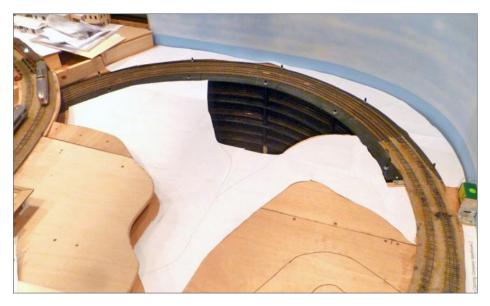
2. Creating the base for the Ozarks
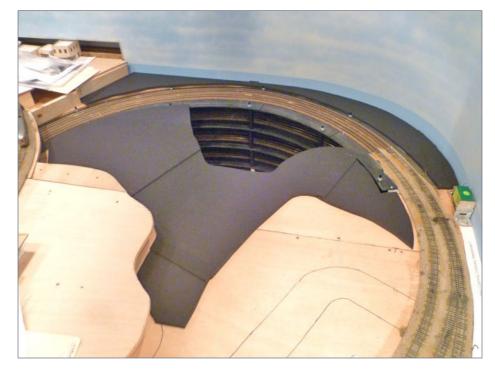
The first step was to create a pattern for the base of the mountains. My favorite technique for doing this was to use sheets and scraps of paper, taping them together in a patchwork to fill the desired area. I then placed the paper pattern on 1/2" foam-core and used a hobby knife to cut the foam-core to the same shape. I used 1/4" foam-core pieces on the top side to splice the base pieces where necessary to fill this large space. Then I test-fitted the base pieces on the layout.

I grew up in California and now live in Northwest Washington. So I had to be careful that the Ozark Mountains didn't turn out looking like the Sierras or the Cascades! I studied photos to judge the angle and slope of the Ozark Mountains, which are less steep, less jagged, and not as high. Photographs I found online were very helpful in doing this.

4. Test-fitting the foam-core base pieces.

3. Creating the paper pattern.
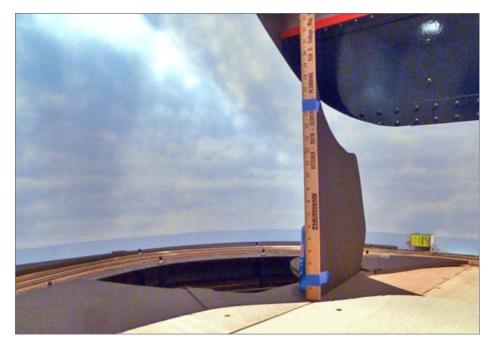
5. The Ozark Mountains and Buffalo River, from Wikipedia.org.

The next step was to determine the approximate maximum elevation for the mountains. I set a piece of foam-core upright with a ruler taped to it, and stood back to view the mountain area from different parts of the layout room to decide on a maximum elevation. I judged that approximately 10" from the layout base would be an appropriate height.

The risers and contour boards for the layout were glued together with a hot glue gun. I have watched Joel Bragdon's demonstrations. What is required is an "industrial strength" glue gun that has the power and heat to produce a lot of melted glue quickly. Small glue guns from the craft store that dribble out a tiny stream are not up to this task. I use the Surebonder PRO9000A glue gun that Joel recommended. Performance is

7. PRO9000A hot glue gun.

6. Determining the highest elevation.

great. The glue is hot! A word to the wise – wearing protective gloves and long sleeves is a really great idea (the voice of experience)!

Bragdon Enterprises markets hot glue and several grades of hot glue guns.

Once on the layout, the tallest mountain in the back still appeared to be too high. With the foam-core it was a simple matter to trim it a little shorter until it looked right.
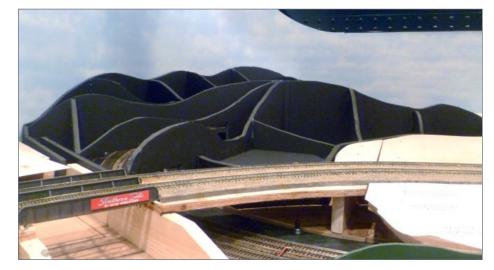
3. Making the geodesic foam shell panels

Having created the framework to shape and support the mountains, it was time to cover the upper surfaces with the foam

9. Test-fitting on the layout.

8. The base for the Ozarks in the shop.

10. Pop-Up opening in back of the helix.

hardshell. This was followed by placing foam rock castings on the surfaces of the "Bluffs."

The first step in making the foam hardshell was to cut two pieces of fiberglass window screen to size. With my level of experience, I worked with about two square feet at a time. I covered a flat work surface with plastic sheeting and laid the two pieces of fiberglass window screen on top of each other on the plastic sheet. The foam hardshell peels off of the plastic sheeting, which can be reused

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11. Cut two pieces of screen about 2 square feet.

12. Place the screen pieces on plastic sheeting.

many times. I also used a 3" x 5" piece of acrylic plastic to spread the expanding polyurethane foam evenly over the window screen.
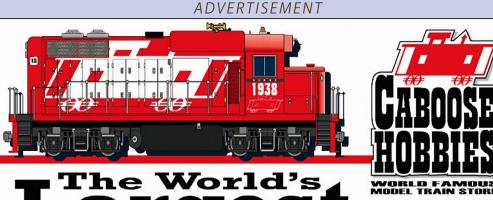
I wore disposable gloves while handling the resin. It's difficult to remove from the skin. I also used disposable plastic tarps to cover the work surface and floors.

13. Polyurethane Foam part A and B.

I used plastic mixing cups to measure equal parts of part A and part B. About 2 oz. per square foot works well. For a 2 sq.ft. piece I mixed 2 oz. of part A and 2 oz. of part B for a

14. Next mix part A and B.

15. Stir the resin quickly.

total of four ounces. I poured the measured resin together into a third cup and stirred quickly.

I used a freebie paint stir stick from the paint store for mixing. I mixed the resin quickly in about 15 seconds, then I drizzled the mixed polyurethane foam components on to the window screen. Again, I worked quickly because I only had about 60 seconds to spread the foam over the window screen using the piece of hard plastic.

16. Pour the mixed resin onto the window screen.

17. Spreading the foam.

18. Final spreading to the edges.

I spread the foam resin from side-to-side and front-to-back, scraping from the middle to the edges to cover the window screen evenly. At a certain point the foam began to expand and set, and I could no longer spread it.

Once the foam was spread over the screen, I allowed it to set until it was soft but no longer sticky to the touch. The foam hardshell panel remained flexible for approximately 20 to 30 minutes, and could be easily manipulated to fit the

When talking to hobby vendors, please remember to mention MRH.

19. Molding the panel to shape.

contours of my layout. The panel became stiff after about 30 minutes or so, but did not reach maximum strength for at least 24 hours. Any areas that became too stiff too soon could be softened and reshaped with a heat gun.

The geodesic shell sections were attached to the base using all-purpose or the high-temp glue discussed above. First I trimmed the section to approximate shape with scissors. Then I applied a bead of the hot glue to the top of the risers where the panel would sit, and then set the panel in place.

Where required, the edges of the panel could be lifted and additional glue squeezed out underneath the edge.

Once the panel was in place and shaped as I desired, it required some holding in position with my hands as the panel cooled and set. This process was sped up by using "canned air" and holding the can upside down. In this position a mixture of air

20. Attaching the panel with hot glue.

21. Hold the shape as the panel cools.

22. Use canned air "ice" to hasten cooling.

and ice came out of the air can. I kept my fingers out of the way so I didn't freeze them! The icy blast helped to chill an area rapidly to hold its final shape.

The edges of the panels were trimmed with a hobby knife. A putty knife was used to scrape the residual foam from the acrylic spreader so that it could be used again.
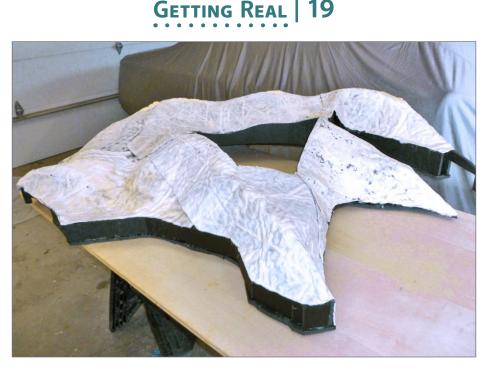
23. Trim the edges with a hobby knife.

25. Hardshell application completed; note the access hatch.

4. Creating and applying foam rock castings

Where exposed rock cliffs, outcrops, cuts, and retaining walls were desired, foam rock castings were created and applied to the hardshell. I used this technique to create the characteristic limestone bluffs for my Ozark Mountains.

The light, hard, rock castings were made in rubber molds using two different plastic resins in turn. Using these specially formulated fast-setting resins reproduced every detail of the mold. The first application was made using two-part polyurethane casting resin. In this case I used Cast Satin from Joel Bragdon. Unlike the polyurethane foam, the Cast Satin did not expand. It set into a hard plastic shell to create a durable outer surface for the rock casting.

24. Use a putty knife to clean the acrylic scraper.

26. Rock mold and "Magic Bullet" mold release.

27. Spray the mold with white lacquer paint.

28. Cast Satin polyurethane casting resin.

Once the two-part casting resin was set, until it was no longer tacky, it was backed up with the same type of foam resin that was used to make the hardshell panels. This resulted in a rock casting that had a strong outer surface but was lightweight. When the casting was removed from the mold, just like the hardshell panels, it was still soft and pliable. It could be shaped to fit the contours of the rock face, and set hard in about an hour. As with the hardshell panels, it could be softened and shaped again using a heat gun.

Rubber rock molds of any material may be used. Commercial latex or vinyl molds or homemade latex or silicone RTV molds work as well. Molds of very large size can be used because the casting materials are so light in

weight the molds can be handled easily. While any mold can work, relatively flat molds rather than deep bowl-shaped molds are easiest to use.

Bragdon Enterprises produces a very wide selection of latex rubber molds, including large molds which are otherwise hard to find. They are also are very helpful with technical assistance and scenery advice by phone or email.

Any mold that I planned to use was first coated with a mold release agent prior to use, to prevent the polyurethane resin from adhering to it. Bragdon Enterprises has a very effective mold release product called Magic Bullet. The mold release was applied to the mold prior to use by lightly spraying from three directions, and allowing the mold release to dry. When it was dry, I repeated the application with another light spray. The mold was then ready for use. After the first use, I sprayed the mold with mold release again and allowed it to dry. This application provided good release from the mold for many copies without further application.

Once the mold(s) had been treated with mold release, I began the casting process by spraying the mold from all four directions with gloss-white lacquer spray paint. I sprayed all over the inside of the mold. Lacquer is best because it dries quickly and the mold can be used right away.

The next step was to coat the surface of the mold with a polyurethane casting resin shell. I had the best results with the Cast Satin described. I have had problems with other resins setting too fast or too slowly, sticking to the molds, or becoming brittle.

Only very small amounts of the polyurethane resin needed to be mixed – just enough to give a thin coat to the inside of the

29. Drizzle the mixed resin over the mold.

30. Tilt the mold to coat the entire surface evenly.

mold. The amount needed varied with the size of the mold and the depth of texture detail. An ounce or so was required for a mold of approximately 4" to 5" in diameter. Only experience guided me here, but a good rule of thumb was to use two to three ounces of mixed resin per square foot.

I poured equal amounts of part A and part B Cast Satin resins into small measuring cups. Then I poured these into a third container and stirred for 10 to 15 seconds. I poured a thin stream of resin around the inside of the mold. Naturally the mixed resin tended to pool in the lower parts of the mold and failed to coat the higher parts.

To compensate for this, I picked the mold up with my hands (I remembered to use gloves!) and tipped the mold so the resin tended to run down over the surface of the mold to the bottom. Then I tilted the mold the opposite direction allowing the resin to run down over the surface. I continued doing this, alternating front-to-back, side-to-side, and corner-to-corner until the resin set enough that it no longer ran. As the resin set it turned a slightly milky color. Until I gained enough experience with determining the amount of resin to use, I needed to give the mold a second coat so all of the surface was covered with a coating which turned the milky color.

When the resin was no longer fluid but still sticky it was time to coat the mold with a backing layer of expanding foam. Generally about 50% less foam is needed than Cast Satin used in the previous step. Again I mixed equal parts of polyurethane foam Part A and Part B for about 15 seconds, then poured the mixed foam resin over the soft gelled Cast Satin layer. I then used my gloved fingers to spread a thin yellowish-brown layer of the foam over the entire back surface of the mold. The foam

31. Foam part A and part B ready for mixing.

32. Drizzle the mixed foam over the mold.

33. Spread the resin with gloved fingers.

34. Expanded foam creates a backing layer.

35. Turn the mold face-down to remove the casting.

36. The casting will be quite flexible.

expanded in just a few minutes to form a 1/8" to 1/4" thick coating. The casting was ready to remove from the mold when it had set soft and dry to the touch. This took about three to seven minutes, depending on the temperature in my work area at the time. If it felt tacky, I waited a little longer.

To remove the casting from the mold, I placed the casting rock-side down on my work surface. I began by peeling the dry casting away from the edges of the mold, working my way around the outer edge. Once the edges were loosened, the mold could be bent away from the casting with one hand while supporting the still soft and fragile casting with the other hand. I gently pulled the two apart.

When removed from the mold, the casting was quite flexible. It was now ready to apply to my hardshell scenery base. I decided where the casting was to go and in what direction it would lie. The casting could be cut or torn into smaller pieces and used in several places.

I turned the casting face-down and applied a bead of hot glue around the edge and across the middle. Then I turned it over and pressed it onto the hardshell before the glue set. Again I was careful as the hot glue could burn my fingers. I always wear protective gloves. As noted previously, I use "canned air" to cool the casting and hasten its setting into the shape I select.

The jagged irregular and flexible edges of the casting were helpful in placing adjoining castings so they appeared like a solid seamless rock face. Extra glue was needed at the seams to hold the casting together. The castings remained soft and pliable for 10 minutes or so after coming out of the mold. They were kept softer longer by using hot air from a hair dryer. A little paintable latex caulk was used here and there to fill gaps and transitions

37. The soft castings can be shaped to fit.

39. Use latex caulk to cover seams and defects.

between castings and other areas, as well as to create roads and trails or patch small defects in the casting itself. I Applied the caulk with a brush or small spatula. Latex caulk was easy to smooth with a damp brush.

5. Painting the rock castings

When the rock castings were in place and the seams had been caulked, it was time to paint them. Painting rocks is the most important step in making them look convincingly realistic. Painting can be intimidating to those who have had little or no art training. Fortunately the approach that Joel Bragdon recommended worked well and produced professional-quality results for me.

The first step was to prepare the rock castings for painting. This was accomplished with artists white acrylic gesso. Gesso is

38. The beginning of a waterfall.

40. The bluff after caulking.

42. Apply a thin coat of gesso so as not to cover detail.

specifically designed to accept paint and stains easily. It is what artists use to prepare a surface prior to painting a picture. I have found very little difference between the inexpensive house brands and the more expensive name brands. Gesso is available in art supply stores.

I applied the gesso full-strength to the rock castings with an inexpensive stiff brush. Gesso was not needed on the bare hard-shell areas that would be finished with groundcover. To avoid covering detail as the gesso begins to dry, I brushed it out of any deep pockets where it tended to accumulate. I needed a thin even coat. I allowed the gesso to dry thoroughly before continuing to paint my rock castings. Cleanup for my brush was done with soap and water.

41. Gesso and a cheap stiff brush.

Full-size rock outcroppings in nature are large enough to create deep shadows and strong contrasts. My miniature rock castings were too small to do this, under layout lighting conditions, without some help. There are several ways of creating the illusion of shadow in our miniatures. One common method is to color the rocks, then spray them with a mixture of rubbing alcohol or water and India ink. The ink wash collects in the deep areas and crevices, and makes the detail stand out. The drawback of this method is that the ink darkens everything, is hard to control, and you won't know the final shade and darkness until the ink dries. There's no going back with this technique.

A better, more controllable approach is to create the shadows first with black powdered tempera paint before the other colors are added. Dry tempera is available in some art supply stores or from Bragdon Enterprises. With a stiff one-inch brush, I appled the dry powder to the dry gesso-covered rock castings and brushed it in. At this point the rocks were gray-black, as if covered with a layer of soot.

Next I misted the tempera with water from a spray bottle. Then I used a damp sponge, and washed as much of the tempera as possible from the rock castings. I rinsed my sponge often. I left the dark tempera only in crevices that

43. Black dry tempera, brush and sponge.

44. Mist the dry tempera and blot off with a sponge.

45. The black tempera shadows will be lighter when dry.

would be in deep shadow. As an estimate, about 90% of the black tempera was cleaned away, leaving the white gesso exposed and some very strong contrasts of light and dark. The final shade was somewhat lighter when the black tempera dried.

6. Coloring the rock castings

When the scenery was completely dry, it was ready to add color using tube acrylic paints. Common colors for this include the earth pigments – Raw Sienna, Burnt Sienna, Raw Umber, Burnt Umber and Yellow Ocher. Also for this particular application where the rocks have a bluish tint and have greenish streaks where algae grows as the water drips down the face, I used Prussian Blue and Hookers Green Deep.

Using a stiff 1" brush, I touched the tip of the bristles in one color, getting only a small speck of paint on the brush. Then I dipped

47. Apply small amounts of paint in thin washes.

the brush in water and brushed it randomly onto a rock casting. The acrylic colors combined with a little of the black tempera, giving a pleasing slightly grayed look. If the color was too intense, I simply brushed on more water. The idea was to apply very thin washes of transparent color. I used several or all of the colors, applying them randomly and allowing them to bleed and overlap somewhat. This first thin coat dried before I continued.

I added several layers of very thin transparent washes in the same manner using several different washes on each coat. Greater depth, subtlety, and realism was created by building up the color with layers of washes rather than with one or two heavier coats of color. I could never put on too little paint because I could always add more. Allowing the paint to dry between layers gave me better control.

46. Acrylic tube paint in earth colors.

48. Painting mossy areas green.

49. The green will be lighter when dry.

50. The rock buffs and hardshell ready for vegetation and detailing.

When I applied the third or fourth coat, I thought more about the final colors I wanted, and began to define strata streaks and other details. It was important to keep in mind that each layer of color was making everything darker, so I was conservative with the intensity. By applying the color in thin transparent layers, the rock work took on a luminosity, richness of color and appearance of realism that could not be achieved in any other way. The colors were lightened by washing with rubbing alcohol, if I did not like the colors that were applied. I could also re-coat the scenery with gesso and paint again. The important thing about this technique is that the effect was gradually achieved and nothing was irreversible.

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Once the mountain base, landforms and rock faces were complete, the total weight of the "Ozark Mountains" was 8-1/2 pounds. I could easily hold it over my head in one hand. Try that with plaster! In addition, the whole project was carried out in my workshop where it was accessible from all sides and no mess was created on the layout. In the next installment I will bring the mountains to life by adding trees, bushes, grass and vegetation. ☑

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WHAT'S NEAT
WITH KEN PATTERSON
column

KEN PATTERSON

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NEW TOOLS, AND LAYOUT CHANGES ...

THIS MONTH WE COVER EIGHT SEGMENTS IN the "What's Neat with Ken Patterson Video" starting with three tools: wood cutters, a Dremel router, and shaking paint with an ultrasonic cleaner.

I have been cutting a lot of wood for passenger platforms and wood docks. It had me thinking of all the cutting tools we use in the hobby. I started with straight razor blades when I was young, graduated to hobby knives, then discovered the NorthWest Short Line "Chopper" wood cutter. These tools are perfect for cutting boards the same length in the hundreds, fast. Very accurate and versatile when cutting angles. There are two types on the market, a metal base cutter and a wood base cutter. If you are building wood kits, look in to this tool to make your project go faster [1-3 next pages].

▶ **PHOTOS AND VIDEO OF SUPERB MODELS**

Playback problems? Click here ...

1-3. Various cutting tools and the finished project using them.

I found myself setting up an outdoor shoot at 2 a.m. the other day. I was working with buildings that I lit up with LED flash lights. With over a minute exposure and the aperture set at f/22 with the buildings lit, and another 19 seconds with spot lights on the scene, I ended up with a pretty interesting photograph of Athearn Bicentennial units. Experiment with night photography with your models to see what kind of results you get. It will amaze you.

After last month's teaser, I formally introduce "Modeling Ideas From Above." We fly over Durand MI following a freight. When you watch this, look for the colors of pavement, the look of the trees, and the mowing patterns in the grass. There are hundreds of silent details visible from the drone's perspective that you can apply to your modeling.

This month, I was building a new shelf layout and needed to plant an engine house in the foam base. I discovered I could cut this base into the foam with a Dremel router attachment attached to my cordless rotary tool. With this there was no mess as with a full-sized router. The cuts were accurate and the engine house fit flush with the tracks matching the scene.

I photographed the new Bachmann Climax in HO scale the other day. Using mountains and an engine house for a background, I ended up with a cool shot of this new model. In the video, we take it for a run to see the smooth action of the side rods. With all-metal gears, this model is sure to please.
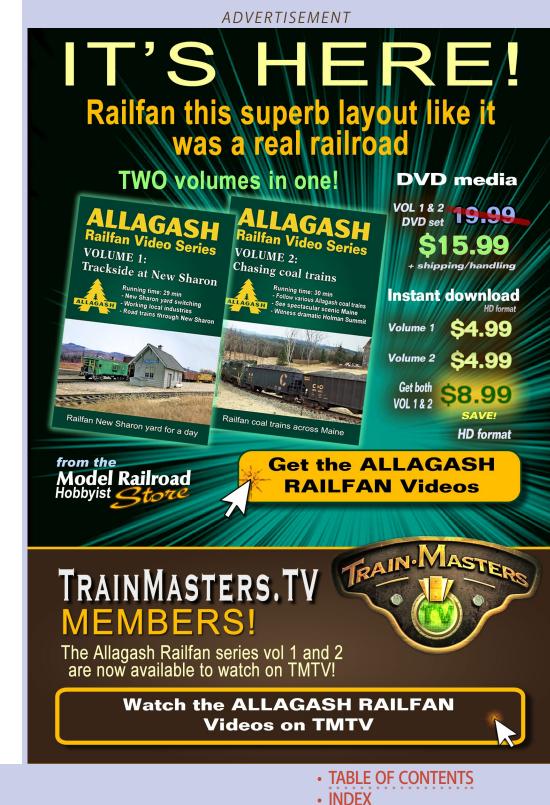
If you have ever worked with model paint you know how hard it can be to mix it up by shaking. It always seems to be stuck to the bottom of the bottle until you shake it for 10 or so minutes. Using the ultrasonic cleaner for 30 seconds loosens the paint and does the trick. With the paint loose it is easy to shake and mix it up. I put the bottles in a pool filter basket for this process. It will take the labels off the paint bottles if you leave it in too long.

Check out the paint work on the new Bachmann N scale Pennsylvania K4 model. This model features full sound from Soundtraxx. In the video, you see and hear an outdoor runby with this model.

I have been making a lot of changes to my layout. This month we cut out a section to change it into a harbor/wharf scene and show all the work that goes into laying approach trackage and scenery. Electrical blocks and wiring are included. I wanted to cut the layout so the bench work curved and it would be easier to reach the mainline without having to stand on a stool. Watch the entire process in real time in this month's video, with Part 2 appearing in December. Follow along with the photos and captions as we rebuild an existing layout.

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Using a pruning saw, I cut through the roads, water, grass and all of the foam layers that make up the layout.

After the section is cut, it is easily pulled away to reveal the new dimensions of the layout.

Using a Super Sawzall I cut through the plywood table base and the metal studs. This saw is powerful, and cut the material like butter.

I covered the sides of the benchwork with ¼ inch stained plywood to match the rest of the layout. This gave a smooth curved side and covered up the freshly cut metal studs.

Using a pruning saw and a Stanley Surform planer I cut the topography that would eventually be the base for trackwork going down a 5 percent grade to the waterfront industry.

I filled some areas with foam to support the track where there was no scenery. Great Stuff Foam Pro is dense and will support the track directly.

A laser level helped to line up the grade through the new foam, all the way down to the water's edge. This laser insured the perfect carved 5 percent grade with no mistakes.

Here you see the cut grade in the pink and orange foam. I also carved an access road in to the scene.

I have started placing track to figure out the arrangement needed to serve the dock and the car float ramp area. This area will be level so the cars can be set out and not roll away. The area will hold the Hyde pulp mill from B.T.S. I am using dual-gauge Micro Engineering code 70 and code 55 track in the area.

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The whole scene is painted with brown latex paint to seal and protect the foam from Liquid Nails glue when I glue down the track.

With the track not yet glued down, I can make changes as the building dictates exactly where the track will go for clearance between the structures. Next month we will wire the track, wrap the modules in oak plywood, put in block switches, finish the wharf water area and finish the ballast and scenery. To be continued ...

The brown paint makes it easier to see the topography clearly. . Now is the time to do final carving to ensure perfect track work. Do final carving on the placement of roads and water access, then repaint these. This completes the base.

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At the end of this month's video, we sneak a peak at the new Dremel 3-D printer. In December's video we will print items from its memory to see how it performs. In January, we will design something for our trains using computer software available from Dremel. Some of my Facebook friends have sent structure and building files that we will print for the layout.

Two of their printers are in the studio working as I type this. They are easy to use and work well at 100 microns. My kids love working with them. They have made projects for show-and-tell at their school. That ends What's Neat for November 2015. Be sure to vote, and leave your thoughts in Readers' Feedback. ☑

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IMAGINEERING
column

ROB CLARK
. . . .

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IMAGINING HOW TO "THINK REAL" …

HI EVERYBODY, ROB CLARK HERE; NUMBER SIX OF the six Imagineering columnists. This is my first contribution and since the other guys have already set the bar high, I have my work cut out. Before we go any further I have to deliver a disclaimer; which is, "I'm not much of an expert in anything."

But this is my strength, because having no relevant background (UK based) and being relatively new to the hobby I have to "think" my way into achieving some kind of railroad reality.

I am going to focus on the techniques that have been used to create the Cornhill & Atherton RR, rather than the railroad itself, so this is an approach that can apply to any era, prototype, or imagined subject.

So if you like what you see on the C&A, then don't copy "the look" – copy the methods and create your own look.

▶ **EXPLORING THE CREATIVE SIDES OF THE HOBBY**

Rob Clark explains how "Thinking Real" helped create the Cornhill & Atherton Railroad.

1. Short trains running at slow speed is a free, zero-effort and hugely effective approach to space expansion and realistic-looking operations.

Evolution or anarchy?

When the six columnists first talked, one of the things that we agreed on was the difficulty of putting into words how we "imagineered." The creation of a scene is for the most part instinctive, and you don't spend time analyzing or documenting how you do it – you just do it. So to pass on that knowledge, we have to look at our work again and "reverse-engineer" the thought processes that got us there.

There isn't one part of the C&A that is (consciously) copied from any prototype scene on the planet. Everything just evolves because it feels right. I can only guess that years of observing the world, nature, and reading acres of railroad material generates some kind of ability. Using an evolutionary approach doesn't mean I'm advocating random anarchy. This isn't an excuse to just do anything you feel like, because you will probably end up with a mess.

Everybody needs a framework, and "Givens and Druthers" is an oft-quoted pre-build activity of which I am a fan. After that, pretty much anything goes, but you need to follow some guidelines – "thinking real."

The Cornhill & Atherton railroad

The C&A is a fictional mid-1930s short line railroad set in every-place and no place, small-town America. I'm from the school of "less is more" and I would rather concentrate on getting good-looking, smaller scenes and also have a chance of finishing the railroad before I meet my maker. So the C&A is small (11'x8'), but as a two-deck railroad with helix, still provides eight scenes (four per deck), each six to eight feet in length, which I think is an ideal

logical module size. Overall it's big enough to be interesting, and keeping the consist size down can make it seem bigger [1].

The C&A is a point-to-point operation. I want to be able to run a train from one end of the railroad to the other without visiting the same place twice. In addition we have an interchange with a major (mythical) railroad via double-ended staging.

Staging is probably my number one "given" because of the flexibility it introduces. We can have any off-site industries we please to add interest. Also I have the excuse to run a much bigger fleet (and bigger engines) than the C&A on its own can justify [2].

Painting a picture

The main thing I strive for on the C&A is visual harmony. Ideally you should be able to look at any scene from any direction and feel comfortable with the sense of reality. Each scene should stand on its own merits, but also link seamlessly with the next.

Think of it as painting a picture (let's face it; a model railroad is a form of 3D art). When you first look at a scene, your eye will

2. Using double-ended staging linked to the lower deck means I can interchange to a mythical major carrier as well as an excuse to run some "Big Steam."

3. Buildings are going to look well-used, but never shabby. Spending cash wisely (let's call it a frugal approach) is encouraged by the management.

be drawn to a focal point of interest and then will scan outward slowly, taking everything in. Then you take a second pass, looking at those items that stand out for you.

It will take a few visual visits before you work your way down the fine details and finally see everything. So the more you can force the viewer to scan, the bigger, more interesting, and

4. Locomotives are well-maintained but not much polishing goes on, so there is a patina of usage. They also don't have C&A logos – everybody knows who owns them and they don't go anywhere else. Unnecessary expense!

realistic the scene becomes. This doesn't mean that cluttering up a scene will make it interesting. Personally I do the bare minimum to achieve the "look." Too much detail risks visual confusion, and the viewer has no idea where to start.

"Think real" – Time and place

Consistency is the key word. So I've made the decision that the C&A exists in times of economic hardship, but has pride in its operation. That means that buildings and equipment are "used but not abused." Buildings get the corporate color, but repainting is not frequent. It's when the structure of a building is at risk that people are going to do something – generally remedial rather than preventative [3]. Locomotives as the heart of the operation get more attention but also aren't going to win any beauty competitions [4].

Top-down constructional approach

Although not specifically related to freelancing, it's worth mentioning a key construction technique which I have found invaluable. "Top-down" building principles have been used [5],

5. This early constructional view shows the "top-down" construction technique. The sequence was, ceiling valances and top deck lighting, then the helix, followed by the top deck (including integral lower deck lighting).

so construction started with the ceiling valances and top deck lighting, then the helix, followed by top deck (including integral lower deck lighting).

The lower deck currently doesn't exist, and will not be constructed until the top deck is 100% finished. This makes for very easy access "above and below deck," and reduces the risk of damage to the lower deck from upper-deck construction activities. It's a method I can highly recommend if you have the conviction that your track plan is sound.

Before we embark on a tour of the C&A (only 3/8 built!) let me say that my ultimate goal is realistic operation. This however is

6. Widow's Veil trestle sitting at the base of Matrimony Hill – an experiment in the technique of building scenery first, then adding the bridge.

a few years off, and I want a visually satisfying and emotionally grounded world to operate in. If later I find a few areas where the track plan isn't satisfying, I can relatively easily change it.

So let's talk about what techniques are being used, what works well and just as importantly, what doesn't work.

After we leave the (as yet non-existent) town of Glanton on the lower deck, we start our ascent of Matrimony Hill by entering the helix. Here is the Atherton local pulled by Number 1 on the first helix turn, crossing Widow's Veil Trestle [6]. The Engineer is J P Hannant and fireman Troy (Skunk) Reeve. Skunk got his nickname because of his obnoxious nature; as in "friendly as a cornered skunk."

The helix is "herniated," that is, the first turn is pulled out at the front so that we can model this bridge scene and get a glimpse of the train on its way up. The rest of the helix is sitting behind the rock face above the trestle. The symmetrical trestle contrasts with the varying angles of the vertical rock strata above. The sloping tree line on the left helps greatly in hiding the helix – more of this "shape shifting" technique later.

The shed on the right-hand tunnel (debris fall protection) also helps break up the symmetry. Dense vegetation and a few trees in front of the trestle help to increase the depth of scene.

Scenery first – the engineering challenge

By its very nature a trestle is a symmetrical structure, so I was keen to find a way of giving it a more interesting footprint. Typically model bridges are measured for gap and height, and then assembled on the workbench. After installation, the scenery is built up to match the bridge supports.

I wanted to try building the scenery first and then see what I needed to do to create the bridge. This should give a more natural look, since I would have to replicate the problems a real bridge engineer would have faced. Because of the steep slope and loose rock, it isn't practical to rely on just the bent sills sitting on the valley floor. The trestle will tend to slide down into the valley. Therefore stone piers are required to give a solid foundation [7].
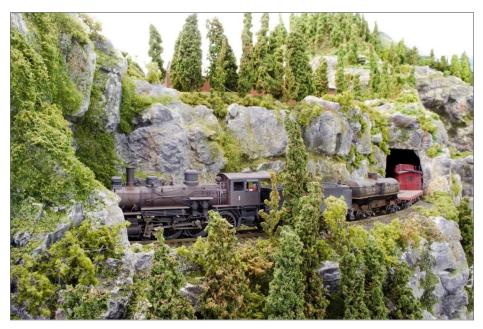
Nearing the top of Matrimony Hill, #1 traverses Branum Pass [8]. This serves as another opportunity to get an update on the

7. To save money and time, only enough pier construction is done to get a safe situation. Every pier is different, reflecting the construction issues that the crew faced on the real-life bridge build. The result is an interesting and varied base for the trestle bents.

8. Branum Pass – a fleeting view of the local as it temporarily emerges from the helix that is Matrimony Hill.

progress of the helix climb and also add some scenic interest. The pass is created by cutting away the baseboard forming the helix top. Rock work introduces variation to the flat roadbed, and we have a view-block in the form of trees between the pass and Atherton yard above. Some kind of view-block, no matter how small, is a great way of visually and mentally breaking up scenes and introducing a sense of distance. We forgot to add soot stains to the tunnel exit!

The Local exits the tunnel at the top of Matrimony hill and starts its approach to the town of Mortimer by crossing in front of the train room door [9]. The geographical feature represented here is a "saddle" – usually describing a dip between two hills [10]. Notice the layers of two-dimensional backdrop scenery; far

9. The local bursts into the sunlight and approaches the town of Mortimer. This section started life as a train room door lift-out section, but I decided the need for dramatic scenery outweighed the small inconvenience of a duck- (more of a nod-) under.

mountains and mid distance trees. We then have three-dimensional trees and shrubs; primarily behind, but also in front of the track bed.

The feature sits naturally in the doorway, where it helps disguise the opening. It also visually links the tunnel exit rockwork to the hills in the corner of the room approaching Mortimer. The contrasting contours of the distant mountains and the foreground trees are pleasing to the eye.

As we ease round the curve leading up to Mortimer, above is a tree-lined hill which actually hides some serious domestic plumbing. This is a great point to extol the virtues of coving [11].

Please, please, please cove your corners. This is one bit of work that I never regretted doing when I installed the benchwork. I can't stress enough how it improves the visuals and makes scenery work in corners a real pleasure. A secondary advantage

10. To prove a point, here are pictures with the train room door open and closed. On their own, the 2D and 3D elements are interesting, but combined, everything comes to life.

is the look of endlessness that it imparts, both in the train room and to your photographs.

We arrive in Mortimer – a small but moderately busy town which provides passenger service and general freight traffic generated by a few local industries. Fess Allman is the station

agent, and he (like many of those employed by the C&A) is an unusual character.

Mortimer nestles tightly in the hills. I only have three buildings here, and this is very deliberate. In line with the earlier "painting a picture" sentiments, I avoid creating visual clutter. The whole scene is carefully laid out to accentuate visual flow, hopefully making the railroad look larger than it is.

The overall view [13] illustrates what I am trying to achieve. Every bit of trackwork is curved – never parallel to the back scene and also complementing, but not exactly following the fascia, also curved. The trees are compressed, height-wise, but are sitting on flowing hillsides that both frame the scene and

11. Approaching the Town of Mortimer. We are looking into the corner of a very small room here – honest! The coving conveniently hides a large vent pipe.

12. Sheets of Masonite or thin MDF can be easily fixed to the wall and will bend around corners quite happily, given some simple formers to screw onto. Coving is easiest to install at an early stage of construction. Upper and lower deck go in together.

stretch it. The eye is drawn from front to back through the scene, and this gives an illusion of space and depth. The buildings are not in a row, and Paxman Engineering is angled so it doesn't line up with the back scene or the road, which itself doesn't run straight from front to back.

In short, "no straight lines."

It's not so obvious in this view of Mortimer, but apart from the track bed, nothing here is truly flat. It might be no more than a dip with some weeds, but everything is going "up and down."

No such thing as "flat" in nature.

Mortimer was great fun to build, mainly because of the huge amount of collaborative input I got from the *Model Railroad Hobbyist* forum last year. One of the best tools a model railroader can use is informed constructive criticism, because you can easily get too close to your subject to be objective. Seek input and don't take offense at perceived negative comments.

While Number 1 simmers in Mortimer station, let's take an interlude to talk about some softer issues of model railroading.

13. Welcome to the town of Mortimer. Trackwork flows in gentle curves and nothing (but nothing!) is in a straight line.

"Think real" – People

Railroads aren't just about machines, but more about people, using machines to move necessities around the world. I love prototype photo books, especially those that have some human interest that gives context to the railroad elements of the picture. The same real-world context applies in my model railroad world, so I take great pleasure in naming individuals, giving them a personality and in some cases, a history.

Knowing who is driving that train, who his best friend is and where he lives, adds an extra dimension. I get names from many sources – in some cases people I have known, or at least met in the past, and have made some impression on me. Some names are totally made up.

I never met "Dixie Dean" but he was an engine driver in the UK in the '70s, and I found his name in a UK railway book. He is now the engineer of C&A Number 3, ably assisted by Earl Yates (I just like the sound of this name) firing the venerable 4-4-0.

Restricted color palette

I make strong use of a restricted color palette; primarily green, brown, and gray. Please don't underestimate the huge power of this seemingly drab

combination. A restricted palette is the color equivalent of avoiding too much detail in scenes. Also, swathes of green and brown help the scene to visually flow, and provide a great canvas on which to display showpiece objects which can be in a different color if you want them to "pop" like the ground throw target [14].

"Think real" – Trees

I make no apology about the fact that I like trees both in the real and model worlds. Trees add interest, texture and depth to a scene. When it comes to construction, I take the path of least resistance. We have a garden full of Buddleia (butterfly) bushes, which every year produce more fir tree armatures

14. The small red target on the ground throw stands out and enhances the very green background. Zoom in and check out the exposed roots on the tree in the center of the picture.

than I can cope with. Using batch-building techniques to "fix" in diluted PVA, followed by hair spray and ground foam; I reckon the standard time for tree construction averages about 30 seconds per unit.

They are far from the best model trees in the world, but they cost almost nothing, and in groups they look just fine [15]. I appreciate that our planet has many local flora variations, so you may be limited in choice, but before you buy any tree materials, take a look in your yard to see what might be of use. Take a walk round your neighborhood to. A polite request can net you a sackload of tree-building material. In the same vein, tea leaves, crushed leaves, sand, dirt, and gravel are all freely available, and look great.

Nature provides perfect materials for those who are willing to look.

Nothing shiny, nothing bright

Because of water vapor that occurs in the atmosphere, distance "fogs" objects so that colors become less vivid. You may be viewing your model railroad from two feet away, but in scale terms you are a couple of hundred feet away, and this kind of distance kills color. So it's best avoid anything bright or shiny [16].

Try to blend colors as much as possible. A standard and very effective technique is to use a "burnt grass" ground foam lightly sprinkled over vegetation. There is always dust about, and because it will stick to everything, it creates a color levelling effect. I often use a very light mist of "rattle can" matte brown spray paint over a scene to pull things together. A great side
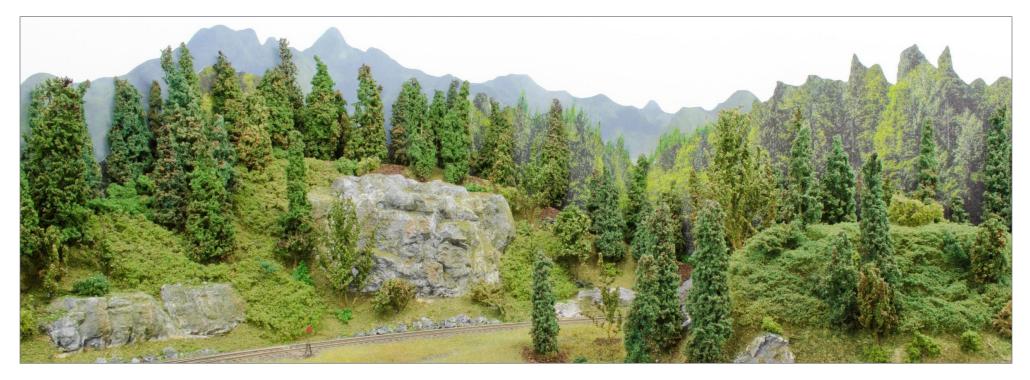
effect of these attempts to reduce contrast – OK, add blandness – is to help with the simulation of distance.

Having said all of that, I would still recommend the odd key objects that should have a stronger contrasting color but never shiny or bright, to provide some relief to the scene. [17]

The blue yonder

In the spirit of Lance Mindheim's guidance, all of the sky is pure soft blue. [5,13,15]. We need to keep as open an aspect as possible

15. When budget trees are planted in large quantities, their effectiveness increases greatly. A very plain soft blue sky sets off the distant mountain profile.

16. The oil drum is a dull red, and 'Shadow' (the dog) a textured black. As observed by an MRH reader "What's that – a hillbilly poodle?"

18. The local leaves Mortimer and ambles into Spangler Gap. Another example of why you should cove corners.

17. The station sign provides a bit of color relief in a very green and brown scene. Note the road on the backdrop blending with the "real" road. A small hump hides the joint.

to fool the eye into thinking the world goes on beyond the horizon. I did spend a lot of time mixing colors to get a blue I really liked, but after that it was just applied in a single coat with a roller. There was no attempt at clouds or gradient shading.

For me the simplicity works. It's a personal thing, but I don't like clouds unless wispy to the point of non-existence. I judge the success of the sky in not noticing it, other than it sets-off

20. Mortimer minus 3D trees – the back scene alone is powerful, and was created from only two Google-sourced images.

the mountain or tree horizon. If you happen to be modeling a desert scene, then the blue is going to be "harder," but the same principles apply.

Of course, all this theory could actually be a convoluted excuse for the fact that I have neither the ability nor patience to paint realistic sky!

Back scenes

I have taken my inspiration for back-scene construction methods from Tom Johnson (Logansport and Indiana Northern RR). The scenes are produced by inkjet printing "mix and match" photos of real locations onto matte archival copier paper. I use an A3 printer, which produces fewer joints than the usual A4 size. The joints still need hiding, but as Tom has shown in his articles, strategic placement of trees, power poles, and buildings, as well as use of acrylic "dotting" to blend back and foreground colors works well.

19. Leaving Spangler Gap we head for "plywood central." The scenery on the right is only three centimeters (1.2") deep.

The most laborious part is creating a large image and then printing in A3 (11.7 x 16.5 inches) sections. I use Photoshop Elements to assemble the big picture and PosteRazor (freeware utility) to create printable sub-sections and precisely control where joins are going to be. After printing, the existing sky is cut off using a sharp knife, then everything is carefully glued to the wall [20].

The art of model railroading

The Golden Ratio

If you Google "Golden ratio" you will find a mountain of information about its use in mathematics, building design, art, and almost everything else in life.
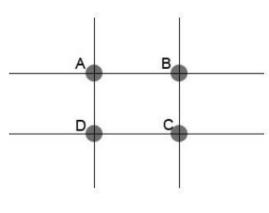
$$AB / AC = AC / CB = 1.618$$

Its relevance to model railroading is that it is a theory about spacing objects A, B and C in the example above, in a visually pleasing way, by avoiding symmetry and introducing a bit of visual "tension". My wife Jean and I have used this idea it in our Japanese-inspired garden designs, and it crops up in photography as well with the "rule of thirds."

Rule of thirds

The principle is that an image should be imagined as divided into nine equal parts using equally spaced horizontal and vertical lines, and that important elements should be placed

along these lines, or their intersections.

Back to gardening again, we plant in odd number groups – three, five, seven, to prevent the natural tendency for the human mind to seek symmetry and "find the middle." We also attempt to plant areas with larger shrubs in order to hide what is beyond – view-blocks. The viewer can't see the entire garden at once, and has to go walk-about to discover hidden areas.

These four techniques are all about creating tension, energy, and interest in the scene by, simply put, avoiding symmetry and making the viewer's eyes move around.

So how does this work in a model railroading perspective? [21]

- The modeled tree tops should extend above the backdrop tree line to help keep the viewer guessing about what is modeled and printed.

- Provide a counterpoint between the hill profile on the backdrop and the modeled tree line. For example, if both the 2D and 3D elements are descending , then make them descend on different slopes, and perhaps even try to have them cross over.

- Use an odd number of tree groups. Varying heights and colors all contribute to the depth of a scene.

- Some kind of view-block, no matter how small, is a great way to visually and mentally break up scenes. This doesn't have to be in front of the track. The example [21] shows how a view-block works at the back of a scene to add interest to the tree line.

Before we re-join the Local, one final bit of information …

"Borrowed" scenery

"Shakkei" is a Japanese term for the idea of taking a piece of existing scenery (e.g. a distant mountain or tree group) and then visually framing it with your own scenery to focus attention on it, effectively "borrowing' it.

Obviously, this technique can't work everywhere, but try to at least think about how a scene can be viewed. It's easiest when

you have a bit of peninsular scenery. The example [22] is looking across the Atherton yard (top of the helix) so that we can borrow the view of Mortimer beyond. Effectively we are creating a 3D backdrop horizon by just seeing another part of the railroad.

You don't need to be compulsive about utilizing Shakkei when designing your railroad, but be mindful of the possibility.

Beyond Mortimer

From this point through to Atherton Engine terminal, we run though plywood central. Future column articles will hopefully fill in the gap. I pick up the story again after the local has pulled into Atherton and is spotting cars.

JP gets rid of the caboose before shoving the tank car over to Spock's Gas & Oil in a remote corner of the engine terminal [23-25].

To a certain extent you can imagineer equipment as well as anything else. The A-frame crane in Atherton engine terminal [26] has been put together by the yard crew under the leadership of yard boss Jude Andrews seen entering the workshop. An
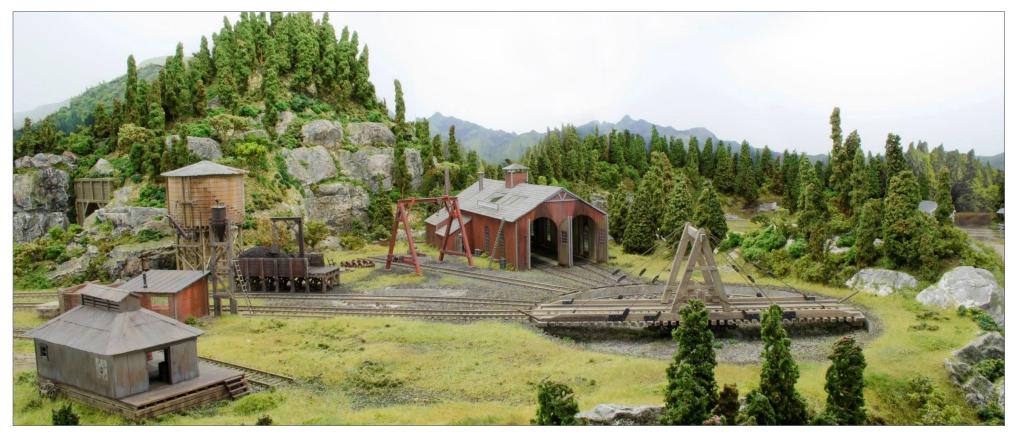
21. Techniques to add tension, energy and interest to a scene.

22. Shakkei – an almost zero-effort technique that provides acres of visual opportunity. All of the distant scene from the middle to the right edge is actually the "saddle" and Mortimer.

Click here for reader comments

23. The caboose finds its way onto the caboose track, sitting next to the tunnel entrance where the main continues to the town of Morocco. In reality it goes nowhere other than 10 inches into the mountain, AKA "The Blob." This is a simple trick but it makes the railroad seem bigger and also provides some useful extra runaround track.

24. Shakkei again in the distance on the right.
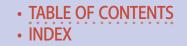
25. Spock used to run his outfit on the tracks at the edge of Atherton. But, after he burned his shop twice (not a stickler for safety, our Spock), the townsfolk got nervous. He was relegated to this rundown shed on a spur by the edge of the engine terminal. Note the restricted color palette theme again.

I-beam surplus to building requirements has been successfully combined with a few pieces of heavy timber, an old winch, and a block and tackle.

Observe a few real-life examples of the things you need, then put yourself in the place of a cash-strapped engineer – how would you do it?

Almost everything in this yard is scratchbuilt or heavily kitbashed. There is much to be said for creating something that doesn't look like every other kit on the market. Change the roof, change the windows, change the layout – do something to make the structure your own [27]. The more of this kind of work that you can do the better "connected" you become with the world you are building.

Check out youtube.com/watch?v=lcFnOc5TCrE for an early "no wobble" test video.

"Shape shifting" – hiding a helix

Joe Fugate has said, "A helix is an evil thing" and so it is. However, there are limited ways to squeeze two decks into an 11' by 8' room, so for me, a helix was the way to go.

Hiding a helix involves a bit of "shape shifting" – fooling the eye by breaking up vertical and horizontal lines with different scenery textures. Basically, try to get viewers to forget that the helix exists by making them concentrate on other things.

The eye is drawn up what appears to be the spine of a ridge [28] which actually doesn't exist. Elements are combining to give the illusion of a ridge. Varying clusters of trees and the overhanging rock faces flatten the curve of the helix wall.

The helix was jokingly named the "Wedding Cake" and the distant hill, the "Blob "at an early stage of scenic development. Not only did the names stick, but it provided an additional motivation to come up with a method of hiding the cylindrical look.

The track plan

Pages 37-40 show the C&A track plan [30, 31], although only showing decks 1 and 2 (omitting the simple double-ended staging below). A big cheer for Xtrakcad which was used to draw these track plans as well as everything else, using its multi-layer facilities for valances and framing, lighting and electrical layout, baseboards – the works.

26. A-frame crane built from scrapbox parts. Note that even though colored red, it harmonizes with the engine house to avoid "color clutter." The scratchbuilt crow is called Dave.

27. JP and Skunk line up Number 1 on the turntable for an overnight stay in Atherton engine house. When building this turntable (Vintage Cliff Line deck plus scratchbuilt everything else) a lot of time was spent ensuring mechanically smooth and electrically bulletproof operation. The push bars are a little over-scale because the hand of God works this turntable.

28. This view shows a few techniques at work, including forced perspective with the distant hill and a view-block between the yard on top of the helix and Branum Pass.
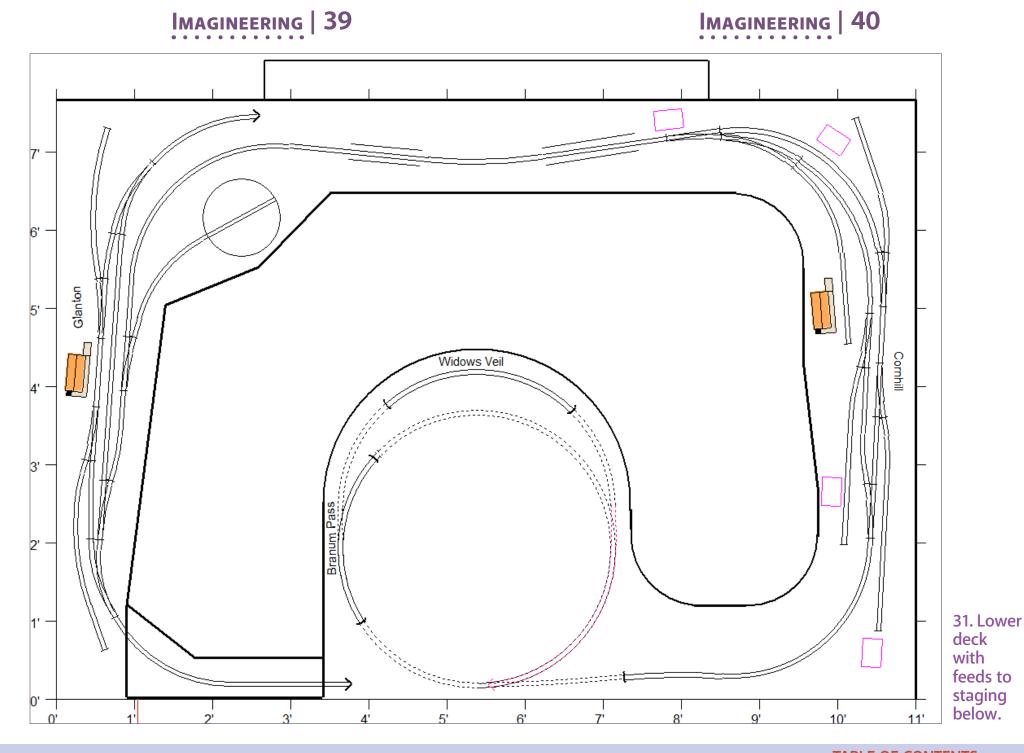
29. Check out this "before" view of the helix. A daunting task, but hiding this ugly structure actually proved to be a pleasant challenge.

Vezmar Mining Company

Mortimer

Atherton

Atherton Engine Terminal

7'

6'

5'

4'

3'

2'

1'

0'

0' 1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11'

30. Upper deck, with entrance door at lower-left.

Glanton

Widows Veil

Branum Pass

Cornhill

31. Lower deck with feeds to staging below.

I must also gratefully credit Danial Fisher with the original design (N&W Abingdon Branch, Model Railroader, October 2010, which I modified somewhat to suit my preferences.

OK, I'm done for now, so some final words of wisdom from an "old codger" about building a model railroad.

Don't be impatient – this is a process to savor. Take your time, do stuff, make mistakes, have glorious victories and above all enjoy every single moment.

You will find me in the MRH forum – It's a mine of useful information and discussion, and it will increase your enjoyment of the magazine greatly. Look up the old Cornhill & Atherton blogs using the supplied links to get much more detail on the build of the C&A and see how far we have come! Feel free to contact me through the forum or use the reader feedback icon in this article – I'm a great believer in the power of shared knowledge.

Playback problems? Click here ...

The Engine House ("used but not abused"): mrhmag.com/node/15539.

The Blob (forced perspective): mrhmag.com/node/15680.

The Wedding Cake (hiding a helix): mrhmag.com/node/16553.

Mortimer (creating a station): mrhmag.com/node/18776.

Vezmar Mine to Redpale Creek (dealing with a window): mrhmag.com/node/22169.

The accompanying video shows C&A Number 1 on the return trip to Cornhill from Atherton yard. Apart from being a bit of fun, it's an attempt to encapsulate the mood of the railroad using pictures, sound and video. Hopefully you get as much fun watching it as I did making it. ☑

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A stunning diorama ...
BY GARY CHRISTENSEN

CALDWELL BOULEVARD
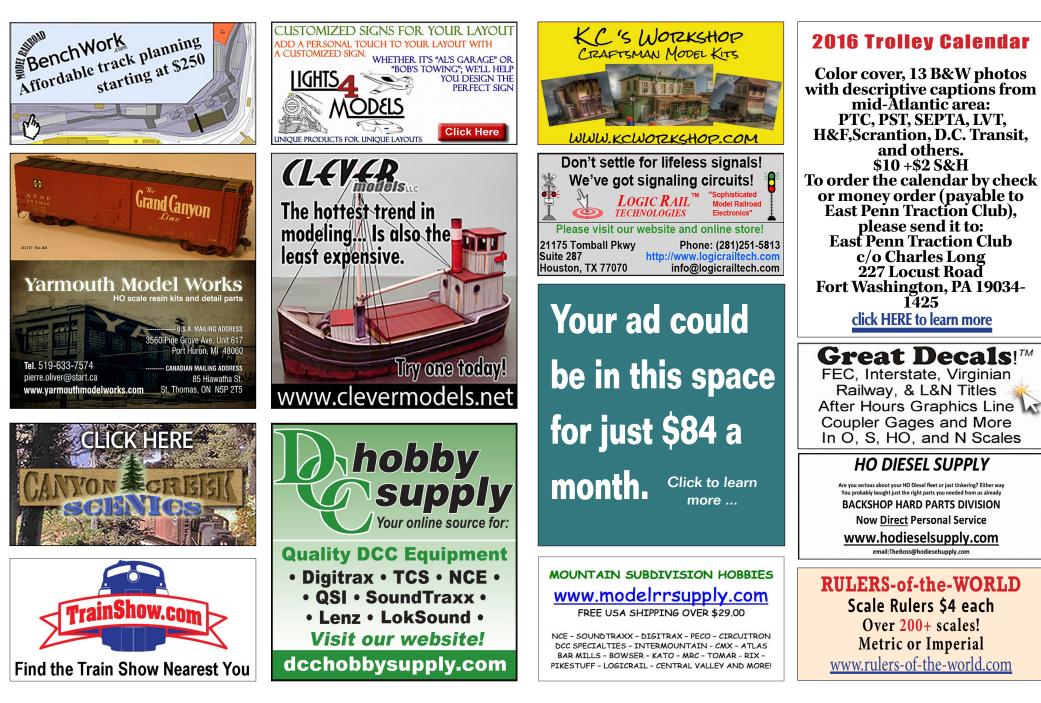
1. (Lead photo) DRG&W leads a pair of SP locomotives along Caldwell Boulevard in the seemingly endless parade of trains moving freight.

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Caldwell Boulevard" is how I christened

my latest scenic diorama, to be used for photographing some of my projects for The Weathering Shop (theweatheringshop.com/gary.html).

The name "Caldwell" for this project comes from a jazz artist's last name. I was trying to imagine names for this diorama and happened to be listening to smooth jazz artist Bobby Caldwell when the final stages of diorama production were coming about. I thought to myself that "Caldwell Boulevard" sounded legitimate. So, here's a salute to Bobby Caldwell and smooth jazz.

With most of my modeling I try to conserve on expenditures, and this diorama is no exception. My purpose here is to give a documented overview on the construction and bringing Caldwell Boulevard to life. As a side note, I work in a wholesale food commodities warehouse in Southern Oregon and, believe it or not, plenty of odds and ends from the store where I work were employed in the project.

My vision is a railroad crossing a wide boulevard or four-lane avenue. The crossing is set along a busy right-of-way on the north-south Central Valley corridor in California, complete with franchise businesses along the thoroughfare.

Typical of such crossings, I wanted to emphasize the multiple overhead power lines and cables. The advertisement

billboards we see so often are also an important element. The right-of-way would have a gravel easement and foreground service road to round off the somewhat desolate scene. All of this I would attempt to create with minimum spending for supplies and details.

About 10 years ago, I scratchbuilt quite a few contemporary franchise business-type buildings for a layout that never came to fruition. I stored the buildings that were fabricated out of Plexiglas and other common household items. Some of these structures can be seen in another diorama I made called,"Highway 89." The last few scratchbuilt buildings still in storage included a motel, a liquor store and laundromat combo, and a Kentucky Fried Chicken.

I decided I would utilize the KFC and the liquor store for this project. However, being slightly displeased with the quality of

2. My Highway 89 diorama. The goal was to create a new diorama that was looked better than this one.

their construction from earlier times, I would reverse them, in a space away from foreground view with the parking lots and sides dominating the background.

On to construction

I began by cutting a piece of thick medium density fiber board (MDF) to 2 x 3.5 feet, opting for this heavy base over extruded foam board because I live along the Oregon Coast headlands. The winds here can gust up to 60 mph at times without warning, rain or shine. I have learned through trial and error not to construct anything that might fly off in the wind while photographing.

After I cut the base board, I penciled in the right-of-way, and worked around the buildings that would occupy the extreme

3. The heavy MDF board I used as the base for the diorama. The weight is needed to hold the diorama in place during unexpected wind gusts.

4. This is a sample of the foam board used to cover the entire base.

background of the scene. Once the penciled-in design was complete, I measured the black foam board that I purchased at the store for a dollar and some change.

The foam board is cut to accommodate the entire base for the roadbed, and to raise the structures and boulevard all to the same height, leaving only the road shoulders and right-of-way as recessed areas. The roadbed was measured to support two lengths of Micro Engineering code 70 rail.

Once the roadbed and rails were set, I measured and cut the foam board for everything else that would be at the same elevation. As soon as all the foam board foundations and structures were glued in place, I weathered and cemented a BLMA concrete grade crossing pad into its location.

Walks and roads

Then, with some soft plastic sign planks that were approximately 1/16" thick – discarded from my place of work – I cut out the sidewalk sections and painted them with a mix of three aerosol paint colors. An almond color is the base. Second, a light gray primer is dusted on the sidewalks. Third, a camouflage beige color is added. All of these are flat enamels. I penciled in expansion seams and random cracks before I positioned the sidewalks. The walks run the depth of the scene and were glued into place.

With this much accomplished, I allowed about two days for all the work done so far to dry solid before I continued. My next step was to lay the boulevard asphalt. This is done by using a thin poly-type plastic that again, was a discard from work. These are used as pallet slip sheets. If you don't have access to a similar material, find a gray plastic to use.

6. The buildings and track have been glued to the foam board. Now it's time to walk away from the project for two days and allow everything to dry.
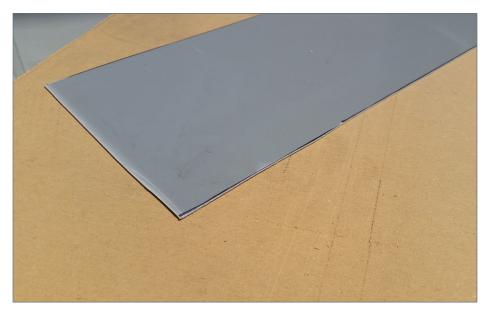
I cut the gray plastic to dimensions that would fit in snugly in between the raised concrete sidewalks. Before the plastic road was cemented with white glue, I sprayed it with two colors of flat enamel. The first was gray primer, followed by a light misting of camouflage beige. Once the paint dried, the roadway was cemented into place.

Following standard pavement markings that I have seen, I striped the edge lines white and median dividers yellow. The lanes are weathered with a dark shade of charcoal gray pastel powder. Cut and formed black foam board segments replicate shoulder slopes and an inclined drive onto the service road. I added chain link fences along the rear property lines with mesh from bridal veil material. You can purchase it at a fabric store. Just ask for tulle (pronounced "tool").

5. The sidewalks are cut and painted with three colors of flat enamels prior to being glued into place.

7. Gray plastic that I salvaged from work is cut to fit in between the curbs.

9. Honey Plush Felt is the base for the dead grass typical of late summer.

To simulate dead grass for both foreground and background, I went to the local fabric store and again, for a few dollars, bought a yard or so of a material known as "Honey Plush" felt. When back combed or teased against its normal wave, and misted with Dullcote to knock down fiber sheen, the stuff becomes a superb facsimile for simulating fields of late summer grass. Add a slight sprinkling or pinches of Woodland Scenics clump foliage. This material should NOT be confused with fake fur, which has longer fibers. A special thanks to Joe Fugate and his Siskiyou Line inspiration years ago with fake fur blends.

Power poles and billboards

With the diorama starting to take shape and all the afore-mentioned features firmly cemented into place, I took some time away from the main project and hit the workbench to

8. Close-up of the roadway material.

10. Sections of the felt are cut and glued into place. You can see the sloped foam board that runs along the back of the walk, as well as the service road for the MOW trucks that runs parallel to the track.

scratchbuild some details and build a couple of detail items from Blair Line and BLMA. I brought home from work (again) some wooden skewers and   hand-crafted them with cross arms, supports and insulators to serve as multi phase power poles. I stained the poles with diluted mixes of sienna and black acrylic craft paint. Plastic insulators were added and common office staples are used to fabricate cross arm bracing.

I crafted six poles in this fashion for the lines along the right-of-way that would serve the railroad and provide service to the franchises. I also painted up some old plastic poles from the junk drawer. I built and painted a Blair Line billboard. scratchbuilt another, and fitted each with my own designed ads.
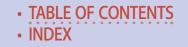

11. I made the billboards and power poles as well as a few other details that will be added to the diorama.

12. The power pole, street lights, and crossing signals are in place along with some basic ground cover. The diorama is beginning to take shape.

The two cantilevered crossings signals are scratchbuilt to save cost. After all, I do not need operating signals for a diorama. Finally, for next to nothing, I purchased some street lamps that to modify and paint. When all was complete, my workbench was littered with detail items that will bring the diorama to life.

Now that all was taking shape on the diorama, I painted bare areas where soil and earth would be with a dark brown mixed with beige acrylic craft paint. While the paint was still wet, I sifted in some local sand that can be picked up here by the bucket loads. When the sand/paint mix dried, I sifted on multiple layers of the local sand and went to work cementing it into place with the obligatory wet water and diluted white glue mix.

It took two days for all of the sand to dry as hard as stone. I then sifted on an extra fine layer of a gray powder aggregate, similar to grout. This is distributed along the foreground right-of-way

14. More poles are added as well as street signs and wire for the electrical service run.

13. Another view of the diorama.

on either side of the boulevard. I sealed it as well with the white glue mix and let it dry. I then sprinkled in a couple of layers of a slightly coarser mix of of fine sifted gravel that might resemble just that, gravel in 1/87 scale.

Stringing wire

Once everything had set and dried, I could begin detailing the diorama by setting the power poles and crossing signals. First, I placed a traffic signal and started stringing the wire lines and cables. Next I installed the highway billboards and created a scale barbed-wire fence around the background field. With some of the man-made details in place, it was time to move to some of nature's details. I began with the sporadic placing of various hues of Silflor grass tufts and adding the BLMA electric box and service pole.

Everything was gliding along smoothly up to this point in the project. All was in place and I was generally satisfied with its progress. BUT THEN … I had ordered some 1/87 scale Arizona Rock and Mineral ballast. It appeared, on the website photo, as a match for the Southern Pacific ballast that I desired. When the ordered ballast arrived in the mail, it looked decent in the bag,

So I poured, spread, and brushed it all into place between the ties and along the right-of-way. When I misted it with wet water to begin cementing it into place, its color changed drastically. It wound up as a very bleached looking gravel, as one may find in the deep south or northeast. I was shocked and disappointed.

What to do now? I panicked! I made some phone calls to a couple of close friends in the hobby, Jeff Meyer and Kevin Packard. Both of these guys have created some exceptional dioramas and

16. Different hues of Silflor grass tufts are placed along with a BLMA signal box and a right-of-way fence along the rear of the commercial properties.

15. The rest of the power lines are in place as well as the billboards and the fence surrounding the field they are in.

I needed their advice and opinions about what to do to rectify the color issue.

19. After unsuccessfully attempting to darken the ballast with washes, I added some very fine dark ballast.

Both of them – after seeing texted photographs – suggested diluted acrylic washes of a dark gray or black. I kind of balked at this thought. Even though the ballast was rock hard dry, I had reservations that I might disrupt or dislodge the set particles with multiple washes. Even so, I went ahead and the color tone was much more acceptable. However, it looked very splotchy and I was still unhappy with it.

Instead of peeling up the existing track work and ballast, I opted to mix a local basalt type rock with an ultra fine grain with the remaining Arizona surplus. Call it a "happy accident" if you will, but the fresh new layer of ballast that I had applied and brushed directly over the botched layer looked great.

After the new ballast was glued and set, I used pastel powder to add tire tracks in the gravel. Thanks for that idea, Jeff Meyer.

17-18. I applied the ballast and glued it into place. Once it dried it looked way too light, and I panicked.

Caldwell Boulevard | 19

It was time for fine tuning the whole scene with added details of service lines to businesses, Woodland Scenics clump foliage, street signs, power pole guy lines and so on.

Including about a week to let all the detail features and the whole diorama set up, the total time spent on the project, in incremented sessions, was approximately three weeks from start to finish. The inexpensive Caldwell Boulevard diorama is ready for taking photos of my weathered freight cars and locomotives for my monthly target at The Weathering Shop! ☑

See following pages for more pictures ...

20. Success! This is the look that I was after.
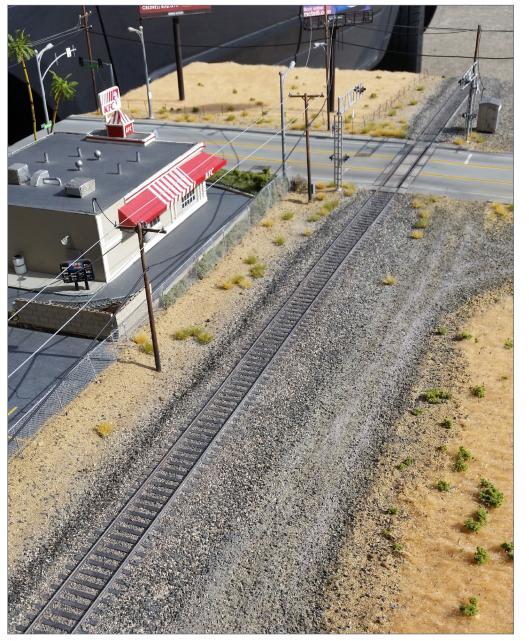
Pictures of the finished diorama

Pictures of the finished diorama Continued ...

Gary Christensen

Gary Christensen lives in Coos Bay, Oregon with his wife of 13 years and 3 children. He is employed as a Teamster in a wholesale food commodities warehouse. When he is not working, he spends time with his family and at his studio workbench weathering HO scale model trains.

Gary has been an avid railroad fan since youth and has done art work as far back as he can recall. About 15 years ago, two of his interests merged into what is currently known as model train weathering. He remained "underground" for quite a few years, learning what he could by exploring the Internet on the subject, refining and honing his skills. Finally he joined a forum pertaining to the hobby of weathering called, "MTW." From there, He met Jeremy St. Peter, who became a close friend.

The two subsequently left MTW and created a website of their own. Jeremy and Gary are the brains behind The Weathering Shop the-weatheringshop.com. It is a collective gallery of what they consider to be some of the very best weathering in model railroading. The site has been online, providing new weekly updates of models, to its members for nearly six years. Since its innovation, Gary has provided a model a month, and to this day he adheres to this agenda. ∎

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YES, IT'S A MODEL

compiled by
DON HANLEY

Click here for reader comments

1. Rick Sutton shared a couple of photos he took of an SP bulk-head flat that he modeled. The car is from Espee models. Rick says he didn't change anything on the model, just did a lot of hand brushing.

The deck is individual boards that are painted with various custom mixes of Floquil paints. Small spots of raw umber were put on all the nail and bold heads, followed with Bragdon light rust powder. The final step was to scrape the deck with an X-Acto blade to reveal the original red paint, simulating wear and tear on the deck. Final touches of weathering were done with oil paints.

▶ MRH'S MONTHLY PHOTO ALBUM

2. Continuing with the SP theme, Bart Przeadzieki of Germany posted photos of this neat Pacific Electric locomotive. It began life as an undecorated Bachmann GE 44-toner. Bart made the roof platform from balsa wood. The headlights were made from brass tube, and the trolley pole from small pieces of brass rod. The hand rails were also made from brass wire. The locomotive was painted and then decaled with Microscale decals. Future work includes changing the motor and adding sound.
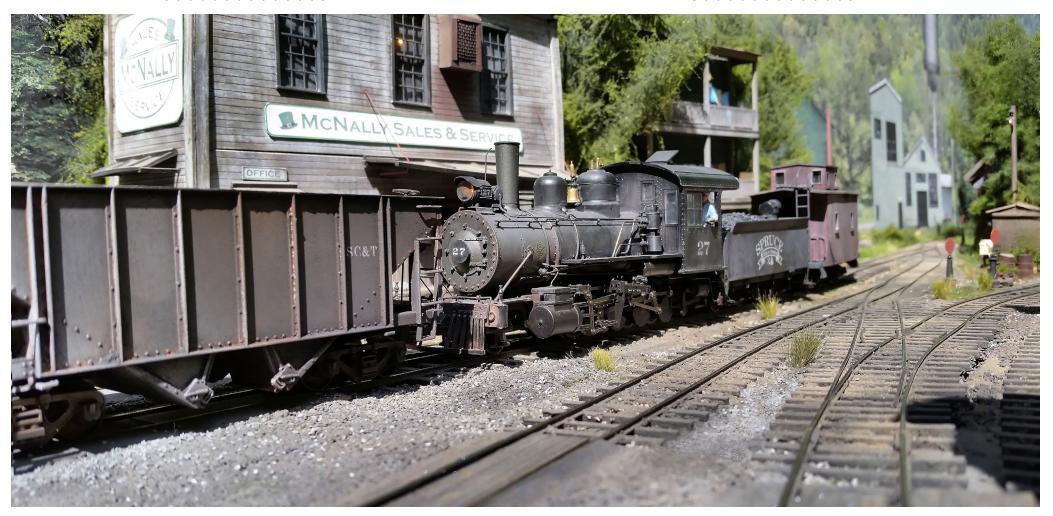
3. Staying overseas, forum member Jpachi posted these photos he took at an art exhibition at a gallery in Berlin, Germany. The buildings are HO scale, and made by New York artist Peter Feigenbaum. The models are part of his "Trainset ghetto" which has been shown in changing arrangements at different galleries in North America and Europe. While most of us don't like the decay and rot going on in our cities, maybe being a non-model railroader allows you to see things in a different light. These photos are a great study of what can be done to weather structures, even if we don't want to take it that far.

4. The 2nd-shift crew is busy shoving a string of empty hoppers to the tipple as the early evening sun is just above the ridge line. Soon a shadowed landscape will take over the small Appalachian town of Slaty Fork, West Virginia.

The picture was taken by Joey Ricard on his freelance On30 Spruce Coal and Timber display layout. The locomotive is a Bachmann On30 2-8-0 that was custom-painted and decaled. It has a TCS WOW steam sound decoder and larger speaker mounted in the tender.

5. ATSF 178961 and 152048 are patiently waiting for the crew to finish their work at this stop, and continue the trip to their next destination. Number 178961, the focus of our photographer's attention, is a Bowser hopper car that Terence Boardman weathered. Terence weathered the car with oil paints using a bit of powder for the final blending. This is his first attempt at weathering following a prototype photo. We think it is safe to say, "Terence, you nailed it."

6. 1901, a GMD-1, is trundling down the high iron with Muskoka Central 8038 and another car in tow as it heads to the next station to preform switching duties. Steve Juranics weathered the locomotive, a Rapido model, by fading the paint with an airbrush, and then used AK Interactive washes for the dirt and grime. Steve further weathered the locomotive with pastels for more shading. The Muskoka Central car was a complete re-do. The car was painted with a base rust color followed with the blue and white. Paint was chipped off to reveal the rust base color.

Steve took the photo outside on a diorama.

That's right, TrainMasters TV is MRH's network TV quality web video channel

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When talking to hobby vendors, please remember to mention MRH.

Four Airslide
Covered Hoppers

BY Bob Rivard

Photos by the author

Give four similar cars some unique character ...

To me there is nothing more exciting than discovering that perfect freight car photo for my 1977 modeling. I frequently search the Internet for suitable candidates. Websites such as rr-fallenflags.org and rrpicturearchives.net are a few of my favorites for this.

Lately I have gravitated towards Airslide covered hoppers. One reason for this is the availability of a wonderful out of the box model. The Athearn GATC 2600 cu.ft. hopper provides a perfect starting point for my projects. In most cases I can easily

remove just the lettering by wet sanding. The most challenging part of these projects is adding details. The other model available is the Walthers ACF Airslide two-bay covered hopper.

Athearn hopper as RI 8879, RI 8909 and CNW 69954

The Athearn GATC 2600 Airslide hopper is the perfect starting point to model Rock Island 8689. Here is the model after I stripped off the paint [1]. The lettering on these cars can be sanded off easily using 400 grit wet-dry paper. A puddle of decal solution is used for the wet sanding process.

1. The car has been stripped of its original paint, and new wire details have been added replacing the cast on items.

From a modeler's standpoint, there are a few spotting features to address before heading to the paint booth. I fill in the 45-degree slot on the four small reinforcing triangles. Athearn did offer this option, however these models are not in current production. I was able to find this model on eBay. You may be able to find them there also.

Before I can paint the cars there are a few detail items to address. First, I remove the chunky oversize grab irons using an X-Acto no. 17 blade, and install Detail Associates SY 2202 17" grab irons. Next, I replace the roof walk with a Plano 565-98 kit. The last detail step is to bend and install new stirrup steps made with Detail Associates 2524, 010" x .030" 2524 flat brass wire.

Use 0.012" brass wire to model the horizontal grab irons. The end ladder rungs are replaced with three long grab irons. I bend .012" wire to model cut bars. Now the model is ready for a coat of light gray Scalecoat II paint.

2. Prior to painting the model I noticed a problem with the ribs on the car and replaced them with new ones made from .040 x .040 styrene.

Wait! Comparing the model to the prototype photo I noticed a problem with the ribs. This particular phase of Airslide hoppers was built using a square rib instead of the rounded style. This problem was easily rectified by using a sharp number 17 X-Acto knife to remove the factory ribs. I then use my NorthWest Short Line Chopper to cut 22 new ribs 10' long from Evergreen .040" x .040" styrene strips, and a sprue cutter to cut a 45 degree taper on the top of each rib [2].

Wow, that was a close one! I'm glad I noticed the wrong ribs before painting the car! Here is the model with the correct "hat" style ribs [00]. I will use the wonderful Mask Island decal set 87-0134 to letter my model.

Walthers ACF Airslide two-bay covered hopper
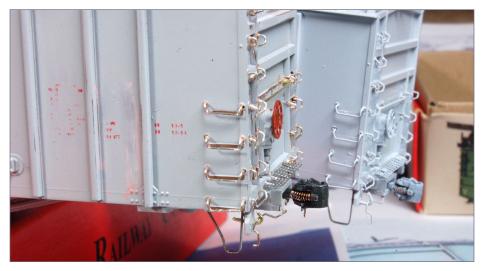
The Walthers ACF Airslide two-bay covered hopper has for years been an excellent starting point to model this very common '70s-era grain car. The kit features nice detail and is a great way to quickly add cars to a freight car fleet. Through the years I have become a bit more particular about the level of details on my freight cars.

A handful of small detail items can easily be addressed with a little extra time and effort. The first issue with the car is the stock running board. For this, substitute a Plano kit. (See planomodelproducts.com) The second items of concern are the cast-on stirrup steps. I bend new steps from flat brass wire [3]. The third step is to carve off those chunky unrealistic-looking grab irons, and replace them with new Detail Associates wire grab irons.

Another detail issue was the brake stand on Rock Island 8909. The Walthers model comes with the later style low brake stand. This Rock car series came with a high brake stand. It was a simple matter to carefully remove the brake wheel housing with

3. Here's a view of the new stirrup steps, bent, cut and glued into number 76 holes. They look much better than the cast on stirrup steps that come molded on the model.

a number 17 X-Acto and re-mount it in the correct high location[4]. I brush-painted my newly applied and relocated details with Floquil Lettering Gray. I'm not too concerned about a perfect match since my model will require a fair amount of weathering.

Although these details take a lot of time to add, they are for sure worth the extra effort. Here is Rock Island 8879 and CNW 69954.

Painting

The models are ready for a coat of very light gray paint. I blend Scalecoat II 2011 White and 2010 Black to make my gray. I use the handle of a paint brush to add drops of black to the white until I obtain a correct-looking gray paint.

Wow, what a find! On page 56 of the Morning Sun *CNW Color Guide* is a shot of CNW 69954 taken in 1974. Microscale set

4. The brake stand was relocated from the low position to the original high position backdating the car to the era I model.

5. The detailing is almost complete on the CNW car. Compare the chunky stirrups on this car to the new ones I made on the car in [6]

6. An overall view of the RI car with finished details.

7. My CNW 69544 compared to my find of a photo of the car in the Morning Sun *CNW Color Guide.*

87-515 is the perfect set to faithfully letter this car [7]. The prototype photo of Rock Island 8909 was taken in the 1980s. This means I have to back off on the amount of weathering to represent the car in my 1977 era. I can model the reapplied capacity data using Microscale gray trim film and various sets from my decal scrap box.
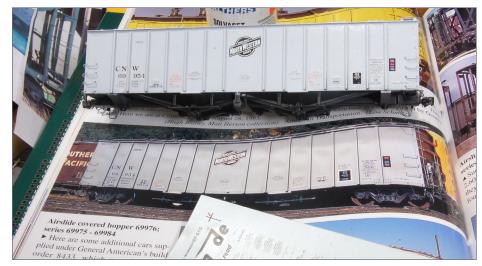
Rock Island 8879 was lettered using Mask Island decal set 87-0137. I weathered my model by airbrushing Floquil Grimy Black and finished the car using some AIM weathering powders.

Before putting 8879 into service on my 1977 Soo Line railroad, I again compare my model to the prototype photo. The highlight of this project for me is replacing the roof walk and the grab irons.

Photos [9-10] show my new cars on the railroad at the Rock Island Inver Grove yard.

Take a look at photos 11 through 14. From time to time I like to take my model photography outdoors. To me there is nothing

more realistic than the look of the actual sun. This diorama represents a location on the old Soo Line in Northeast Minneapolis which local railfans will recognize as the High Line.

I have had a great time sharing this exciting aspect of the hobby with the readers of MRH.

8. My RI 8909 compared to the prototype. I backed off on the weathering from 1980's photo to more accurately reflect my 1977 time frame.

10. A Rock Island switcher is shoving 8909 and sister car 8879 onto a cut of cars on one of the many yard tracks of Inver Grove yard.

9. All four cars have congregated at the Rock Island Inver Grove yard.
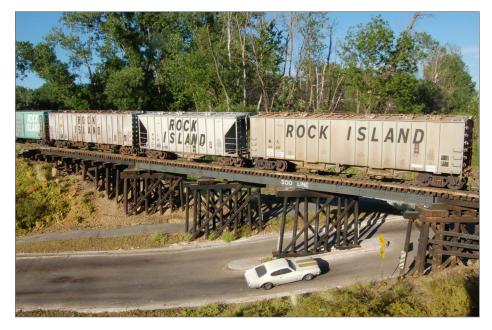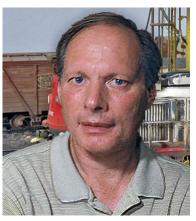
11-14. The low angle of the sun brings out the detail of the cars making the time and effort taken to detail them well worth it. ☑

Bob Rivard

Bob Rivard has been fascinated with trains since the age of 5 when he received his first train set. The proverbial Lionel.

He really enjoys his job at KARE TV and has worked there for 34 years as a broadcast technician. He runs the robotic cameras during the 10 p.m. news. ■

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Building
PIEPUL'S
Camera Center

BY JAMES EAGER

Photos by James Eager, Judy Eager, and Margaret Zyballa

Create a '60s storefront using Photoshop, power tools, and some common materials ...

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IN AN EDITORIAL, PUBLISHER JOE FUGATE advocated going back to our roots for modeling our railroads. Since I mostly model the 1967 - 1974 time period, I asked myself: "Where was I then?"

In 1967, I lived in a small town in Massachusetts. There was a small town center – along Center Street – and another major road along the river called Front Street. Shopping malls were a year or so in the future, so you went to the town center for the department store and the small stores along the street. The doctor's and the dentist's offices were upstairs above the stores. The doctor and dentist were brothers, and their family owned the department store.

If you go there today, the buildings are all still there, but only one store has stood the test of time. The store is called Piepul's Camera Center, established in 1952 and still run by the same family.

"Piepul's Camera is a specialty camera store that was established in 1952 by Joseph Piepul with a commitment of quality

1. Piepul's Camera Center. 2013 photo by Margaret Zyballa

and service to the customer. Still run by the Piepul family, we are located in downtown Chicopee, MA, and have grown to be one of the most trusted photo establishments in New England. Our expert staff has over 100 years of combined photo experience to assist customers of all levels of photographic experience, from novice to professional. We stock a full line of cameras, film and digital cameras along with accessories. We service what we sell." Just Google "piepuls camera" for more.

On the outside, only the sign on the front has changed. On our club layout, there is a nice open slot in the city backdrop, so I decided to build this store to fit into that space. There is already a sidewalk there, with a building painted into the background.
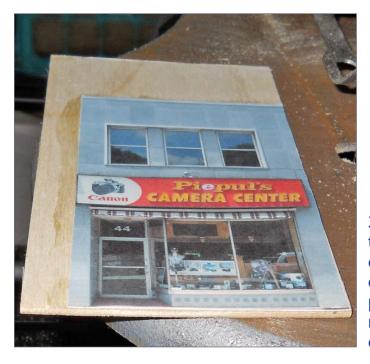
Start at the front

To start, I needed a good photo of the front of the building. I had a few photos from a visit in 2011, but was not satisfied with the results. I e-mailed my aunt, who lives near the store. I described the photo I wanted and after about two tries, she was able to deliver this photo [1].

Now I had a photo to start from, but with perspective issues and no measurements. I used Photoshop to do a perspective adjustment of the front of the building. There is an article that explains how to do this in *Model Railroad Hobbyist* - Jan 2012, called "Photo Wallpaper for Structure Surfaces," by Lance Mindheim. (issuu.com/mr-hobbyist/docs/mrh12-01-jan2012-ol?viewMode= presentation&mode=embed).

This gave me a template for the building. I printed the photo on an ink jet printer at 2400 dots per inch resolution and took it to the club layout. I measured the door in my print vs. doors in existing buildings, then marked the difference and took my print home. I adjusted the size of my print until the door matched the doors in the other buildings, giving me a building

2. The template cemented down to the plywood ready for cutting.

very close to scale. While this project was done in HO scale, any scale would use the same procedures and methods. Materials might vary in size.

Copies on cardstock

The next step is to print at least two copies on cardstock. I could get three on a single page. I cut one out and used rubber cement to fasten it to a piece of hobby plywood [2].

The next step is to use a scroll saw to cut out the template. All I wanted to keep on this part is the front face of the building [3-4]. After the first part of the building was cut out, I removed the section of plywood where the upstairs windows reside [6]. I knew I would need a piece to cover the upper windows from the backside later, so I cut that while I was using the saw.

3. Cutting the outer edge.

5. Drill a hole for the blade and thread it.

4. Cutting out the front window and door.

6. Finish cutting out the upper windows.

This is what I ended up with [7].

Back at the modeling workbench, the next step is to take a Dremel tool and a sanding drum to work over the part cut out at the scroll saw. Some of the corners need to be squared up with an X-Acto knife. Two layers of ¼" square balsa and a layer of 1/8" by ¼" are laid in, to form side walls. You will need this much depth to hold the front window later. Don't worry about getting the balsa square with the top. It's going to be trimmed later.

Next, I built the recessed window. Taking another copy of the original photo, I cut out the upstairs windows and glued them to a piece of acetate, adding a dentist sign I whipped up in Photoshop. I glued the back of the window to the small board previously cut out on the scroll saw. Finally, I glued the whole thing to the back of the main front, lining up the window with the cut hole. I will come back to the edging later, after I put the surface on the front wall.

Making the sign

Another sub-assembly that can be built now is the sign for the front of the building. I

7. Finished at the scroll saw.

8. The sign, with two layers of cut-out letters.

elected to go with the older sign, from the 1960s. The good news is that a photo of this sign is on the store's website. I started with a perspective-adjusted copy of the sign, and then printed more copies with the letters whited out. For the top two layers, cut out the letters, and rubber-cement them over the top of the sign. After a couple of layers, you will have a three-dimensional sign like the one on the original storefront.

The next step took several tries to get right. Using Photoshop, I took the front window and the door and put them into a separate image. Then, using Perspective Shift, I flattened out the angled window. This angled window is then placed between the other two portions giving a piece like [9].

Print the new image and paste it to the back of some acetate. However, this time, leave extra acetate at both sides of the window. When you cut it out of the acetate, it will look like [10].

Why the extra acetate on both ends? I need the extra to attach this part to the building. The right edge is going to attach to the back of the building face I made, but then things get tricky. Before I glued this part in, I lightly scored the acetate where it will need to bend on both sides of the door and the corner in the front. Carefully bend the acetate along the score marks in the correct direction. Do not snap the acetate.

Next, build a beam like [11]. I used a piece of ¼" square balsa for the large part and scale 12" x 6" lumber for the small part.

Why the two-part beam? The front corner of the window in the store is not square. The front of the beam is glued into the corner of the window, flush with the bottom end, and the window is glued to the raised part of the beam, resulting in an angle that is larger than 90 degrees. This one you just eyeball. On the left side of the door, the extra is glued to the side-wall supports.

10. The window and door cut out.

9. Behind the windows.

Later this wall will be covered, so this is just the support.

This step is critical. My first whole build was wrong because the angle of this bend around the support beam was too square. Repeat this until the window looks like the original before proceeding.

The top of the side walls need to be brought down some by sanding and or

11. The support beam.
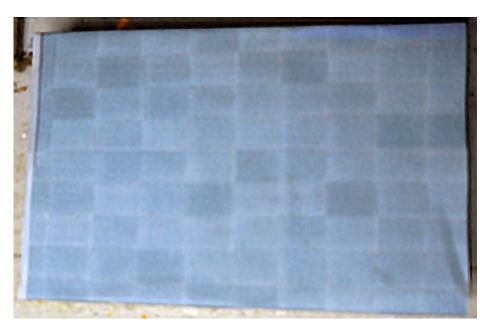
cutting. A piece of the plywood is cut for the roof across the top of the ¼" thick side walls and then touched up with ¼" x 1/8" balsa strips to match the exact height of the front wall. Where to put the roof? I just eyeballed it to what looked good.
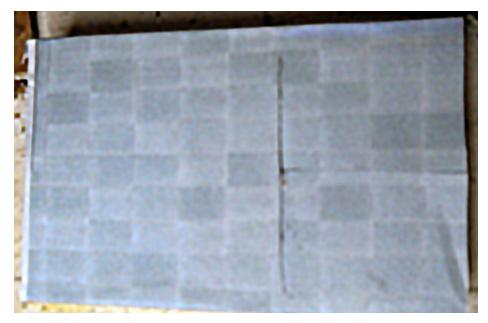
Stone facing

Now for the real fun. I took some of the stone store facing and made a large image of it. This single image has to be large enough to cover the front, the sides, the roof, and to wrap around behind the building. Starting with the front center of the building, carefully glue the paper (not cardstock) texture to the building one surface at a time. It is imperative that there are no wrinkles or crinkles in the surface. For the moment, do not cut holes in the surface for the upstairs or the front window. Let the glue dry thoroughly before trying to work with it any more.

12. The initial wrapping of the stone face.

13. Cutting out the front window area.

After the wrap is dry, careful slit up the center of the front window area to the edge of the wood. Then, carefully cut along the top edge. I won't be wrapping that edge with any of the stone, so cut carefully and close. Now, carefully glue the tabs to the inside walls, including all the way to the front door on the left edge. Use a non-knife metal straightedge to crease the paper on the rear corners, where we are going to cut later. Clamp the tabs down and let them dry.

After the tabs dry, cut away the excess. For the upper window, I puncture the front, and then carefully run a sharp X-Acto blade around the opening, or you can use a razor blade.

Once all of the openings were cut out, I edged the window opening with plastic strips and plastic uprights. Once the glue had dried on the plastic upright trim, the outside edges of the

window are also edged with smaller plastic strips. These strips hide any rough edges [16]. A decorative strip at the top of the building is laid over the surface to add depth the building. The roof is covered in 400 grit black sandpaper, cut to fit.

Fixing a mistake

During construction of this building, I screwed up. When putting in the uprights in front of the top window, I got one set off-center. It was super-glued down. I could not move it, and it would not come up without wrecking the rest of the window area. What to do?

I printed another window and pasted it to some more acetate. I test-fit the acetate into the window several times and trimmed it to a snug fit. Then, I glued some extra uprights to the existing window along each end so there was a surface of the same height as the rest of the edging.

Finally, I glued the new window over the old one. This time, I centered the vertical edging strips properly. I ended up with

14. Wrapping the face to the inside front walls.

15. The wrapped building, with the first edge piece installed.

windows that are not as deep as I originally intended, but that also gives them a different depth than the display window below [16].
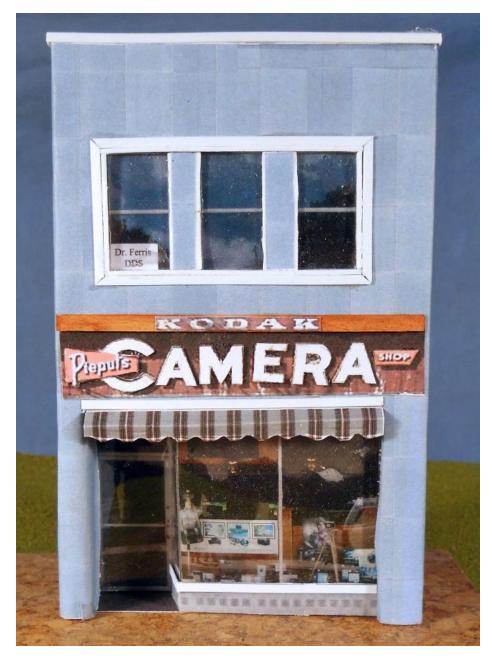
The vertical edges between the windows require a double strip, but you have to "thin" both strips down with a knife or Dremel tool. Later, the extra stone strip down the middle will hide the seam.

The edging continues until the upper window is complete. Then we edge the roof line, and finally start edging the main retail window. The base of the window is covered with cardstock to remove the acetate shine. Then the upper edge of the bottom window is edged with more plastic strips. The awning and sign are next, and finally a mat is custom-made from cardstock for the area in front of the door.

And there you have it. A scratchbuilt background building from a photo. I am still waiting to put the last touch on the building. I contacted the current owner, a son of the original owner, sent him a photo of the model building, and requested a photo of his father to put in front of the store.

This building, destined for the club layout, qualified under NMRA rules for a judged structure. A second one is stored for my eventual layout or a future module. ☑

17. The finished building in place on the layout.

Click here for reader comments

16. The finished building with sign.

James Eager

James J. Eager has been a programmer and database administrator for several major corporations.

He and his brother each received trainsets which led to a father and sons' layout in the basement, a Model Railroading Merit Badge, and a long-term interest in model railroading.

In 1997, as part of a Jacksonville model railroad club, one of his structures was shown in a TV commercial for the Ronald McDonald House Christmas charity layout at the mall.

James has a long-time interest in the Illinois Central, along with the B&O and ATSF. ■

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Bill of materials

- ¼" hobby plywood
- ¼ x ¼" balsa strip
- ¼ x 1/8" balsa strip
- 1 sheet of acetate
- .015 x .080" plastic strip Evergreen Scale Models #114
- .040 x .187" strip Plastruct #90748
- 4" x 12" scale lumber Northeastern Scale Lumber Co. #41211
- cardstock and paper for printer
- 400 grit black sandpaper for the roof

Glues:

- CA glue
- rubber cement
- white glue

Tools:

- scroll saw (powered is a lot easier)
- power drill
- X-Acto knife (#1 handle with #11 blades are my favorite)
- scissors
- assorted tweezers
- clothespins or other clamps ■

Recessing a Digitrax UP-5 throttle panel in a fascia

⏱ ONE EVENING PROJECT

BY CHARLIE COMSTOCK

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Protect your throttle panels from accidental damage by recessing them ...

ALTHOUGH I'M ADDING MORE RADIO THROTTLES on the Bear Creek & South Jackson, I still have quite a few Digitrax tethered throttles. I haven't converted from simplex radio throttles to duplex, and simplex throttles need to plug in to acquire or dispatch a train. As part of the new peninsula construction I needed to add some new UP-5 throttle panels.

I use 1/4" or 3/16" Masonite for my fascias and I prefer to recess the throttle panels in the fascia. Recessing them takes a bit more work, but I think it looks nicer and it's harder to snag a shirt sleeve on them when navigating crowded aisles during an op session.

1. I mark the fascia where the panel would go, trace around the UP-5 face plate, and cut out the opening with my jigsaw. To avoid the dust, this is best done outside the train room before the fascia is screwed in place. Before installing the UP-5 panels I paint the fascia and make sure the Loco-Net wires are suitable lengths.
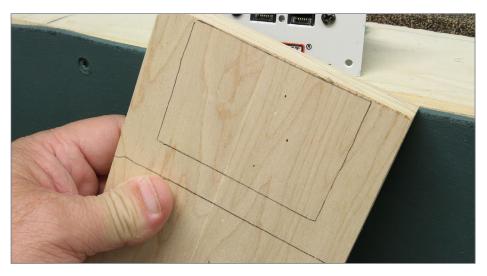
2. I glue a scrap piece of plywood behind the fascia and screw the UP-5 to it; typically 3/4" plywood but 1/2" will also work. Thinner than that, and the UP-5 mounting screws protrude out the back, and make it easy to tear up your fingers if you need to reach behind the fascia.
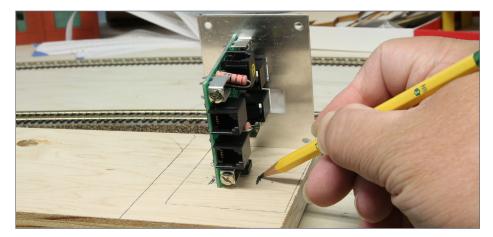
3. With the plywood scrap clamped in place, mark the outline of the UP-5 cutout in the fascia. I also mark the bottom edge of the fascia.

4. The top of the opening for this UP-5 is close to the under-side of the roadbed plywood. The rectangle is the opening for the UP-5 panel. The line at my thumb is the bottom of the fascia. I will cut plywood so it's not visible below the fascia.

6. Here are the markings for the hole. To save time and get cleaner edges, I cut this out on a band saw. That means the piece will be a "C" rather than an "O," because I'll come in from the right side. If I cut from the top, the piece would be weaker.
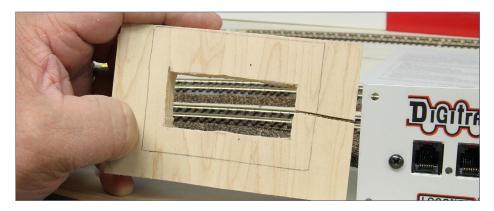
5. I set the UP-5 on top of the plywood backing panel and mark the boundaries of the clearance hole I need to cut for the UP-5. After marking the top and bottom of the hole, re-position the UP-5 to mark the left and right sides.
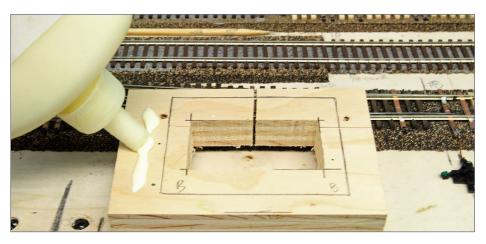
7. Here's the backing panel with the mounting hole cut out. The UP-5 should slip right in. Note how much plywood is left inside the rectangle marking the UP-5 face plate – this will hold the panel's mounting screws. The cut on the right will be hidden behind the UP-5 and the fascia so no one will be able to see it.

8. The UP-5 panel fit the hole in the plywood. I held it up behind the fascia to check that the assembly fit in place. It did.

9. Glue the backing panel in place with yellow wood glue.

Click here for reader comments

10. If you don't have some small glue leaks, you probably didn't use enough glue. Clean up the leaks right away. If you wait and the glue hardens, it will be more difficult to scrape them out and the UP-5 may not mount flat. I scraped them off with a small screwdriver, then wiped it down with a damp rag. After cleaning up the glue blobs, I leave the clamps on for at least an hour before drilling the pilot holes for the UP-5 mounting screws.

11. After cleaning up the glue blobs I leave the clamps on for at least an hour before drilling the holes to mount the UP-5.

12. I place the panel in the fascia opening and use the tip of a small Phillips head screw driver to mark the mounting screw locations, then pull the panel out and drill the holes with a 1/16" bit.

14. Connect the Loco-Net cables and it's ready to go. ☑

13. Half-inch #4 pan head screws hold my throttle panels in place. Be careful to not over tighten the screws – they can tear up the plastic covering on the panel.
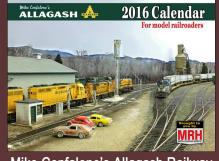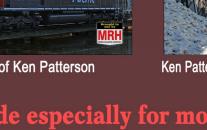
SOUTHERN PACIFIC'S
Passenger cars:
More than just the Daylight, Part 7

BY **V. S. ROSEMAN**   *Photos by V. S. Roseman
unless otherwise noted*

PART 7: LIGHTWEIGHT CARS YOU CAN BUILD

HERE IN PART 7, WE TAKE A LOOK AT LIGHTWEIGHT cars you can build by kitbashing or near-scratchbuilding. We also consider look-alike cars you can use as stand-ins – they may not be a perfect match, but they're close enough that they look right in a train rolling by.

Let's go through the different cars by type.

1. Athearn model as a stand-in car for class 66-B-1 baggage express car for the Texas-based streamlined Sunbeam.

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Class 77-B-1 baggage express cars T&NO 650, 651 (for the Sunbeam/Hustler)

These two Pullman-Standard built cars had two seven-foot plug doors on each side and generally resembled the Budd baggage cars built for the Santa Fe. No plastic model is available, but this is an important car for anyone building a Sunbeam or Hustler train.

After the Sunbeam was discontinued in 1955, the two cars were transferred to the Pacific Lines and were repainted two-tone gray for the Cascade. In 1961 they were restored to stainless steel with a red stripe.

CUT OUT AREA
AROUND WINDOWS

ADD NEW DOOR
MADE OF THIN
SHEET STYRENE

2. Adding a door to an Athearn model.

These cars were delivered painted in red and orange Daylight colors with a Sunbeam plaque. In 1951, the stainless sides were stripped to bare metal and the remainder of the car was painted imitation stainless color, with a red letterboard.

T&NO 650 was renumbered SP 6602(2nd) in 1954, then to T&NO 651 in 1956, and finally to SP 6598 in 1962.

Car T&NO 651 was renumbered SP 6601 (2nd) in 1954, to T&NO 650 (2nd) in 1956, and to SP 6599 in 1962.

The Athearn streamlined baggage-express car could pass as a stand-in and it can be made to look more like the prototype [2]. Cut out around the door windows. Change the doors by covering them with thin sheet styrene with five small window cutouts in the larger door, four in the smaller door.

Back this up with clear plastic in the window area. On a layout with the trains in motion, this should pass as a reasonable simulation of these cars.

I filed down the letterboard detail on the model and covered the area with flat styrene. My model had to have the lettering offset, but SP did this on some types of cars.

An accurate model of this car can be made using .030" thick clear Lexan or acrylic (Plexiglas, Perspex) as a base. Scribe the door outline, for the prototype had flush plug doors that pulled inwards to slide on tracks inside the car.

Mask the door and body windows and add Palace Car Co. plastic Pullman-Standard corrugation as shown in the diagram for the Class 77-B-1. Add thin styrene skirts. I usually use contact cement such as Dap DAP Weldwood, applied to both sides and
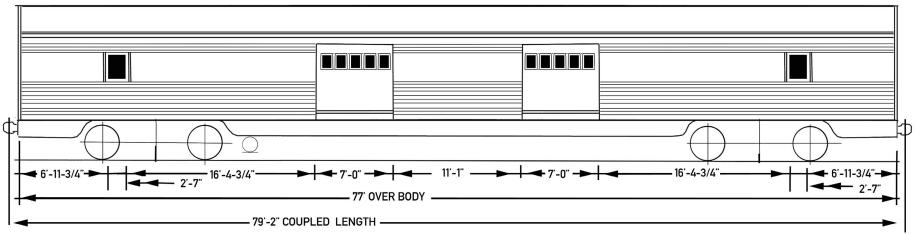
SUGGESTIONS TO BUILD

CLASS 77-B-1 LIGHTWEIGHT BAGGAGE CARS

CARS T&NO 650, 651 BUILT 1937 FOR THE STREAMLINED SUNBEAM

DIAGRAM

6'-11-3/4"   16'-4-3/4"   7'-0"   11'-1"   7'-0"   16'-4-3/4"   6'-11-3/4"

2'-7"   2'-7"

77' OVER BODY

79'-2" COUPLED LENGTH

ATHEARN DROP EQUALIZER TRUCKS SHOWN - CAR HAD TRIPLE BOLSTER TRUCKS

3. Drawing and dimensions for modeling a class 77-B-1 Sunbeam baggage-express car.

allowed to dry. This permits the solvents to evaporate so they won't be trapped between the layers of plastic, leaving them soft for a long time.

Assemble the car and paint it. Apply all clear coats and decals and then remove the window masking. The diagram shows how to add retaining strips inside the car to hold the floor in place.
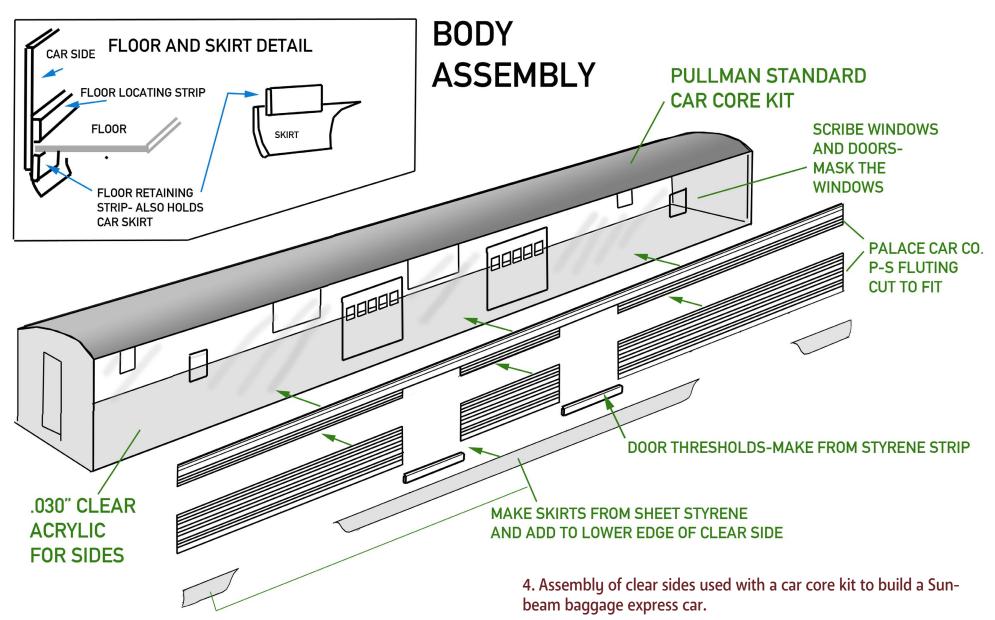
SUGGESTIONS TO BUILD
CLASS 77-B-1 LIGHTWEIGHT BAGGAGE CARS
CARS T&NO 650, 651 BUILT 1937 FOR THE STREAMLINED SUNBEAM

FLOOR AND SKIRT DETAIL

CAR SIDE

FLOOR LOCATING STRIP

FLOOR

SKIRT

FLOOR RETAINING STRIP- ALSO HOLDS CAR SKIRT

BODY ASSEMBLY

PULLMAN STANDARD CAR CORE KIT

SCRIBE WINDOWS AND DOORS- MASK THE WINDOWS

PALACE CAR CO. P-S FLUTING CUT TO FIT

DOOR THRESHOLDS-MAKE FROM STYRENE STRIP

.030" CLEAR ACRYLIC FOR SIDES

MAKE SKIRTS FROM SHEET STYRENE AND ADD TO LOWER EDGE OF CLEAR SIDE

4. Assembly of clear sides used with a car core kit to build a Sunbeam baggage express car.
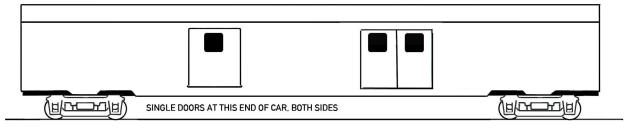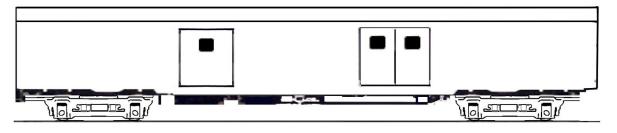
PROTOTYPE ECONOMY BAGGAGE CARS

PROTOTYPE SOUTHERN PACIFIC # 6683   (SOME CARS GOT REPLACEMENT DOORS WITH LOWER WINDOWS)

SINGLE DOORS AT THIS END OF CAR, BOTH SIDES
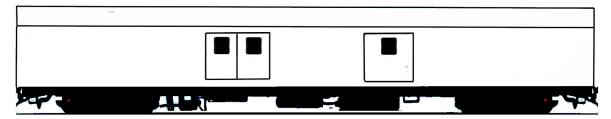
PROTOTYPE ROCK ISLAND CAR #4363   (SOUTHERN PACIFIC RAN INTERLINE SERVICE TRAINS GOLDEN STATE, ARGONAUT)

HO MODEL CARS

CON COR 72 FT. BAGGAGE CAR   (DOORS ARE MOLDED AS PART OF THE CAR SIDES)

OPPOSITE SIDE OF CAR HAS SINGLE DOOR BEHIND DOUBLE

RAPIDO BAGGAGE-EXPRESS CAR   (THIS MODEL COMES WITH EXTRA SINGLE DOOR WITH WIDE WINDOW)

Lightweight economy baggage express cars class 72-B-1

In 1960 the SP began replacing its fleet of ancient Harriman baggage-express cars with 100 new lightweight cars in class 72-B-1. The cars were delivered painted solid dark grey with light grey lettering in number series SP 6601(3rd) to 6700. No model of this class is available in plastic.

The Rapido lightweight baggage car and the Con-Cor 72- foot lightweight baggage car are close to the SP cars and could stand in for them. Suitable kitchen vents should be added either from one of the after-market part companies or made up by the modeler.

The Con-Cor model has the doors molded into the body with both sides similar. The SP prototype had large doors to the left on one side, large doors right on the other. (But you can only see one side of the car at a time.) The doors should have one small square window in the smaller door instead of the large horizontal window.

I cut open most of the door areas leaving only a flange on which to glue ana .010" thick styrene cover with correct window cut in it. I used DAP contact cement to glue the new door covers in place. The closest decals I could find were in the Microscale Daylight passenger car set in gray.

5. SP prototype 72-B-1 economy baggage car of the 1960s, and some possible stand-in cars.

6. A Con-Cor model 72 foot baggage-express car stands in for class 72-B-1 economy baggage car.

7. Walthers model of SP 5003, a '60s era 80 foot RPO -Baggage car at Fresno, CA.

8. Class 80-BP-60-1 Railway Post Office car 5004 at Oakland, CA. Notice the plug type baggage door with sliding doors at other locations. This car and 5003 closely resemble the 1964 class 83-BP-60-1 cars. *Courtesy Bob's Photos*

These cars had small trucks, and I used Athearn dummy RDC trucks which resemble the correct trucks. The Rapido cars are available with the small square window in the single door.

Class 80-BP-60-1 and 83-BP-60-1 baggage/railway post office cars

In 1949 the SP had two baggage/railway post office cars built, #5003 and, 5004, for Overland route interline service with the Union Pacific and Chicago North Western railroads. While no plastic model of this car is available, there are some good stand-ins.

Walthers RPO-Baggage car 932-6910 type is shown in the model photo. This is actually a Great Northern prototype car but is close to the SP version. The large baggage door was a plug door with three square windows as shown in the prototype photo of #5003.

The doors on the prototype were gradually replaced with single pane ply-metal doors which the modeler can simulate by covering the model's doors or cutting them out and replacing them. Built with full skirting, the skirts were removed by the 1960s. Photos of SP 5003 in 1968 in the solid gray color scheme resemble this model although it has single-window doors throughout. The car was not in service as RPO service had ended in October of 1967.

Car 5004 lasted in the yellow and gray at least through 1968, so this model would be more useful in Overland colors of yellow and gray. However, in 1964-65 seven class 83-BP-60-1 numbered SP 5030-50-36 (2nd) were built at the insistence of the postal service. The railroad only got a few years of service from these cars before the mail contracts were pulled.

The cars were delivered with single pane windows on the doors throughout, painted in the solid gray color as shown in the model photo, posed at Fresno, CA. Walthers has a similar car in their 20th Century set, model 932-9317 which although not currently shown in SP colors may be a slightly closer match to this prototype BP-60-1 cars.

SP 3/4 length dome cars

The Southern Pacific considered proposals from car builders, but both Pullman Standard and Budd indicated that their full domes would have clearance problems due to the cars leaning on curves if two ever passed each other. Both manufacturers suggested a massive and expensive track realignment project for the SP which ended talk of buying any of their dome cars.

The railroad shops suggested rebuilding one of the pre -war parlor observation cars into a dome car at a very reasonable price.

9. Dome car 3601 in original Daylight colors with fluted sides. *Courtesy Bob's Photos*

The car was to be lower and lighter than the commercial dome cars and would not require any track realignment. The work for one test car was authorized in March, 1954 and was completed in July of that year.

Four -wheel outside swing hanger trucks of class 4-TD-2 were used instead of the six -wheel trucks that would have been needed for commercially built domes.

Car 3600 was 79 feet long. The other SP dome cars, #3601-3606 were 83 feet long and were rebuilt from sleeping cars. All were completed by 1955. These cars never had an official Common Standard class number, but some sources refer to the production cars as 83-DL-1.

10. SP dome car 3601 in later years after the stainless steel fluting was removed and replaced with polished flat stainless steel side panels. *Courtesy Bob's Photos*

11. Car 3602, built in same group as 3601, bar-lounge end of the car shown.

The Bachmann HO or N scale Santa Fe prototype dome is available in Daylight colors and in a train on a layout, the model could pass for an SP dome. I rebuilt my model to more closely resemble the SP cars. The dome was cut from the Bachmann model, and one segment was removed.

I fitted the dome to an Eastern Car Works Car Core kit. A small piece of the car core roof joins to the shortened dome. I cut my own sides from styrene, painting these before gluing to .030" thick acrylic with DAP contact cement.

An acrylic cutter was used to cut the clear acrylic. Olfa and X-Acto make these. This tool is used to score the acrylic several times, then snap it in two. I glued the sides, ends, and roof together as a unit. The floor was made to snap in by adding styrene strips inside the walls to locate the floor.
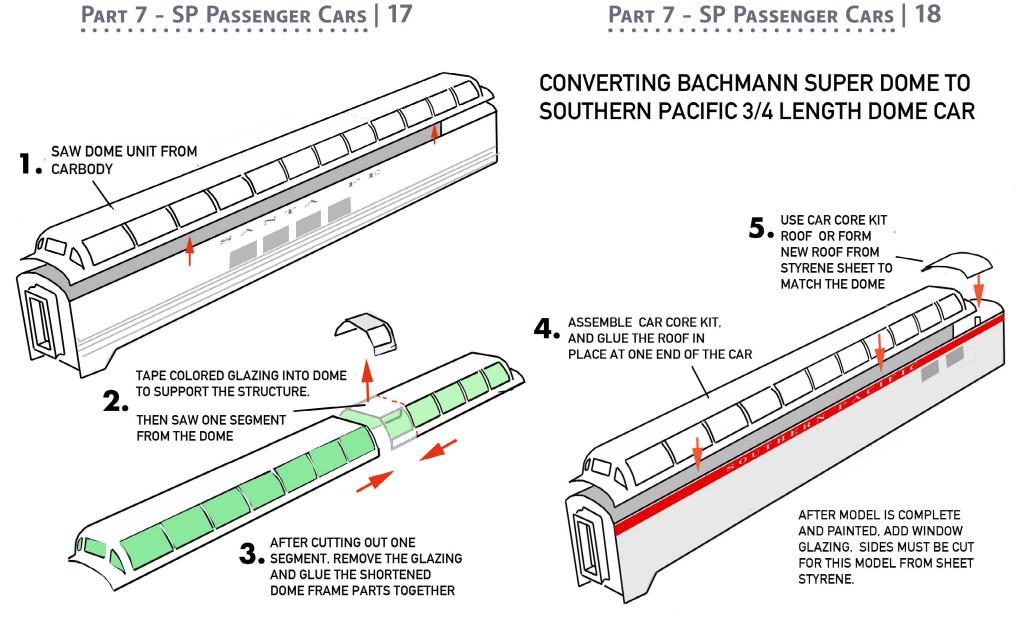
The dome glazing of the prototype extends farther down the side of the car than on this model [13], and there should be a crossbar through all the windows.

The crossbar can be made by masking the dome glazing and painting the strip, by using Tamiya acrylic with a ruling pen or with silver charting tape applied to the colored glazing.
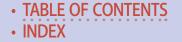
These cars ran on the City of San Francisco, the Coast and San Joaquin Daylights, Shasta Daylight and others. As built, these cars all had Pullman Standard pattern fluting on their sides, and after 1958-60 the sides were replaced with plain flat stainless steel.

The fluting is available in plastic strips from Palace Car Company, and can be glued to the sides of the dome car model to represent their early appearance.

CONVERTING BACHMANN SUPER DOME TO SOUTHERN PACIFIC 3/4 LENGTH DOME CAR

1. SAW DOME UNIT FROM CARBODY

2. TAPE COLORED GLAZING INTO DOME TO SUPPORT THE STRUCTURE.

THEN SAW ONE SEGMENT FROM THE DOME

3. AFTER CUTTING OUT ONE SEGMENT, REMOVE THE GLAZING AND GLUE THE SHORTENED DOME FRAME PARTS TOGETHER

4. ASSEMBLE CAR CORE KIT, AND GLUE THE ROOF IN PLACE AT ONE END OF THE CAR

5. USE CAR CORE KIT ROOF OR FORM NEW ROOF FROM STYRENE SHEET TO MATCH THE DOME

AFTER MODEL IS COMPLETE AND PAINTED, ADD WINDOW GLAZING. SIDES MUST BE CUT FOR THIS MODEL FROM SHEET STYRENE.

12. Steps to build the dome car model using a Bachmann Budd full dome and car core kit.

13. Dome lounge car model of SP 3606, showing the later appearance of these cars with stainless sides.

14. Body assemblies for late appearance of car 3600. Note low windows.

14. Model of dome car 3600 in original fluted sides and Daylight colors.

You can see in the photos that I built two of these cars: one in Daylight colors with the Pullman Standard corrugation, the other car representing a car with flat stainless sides of the post-1958 appearance.

The cars were initially painted in either Daylight colors or in UP yellow and grey gray for use on Overland Route trains. When the corrugated sides were replaced, only the portion below the windows was replaced with stainless steel. The window strip was painted imitation stainless, and the difference shows in photos.

In part 8 next month, I cover the rest of the lightweight car modeling options, and I wrap up the series with some final thoughts. ☑

VICTOR ROSEMAN

Victor got his first train, a Lionel, at age 3. Victor graduated from the Pratt Institute with BFA and MS degrees and taught fine arts in high and junior high school for 30 years and is now retired.
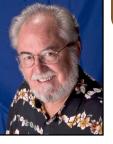
Victor has written many articles and several railroad related books over the past 35 years. He's also done many freelance projects for Walthers, Atlas and other model manufacturers. ■

Click here for reader comments

NOVEMBER NEWS
column

RICHARD BALE *and* JEFF SHULTZ

Click here for reader comments

Andy Sperandeo, 1945–2015

Andrew P. "Andy" Sperandeo lost an extended battle with cancer and other ailments on September 3, 2015. His family was at his side. Andy earned a master's degree in English from Loyola University in his home town of New Orleans, LA. He received a commission in the U.S. Army in the early 1970s and was stationed at Fort Ord, CA, not far from the home of John Allen. The two modelers became friends and in later years Andy enjoyed reminiscing about operating sessions on Allen's famous Gorre & Daphetid layout.

Andy was studying for a doctoral degree at the University of Texas when he was recruited by *Model Railroader* magazine in

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1979. He shared his love and knowledge of trains through writing hundreds of columns and articles. He became editor of *Model Railroader* in 1993 and was promoted to executive editor in 2002.

Andy wrote several books on model railroading including *Easy Model Railroad Wiring,* and *The Model Railroader's Guide to Freight Yards.* He edited several editions of MR's annual Great Model Railroads series. He traveled extensively, often accompanied by his wife, visiting friends and model railroad clubs where he enjoyed participating in operating sessions. Andy also presented numerous clinics at conventions and RPM meets throughout the nation. He retired from *Model Railroader* in 2011 but continued to write a monthly column about operations. He was a strong supporter of the National Model Railroad Association and a long-time member of the Santa Fe Historical & Modeling Society. His personal affection for the AT&SF was reflected in his extensive HO scale home layout based on Santa Fe operations in Cajon Pass circa 1947. Andy's contribution to the hobby has been significant and he will be greatly missed both for his knowledge and his camaraderie with other hobbyists.

Andy is survived by his wife, Arlene; his brother Bobby, and eight nieces and nephews. The family asks that any memorials on behalf of Andy be made to Doctors Without Borders or Habitat for Humanity.

Rapido Moves Next Door

Rapido Trains has moved, but not far. According to owner Jason Shron, they have relocated to a much larger unit within the same industrial complex. Train watching continues to be a regular activity given that the facility adjoins the CNR mainline. The new address is Rapido Trains Inc., 500 Alden Road, Unit 21, Markham, Ontario L3R 5H5 Canada.

Westerfield Models Relocates

Resin kit maker Westerfield has a new home. Effective immediately the address is Westerfield Models LLC, P.O. Box 455, Gardnerville, NV 89410. Owner Andrew Dahm said his company website, phone number and Email address remain westerfieldmodels.com, 303-658-9343, and westerfieldmodels@gmail.com.
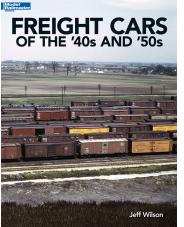
NEW CLUB CARS

Abington Lines Model Railroad Club is selling a custom-decorated HO scale USRA twin-bay hopper car as their annual custom car project. The model is based on an Accurail car and is available in two road numbers. Unassembled kits are $22.00 each. Assembled (stock) kits are $25.00 each. Cars assembled with Kadee couplers are $30.00 each, and cars assembled with Kadee couplers and metal wheelsets are $35.00 each. Add $7.50 shipping for one to two cars, or $9.00 for up to four cars. Send orders to Abington Lines Model Railroad Club, Attention Treasurer, 2066 Second Street Pike, Richboro, PA. 18954. Include your email address with all orders.

NEW PRODUCTS FOR ALL SCALES

Kalmbach Publishing has released *Freight Cars of the '40s and '50s* by Jeff Wilson. This is an exceptionally useful reference to both railfans and railroad hobbyists, especially those who model the steam to diesel transition era. In addition to a detailed look at all the basic revenue cars, individual chapters are devoted to

paint and lettering, trucks and brake gear, and modeling a freight car fleet. The 96-page book has an extensive bibliography to guide readers interested in further study of freight cars in general. The informative text is supported by more than 220 quality photos, many from the Kalmbach Library and the collection of *Trains* long-time editor J. David Ingles. Highly recommended. Available now from dealers or direct from the publisher at kalmbachbooks.com.

Morning Sun Books is selling *Vintage Freight Cars 1960-1980,* a five-volume digital compendium of more than 2,500 color photographs by railroad documentarian Paul C. Winters. The images are fully indexed and none have appeared previously in MSB's series of Color Guide books. Experimental equipment, resold cars, demonstrators, and one-of-a kind equipment from all major railroads are included. Special flatcar loads, detail shots, unusual weathering, and unique angles round out the series. Each of the five digital volumes is available in

PDF format at $19.99 each. Special pricing is available when all five volumes are purchased direct from MRS. For additional details visit morningsunbooks.com/pages/digital.

O SCALE PRODUCT NEWS

Atlas O has scheduled the release of an 89-foot 4-inch flat car during the second quarter of 2016. Details on the O scale model include trailer hitches and end loading platforms. A choice of 2-rail or 3-rail models will be available decorated for PFE, Alaska Railroad, Santa Fe, Rio Grande, TTX (PRR repaint), Union Pacific MW, Florida East Coast, Providence & Worcester, Southern, and Department of Defense.

Forty-five foot trailers are scheduled for release during the second quarter of 2016. They will have working doors, bars and latches; and both retracted and extended landing gear. Decorating schemes will be Alaska Railroad, Missouri Pacific, and Union Pacific. Trailers equipped with refrigeration units will be available for Santa Fe, Rio Grande, Pacific Fruit Express, and Illinois Central.

Atlas O has scheduled a 2016 third quarter release for a rerun of its California Zephyr dome chair car with a conductors window (on opposite side of car shown here). Silver series cars will be available for CB&Q (Silver Rifle, Colt, Bridle and Lariat),

Western Pacific (Silver Sage, Dollar and Feather), and Denver & Rio Grande Western (Silver Bronco and Pony). Amtrak cars will be available decorated for Silver Rifle, Ranch, Lariat, and Saddle. The production run will include one car decorated for Alaska Railroad. Both 2-rail and 3-rail versions of the model will be available. For additional information contact a dealer or visit atlaso.com.

HO SCALE PRODUCT NEWS

New HO scale kits available now from **Accurail** include a Northern Pacific 40-foot steel boxcar with combination plug and Youngstown sliding doors. The model represents a prototype built in 1940 and rebuilt with the plug door added in 1962. The kit has an MSRP of $16.98.

Accurail's bi-level open auto rack consists of a TTBX Trailer Train flat car fitted with a New York Central rack. The kit has an MSRP of $21.98.

Also new is an Illinois Central Gulf 50-foot steel boxcar with sliding Youngstown doors and Dreadnaught ends. The kit has an MSRP of $16.98.

Accurail has a 3-pack of USRA twin-bay open hopper cars with different numbers. The models represent a Clinchfield prototype built in 1918 and rebuilt in 1945. The MSRP is $46.98 for the 3-pack.

Also new is a Pullman Standard 4750 triple-bay covered hopper decorated for Farmers Co-op. The kit is based on a prototype built in 1974. The MSRP for the kit is $18.98.

Completing Accurail's list of current releases is an HO scale kit for an NKP 40-foot steel boxcar with double Youngstown doors. It has an MSRP of $16.98. The model is based on a prototype built in 1946 and rebuilt in 1958. The white stripe on the right hand door indicates the car is designated
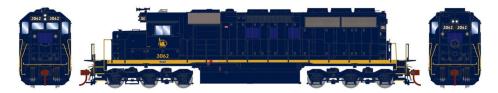
to carry automobiles. All Accurail kits include Accumate-compatible knuckle couplers and trucks appropriate to the car type and era. For additional information on Accurail kits contact a dealer or visit accurail.com.

Athearn's August 2016 production release schedule lists three HO scale locomotives including another run of EMD GP50 Genesis series diesels. In addition to the BNSF version seen here, decorating schemes will be Burlington Northern (green and black with white face), BN (ex-white face), Santa Fe, Missouri Pacific (UP merger scheme), and Forth Worth & Western. The type and location of air horns, KARS boxes, antennas, blower ducting, cab mirrors, MU equipment, and pilot/plows will be scheme-specific. Models with a factory installed DCC decoder with SoundTraxx Tsunami sound will be available. Also DC models include a Quick Plug for an aftermarket decoder.

Ready-to-Roll models in Athearn's August schedule include two different Central of New Jersey schemes on an EMD SD40 diesel.

Additional road names for the HO scale SD40 will be Chicago & Great Western, Canadian Pacific (script), Canadian National, Missouri Pacific, and the Central Oregon & Pacific version introduced at the National Train Show. Locomotives with a factory-installed DCC decoder with SoundTraxx Tsunami sound will be available along with standard analog DC models with a Quick Plug for an aftermarket decoder.

Also scheduled for release next August is an Athearn-Roundhouse brand EMD Model 40 diesel switcher. Features of the chunky HO scale model include bi-directional constant LED lighting, all-wheel drive, heavy die-cast frame, and all-wheel electrical pickup. The switcher can operate on a 15-inch minimum radius. The model is equipped for standard analog DC operation. It comes with a Quick Plug for an aftermarket DCC decoder.

Road names will be New York Central, D&RGW, Southern Pacific, Pennsylvania, U.S. Navy, EMD Demo, and Baltimore & Ohio. Unlettered locomotives will be available painted green and gray, black, blue, and red.

Genesis series freight cars set for release next August include a 50-foot PC&F boxcar with riveted sides and a 10-foot 6-inch plug door. Features include separate wire grab irons, etched metal end

platforms, underframe details, and 70-ton roller bearing trucks with rotating bearing caps. In addition to the Great Northern car shown here, road names will be Burlington Northern, Evergreen Freight, MKT (with classic Katy logo), two Southern Pacific cars (large and small Hydra-Cushion logos) MNX-Pepper Packing, and ART-Royal Packing (below).

August will also see the release of Athearn Ready-to-Roll Bathtub gondolas in four numbers for each of six roads.

Additional Ready-to-Roll freight cars coming next August include a 50-foot FMC boxcar with double Youngstown sliding doors. It will have separate wire grab irons. Road names will be SNCT-Seattle & North Coast, WCTR-White City Terminal, CPAA-Procor/Canadian Pacific, and Southern Pacific (UP repaint). Also an IATR-Iowa Traction car in faded paint.

Three-packs of 45-foot containers decorated for CMA/CGM, Maersk, MOL, NYK Logistics, OOCL, and P&O are also due next August.

Athearn-Roundhouse freight cars in the August release include 34-foot twin-bay composite hopper cars with removable loads, and 50-foot plug-door boxcars. These are entry level models with details molded on the body. The hopper will be available for CB&Q, Santa Fe, Baltimore & Ohio, Chesapeake & Ohio, NYC/StL, and Pennsylvan.

Road names for the plug door boxcar will be Union Pacific, Santa Fe, Burlington Northern, Chesapeake & Ohio, SL-SF Frisco, and Rock Island with a Hydraframe-40 slogan. For pricing and additional information contact a dealer or visit athearn.com.

Atlas has scheduled a new run of its Master series 89-foot 4-inch flat car equipped with trailer hitches and end loading

platforms for release the second quarter of 2016. Road names on the HO scale Master series model will be Alaska, Santa Fe, Rio Grande, TTX (PRR repaint), Union Pacific MW, Florida East Coast, and Department of Defense.

A new run of Atlas Master series 45-foot Pines trailers is also scheduled for release during the second quarter of 2016. Decorating schemes will be Vermont Railway, Preferred Pool, Xtra Intermodal, Extra Lease, Seaboard System and Transamerica Distributing.

Atlas is developing a 1973 Ford F-100 pickup truck. If all goes well the HO scale truck will be available next spring. Details include side mirrors, headlight glazing, interior details, and a positionable tailgate. Paint options include the green-over-white scheme shown here as well as brown-over-white. Two tone models will have an MSRP of $21.95. Single color trucks will be available in blue, green, and candy apple red. They will
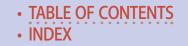
have an MSRP of $19.95. For more information on all Atlas products visit atlasrr.com.
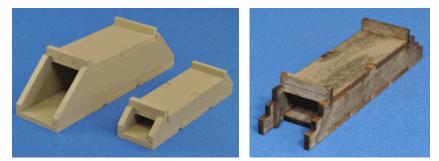
The latest addition to **Bachmann's** stable of USRA steam locomotives is a 2-8-2 light Mikado. This locomotive type became known as a Mikado after the first engine with a 2-8-2 wheel arrangement was built for Japan Railways by Baldwin in 1893. During World War II, a few railroads renamed their 2-8-2s MacArthur.

Bachmann's HO scale version is available with DCC SoundTraxx 16-bit polyphonic sound for exhaust chuff, both short and long whistles, bell, air pump, and steam release. Also available is a standard analog DC model with a DCC-ready 8-pin socket for an after-market decoder.

Sound-equipped models are available decorated for Union Pacific, Baltimore & Ohio, Pennsylvania, New York Central, and Maine Central. Road names for standard DC models are Rock Island, Western Pacific and SL-SF Frisco, all with medium length tenders. Also available is a locomotive with a long tender decorated for Southern Railway. For additional information contact a dealer or visit bachmanntrains.com.

Blair Line has introduced HO scale laser-cut kits for both concrete and wood box culverts. These are common structures in use since the development of railroads and are still common today. The prototypes are used over ditches, small streams and dry creeks. The concrete culvert kit is based on prototype railroad standards and includes laser-etched build-dates on each end of the bridge. The larger concrete culvert is 1-inch tall. The smaller concrete culvert and the wood version both measure a half-inch tall. The HO scale culvert kits are $11.95 each. Contact a dealer for additional information or visit blairline.com.

Bowser is taking reservations for a major production run of M636 diesel locomotives built by Montreal Locomotive Works. Eighteen different versions of the HO scale Executive Line ready-to-run model will be produced with many available in multiple road numbers. Both DC analog and DCC/Sound versions will be offered. The deadline for reservations is November 13 with delivery planned for August 2016.

Five CP Rail schemes will be offered in a range of options including a choice of 5 or 8-inch (above) diagonal end stripes, with or without auxiliary water tanks or ditch lights.

CN versions include the as-delivered black and orange scheme, with 5-inch diagonal end stripes, and with sergeant body stripes as seen here.

Additional road names include Ferrocarril del Pacifico, Cartier (black and orange), Cartier (green and yellow), WNY&PA (ex Cartier), Minnesota Commercial (with ditch lights and modified air intakes), and two Delaware-Lackawanna schemes (white and gray, and ex-CP red). Analog versions of Bowser's M636 will have an MSRP of $209.95. They will be DCC-ready with 21-pin socket. DCC/Sound versions with LokSound Select decoder will have an MSRP of $309.95.

Bowser plans to deliver two versions of a 70-ton twin-bay covered hopper car next July. In addition to the Pere Marquette scheme shown here, cars with open sides will be available decorated for Chicago Great Western, Minneapolis & St. Louis, MKT, and Nickel Plate Road.

Hoppers with closed sides will be available for Chicago & Eastern Illinois, Santa Fe, Lehigh Valley, and Southern Pacific (gray with red lettering). The ready-to-run models will have an MSRP of $25.95.

Also coming from Bowser is a group of 53-foot Roadrailer cars. Road names will be Amtrak, Triple Crown (ex-Amtrak), Triple Crown (medium CR/NS logo), Triple Crown (large CR/NS logo), Triple Crown (medium NS logo), Schneider, and Swift. The reservation deadline is November 13 with delivery planned for next July. For additional information on Bowser products contact a dealer or visit bowser-trains.com.

B.T.S. has released a new laser-cut kit for an antique store called Granny's Attic. The craftsman kit features laser-cut basswood, plywood components, and positionable doors and windows. All of the 'junk' shown on the porch is included in the kit. The footprint of the structure is a scale 27 x 31 feet. The HO kit is available now at $69.95. An O scale version will be available soon. For additional information visit btsrr.com.
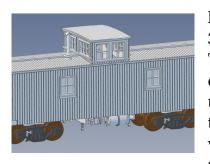
Con-Cor International will release a limited production run of this special Christmas car later this month. In addition to the Merry Christmas greeting, the festive car has the image of an attractive
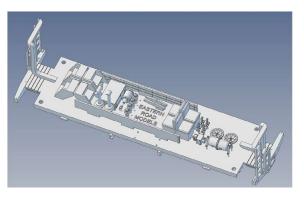
Santa's Helper on the side of the tri-level auto carrier. For additional information visit con-cor.com.

Eastern Road Models is selling a 3D printed kit for an HO scale Grand Trunk Western center cupola wood caboose with a reinforced wood underframe. The model is based on the 77007-770031 series cars that were built in 1923. Some remained in service until caboose usage ended in the 1960s. For reference see the GTW caboose article in *Railroad Model Craftsman* in January and February 1999.

Differences from ERM's previous release include the reinforced wooden underframe, different steps and toolbox, AB brakes, steel buffer beams, and Ajax handbrake equipment. This is a body kit and does not include trucks, couplers, wire, paint, or decals. The kit is priced at $143.95. For additional information visit shapeways.com/product/HGLALS44R/gtw-wood-underframe-caboose-ho-scale?key=2041b73ed177a5927c8e05da319c14a2.

ExactRail has fine-tuned its 100-ton Johnstown America AutoFlood II coal hopper cars with new end cage details.

Changes to the HO scale model include the addition of a U-channel reinforcement on the underside of the slope sheet and a new vertical support on the A-end of the car. A new coal load has also been created that presents authentic loaf contours and a prototypical offset. The ready-to-run car comes with an etched-metal Morton-style roof walk, Kadee couplers, and equalized 100-ton ASF ride control trucks with machined metal wheel sets.

For a limited time a UCEX AutoFlood II car will be available decorated with a special *"On Track For The Cure"* scheme. The model follows a special prototype car Ameren Missouri painted bright pink to help raise awareness for women's health issues. ExactRail has pledged that proceeds from the sale of this model will be donated to the Breast Cancer Research Foundation.

Additional decorating schemes available now include CSXT, NRLX, CEFX, and BNSF as shown here.

ExactRail has re-issued its HO scale Trinity Industries 6275 cu. ft. plug-door boxcar in the new 'Forward Thinking' paint scheme shown above. In addition, the model is also available now in the original as-delivered paint scheme in 12 new road numbers (below).

ExactRail's Platinum series model features separate door tracks, door bars, etched stainless steel crossover walks, wire formed grab irons, and Kadee couplers. A special feature is a steel nailable floor. For additional information visit exactrail.com.

Fos Scale Models has introduced Printers Row, a group of six HO scale structure kits that collectively make a 6 x 23 inch printing industrial district. The individual structures are The Harbor Herald (5.5 x 4 inch wedge shaped building with a tower and roof sign), Bergen & Nevins (4 x 4 inch printing plate maker), Hunniford Diner (1.25 x 4.25 inch neighborhood café), Meador Book Binder (3.75 x 4.5 inch), Deere Type Foundry (4.5 x 6 inch corrugated metal building), and Preston & Paige Printing (3 x 9 inch clapboard and stucco building).

The structures can be built separately or side-by-side and connected with sky bridges as shown above. Feature include

laser-cut clapboard, walls, roofing, singles, and sidewalks, Tichy plastic windows and doors, metal detail parts, and laser-cut windows and doors. A stencil for the large Type Foundry sign and all signage shown are included. Packed with the kits are detailed assembly instructions and weathering suggestions. This limited run kit is priced at $345.00. To order visit foslimited.com.

Funaro & Camerlengo is selling resin body kits for a prototypically accurate Chesapeake & Ohio all-welded triple-bay hopper car. The HO scale kit includes resin cast detail parts, a one-piece cast resin body, grab irons, wire for air lines, appropriate decals, and Tichy cast styrene brake components. F&C cast resin craftsman kits are sold without trucks or couplers. For information and a list of dealers visit fandckits.com.

InterMountain Railway has scheduled the release of an HO scale 60-foot flat car with a laser-cut wood deck for May/June 2016. Road names will be Elgin, Joliet & Eastern; PGR-Progressive Rail; Trailer Train HTTX; Louisville & Nashville; KCS

de Mexico; and Southern. The HO scale ready-to-run model will have an MSRP of $29.95.

Also coming from InterMountain next spring is another group of 10,000 gallon tank cars. The HO scale model follows a prototype Type 27 with a riveted tank as built by American Car & Foundry in the late 1930s. The injection-molded styrene model features appropriate trucks with metal wheelsets and Kadee body-mounted couplers. In addition to the Gulf car shown here, decorating schemes will be SHPX-Shippers Car Line, Belcher Oil, Semet-Solvey, U.S. Army, Shell Chemical, Frontenac, GATX, and Tidewater Associated Oil. The ready-to-run HO scale model has an MSRP of $34.95. An undecorated kit with plastic wheels and no couplers will be available at $19.95. More info at intermountain-railway.com.

Eureka Models of New South Wales, Australia is selling this impressive model of a NSWR AD60 class 4-8-4+4-8-4 Beyer-Garratt steam locomotive. The HO scale AD60 has two motors, Kadee-compatible couplers, and is equipped with wheels that

comply with NMRA RP-25 profile. The ready-to-run model is available with DCC/QSI sound or standard analog DC operation.

The AD60 is priced in the $750.00 range depending on how it is equipped and finished. It is available in North America from International Hobbies of Auburn CA. For additional information visit interhobmodels.com.

Installing a light in a caboose just got easier with **Kadee's** new HO scale caboose trucks with a pigtail wire lead. Both Bettendorf-style trucks (left) and earlier arch bar trucks are available. Both styles of trucks have elliptical springs as used on prototype cabooses. The trucks are part of Kadee's HGC series (high gravity compound) that allow fine detailing yet weights nearly the same as metal trucks. The two-piece split bolster design provides both equalization and self-centering that

simplifies placing the car on track. The trucks come with 33-inch metal RP-25 Code 110 wheels, scale clip-on brake pads, and brake rigging. MSRP is $21.95 a pair.

Kadee plans to release this Ann Arbor 40' PS-1 steel boxcar this month. The HO scale ready-to-run model is fitted with a 6-foot Creco sliding door.

The 40-foot Akron, Canton and Youngstown PS-1 boxcar has a 6-foot Youngstown sliding door. Only two ACY prototype cars are known to have received this unusual 1964 yellow paint scheme. The model is scheduled for release in December.

Also due in December is this Illinois Central 50-foot boxcar equipped with a 10-foot Youngstown sliding door.

Kadee's first new car in 2016 will be a Rock Island 40-foot PS-1 boxcar with a 6-foot Superior sliding door. It will be joined by another 40-foot PS-1 boxcar decorated for the Rutland Railway. The Rutland car has a Pullman-Standard 8-foot sliding door.

For additional information on all Kadee products contact a dealer or visit kadee.com.

KatoUSA has scheduled the release of mid-production iterations of EMD's SD40-2 locomotives for early next year. The SD40-2 was the most popular second-generation diesel with more than 3,700 units sold to North American railroads. The long production run resulted in many variations of the popular diesel. The Santa Fe (and the later repainted BNSF) SD40-2 mid-production units incorporated a variety of crew comfort features. Among the modifications were the rear-mounted air horn, nose-mounted headlight (for lessened glare), and air conditioning unit installed over the cab.

Kato's HO version of the mid-production Santa Fe locomotive will arrive in January. A BNSF locomotive decorated in an updated Swoosh or Wedge scheme will be at dealers a month later. Two road numbers will be available for each scheme in a choice of either analog or DCC with ESU Loksound. For additional information contact a dealer or visit katousa.com.

Mask Island is selling a composite body kit for an HO scale Southern Railway 40-foot double plug-door brick boxcar. The sides are cast resin. The ends, roof, roller guides, safety appliances and underframe details are plastic. The floor, trucks, couplers, uncoupling levers, and air hoses are not included. The kit is available at $24.00. For additional information visit maskislanddecals.com.

Monster Modelworks is selling a kit for an HO scale dry stacked stone retaining wall. The kit contains about 24 inches of pre-cut retaining wall with a concrete top and six inches of Dry Stacked Stone corners. The retaining wall strips are five scale feet tall and can be shortened by cutting them down or cutting them into your scenery. This material can also be used to makes foundations for structures. The HO kit sells for $9.99. N, S, and O scale kits are also available. For additional information visit monstermodelworks.com.

Henlopen Landing is the latest creation from **Nick & Nora Designs.** The kit for this HO scale wharf complex provides all the materials to make the pier and both structures.

Components include wood walls, Tichy windows, laser-cut shingles, and a cast plaster retaining wall. The signage and other detail items shown in the illustration (except the figures) are in the kit. Step-by-step instructions with full-size template and painting suggestions complete the kit. For ordering information visit nickandnoradesigns.com.

Rapido Trains has announced plans to produce a series of 12 Canadian steam locomotives over the next seven years. The introductory locomotive for this ambitious project, tentatively scheduled for release in 2017, will be the Canadian Pacific Royal Hudson, arguably the most famous of all Canadian steam locomotives. HO scale models of other steam locomotives will follow at the rate of about two each year.
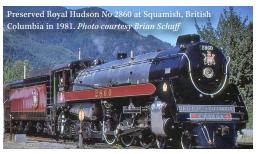
Montreal Locomotive Works built a total of 65 Hudson class H1c, H1d, and H1e 4-6-4 locomotives for the Canadian Pacific Railway between 1937 and 1940. Their clean, semi-streamlined appearance was achieved by hiding pumps and other appliances, and through the use of rounded corners on the cab,

sheet metal fairings along each side walkway, and a smooth smokebox front. Although designed for passenger service, Royal Hudsons were equally at home on freight trains. They continued in service until the end of steam in the 1960s.

In 1939 Britain's King George VI and Queen Elizabeth embarked on an official tour of Canada. CPR Hudson number 2850 was assigned to lead the Royal Train. The locomotive was decorated with silver boiler jacketing, blue running boards and cab, and blue and silver panels on the tender. Large cast metal Royal coats of arms were applied to each side of the tender with a smaller version affixed to the top of the boiler front. At the conclusion of the royal visit CPR received permission to apply replica crowns to the running boards of all its H1 locomotives earning them the Royal Hudson moniker.

Preserved Royal Hudson No 2860 at Squamish, British Columbia in 1981. *Photo courtesy Brian Schuff*

Features on Rapido's Royal Hudson will include three stack styles (streamlined, straight or bathtub), working lights (head, marker, classification, back-up, cab interior), a flickering firebox light, and DCC/sound. Tenders will carry either coal or oil and ride on Commonwealth or Buckeye trucks as appropriate to each engine road number. Tenders will also be available separately. Although designed to operate on 18-inch radius curves, 22 inch is recommended.

Rapido will offer six versions of the Royal Hudson: CPR No. 2820 H1c with coal tender, Commonwealth trucks, and tear-drop stack (top illustration); No. 2850 H1d as used on the 1939 Royal Train (blue scheme above); and No. 2860 H1e (prototype photo above). Also No. 2829 H1c with modified oil tender, Commonwealth trucks, and bathtub stack; No. 2839 H1c with coal tender, Commonwealth trucks, and straight stack; and No. 2861 H1e with oil tender, Buckeye trucks, and straight stack.

The MSRP for the Royal Hudson will be $599.95 (DC) and $699.95 (DC/DCC/Sound). Rapido has pledged that the price will not increase no matter what the CAD-USD exchange rate is at the time of delivery. An order deadline has not yet been announced. See rapidotrains.com.

Two new HO scale locomotives are scheduled for release by **Rivarossi** during the next 30 days. First up will be General Electric U25C decorated for Penn Central and L&N. Its slightly more powerful and nearly identical successor, the U28C, will be released a few weeks later. In addition to the Northern Pacific version shown here, the U28C will also be available decorated for Chicago, Burlington & Quincy; and Burlington Northern. According to Hornby, Rivarossi's North American distributor, the models will be available with a DCC decoder and sound, as well as for standard DC analog control. For additional information contact a dealer or visit hornbyamerica.com.

Tangent Scale Models has released another production run of its prototypically accurate Pullman-Standard PS-2CD 4750 cu.ft. triple-bay covered hopper. The HO scale ready-to-run model is available now in eight new road names plus a primed but unlettered version.

Six road numbers are available for this Atchison, Topeka & Santa Fe class GA-191 car in the 1975 as-built scheme. Note the matching red trucks.

Also available in six numbers is this Illinois Central Gulf car decorated in the original 1974 scheme.

Cars decorated for CRDX Lincoln Grain are available in three different schemes including the above version with no logo.

A PTLX Cargill car is available with a yellow body and black ends and underframe. Additional schemes include a CN IC car in oxide red with a CN wet noodle, and a PTLX Coast Trading

Company car introduced at the Portland, OR NMRA Convention. For additional information visit tangentscalemodels.com.

Tichy Train Group has a new HO scale kit for a 40-foot plate girder deck bridge. The bridge is molded of ABS plastic. The kit is priced at $18.00 and contains two complete bridges. One bridge is shown here as a flat car load. Tichy has also released new nut-bolt-washer sets, a pin plate, an HO pipe railing, and new O scale windows. For a complete listing visit tichytraingroup.com.

Walthers is selling Proto series EMD SD45 diesel locomotives decorated for Erie-Lackawanna, Montana Rail Link, and Seaboard System. The HO scale ready-to-run model is available with either analog DC or DCC/Sound.

Also coming in January is a Proto series 32-foot 6-inch Type 21 ACF 8,000 gallon tank car. Decorating schemes will include Bakelite, Chicago Tank

Car, Mid-Continent Petroleum, and Shell. A Mainline series three-dome tank car is also scheduled for release in January. Road names will be KONX-Kanotex, NATX-North American, SHPX-Pan Am Oils, SCMX-Shell Chemical Co., SUNX-Sunoco, and UTLX-Union Tank Car.

Additional HO scale ready-to-run models coming from Walthers in January include a 40-foot, 50-ton, drop-bottom gondola. Roadnames for the Mainline series model will be Chicago & North Western, Denver & Rio Grande Western, Southern Railway, and Southern Pacific. The ATSF car shown here is from a previous production run.

Walthers has scheduled the release of four Chicago, Burlington & Quincy wood cabooses in February. Paint schemes on the HO scale models will be CB&Q (red with Burlington Route herald, above), CB&Q (red and black), CB&Q (mineral red), and Burlington Northern (green).

New HO scale items due next March include a Proto series 23,000 gallon Funnel Flow tank car. Road names will be ADMX-Archer-Daniels-Midland, Procor, and UTLX.

Also scheduled for release in March is another production run of Walthers Mainline series 24-foot taconite ore cars. They will be

available in five-packs decorated for Duluth, Missabe & Iron Range; Chicago & North Western; Soo Line; and Union Pacific.

Different Roadnumber Shown

Walthers has set the release of Mainline series Alco PA diesel locomotives for next April. This is a limited run with just two road names: Pennsylvania and Santa Fe warbonnet. For additional information on all Walthers products contact a dealer or visit walthers.com.

Westerfield Models is offering a resin kit that builds into a prototypically accurate HO scale model of a Pennsylvania 30-foot class GLA twin bay hopper car that has been modernized with AB brakes. Kits are available for cars with PRR ball keystone decals (above) or PRR shadow keystone decals (below).

Westerfield kits do not include trucks or couplers. Tahoe trucks and InterMountain wheelsets are available separately from Westerfield. For additional information visit westerfieldmodels.com.

Woodland Scenics has introduced this fully assembled HO scale commercial structure. Identified as Dugan's Paint Store,

the ready-to-use building is loaded with details including a first-floor printed interior fitted with a white LED light that is compatible with Woodland Scenic's Just Plug lighting system. O and N scale versions of Dugan's Paint Store are expected to be available soon. For more information contact a dealer or visit woodlandscenics.com.
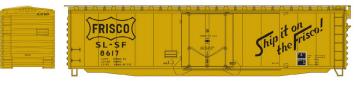
N SCALE PRODUCT NEWS

Athearn N scale models scheduled for release in August 2016 include an F89F bi-level auto rack. In addition to the New York Central car shown here, decorated schemes will include Chicago, Burlington & Quincy; Illinois Central; Norfolk & Western; SL-SF Frisco; and Wabash.

Also in Athearn's August release is a 50-foot PS-1 boxcar with a plug door. Road names will be Santa Fe, Burlington Northern, Chesapeake & Ohio, Rock Island, Union Pacific, and SL-SF Frisco. For pricing and additional information contact a dealer or visit athearn.com.

Atlas has scheduled the release of a new run of its Master series 89-foot 4-inch flat car during the second quarter of 2016. The N scale models will be equipped with trailer hitches and end loading platforms. Road names will be Alaska, Santa Fe, Rio Grande, TTX (PRR repaint), Union Pacific MW, Florida East Coast, and Department of Defense.

A new run of Atlas 45-foot Pines trailers is also scheduled for release during the second quarter of 2016.

Decorating schemes will be Vermont Railway, Preferred Pool, Xtra Intermodal (white, red and yellow), Xtra Intermodal (white and black), Xtra Lease, Seaboard System, and Transamerica Distribution Services.

The second quarter of 2016 will also see the arrival of an ACF 5701 quad-bay covered hopper car. Following its introduction in the early 1970s, ACF built nearly 15,000 of the prototype cars which have been used for transporting bulk plastic pellets and grain products. The cars have ten 20-inch loading hatches and are equipped with different types of hopper discharge outlets depending on the intended service.

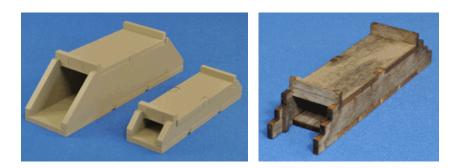Cars equipped for plastic service will be available decorated for Norchem, Chevron Phillips Chemical, Georgia Gulf Plaquemine, and Oxy Vinyls.

Hopper cars with grain outlets will be available for Dependable Feed Services, Penn Central, Southern Pacific, and USLX-GE Railcar. The Atlas N scale models feature etched-metal roof walks and 100 ton roller bearing trucks. For additional information contact a dealer or visit atlasrr.com.

Blair Line has introduced N scale laser-cut kits for both concrete and wood box culverts. These are common structures in use since the development of railroads and are still common today. The prototypes are used over ditches, small streams and dry creeks. The concrete culvert kit is based on prototype railroad standards and includes laser-etched build-dates on each end of the bridge.

The larger concrete culvert is 1-inch tall. The smaller concrete culvert and the wood version both measure .5-inch tall. The N scale culvert kits are $9.95 each. Contact a dealer for additional information or visit blairline.com.

Bowser is booking reservations for a new production run of N scale N5c steel cabooses. Delivery is planned for next

July. Pennsylvania Railroad decorating schemes will be Eastern Region (no keystone), Western Region (black roof, no keystone, above), Pittsburgh Region (black roof, shadow keystone), Eastern Region (antenna, no keystone), Lake Region (antenna, shadow keystone), PRR (orange body, keystone), and PRR (antenna, yellow cupola). Also Penn Central (green, black roof), Penn Central (brown body, yellow lettering), and Conrail (blue). The ready-to-run cars come with body mounted knuckle couplers and PRR caboose trucks with Fox Valley metal wheelsets. The MSRP will be $24.95 each. See a dealer or visit bowser-trains.com.

ExactRail has re-issued its N scale Trinity Industries 6275 cu. ft. plug-door boxcar in the new 'Forward Thinking' paint scheme shown above. In addition, the model is also available now in the original as-delivered paint scheme in 12 new road numbers (below).

ExactRail's Platinum series model features separate door tracks, separate door bars, etched stainless steel cross-over walks, and wire formed grab irons. For additional information visit exactrail.com.

InterMountain Railway has scheduled the release of an N scale 60-foot flat car for May/June 2016. Road names will be Elgin, Joliet & Eastern; Trailer Train HTTX; Louisville & Nashville; KCS de Mexico; Southern; and PGR-Progressive Rail. The N scale ready-to-run model will have an MSRP of $23.95. An undecorated version will list at $11.50. For information contact a dealer or visit inter-mountain-railway.com.

New N scale ready-to-run models from **Micro-Trains Line** include this Union Pacific 70-foot heavyweight baggage car. The model rides on six-wheel roller bearing trucks.

This Canadian National heavyweight open-end observation car was built in 1907. CN began applying the green over black passenger scheme in 1959.

The prototype of this CSX 3-bay covered hopper was built for grain service by Pullman Standard in 1969. The car has Barber roller bearing trucks.

This Delaware & Hudson 50-foot 14-panel steel gondola has fixed ends. D&H painted car No. 38028 in support of women's health issues.

Cars like this NATX 39-foot single-dome tank car were used to transport bulk liquid sweeteners including corn syrup.

In addition to the traditional Missouri Pacific buzz-saw herald, this 40-foot steel boxcar with a seven panel Superior door also displays the DF2 logo and Route of the Eagles slogan.

This Burlington Northern 50-foot rib-side boxcar with double doors has short ladders and no roof walk. The N scale model follows a prototype car built in 1980 and serviced in June 1994. For additional information on Micro-Trains Line models contact a dealer or visit micro-trains.com.

HornbyAmerica will release three new N scale locomotives during the next 30 days. First up will be General Electric U25C decorated

for L&N and Penn Central (above). The diesel's slightly more powerful and nearly identical successor, the U28C, is set for release a few weeks later. It will be available decorated for Burlington Northern, Northern Pacific, and CB&Q.

Also due later this month is an N scale version of EMD's SW1 early switch engine. In addition to the B&M model shown here, road names will be Chicago & North Western, Penn Central, Burlington Northern, and Amtrak. The SW1 will be DCC-ready. For additional information contact a dealer or visit hornbyamerica.com.

Trainworx is accepting advance orders through the end of this month for a group of N scale New York Central and Penn Central Flexi-Van trailers. Delivery is expected during the second quarter of 2016. Van types and decorating schemes include NYC Flexi-Van, NYC Pittsburgh & Lake Erie, NYC cigar band herald with large Flexi-Van sign, and Penn Central US Mail service. Vans with dual side doors for mail service will be available for NYC FlexiVan Service and NYC US Mail. For additional information visit trainworx.com.

NEW DECALS, SIGNS AND FINISHING PRODUCTS

Mask Island Decals has added several new lettering sets to its catalog. Available now are HO scale decals for Rock Island 40-foot DF2 appliance car with sufficient material to decorate two cars (Item 87-305), Southern bay-window caboose (Item 87-309), and

Rock Island bay-window caboose in block lettering (Item 87-310). For additional information visit maskislanddecals.com.

New decal lettering sets from **Microscale** include Canadian Pacific modern boxcars both with and without the Beaver herald. This decal is suitable for relettering many of the Rail Box and 1970s-era per diem cars CP purchased and rebuilt. Also new from Microscale is a lettering set for Norfolk Southern Bethgon Coal Porters. The set includes additional striping to match the five paired stripes of NS logos. For additional information contact a dealer or visit microscale.com.

Great Decals has introduced new decals for Piedmont & Northern boxcars. The white lettering sets feature P&D's unique typeface. The road's Service with Courtesy slogan is included along with specific road numbers and dimensional data. Additional road numbers can be easily gleaned from a number jumble included in each set. Both HO and N scale versions are available now at $2.99 each from Great Decals, P. O. Box 994, Herndon, VA 20172.

Send us your product announcements

If you are a hobby manufacturer with a product announcement, just **click here** and submit your announcement to us. Our web site and free magazine reach continues to grow, so get on board this new media train! ■

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- Wallpaper of the best images from this issue

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! BRIEFLY NOTED AT PRESS TIME ...

Athearn expects to release its Genesis SD70MAC locomotives next September decorated for BN, Conrail, Kansas City Southern, CSX, and Paducah & Louisville. The same release date is being given for a Genesis 13,600 gallon acid tank in five road names in both early and late body phases. Ready-to-Roll models will be an EMD GP35 diesel, three-packs of CIMC 53-foot containers, and a Ford F-850 truck with a long-bed for grain service. A three-dome tank car and a 40 foot high-cube plug-door boxcar will be released under the Athearn-Roundhouse brand. Both HO and N scale versions of a 33,900 gallon LPG tank car and an ACF twin-bay covered hopper are also due next September along with an N scale RTC 20,900 acid tank car ...

Dry Creek Models has a 3D printed kit for an HO scale Hart Convertible gondola. Information is available at drycreek-models.com. MRH contributor Tony Thompson has posted a detailed review of the new product on his blog at mod-elingthesp.blogspot.com/2015/10/the-new-dry-creek-sp-work-cars.html ...

Another MRH contributor, Marty McQuirk, has alerted us to the availability of a 3D printed model of a Canadian National version of Hart Convertible gondolas now available from **Shapeways.** The one-piece body follows prototypes built between 1928 and 1955 by three builders - Canadian Car & Foundry, National Steel Car, and Eastern Car Company. For complete details visit shapeways.com/product/M7MSJ3VNC/ho-scale-cnr-hart-convertible-gondola ...

The Illinois Traction Society is developing new HO scale decals for Illinois Central freight cars. The oval Traction System logo will be included in the lettering set. The project was prompted in anticipation of a new IC class B electric locomotive under development by Frank Hodina of Resin Car Works ...

Micro-Trains Line has released Z scale F7 A and B units decorated for Reading Lines. The 1:220 models are decorated in Reading's black and green freight scheme ...

At the **Naperville RPM Meet** that concluded on October 25, Joe D'Elia announced that he is turning over responsibility for producing future meets to Mike Skibbe. Considered the pioneer gathering of prototype modelers, the late Martin Lofton of Sunshine Models established the original meet in Naperville, IL in 1993. Lofton asked D'Elia to manage the meets beginning in 2010. Commenting on the latest change, D'Elia, who works out of Carlsbad, CA where he operates A-Line, Proto Power West, Blue Point, and Arrow Hobby Supply, said negotiating prices and coordinating all of the details of a meet can be handled more readily by someone who lives near the event hotel. ■

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SELECTED EVENTS

November 2015

(Please note that many events charge a fee. Check individual info website for details.)

CANADA, NEW BRUNSWICK, QUISPAMSIS (Saint John), November 7, 31st Annual Model Train Show, at Island View Lions Club, 8 Market Street. Sponsored by Saint John Society of Model Railroaders. Info at sites.google.com/site/sjsmrclub.

ARIZONA, TUCSON, November 13-14,Fall Train Show & Meet, at Tucson Expo Center, 3750 East Irvington Road, sponsored by Gadsden Pacific Division Toy Train Operating Museum. Info at gpdtoytrainmuseum.com/annual_fall_show.htm.

CALIFORNIA, LOS ANGELES, November 7-8, 14-15, Open House at Pasadena Model Railroad Club, 5458 Alhambra Avenue. Celebrating the 75th year of the Sierra Pacific Lines with ten cabs operating over 30,000 feet of hand laid steel rail. Info at pmrrc.org.

CALIFORNIA, PASADENA, November 1, 3. Open House at Slim Gauge Guild Model Railroad Club, at 300 South Raymond Avenue. Info at slimgaugeguild.com.

CALIFORNIA, SACRAMENTO, November 14-15, Open House during Railfair (Roseville) at Sacramento Model Railroad Historical Society, 1990 Grand Avenue. Info at smrhs.com.

MASSACHUSETTS, RANDOLPH, November 1, 24th Annual Metro South Train Show at Temple Beth Am, 871 North Main Street. Info at templebethemunah.org/a_trainshow.html.

MICHIGAN, LANSING, November 15, Annual Model Train Show & Sale sponsored by the Lansing Model Railroad Club Michigan State University, Pavilion, 4301 Farm Lane. Info at lmrc.org/trainshow/index.shtml.

MINNESOTA, SAINT CLOUD, November 14, Granite City Train Show, at National Guard Armory, 1710 Veteran's Drive. Info at granitecitytrainshow.com.

MISSOURI, ST LOUIS, November 7, NMRA Gateway Train Show , at Trinity Lutheran Church, 14088 Clayton Road, West St. Louis County. Info at gatewaynmra.org/st-louis-train-show.

MISSOURI, SEDALIA, November 7, Third Annual Sedalia Rails Train Show, Liberty Park Convention Center. Info from Ken Bird at klbird@embarqmail.com.

NEW JERSEY, BURLINGTON TOWNSHIP, November 7. Model Train Show, sponsored by Burlington Masonic Lodge, at 2308 Mt. Holly Road (Route 541 east of Route 295). Info from Bob Ford at 609-268-8358.

NEW JERSEY, SCOTCH PLAINS, November 14, Garden State Railroad Prototype Modelers Meet, at Union County Vocational-Technical School, 1776 Raritan Road. Info at hansmanns.org/ld-op-nj/index.htm.

NEW YORK, ELBRIDGE, Nov 21-22, Fall Open House at CNY Model Railroad Club & Historical Society, 4986 Jordan Road. Info at www.cnymrrc.com.

OHIO, DAYTON, November 7-8, 40th Annual Dayton Train Show, sponsored by NMRA Division 7 at Hara Arena, 1001 Shiloh Road. Info at daytontrainshow.com.

PENNSYLVANIA, COOPERSBURG, November 28, 29, December 5-6, 12-13, January 2-3. Open House at Coopersburg Area Society of Model Engineers. Featuring 35 x 44 ft. layout with 3500 feet of track operating on computer assisted dispatch system using JMRI and DCC control system for multiple train operation with operating signals and block detection. At Coopersburg Borough Building, 5 North Main Street (basement). Info at jdwhistle.com/casme/indexc.htm.

UTAH, SALT LAKE CITY, November 6-8, Wasatch Rails Model Railroad Expo, sponsored by Hostlers Model Railroad Club, at Utah State Fairpark, 155 North 1000 West. Info at wasatchrails.com.

WASHINGTON, KENT, November 14, Annual Swap Meet, sponsored by Boeing Employees Model Railroad Club. Event at 525 4th Ave. North. info at swapmeet@bemrrc.com or contact Ed Sherry at 206-244-3884.

WISCONSIN, WEST ALLIS (Milwaukee), November 14-15, Trainfest, Wisconsin Exposition Center at Wisconsin State Fair Park. Info at trainfest.com.

December 2015

COLORADO, LONGMONT, December 11-13, 38th Annual Model Railroad Expo, at Boulder County Fairgrounds, Hover & Nelson Roads, sponsored by Boulder Model Railroad Club. Info at bouldermodelrailroadclub.org.

COLORADO, COLORADO SPRINGS, December 4-6, Train Expo Colorado, at Mortgage Solutions Financial Center, 3660 N. Nevada Ave. Info at tecoshow.org.

FLORIDA, LARGO, December 12-13, Train Show and Open House sponsored by Suncoast Model Railroad Club. Train Show at Minnreg Hall, 6340 126th Avenue. Club open house at 12355 62nd Street North, Suite A. Free parking at both locations. Info at suncoastmrrc.com.

MARYLAND, CHESTER, December 5-6 and 12-13, Festival of Trains at Old Kent Narrows Outlet Stores, hosted by Queen Anne Railroad Society and the Museum of Eastern Shore Life. Info at qarrs.org.

MASSACHUSETTS, MARLBOROUGH, December 5-6, 2015, Annual New England Model Train Expo, at Best Western Royal Plaza Trade Center, 181 Boston Post Road (US Rte. 20), hosted by NMRA HUB Division. info at hubdiv.org.

OHIO, SPRINGFIELD, December 6, Model Train Show at Clark County Fairgrounds.

Future 2016 and beyond (by location)

CANADA, BRITISH COLUMBIA, SALMON ARM, June 15-19, 2016, Selkirk Express, NMRA Pacific Northwest Region Annual Convention and Train Show. Info at selkirkexpress2016.ca.

COLORADO, DENVER, 2017, National Narrow Gauge Convention.

ILLINOIS, CHICAGO, October 1-2, 2016, Brass Expo, a juried show limited to pre-submitted items including brass models and items relevant to brass models. At The Westin Hotel (Chicago North Shore), 601 N. Milwaukee Ave. Wheeling, IL 60090. Info at brassexpo.com.

Selected Events | 5

INDIANA, INDIANAPOLIS, July 3-10, 2016, NMRA National Convention and National Train Show. Info at nmra2016.org.

MAINE, AUGUSTA, Sept. 7-10, 2016, 36th National Narrow Gauge Convention. Info at nngc2016.org.

MASSACHUSETTS, WEST SPRINGFIELD, January 30-31, 2016 Railroad Hobby Show, sponsored by Amherst Railway Society, at Eastern States Exposition Fairgrounds, 1305 Memorial Avenue. Info at railroadhobbyshow.com.

PENNSYLVANIA, MALVERN, March 18-20, 2016, Seventh Annual Valley Forge Railroad Prototype Modelers Meet, at Desmond Hotel. Info at rpmvalleyforge.com.

UTAH, OGDEN, March 4-6, Model Railroad Festival sponsored by Hostlers Model Railroad Club, at Ogden Union Station, at 25th Street and Wall Avenue. Info at hostlers.info. ■

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Don Hanley

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Being broke can be good for your hobby

Being broke is good for my hobby? You are most likely thinking, "Don, you have really lost it this time!"

Okay. Let's face it, our hobby is not cheap. A detailed car can run around $30 and a locomotive can be $200. Building even a moderate-sized layout with 200 cars and 10 locomotives will set you back over $8000! That doesn't even begin to touch the track, structures, DCC, or anything else that is necessary to build an operating layout.

But consider: if you have the funds to purchase everything you want for the hobby immediately, are you a modeler or a collector?

▶ STEPPING OUTSIDE THE BOX WITH A CONTRARY VIEW

How does being broke help you build an operating layout?

First, if you don't have enough money right now to get something, then save up. Learning to save down through the ages has been considered to build character. Only in the last half century (since the invention of television, ironically) has instant gratification become hammered into us by clever ad firms. Pay no attention to it, set a goal, save up for it, and then get it!

Start by saving for some good tools, some detail parts, and shop for inexpensive rolling stock and locos on eBay or at swap meets.

With a few good tools and some detail parts, you can upgrade the details on the inexpensive rolling stock and locomotives you purchased. There have been many articles in MRH as well as other magazines on detailing equipment. Also practice painting and decaling that equipment.

What if you make a mistake? You're learning and building your skills through practice, that's what. Practice makes perfect, you know.

Explore some DCC too. Save up and purchase a beginners DCC system for $150. Get yourself a $20 fleet decoder and have at it. Bruce Petrarca's DCC columns here in MRH will give you plenty of instructions on how to do it. Stick with it until you figure out how to make it work!

By needing to save up over time and being unable to just buy things whenever you want, you will be forced to develop your modeling skills while you wait. Those skills will serve you well as you grow in the hobby of being a modeler rather than just a collector. The more you try, the more you will mess it up – but then the more you will learn too, and in time you'll perfect those skills and become an expert – if you don't give up, that is!

Yes, sir. Being broke can be very good for your hobby. ☑

DERAILMENTS

click to play video
(YouTube video only)

© B Baker

TOO LATE TO STOP ...

The loco crew was enjoying the trip out of Melbourne on a nice hot day when they encountered a serious heat buckle in the rail. This clip belongs to engineer Bernie Baker as denoted by the © watermark. There is no sound by request of the owner (we can guess why).

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▶ BIZARRE FACTS AND HUMOR (SUPPOSEDLY)

Railroader doing a little weight lifting practice

Coming next issue ...

- Looking back at 20 years of Ken Patterson model railroad photos
- Proto:87 turnout construction
- Geoff Bunza on working cranes
- Make a DCC test track
- SP passenger car modeling finale
- And lots more ...

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