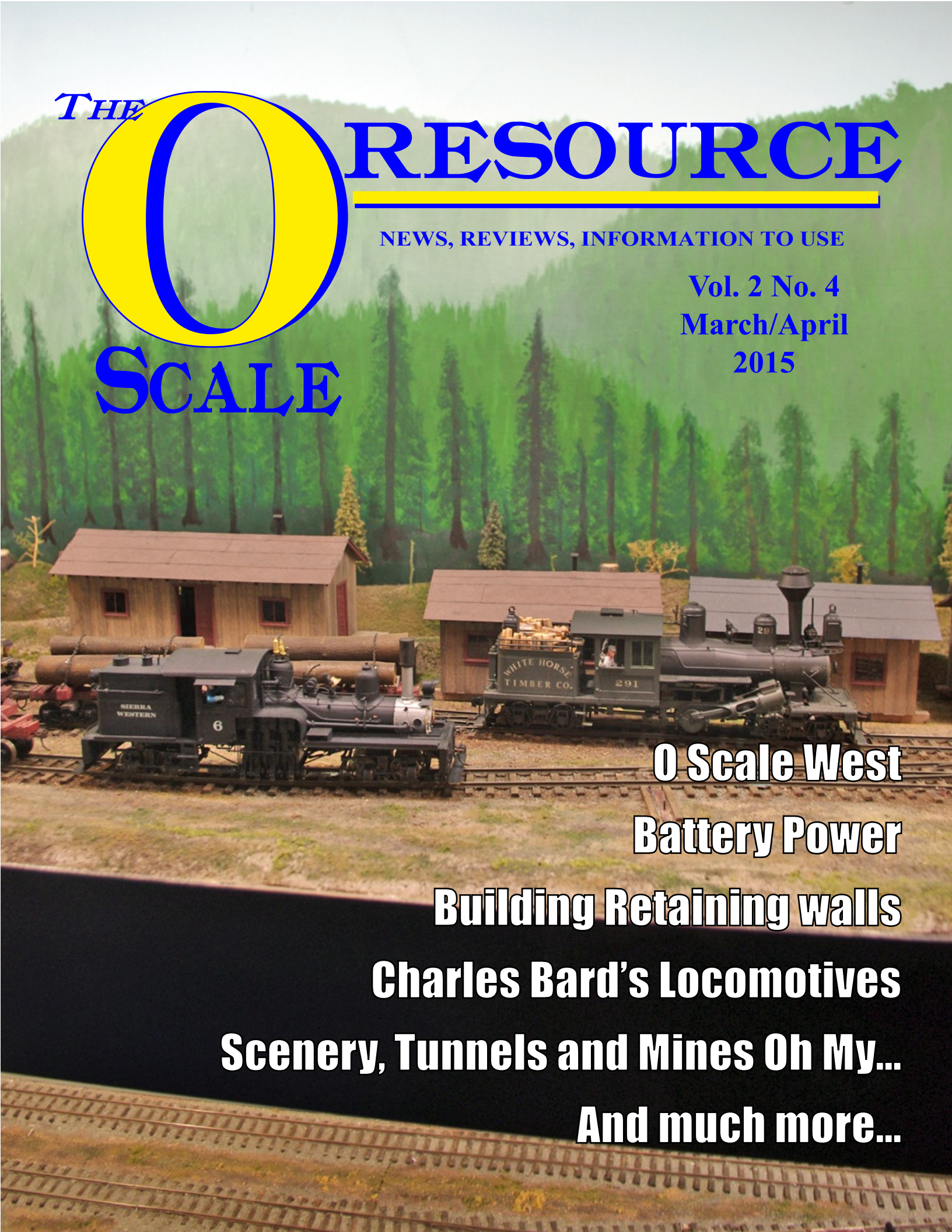
THE O SCALE RESOURCE

NEWS, REVIEWS, INFORMATION TO USE

Vol. 2 No. 4
March/April
2015



O Scale West

Battery Power

Building Retaining walls

Charles Bard's Locomotives

Scenery, Tunnels and Mines Oh My...

And much more...

NEWEST ANNOUNCEMENTS 2015

EMD SD-7 & SD-9 Diesels

SD-7 - B&O, B&LE, C&NW, CB&Q, MILW, DRGW, GN, PRR, SP, UP
SD-9 - B&O, CB&Q, C&S, C&NW, DM&IR, DRGW, GN, PRR, SP

Super Detailed and Scale Accurate. ABS Body, Die Cast Trucks, Fixed Pilot, All Drivers Powered and Full Cab Interior Lighted, Horizontal Canon Motor (NO CHINA DRIVE), These fantastic models will perform smoothly and powerfully just like the prototye. 2 Rail: QSI "Titan" DCC/DC with 64 Channel Digital Sound. 3 Rail: ERR Cruise, TMCC, SD Unit NEW OEM Railsounds,
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THE O SCALE RESOURCE
NEWS, REVIEWS, INFORMATION TO USE

Bill Of Lading

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

Front Cover Photo

Howard McKinney of San Jose, California had his On3 layout open during O Scale West. We are preparing an article on Howard's layout for a future issue of *The O Scale Resource*

Rear Cover Photo

Chris Holombo of Mountain View, California had his standard gauge logging railroad open during O Scale West.

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Advertisers Index

The Model Railroad Resource LLC publishes *THE S SCALE RESOURCE* also. Be sure to look at it. There are many articles in our magazines that are not scale specific and will be of interest to you. Click this announcement to see the magazine online.

Editorial Comment

Welcome to the March/April 2015 issue of *The O Scale Resource*. Before we get into what is in this issue, let me remind everyone that *The O Scale Resource* will be hosting the model contest at the Chicago O Scale Show this year. The contest will be judged in all categories, except the Best Of Show, which will be a popular vote. In this issue of *The O Scale Resource,* we will post a link to the contest forms and rules. The modeler will be able to download the forms and fill them out ahead of time. Be sure to read the forms and provide as much information as you can. That will help the judges understand what you did to your model. The contest will be held on Saturday March 14, 2015 at the show, so finish up your models and enter them into the contest.

Now on to this issue. Dan has been inspired and working hard on his layout again. There is a section of the layout that goes to the upper level. This section goes over the washing machine and through a wall in the basement. There is a small coal mine over the washing machine, and a tunnel where the track goes through the walls. Dan has been working on the scenery for this section recently. He tells you about the how he is doing the scenery in S*cenery, Tunnels, and Mines Oh My…* . Next, Dan looks at some of the retaining walls he had to build. He looks into when they are appropriate, and how he made one to fit the location. See how he did it in *Retaining Walls*. On Dan and Amy's trip to Toronto, they met with Charles Bard who is a member of the St. Jacobs & Aberfoyle Model Railway. Charles has built a number of Canadian National and Canadian Pacific locomotives from scratch. Dan took a few photos, and put me in touch with Charles. I asked him to send us some photos and some information. What he sent was very interesting, and I decided to print it as he said it in his own words. Charles' building spans from 1973 to today. See what he has done in *Charles Bard's Locomotives*. Next, we move to battery power. I have been interested in battery power for a while and have been talking to people about what they have done. The technology is very interesting and viable for our models. Like all things electronic, there seems to be quite a few ways of doing it. In *Battery Power*, I look into the basics of how the different systems work so you will have some things to consider when thinking about battery power. I went to O Scale West this year, and have a recap of the show in *O Scale West 2015*. The show was good, and I have a lot of photos. Bob Stevenson and I went to see some layouts, and I have included some of those photos as well.

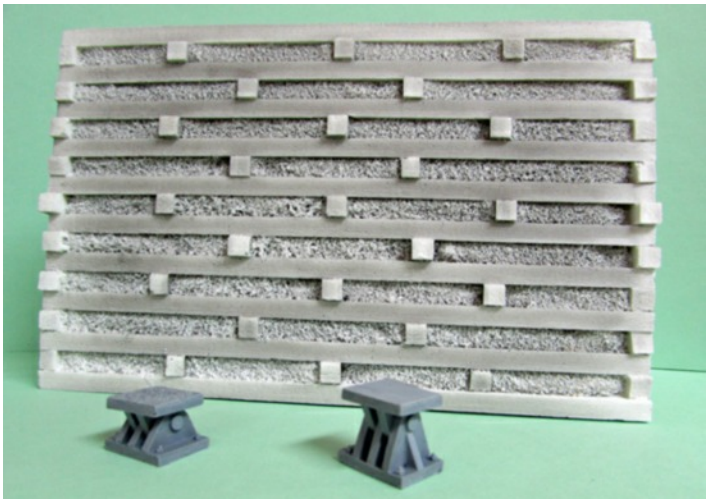
With that, we again ran out of room in this issue. Dan, Amy, and I will be at the Chicago show, so stop by to chat. We will have a table. Amy will be working the contest most of the day, and Dan will be taking photos. See you there!

Glenn Guerra

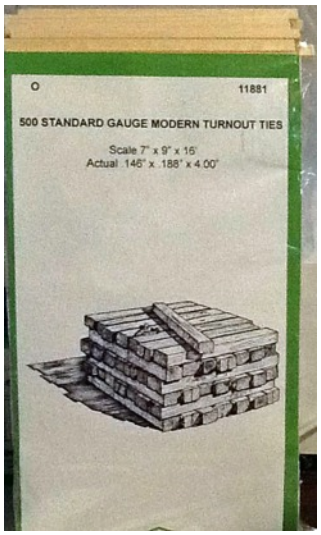
News And Reviews

The O Scale Resource Magazine is sponsoring the model contest at the Chicago O Scale Show this year. Be sure to see the announcement in this issue and download your entry form.

Next year, the Super Bowl will be in Santa Clara, California on the same weekend that O Scale West is usually held. The organizers of O Scale West have decided to move the show date instead of the location. For 2016, O Scale West will be May 5-7 at the Santa Clara, California Convention Center. Mark your long range calendar and plan to attend.



Steve Wolcott of Pre-Size Model Specialties has some new products. There are two sizes of bridge shoes. Also new is a timber-cribbing retaining wall. See these and other O-scale products at www.pre-size.com



Tom Dempsey at Clover House is again offering wood ties made of Sugar Pine. He has a bag of 500 switch ties. The ties are a scale 7" X 9" X 16'. Also coming soon are bridge ties and main line ties.

Des Plaines Hobbies has added some new parts for the GP-9 models they sell. These are the former Red Caboose GP-9 models. They now have etched stainless steel step treads, screens, and louvers. The modeler needs to cut out the plastic shell where the radiator louvers are, and insert the new etchings. The etchings can be installed with the louvers closed or open. A see through etched screen goes over the louvers. The parts are in stock and available. You can see them at the Chicago O Scale Show. The long out of stock brass frames for the GP-9 models will be back in stock soon. They are due to be shipped the second week of March, so be on the look out for them.

Ted Schepf of Rails Unlimited will be having an operating session on his layout the Friday before the Chicago O Scale Show, Friday March 13th from 12 noon until 3:30 PM. Those getting to Chicago on Friday can contact Ted for directions at railsunl@sbcglobal.net . If there is a space available, Ted may just hand you a throttle and a train to run. This is a large layout that was designed to maximize the operation of the layout. If you are interested in operation you should plan to stop by.

Many of us remember Bill Clouser from St. Louis. Eric Bronsky dropped us a note and some photos to share. Here is Eric's note.

William J. Clouser was renowned for his superb modeling skills and ingenuity. He was among the earliest advocates of finescale (Proto:48) standards for track, wheels, and overhead wire. Bill produced a high-quality line of scale models and detail parts, and his models, magazine articles and photography continue to inspire others.

Bill was fascinated by the electric railways that once operated in and around St. Louis. These railways are represented on the 1/4-inch scale model railroad that he built in his home fifty years ago. The layout is remarkable even by today's standards.

In May 1966, his friend Bob Hegge filmed the layout in action using an 8mm camera. The dawn-to-dusk sequences in this 8mm-to-video conversion begin with United Railways streetcar 600 making its first run in the early morning shadows, and end with all of the equipment resting in the yard as the sun fades to night.

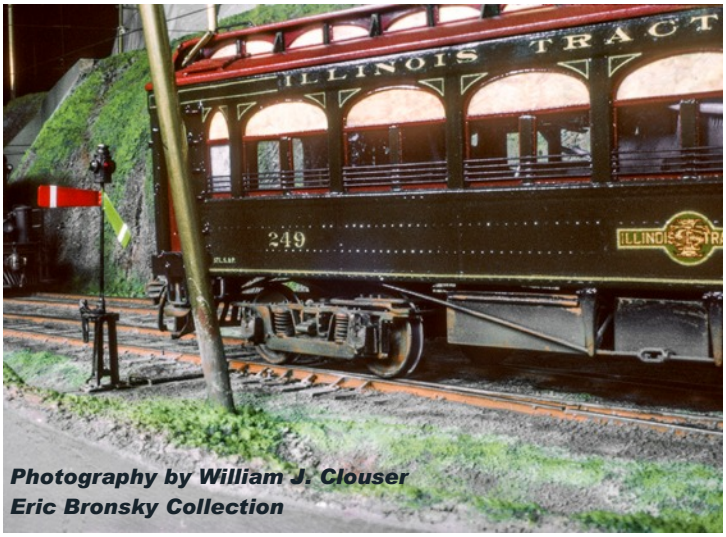
In between, star performers include a two-car ITS interurban train dragging a freight trailer and ITS Class "C" loco 1595 switching and hauling freight trains. Realistic slow speeds with smooth starts and stops are apparent. Watch trains backpole nimbly through complex junctions (occasionally a giant hand descends from the sky to throw switches and guide the trolley shoe through the frogs); the wire is pulled so taut, you could almost pluck out a tune. At 8:50, as the interurban train backs around an impossibly sharp curve, note the thin wheel profiles.
St. Louis & Suburban Electric Railway Running time: 14:42

To answer your question: Yes, the electricity that propels these models comes from the overhead wire. Bill and his son Stephen play cameo roles in the video. The subtitle, "A Project Eternal," suggests that Bill really didn't intend to finish the layout - there would always be a new project or something which he could do better. Currently, the layout is preserved at a small museum of early P:48 layouts in Tehachapi, CA.

David Neubauer (who now owns the original 8mm film) and Minerva Clouser encouraged me to share this video with "the rest of the world." I added a soundtrack (Baby Boomers will surely recognize the first tune), but otherwise the film is unedited.
Since 8mm film images - especially when digitally converted - are inherently jerky and fuzzy, I attached some still photos to illustrate Bill's modeling with greater clarity. Bill scratchbuilt ITS 249 out of Strathmore (a paper product) and painted his model in the car's original livery. He made his own decals plus patterns for the cast detail parts.

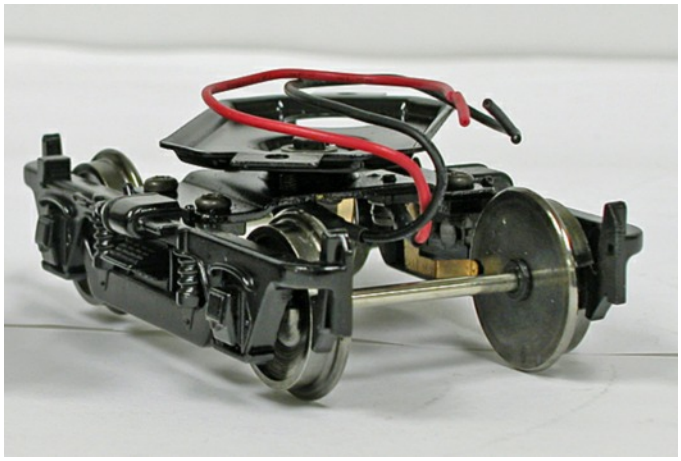
On one of my visits years ago, I had the pleasure of operating Bill's IT Class "C" locomotive on the layout. Comprised of etched and milled brass parts, this beast weighed several pounds and its flywheel-equipped K&D motor drew nearly 7 amps! It was geared for a low top speed and pulled the longest freights with ease.

Bill hand laid the track on his layout and had the girder rail and street switches, along with an array of overhead wire parts, made to his own specs. The production and sale of Clouser models and detail parts continued for several more years under the Bronze Key Models banner.
-- Eric



True Color Paint continues to add new colors to their line of railroad paints. New colors for the Atlantic coast Line, Missouri Kansas Texas, and Long Island have been released.

At O Scale West, Bill McConnell was showing me the new double slip switch he is working on. The frogs were nicely done with lots of detail. They will be cast like the other frogs he uses in his switches. The frogs were designed by Bill using 3D modeling. They have the correct rail contours and all the bolt detail of the prototype. They will make nice looking switches. Check his web site for additional details.



Weaver Models has their Commonwealth passenger trucks available as a separate item. Part number P-747 is the two rail version at $24.95 per pair.

Remember to bring your models to the Chicago O Scale Show. *The O Scale Resource* is sponsoring the model contest this year again. We have the contest entry forms online here. You can download these forms and fill them out before coming to the show.

Golden Gate Depot tells us they are taking reservations for new passenger car sets listed below:

1. The Powhatan Arrow Cars will be available in Skirted (Pre 1955) and Unskirted (1955 +). Production is set or April 2015. Built to the reservations. Click to view.

2. Announcing the SP Sunset Limited an Aluminum 8 Car Set. Fully detailed interiors with accurate window and interiors, built to the blueprints. Please show your support for this model. Built to your reservations. Click to view.

Contact them at Golden Gate Depot Model Trains

By Glenn Guerra

O Scale West this year was held February 5-8, 2015 at the Santa Clara, California Convention Center. The actual show hall was open from February 6-7, but the show is much longer. There are a number of layouts open before and after the show. California is a big place, and you should plan on spending a few days so you can take in some of these layout open houses. The show was well attended, and there were many manufacturers there. This show is always a good place to see what's new or find a model you have been looking for.

The show has traditionally been held in early February, however, for 2016, the Super Bowl football game will be held across the street from the convention center. As a result, in 2016, O Scale West will be May 5-7 at the same location. The convention center location is very good place to have this show. The light rail line runs to the convention center, and makes getting from the airport to the convention center convenient. In addition, the location is near many restaurants and many of the layouts that are open. The football game will drive up room rates, and rather than move the O Scale show to another location, the promoters have decided to have the show later in the spring. Be sure to mark your calendars for May 5-7, 2016. For more details, check the show website at http://www.oscalewest.com/.

The last group of photos in this article are two of the layouts I visited this year. There are over 30 layouts on the list that you can see on the way to the show, at the show, or on the way home from the show. The organizers of the show do a good job of providing good layouts to see and directions on how to get to them. There is always more to do at O Scale West than there is time to do it. This show is always enjoyable to attend.

Foothill Model Works always has a nice display at O Scale West. They have a lot of product on display, along with built up models for you to see.

Norm Buckhart from Protocraft was displaying some of the brass models he imports, as well as, his decal and parts lines. Norm has quite an extensive line of decals, and more are on the way.

Jay Criswell does a lot of model repair and rework. He always sets up at O Scale West, and is willing to help with questions about your model's performance.

Grandt Line was at the show again this year with many of their products. Dave Grandt was at the show, and it's always good to talk to him about the hobby. Dave's dad, Cliff, was active in the hobby in the 1940's, and started Grandt Line products in the early 1950's. The company has a long history.

Nigel Ambler from Cameron was at the show with some of the micro drill press machines they produce. These are precision machines with variable speed control for the best results in drilling very small holes.

Mike O'Connell from Chooch showed me some of the flexible building materials they have. These products are made from a flexible thin vinyl that can be cut with scissors or a knife. They can be painted with acrylic paints, and have a self adhesive back. There are many patterns of stone retaining walls and cribbing to chose from.

John Houlihan, from the Irish Tracklayer, was showing these nifty stands for holding your model. John cuts them from a plastic material that will not scratch or mark your model. The two feet lock in the notches to hold the stand upright. The two small ears are for hooking a rubber band around your model to hold it in the stand.

Bill Basden from Delta Models had this display of the passenger car detail parts he makes. Bill is always adding to this line, and you can see there are a lot of parts. These parts are made of urethane so they will not add to much weight to your car. Many of the components are for the interiors of models.

Many of the vendors at the meet were selling models from layouts that have been taken down. The show is always a good place to look for pre owned models other than locomotives and cars.

Jim Booth was there representing Glacier Park Models. They had their new 2-6-6-2 Tank Mallets. These engines were used where curves were tight and tonnage was high. Logging and mining railroads liked this type of engine.

George Kohs was at the show with some of his latest projects. The extra heavy duty flatcars come with a depressed center or a well hole deck. George had some drawings to show some of the engineering that goes into his models.

Mike Calvert from Gilmaur Models was at the show with some of his brass kits. These kits are etched brass and make nice durable models when assembled. Mike is from England and worked in the US for a number of years which is one of the reasons he is a big fan of US railroads. The English do a lot of kit building with brass etchings, and Mike brings this experience to us with US prototypes. The SP pressed steel boxcar is one of his latest kits.

Rich Yoder had some of his new ventilated boxcars for sale. The cars come painted and lettered for all the railroads that used this model. They have working doors with real screen. Contact Rich if you did not have one reserved.

Sunset Models was there with some of their latest offerings. Sunset is based in California, and Scott Mann, the owner, personally attends this show if you would like to meet him.

O Scale West has a model contest. However, in the contest area, they also have a section for people who would like to display their models. This steam shovel was displayed. The builders of the models were not mentioned, so I can't tell you who built it. The model started out as a Lionel diesel powered shovel. The modeler built a new cab, and installed a steam boiler and winch. It makes a nice looking model.

This open bench street car was in the display area of the model contest. What a nice way to go for a ride.

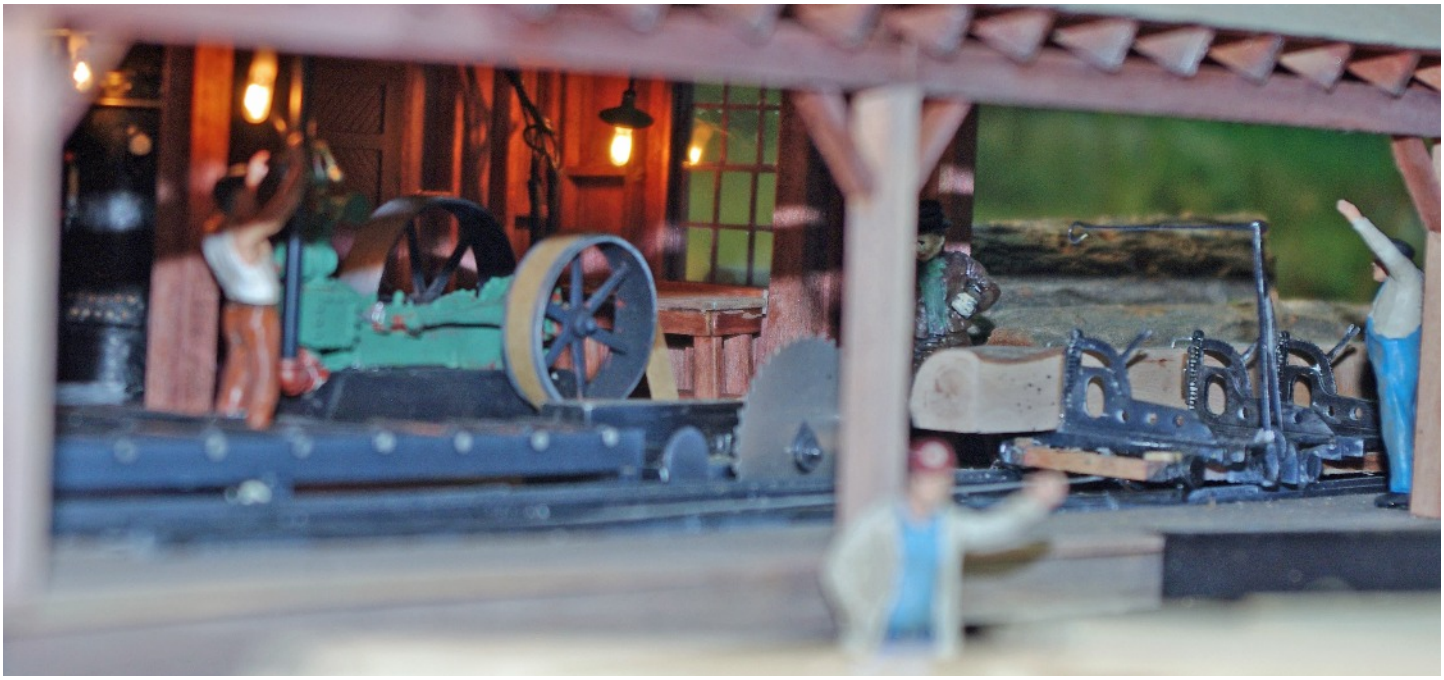
This old industrial building was in the model contest.

Here are some of the models in the maintenance of way area of the model contest.

These models were in the diesel contest.

There was an O Scale module club set up at the show, and this Jordan spreader was set on a siding of the layout.

This Virginia and Truckee steam locomotive was in the model contest's steam locomotive category. Another guy and I were looking at the model, and he commented that he thought this was a very rare brass import model. The builder heard us talking, and came over to tell us that it was a scratch built model, and that it was not brass. He said he was working on a second one and had it in the display section if we would like to take a look. I photographed the display model, so you could see how he was building the model. This is very nice work, and you can see it makes a nice model once it is painted.



On Friday night, I went with Bob Stevenson to see Howard McKinney and his On3 layout. Howard was a machinist for a living making lab prototype equipment. His layout and the machines are in his garage. The layout has a lot of very nice detail in it's small space. The sawmill interior, above, is a good example. To the left, are two of the engines on the layout.

Part of Howard McKinney's On3 layout.

One of the engine terminals on Howard McKinney's On3 layout. Howard likes the Rio Grande narrow gauge, as well as narrow gauge logging operations.

On Saturday, Bob Stevenson, Rich Yoder, and I went to see Chris Holombo's O Scale standard gauge logging layout. This train of empty log cars is on the way to the woods.

Out in the woods, a loaded log train waits for the train of empties to arrive before heading out with the logs for the mill.

The mill on Chris Holombo's layout is a scene of endless detail and activity.

This large mill building hides the staircase from the first floor to the layout room. Not only is it an impressive structure, it's a nifty way to hide the stairs.

Battery Power

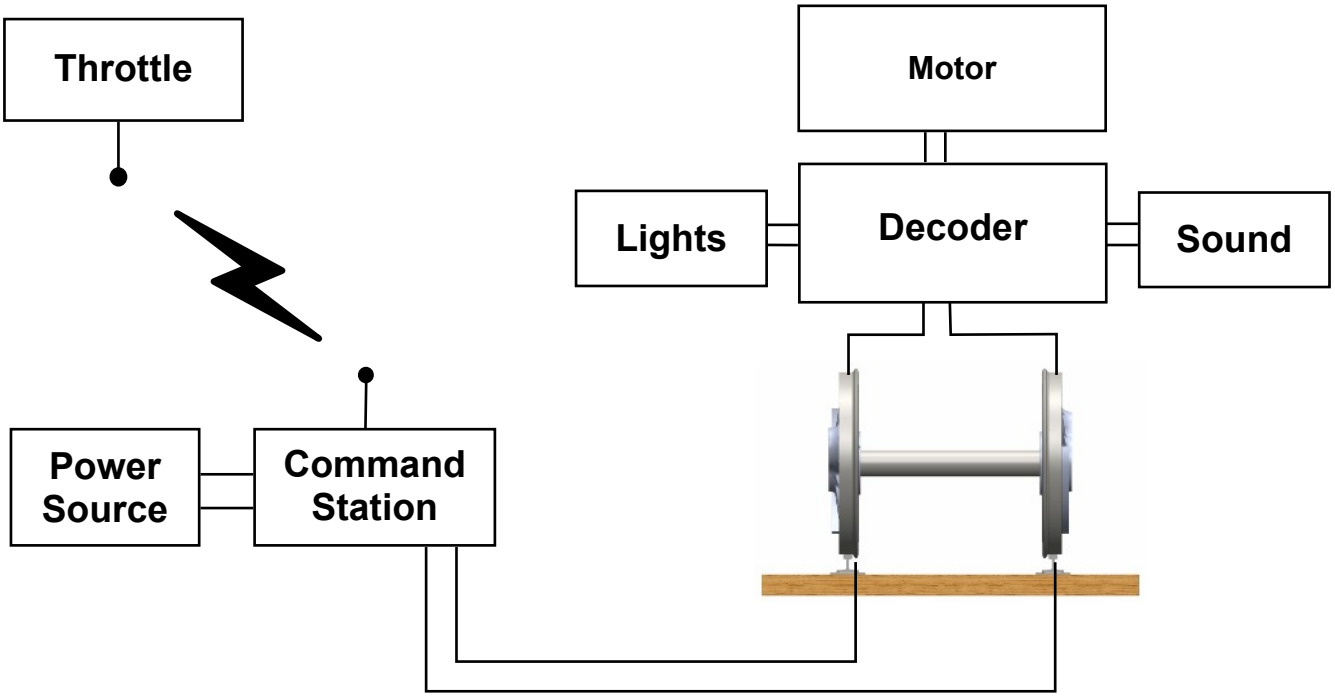
Bill Pistello converted this Atlas O Scale GP-15 to battery power. The green block is the battery.

By Glenn Guerra

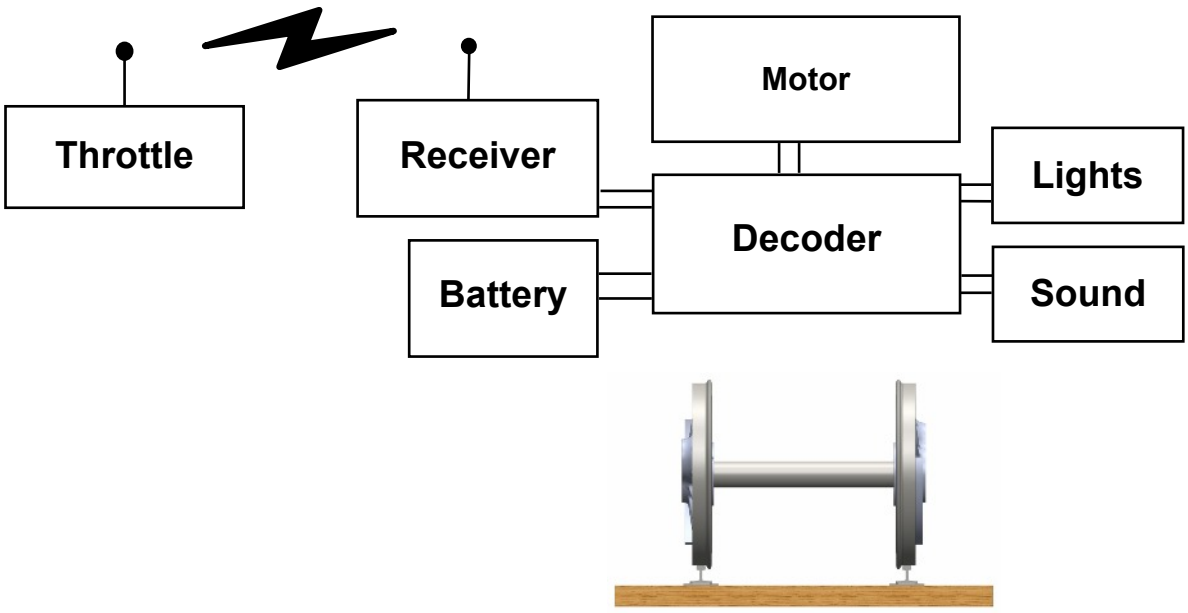
Electronics in model hobbies is an area of almost daily change. Remote control in the model airplane hobby started with simple on-off servos for control. These servos put your control surfaces either full on or full off. With the advent of digital signals, the on-off servos now became infinitely variable and the control of model airplanes took a big step. The size and weight of the servos also started to get smaller and weigh less. Model airplanes, cars, and boats now had very good and very reliable control. The digital signal idea was adapted to model trains in the form of DCC control. We now had all the advantages of the digital signal control on our model trains, opening the door to better sound systems and many other functions. The next big improvements for the model airplane people were the continued miniaturization of the servos, the advancements in batteries, and the increased torque and efficiency of electric motors. Now it was possible to have an electric powered airplane that would fly. Ultra light and small model airplanes and helicopters are flown indoors. The model car people were not as concerned with weight, but the high torque motors gave them speed without the smell of gas engines. They, too, were able to move some of the hobby indoors. The garden railroad people started looking real hard at this, and adopted battery power for their trains. The larger size of the models allowed for larger batteries. Cleaning track is a pain in the behind when our railroads are indoors and easy to reach. It's even less fun crawling around the garden cleaning the track.

The battery power systems for garden railways worked well, and battery power is very common for garden railways. I saw my first battery power O Scale layout in 2002 in Madison, Wisconsin. At that time, the battery pack was large enough that it needed to be in a box car behind the locomotive. This layout was also not DCC controlled, and as such, had only speed control. Even with this, the other advantages made the system viable. There were no wires to any of the tracks, and No dirty track or short circuits.

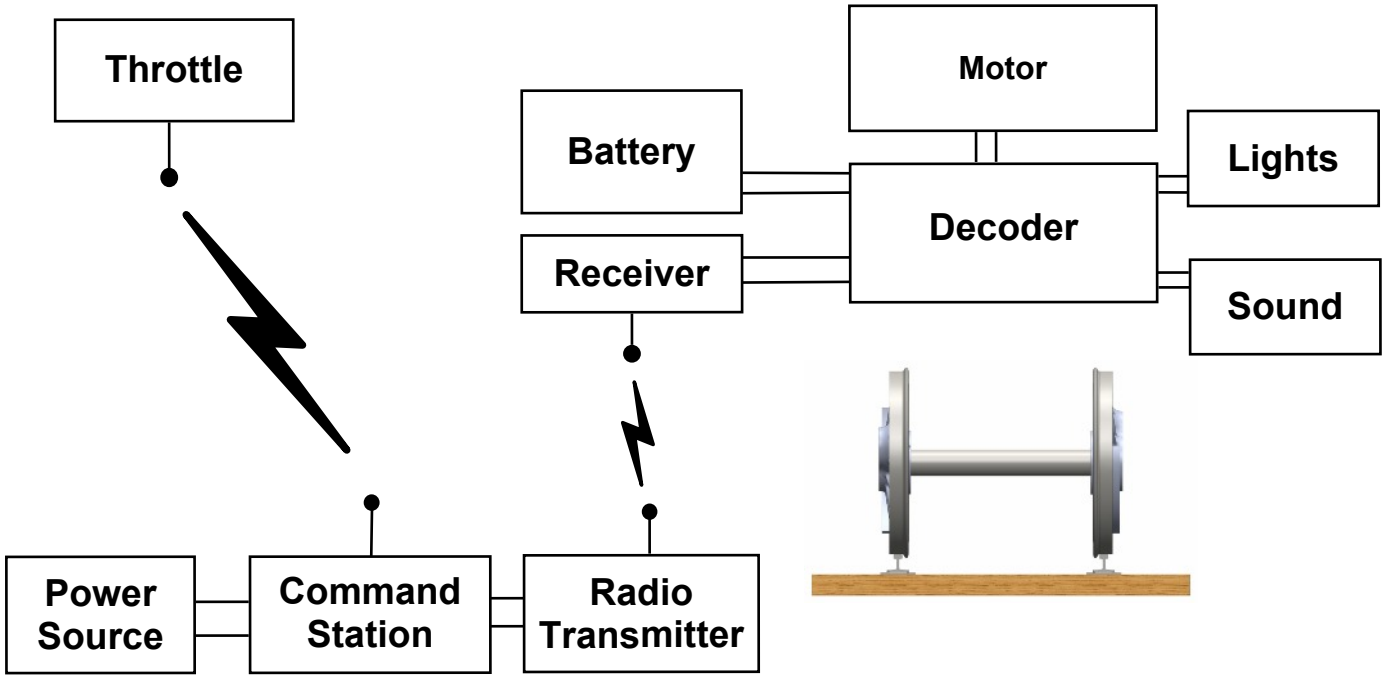
This is an HO Scale switch engine that Bill Pistello converted to battery power. This was one of his first conversions. The system Bill used communicates with the locomotive using infra red light like your TV remote. The system requires the "eye" in the side of the tender which must be able to receive the light signal. This location was rather unsightly and since this locomotive was converted Bill has had some good results mounting the "eye" in the cab window or a tender dog house window where it does not show as much.



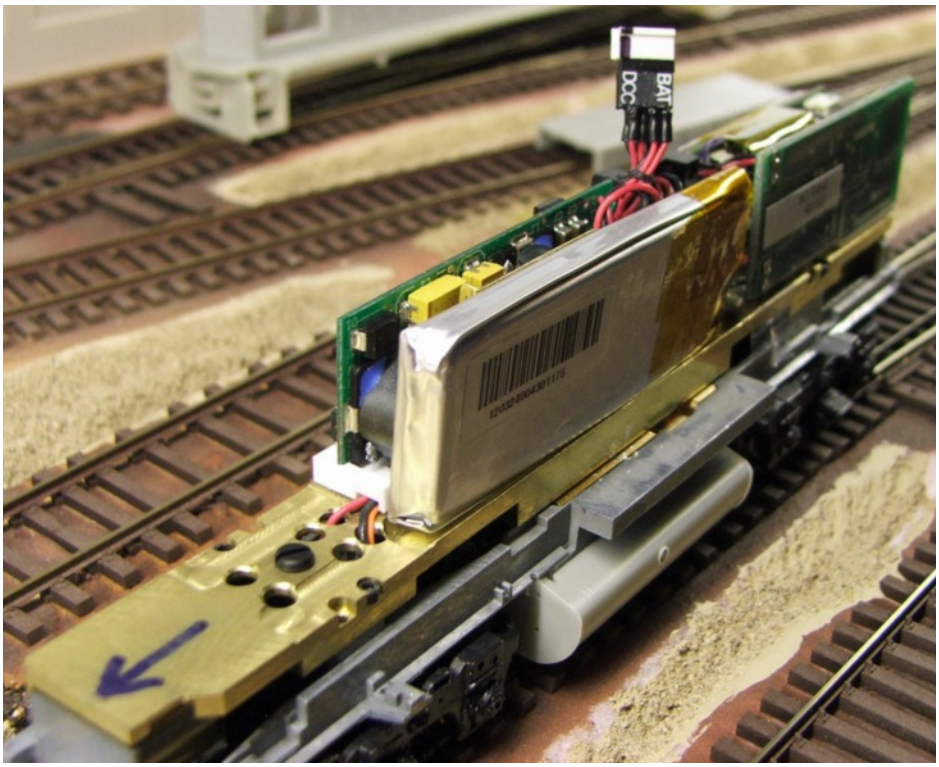
The basic DCC system looks like this. Your handheld throttle communicates with your command station by radio wave. The command station converts the direct current from the power source into a digital signal and sends it to the track through wires connected to the track. The wheels on your locomotive pick up the signal and send it through wires to the decoder mounted in your locomotive. The decoder converts the signal into power for the motor, sound, and lights on your locomotive.



The basic battery DCC system looks like this. Your handheld throttle communicates with a receiver on your locomotive by radio wave or infrared light. The receiver converts the signal into something the decoder can understand. On some systems, the radio receiver is part of the decoder. The decoder then converts the power from the battery to drive the motor, sound, and lights on your locomotive.

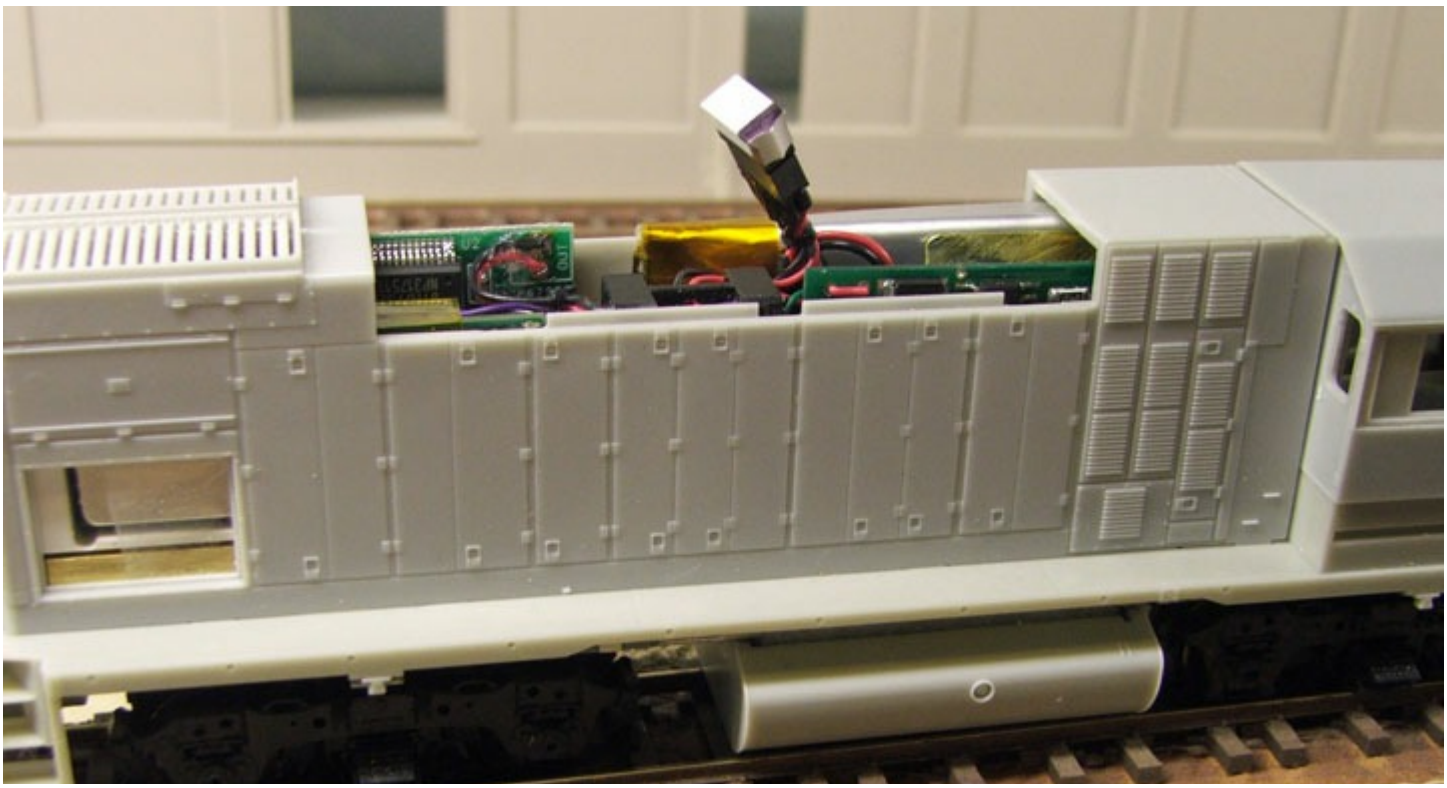


The basic modified DCC system looks like this. Your handheld throttle communicates with your command station by radio waves. The output from the command station goes to a radio transmitter instead of the track. The radio transmitter communicates with a receiver in your locomotive. The receiver in the locomotive communicates with your decoder, and the decoder receives power from the battery to drive the motor, lights, and sound.

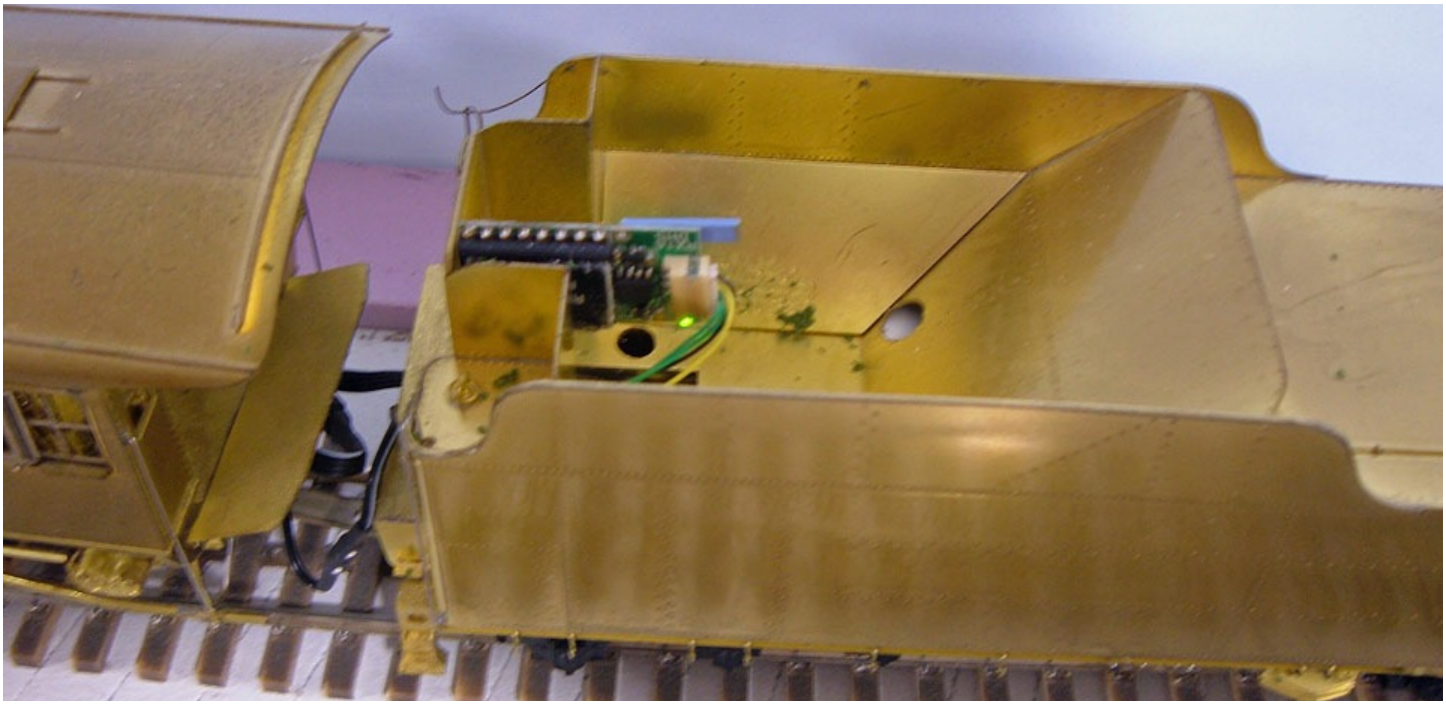


Bill Pistello and his friend, Larry Naus, like to convert models to battery power. Larry converted this HO Scale GP-15 to battery power with this set up. The battery is on the near side wrapped in the silver color.

Since that time, the systems are now DCC compatible and getting much smaller. How small, you ask. Bill Pistello has successfully installed DCC battery power control systems in N Scale locomotives. It's here for O Scale and ready to use. That's the good news. Now for the rest of the story. There are a few different ways the systems work and there are advantages and disadvantages to each way. I will try to explain the basics of some of the systems, and show what can be done when installing them in your locomotives.



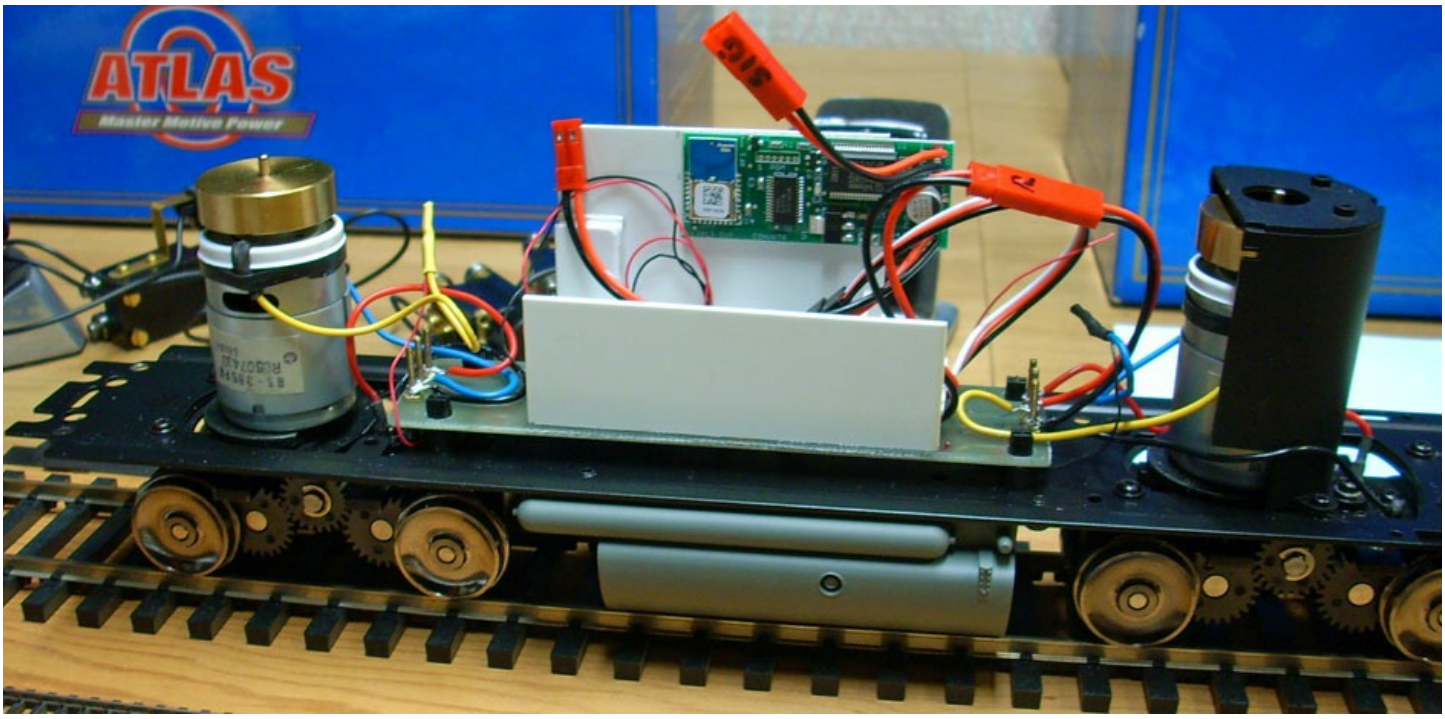
This is the HO Scale GP-15 that Larry Naus converted to battery power. Even a narrow hood GP type of locomotive can accommodate the battery and the decoder. The model already had a removable hood which makes access to the battery easy.



If you use the radio signal to communicate with your locomotive, you will need to mount the receiving antenna outside of a brass shell. The radio signal will penetrate a plastic shell, but not a metal one. Pat Mitchell mounts the receiving antenna in the coal pile of his tenders. When the tender is full of coal and painted, the receiver does not show. You could also make a hollow coal pile out of plastic and mount the antenna below it. This locomotive is a consolidation that Pat is working on. He has already done the challenger that runs on his layout. The battery is in the water compartment of the tender, and by lifting the hatch for the tender tank, Pat gets access to an off-on switch and a place to plug the charger into the battery.

Let's start with the two basic ways your locomotive can be controlled with a wireless signal. Your locomotive will need a receiver that can receive a wireless signal and convert it into something that can control your locomotive. One way of doing this is using an infrared signal like the remote control on most TV sets. The remote in your hand sends out an infrared light signal that the receiver on the TV picks up. For this system to work, you need to be in the same room as the TV, and the light signal needs to hit the receptor on the TV. I'm sure that many of you have played around by bouncing the signal off of a wall and getting it to hit the TV. The receptor on your TV is a small "eye" somewhere on the front where the light can get to it. Some model control systems use this technology. The advantages are that they are simple and talk directly to your locomotive. One of the disadvantages is that you need to be in visual contact with the locomotive for it to receive your signal.

Pat Mitchell uses the modified DCC system. On the output from the command station, he inserts this radio transmitter which is commercially available. This transmitter replaces the wires that go to the track. The signal is now transmitted via radio to Pat's locomotives.

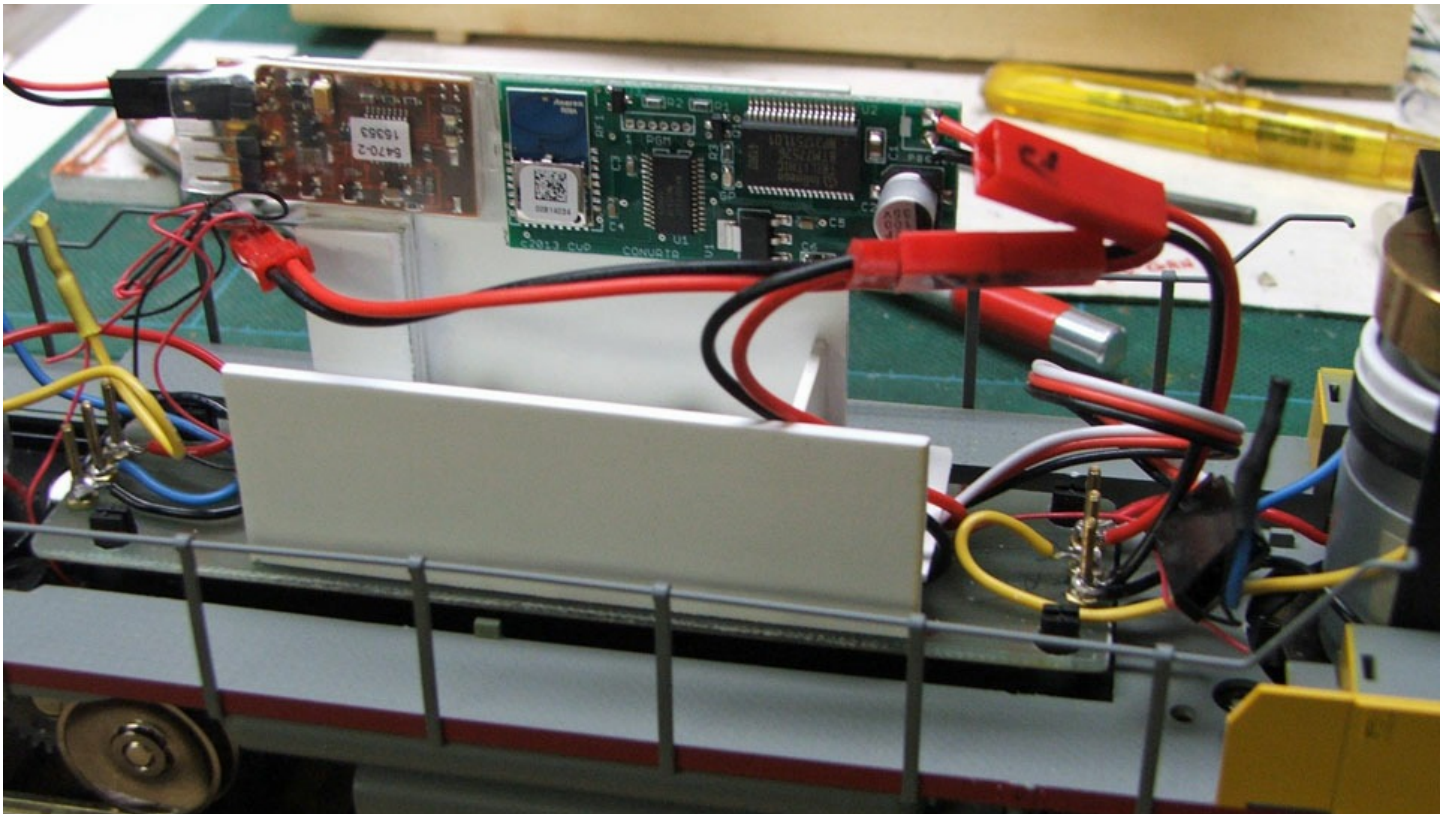


This is Bill Pistello's O Scale Atlas GP-15 conversion. Bill used a printed circuit board as a base and a way of getting wires from the front to the back of the locomotive. The circuit board is the light green piece. Bill milled slots in the board to cut the copper cladding and make the electrical connections. The board has small screws and nuts at each end for a place to screw the motor leads to. This eliminates a lot of excess loose wire in the model. Next, he built the white styrene cradle to hold all the components and the battery. The component circuit boards are held in place with double sided tape.

Also, these systems may not be adaptable to other functions you may want in your locomotive. An example would be the sound system. You may only have a choice of the manufacturer's system and not any of the other systems. This is a good point to consider when looking at a system. The other disadvantage is the "eye" that needs to be on your locomotive somewhere. The first HO Scale locomotive Bill Pistello did had an "eye" on each side of the tender. Visually, this did not work, and Bill experimented with other locations. Having the "eye" in the cab looked better, but required additional wires between the locomotive and tender. On a diesel or an electric locomotive, the cab windows would work fine. Bill also experimented with putting the "eye" in the dog house on the back of a tender. This worked as long as the "eye" was near the window.

The other way of contacting your locomotive is by radio. The radio signal will penetrate walls and plastic shells on locomotives. With this system, you can be in constant communication with your locomotive. This has some advantages. One small disadvantage is that the receiver on your locomotive cannot be inside a brass shell because the radio signal cannot get to it. Pat Mitchell, who has an O Scale layout with battery power, has overcome this by mounting the receiver in the coal on his steam engines. On diesel or electric models, you will need to make some provision for a plastic panel or some other way to hide the receiver behind a non metallic part of your model. This covers the two basic ways your locomotive can receive a wireless signal.

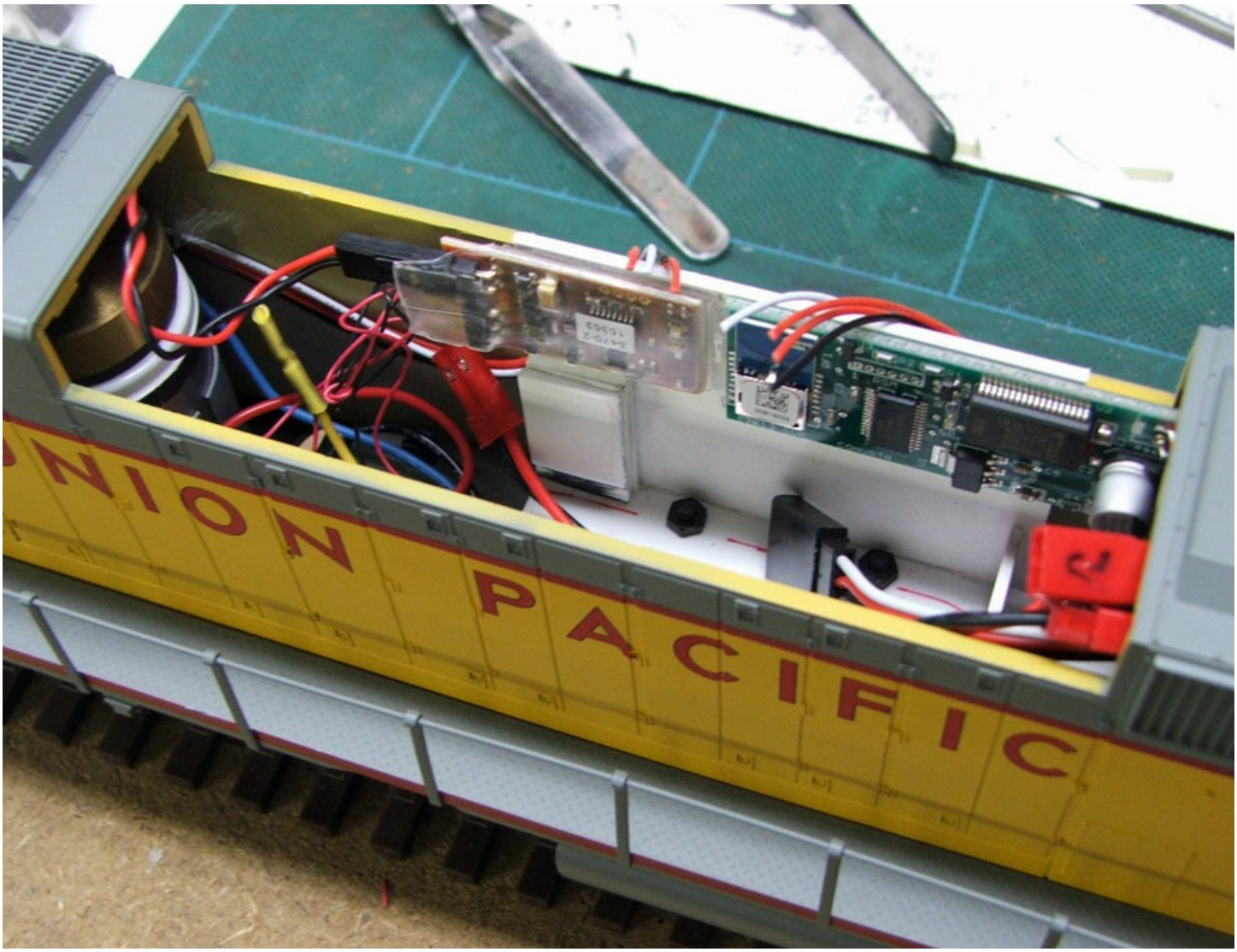
The next thing we should consider are the basics of how the different systems work, and their compatibility with each other. In the basic system, you would have a handheld throttle and a receiver in your locomotive. This is simple and relatively inexpensive. The drawback may be that you are limited to the manufacturer's sound system and other accessories. If the system allows you to install a decoder between the radio receiver on the locomotive and the motor, then you will have more options. Bill Pistello favors these types of systems because the initial cost of the system is less. Another way is to use a standard DCC system with a radio output added to the command station. On the typical DCC system, the command station has a two wire output that is connected to the track. These wires carry the digital signal to your track and then through the locomotive wheels to the decoder in the locomotive.



In this photo, Bill Pistello has installed the walkways on his O Scale Atlas GP-15 and finished installing the components, with the exception of the battery which will drop into the white styrene cradle.

The decoder is receiving the digital signal and converting it to power for the motor. There are companies that sell a radio transmitter that converts the signal on the two wire output from the command station into a radio signal. By putting a wireless radio receiver from the same company in your locomotive, you can now convert your locomotive to battery power with the addition of a battery. Pat Mitchell likes the radio transmitter fitted to the standard DCC system. Pat was showing me the system on his layout. He still runs the two wire buss around the layout for control of accessories like turnout controls. While operating his locomotive with his handheld cab, he can call up a turnout and throw it from the handheld cab while his locomotive is running. Pat felt that having this type of control justified the expense of the regular DCC system. Pat also felt that he had more options for sound systems and other things on his locomotive. There are no wires to the track on Pat's layout, and the buss wire is only there to control accessories. Pat was telling me that the radio transmitter attached to his output from the DCC command station is portable. He put two wires on it with alligator clips and took it to a friend's house. He was able to clip the wires to the output from the friend's DCC command station, and now runs his battery power locomotive on the friend's layout.

Since we mentioned the battery, let's talk a little about the batteries. There are many choices, and the best place to look is the remote control airplane and car hobby. Let's start with the basic types of batteries available. Since we want a rechargeable battery, we have a choice between Nickel Cadmium (NiCD), Nickel Metal Hydride (NiMH), Lithium Ion (Li-Ion), Lithium Polymer (Li-Polymer), and Lithium Iron (LiFePO4). Probably your two biggest concerns with a battery selection are the space you have available, and the power draw you expect to have. To start with, you want the most efficient motor. Most new locomotives come with efficient motors, but older models may require fitting newer motors to them. When shopping for a battery or battery pack, you want to start by looking in the 12-14 volt range for an O Scale model. The next consideration is the power output. That will be expressed as the milliamps it will put out. The more it will put out, the longer it will run your locomotive between charging. There is a trade off between size and power output and this will be something you need to consider. Some have higher outputs for the same size than others. Most are relatively easy to use, but I would caution you about the Lithium Ion batteries.

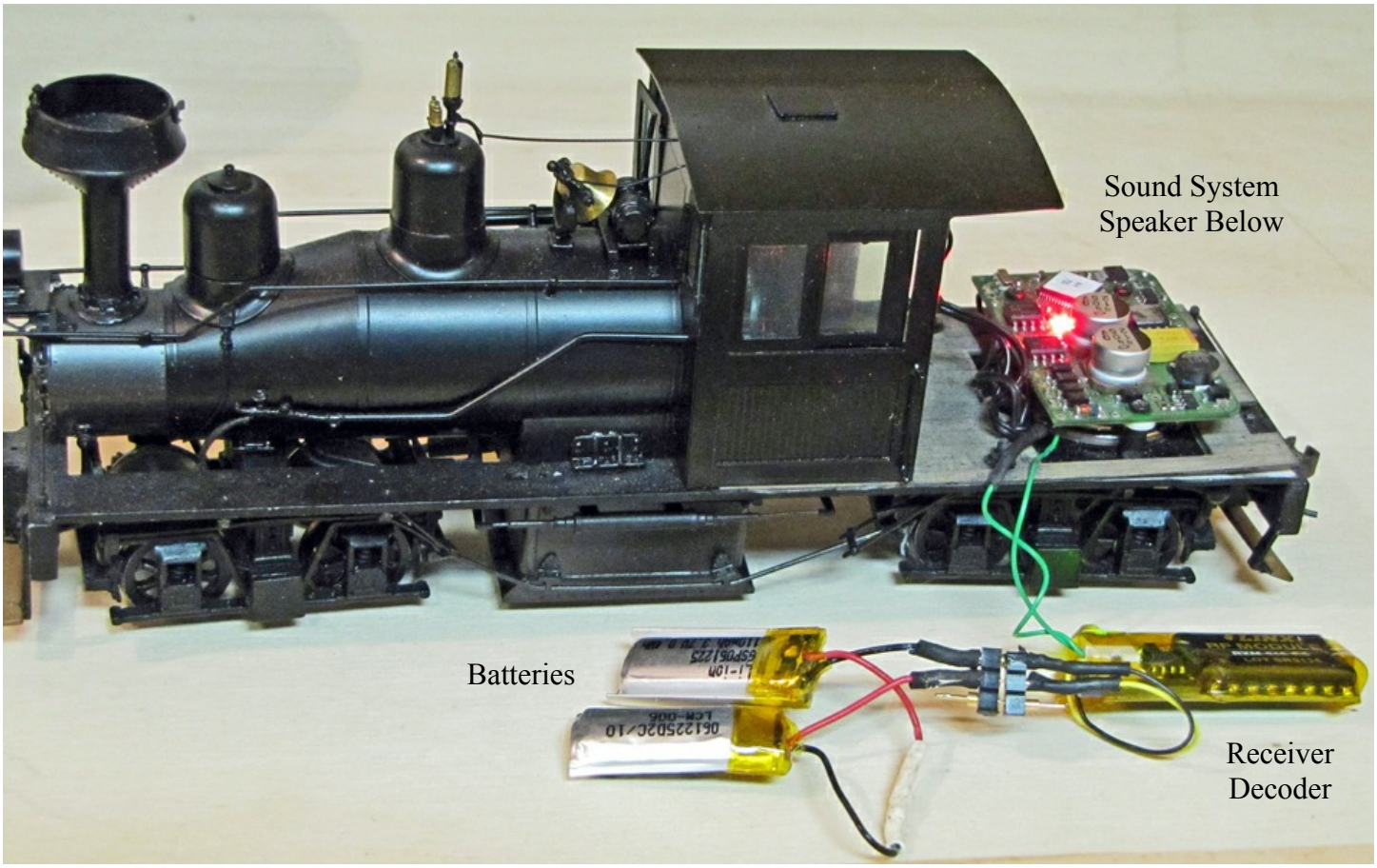


This is the final assembly on Bill Pistello's Atlas O Scale GP-15. The white styrene cradle keeps all the components securely mounted and makes the installation neat and tidy. All that remains is to drop the battery in.

Batteries work by a chemical reaction that creates electricity. When the battery is charging or discharging, there is a chemical reaction going on. Chemical reactions create heat, and when the products of the reaction get hotter, the reaction goes faster which creates heat faster. You can see where this is going. All chemical reactions feed themselves. For most reactions, the heat generated is small and able to be dissipated, but for some, the heat generated can cause the reaction to keep heating and go faster which will, in turn, generate heat faster. This is what happens with Lithium Ion batteries. They are very attractive because they can store a lot of power in a small space, but they can overheat easily. If you decide to use Lithium Ion batteries, make sure you use the recommended chargers, and that you understand how to handle them. Bill Pistello uses Nickel Metal Hydride, and said that gives him a good source of power in a relatively small space. Also, with a Nickel Metal Hydride battery, you can make a custom size pack that may fit your space better. You can solder wires to the ends of the batteries, combining them in a way to fit your space better. Charging the batteries is also something you need to consider. Pat Mitchell uses a plug similar to what you would have on your cell phone or other battery powered device. The receptacle is in the tender where the batteries are, and is accessible through the tender water hatch. If your battery is easily removed, you can take it out to charge it. Frank Markovich, another user of battery power, recommends that you remove the battery from your locomotive when you are charging it if you are using a Lithium Ion battery.

Bill Pistello operating an O Scale switching layout he is making. There are no wires to any of the tracks.

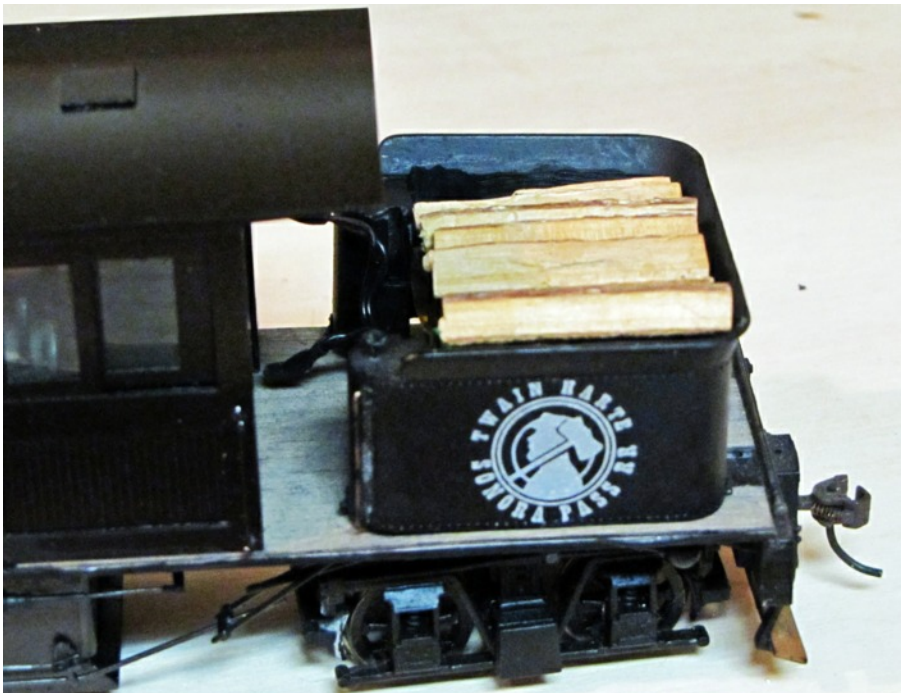
Like all parts of the hobby, there are people who make specialty items for battery power. Bill was telling me that there is a device that will allow your train to run on battery or track voltage. When operating on track voltage, the device will charge your battery. Why would you want this? Well, suppose you had a yard with some switches. Isolating the frogs electrically can be a problem and a source of maintenance. By isolating the switches electrically, you can use the battery to power throw the switch and then start charging the battery on the yard tracks. This would allow you to use a much smaller battery pack because you would only need short time power. In addition, this solves the problem of intermittent dirty track. This system fits between your existing decoder and the wheels on your locomotive.



Frank Markovich did this conversion on an On3 shay. All these components fit inside the tender when the locomotive is assembled.

All the components, including the sound speaker, fit inside of the tender like this. Frank Markovich did this conversion. He had to modify the coal bunker in the tender, but he was able to get all of the components into the tender.

Frank Markovich made this log pile to fit in the tender of his On3 shay with battery power. All the components fit in the tender, and the wood allows the radio signal to get to the receiver.



Frank Markovich and Bill Pistello both told me that you need to pay attention to your train when running on battery. If it derails, it will keep running. Lastly, battery power will take care of dirty track, but *not* poor track. You still need to have good track work.

As I said in the beginning, battery power is here. If you have an existing control system on your layout, you may want to consider a system similar to what Pat Mitchell is doing. That would allow you to gradually convert your locomotives and still maintain all the present use of your DCC system. If you are starting from scratch, one of the simpler systems that Bill Pistello favors may seem more appealing. In the future, we will show you some specific installations people have done, but for now this will give you something to think about. I don't know about you, but the idea of never having to whack the bench work to get the locomotive to run sounds real appealing to me.

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Charles Bard's Locomotives

By Glenn Guerra

Charles Bard lives in the Toronto, Ontario area of Canada, and is active with the St. Jacobs & Aberfoyle Model Railway which was featured in the January/February 2015 issue of *The O Scale Resource*. Like most of us, he started in model railroading as a youngster. When he discovered scale model railroading, it opened up a whole new world to him. That moment was when he became involved with the St. Jacobs & Aberfoyle Model Railway. He and his wife, Gwen, both became active in the club, and Charles took up kit building. The next step was to take up scratch building. Charles has scratch built around 30 locomotives since that time. What follows are Charles' words on how he became interested, and some of what he did to scratch build the locomotives.

By Charles (Chuck) Bard

Here are some items on my background starting with my birth Sept. 25, 1935. I graduated High School in 1952 (technical courses: drafting, electrical, machine shop,etc.), started work as an apprentice electrician at age 16, and retired in 1997. Most of my work was in the construction of hospitals, factories, car plants, university buildings, theatres, etc. In 1962, I became the lead foreman on a lot of these jobs. I would study the electrical consultant's drawings and then I would design about 6 pages for every one of theirs. These drawings showed in much more detail what was to be done by the workers. This made the work go far more quickly than if the team were to be looking at just the original drawings. This helped me very much in paying close attention to details.

I received my first Lionel train when I was 4 (from Santa). Almost every birthday I got more Lionel parts, track, switches, freight cars etc. When I was 9, I had two newspaper routes. All the money I made went into buying Lionel stuff. I then built model railway, after model railway in my parent's house; each one getting

Charles Bard at 12 years old with his Lionel layout.

bigger and better. My Dad was a machinist, and he taught me how to safely use power tools. At age 10, I was using a table saw. I got married to Gwen in 1957, and the layouts somehow came to an end. Around 1963, we had two young sons, so the Lionel railway started up again. Another son came along in 1967, and the layouts got bigger and bigger. In 1973, I met Frank Dubery (who had started the first Aberfoyle Junction in 1972). Gwen and I joined up with him to help construction (Gwen did scenery, trees, bushes, etc. and background painting). I was so taken by the detail and accuracy of the two-rail O scale railways that I immediately changed over from Lionel.

In 1971, I bought a Central Loco Works O scale brass kit (4-8-4 Northern). This was my first attempt to solder miniature parts to a boiler. I was happy with the finished product. Later, in 1971, a friend presented me with a Lionel Hudson chassis, and asked if I would like to try building a CPR Royal Hudson top to fit on the chassis. This was my first attempt at scratch building. The friend was quite satisfied with the result. In 1973, Frank Dubery decided that our railway would be all Canadian (CP & CN). However, there were practically no commercially made Canadian steam locomotives. That is what prompted me to start scratch building locomotives (2 in 1973, 1 in 1974, 3 in 1975, and on and on). I picked up ideas from local model railway friends who had some experience in brass construction. One item I remember (which made a huge improvement) was not to use rosin as a soldering flux. Even though the rosin was cleaned off as much as possible, after the brass loco was painted and then heated in an oven to dry the paint, small bits of rosin would slide out from some of the soldered joints. The solution was to use acid in extremely small quantities.

The Canadian Pacific class H1e Royal Hudson prototype locomotive was built in 1940. Charles built this model in 1973 and was one of his first scratch built locomotives.

This model of a Canadian National class U2b was built by Charles in 1974. The prototypes were built in 1940.

This model of a Canadian National class U1f mountain type 4-8-2 was built by Charles in 1975. The prototypes were built in 1944.

This model of a Canadian National class U2b northern type 4-8-4 was built by Charles in 1975. The prototypes were built in 1942.

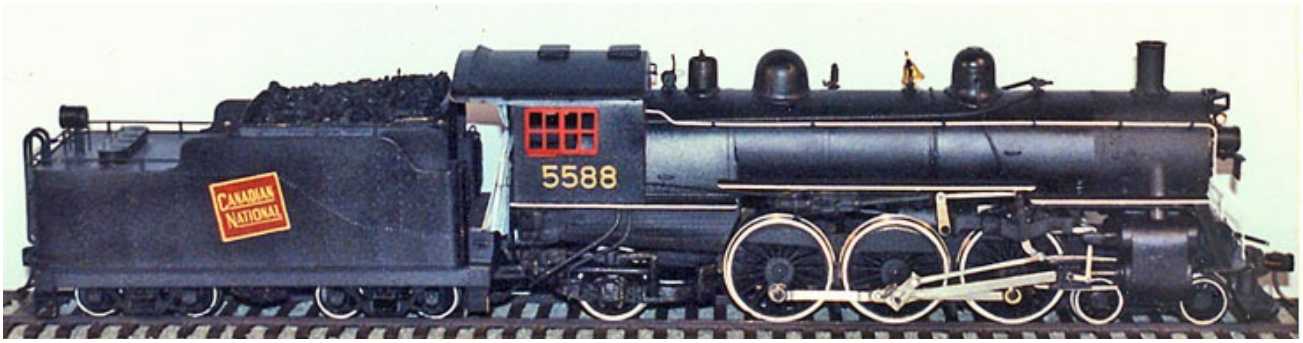
This model of a Canadian National class U4b northern type 4-8-4 was built by Charles in 1975. The prototypes were built in 1936.

This model of a Canadian National class J4f pacific type 4-6-2 was built by Charles in 1976. The prototypes were built in 1920.

This Model of a Canadian National class U2c northern type 4-8-4 was built by Charles in 1978. The prototypes were built in 1926.

This model of a Canadian Pacific class G5a pacific type 4-6-2 was built by Charles in 1986. The prototypes were built in 1944.

This model of a Canadian National class U1f mountain type 4-8-2 was built by Charles in 1991. The prototypes were built in 1944. This model was the third time that Charles had built a model from this class of locomotive.



This model of a Canadian National class K3b pacific type 4-6-1 was built by Charles in 1997. The prototypes were built in 1911.

This model of a Canadian National Santa Fe type 2-10-2 was built in 1998. The chassis was built by Bill Hewitt and the tender was built by Frank Dubery. Charles built the boiler and cab to finish the locomotive. The prototype locomotives were built in 1924.

When soldering a small item to a boiler, apply the acid with a tiny paint brush. Most of it will disappear as the heat is applied. After a few days of soldering, soak the engine in water to remove any remaining acid.

Parts that are attached to the boiler through a hole drilled in the boiler can be soldered inside the boiler with a bit of solder, and that generally does not have to be tidied up. Parts that are soldered on the surface where the solder shows have to be done far more carefully. When finished, I remove any showing solder with a fine file and finally with a fiberglass brush. Most of the soldering was done with a 300 watt soldering gun (occasionally smaller solder guns would be used). To solder large brass parts to large brass, a Bernzomatic propane torch was used (10” tank 3” diameter). For attaching delicate small parts, a small version of propane torch was used (approx. 5” by 3/4” dia.).

When I first started in the 1970's, some of the tools I had on hand were:
1 - Unimat lathe
1 - Unimat positioned vertically to become a milling machine
2 - 120 V. Dremels, drill bits, milling cutters, etc.
1 - Dremel speed control
1 - 120 V. 3/8" Drill
1 - table saw
All sorts of hand tools - screwdrivers, pliers, hacksaw, hammer, measuring devices, squares etc.
1 - large vise & 1 small vise
As time went on.....
1 - Delta drill press 28" H.
1 - Delta band saw 28" H.
1 - Milling machine 32" H.

This model of a Canadian Pacific Royal Hudson class H1e hudson type 4-6-4 was the second time Charles built one of these. This model was made in 1998. The prototypes were made in 1937.

1 - Machinist's lathe (Sherline) (36" L. x 10" W. x 10" H.)
1 - Rivet making device, 1 - 18" metal bender & 4 cordless Dremel drills.

Gwen and I, along with Frank Dubery and his wife Gay, would go off to all kinds of model railroad conventions, especially O scale in the USA. These conventions would almost always have a huge room where trains, and especially train parts, would be on sale. I would often come home with a large pile of steam loco parts, motors, gear boxes, driving wheels, tender trucks, etc. etc. Back in the 80's, I bought a number of file cabinets on sale at the local university ($5.00 ea.). They are 52" H. x 30" D. x 18" W. Each one has 8 - 6" H. drawers with dividers inside. Presently, two of these cabinets are filled with all sorts of loco and tender parts. Two more are filled with standard brass items: wire of all sizes, round tube, square tube, rectangular tube, U shape, L shape.....all sizes, sheet brass, all sorts of sizes and thickness, large pieces of square and round brass. Two smaller cabinets (22"H. with 40 drawers) have all sorts of miniature nuts, bolts, washers (sizes from 6-32

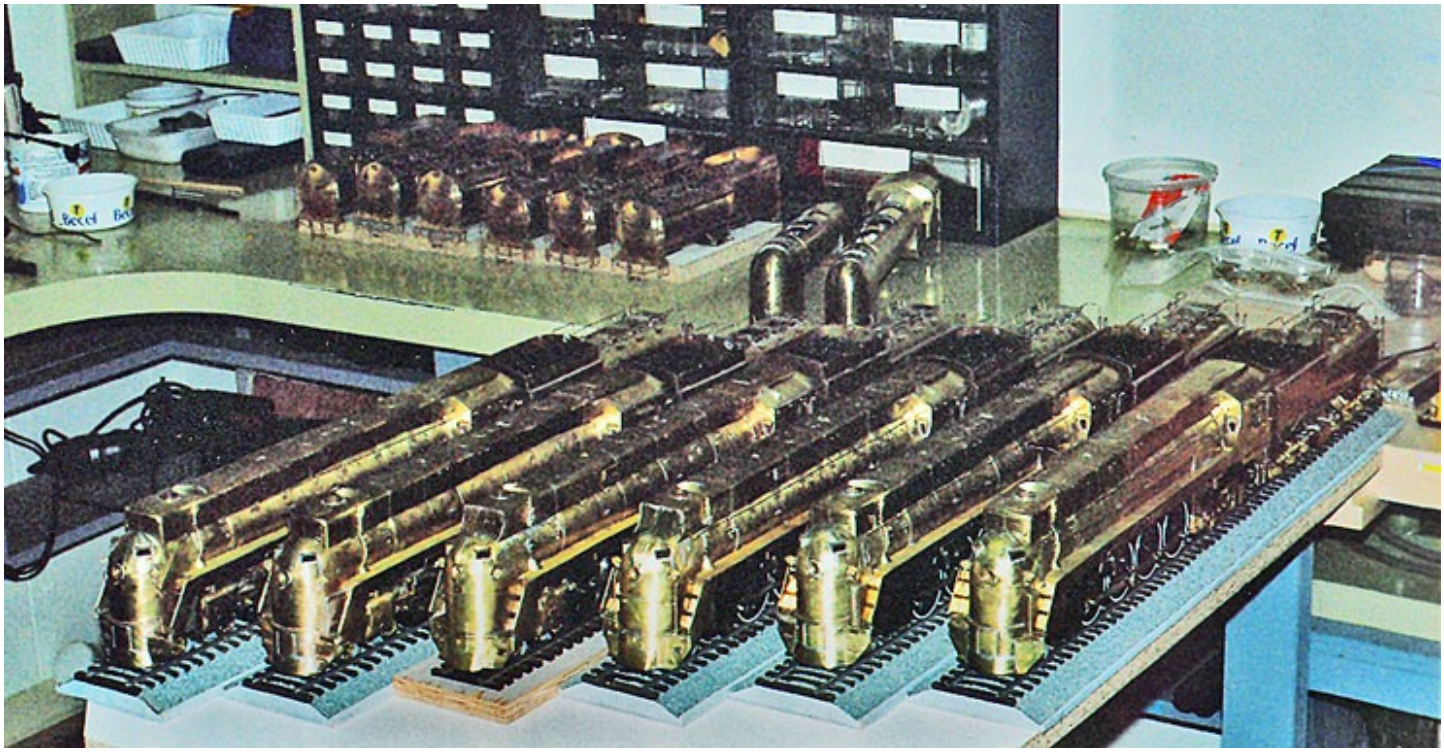
This model of a Grand Trunk Western class U3b northern type 4-8-4 was built by Charles in 2000. The prototypes were built in 1943.

This model is the first of 10 Canadian National class U4a and Grand Trunk Western class U4b locomotives that Charles built from 2003 to 2006.

down to 00-90), bolts with all types of heads, round, flat, hex., fillister etc. Having all this well sorted stuff on hand seems to shorten the time it takes to build a loco (generally each one takes about 400 hours).

Over the years since 1972, I have collected many drawings of Canadian locomotives from friends. These were generally fellows who were getting out of the hobby because of age. I also received a number of drawings from Frank Dubery. All of these were drawn in a scale of 1 1/2" = 1'. These are the drawings that the steam locomotive companies used to build the real thing. All of these drawings are rolled up and stored carefully in our garage. I think there must be approximately 30 of them. I pulled out one set printed by the Montreal Locomotive Works Ltd. It is a CNR 4-8-2. The side elevation is on a 8' 6" x 28" drawing. The cross section drawings (5 sections per page) are on a similar sized drawing. I would hand draw a simpler version in a scale of 1/4" = 1'. This particular engine was still running in the 70's pulling fan trips. I was able to get many useful photos of important details whenever the engine stopped. Regarding other models that I built, there were many engines running or historically displayed in cities in Ontario. I would get useful photos of these. Canadian National Railways Northern 6167 was easy to do. It is displayed right in the city where I live, Guelph, Ontario. As well, there are books that have pictures and useful drawings of Canadian National and Canadian Pacific engines.

Building the locomotive models I would try to use as many items that could be purchased such as: drive wheels, tender trucks, motors, gear boxes, domes, smoke stacks, pumps and small stuff: valves, whistle, bell, generator, etc. If I could not find the correct piece, I would have to build it. On two occasions, I built drive wheels. The boiler shape, walkways, handrails, steps, cab, firebox, frame, boiler front, pilot, cylinders, pipes, tender, etc. would have to be scratch built. The tender would always have hundreds of rivets that would have to be properly added. Everything is built out of brass except valve gear parts and side rods, which are made of steel. Almost all of the steam engines begin with an engine front that had, for example, a diameter of let's say 6' 6". Generally, this would stay the same for the first 14 or 15 feet. Then the boiler shape would begin to alter. Usually, it would start to rise slowly on the top, and drop a little more on the bottom. The sides might increase slightly, but more when they get closer to the cab. The top would almost always slope down as it approached the cab. I would build this in pieces (out of 15 or 20 thousandths thick brass). Now talking in O scale dimensions, I would build this by starting with a metal tube of about 1 1/2" diameter I would apply tape along the tube to represent the increasing diameter from front to back. The brass pieces would be roughly shaped on



A photo of some of the 10 Canadian National and Grand Trunk Western 4-8-4 locomotives that Charles built between 2003 and 2006.

another tube, and then fixed to the taped tube and fastened with pieces of copper wire every 1” and securely tightened. The bottom would be soldered together.

Each piece (maybe 1 1/2 or 2” long) would be fastened and joined, plus spot soldered to the piece already in place. The boiler would start to look a bit larger as we get toward the cab. When all the pieces are soldered in place, the taped tube would be removed. “ TIP:” To make the removal of tube easier, I had some brass tube 1 1/2” x 10” long that I cut lengthwise into 3 pieces. I would place these on the 1 1/2” diameter tube and then wrap the tape on top of the 3 pieces. Therefore, the 1 1/2” tube could easily be pulled out, and then the 3 brass pieces and tape would come out fairly easy. The boiler from front to cab (including firebox) would be about 8-10” long. Each 2” or 3” section would be reinforced with a strip of 15 thousandths brass (approximately 5” x 1/4”) formed into a circle the diameter of the boiler. In order to place these exactly on the joints, you could reach into the front about 3” and from the back 3” (the firebox section at this point has no bottom which makes the placing easier). The bottom of the boiler is roughly cut away for places where the gear box and universal shaft would eventually be placed. This opening also helps to place the circular strip. These pieces then would be soldered to the joints of the boiler sections. This makes the boiler very sturdy. The soldering is done with a soldering gun. It can reach in from front to back about 3”. It also reaches in from the bottom cut-away. The boiler joints would be covered with 3/32” strip of 10 thousandths brass. Extra strips would be added according to the drawing. These would be carefully soldered on. Domes on top were generally added with screws. Smaller items usually had some kind of brass stem which could be soldered from the inside through a drilled hole. Running boards are supported with pieces of wire 52 thousandths in diameter and 2 1/2” long that go in one side and out the other side of the boiler. The correct height of drilled holes is done by setting the boiler up correctly to proper level finished height. Then a fine line is scribed along both sides front to back. These pieces of wire are soldered to the boiler and the underside of walkway. I use a detailed commercially made part for the walkway, if available. A higher line is scribed for the handrail stanchions using the same method. Holes are drilled in the proper places and stanchions are soldered inside the boiler. The framework for the drivers is usually made of 1/8” x 3/4” brass. One side is connected to the other with 1/8” x 3/4” x 3/4” pieces that are tapped, and then the sides are screwed on with 2-56 flat head screws. These screw heads show up between drive wheels but get hidden when brakes are added.

One of Charles' latest locomotives sits in the river of the St. Jacobs & Aberfoyle Model Railway. This locomotive is one of 10 Canadian National U4a and Grand Trunk Western U4b models that Charles made.

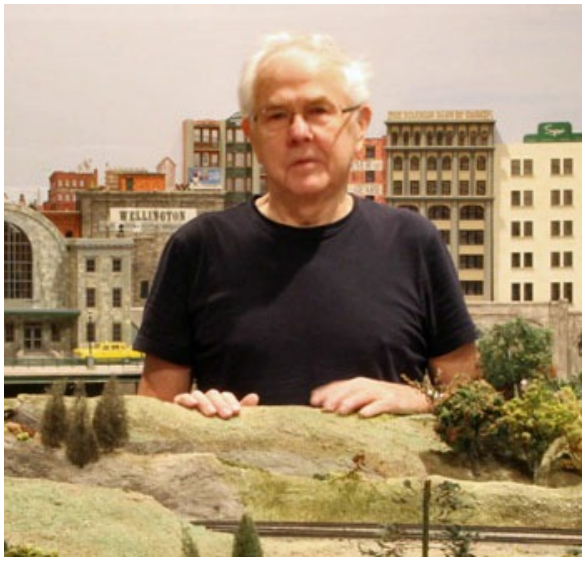
These two photos show how Charles formed the streamlined shroud on his latest locomotives. This form has been used to make 10 locomotive models. You can see how the brass is cut in the right photo. The brass is then formed around the wood and held with copper wire or tape. The joints are then soldered. Then the piece is removed from the form. Charles solders some small pieces to the back side for added strength.

These photos show how the nose of the streamline shrouding on the locomotive was formed. After the brass was formed around the wood form, Charles taped it in place and started soldering the seams.

These photos show the progression of the streamline shroud. On the right is the brass on the wood form. In the center is the finished un painted model. On the left is a finished painted model.

The side pieces are cut from the bottom up with rectangular openings to allow the driver bearings to be positioned exactly where they belong. Other large square holes with rounded corners are cut into the frames. These holes are shown on the drawings on a CP 4-6-2. There are 5 openings on each side. Holes are approximately 3/8" x 1/2". Cylinders are scratch built. Front and back pieces are made of 70 thousandths thick brass, approximately 2 1/2" x 1 1/4". The center is curved on top to receive the bottom of the boiler. The ends are curved top and bottom and are covered with 15 thousandths thick brass shaped properly. Small details are added to the parts that show.

Since my wife and I were involved in constructing the Aberfoyle Junction Model Railway (beginning in 1973), this has been a wonderful part of our lives. Likewise, the scratch building of the O scale locomotives, and the meeting of a lot of new model railway friends, has brought me a lot of pleasure. Having retired as a Master Electrician in 1997, and having so many hobby things to do in my retirement years, I am so grateful that model trains came into my life.



Charles Bard today at the St. Jacobs & Aberfoyle Model Railway.

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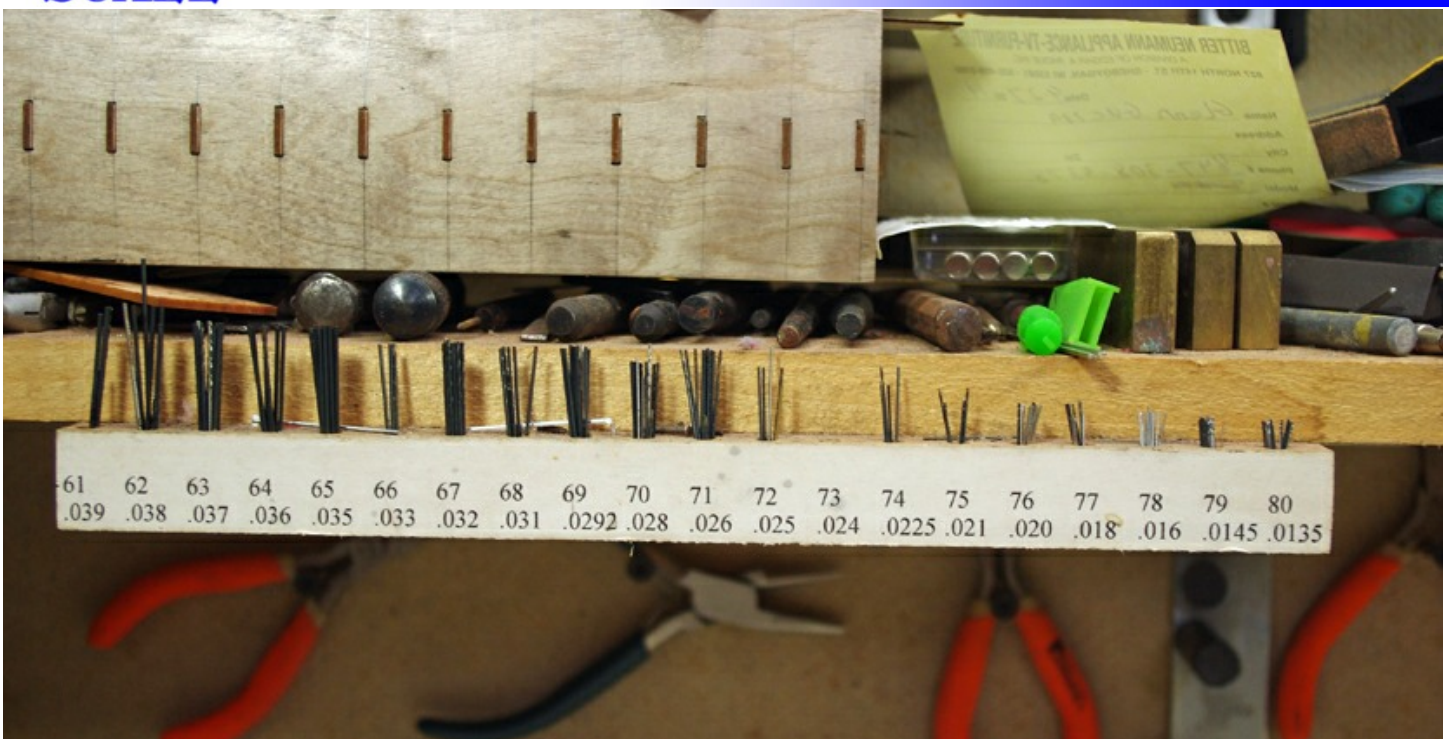


I made this drill holder for the shelf at my work bench. It's a piece of wood with holes drilled into it. I made the labels on the computer with the drill number and size. This makes them readily available and easy to locate.

I learned this from a machinist friend of mine. Put the tap, die, and tap drill all in the same drawer. When you need to use them you will not need to look up what the correct tap drill size is, and then try to find it. Drills are cheap. Buy them by the dozen so you have them when you want them.

Glenn Guerra

Scenery, Tunnels and Mines Oh My…

"Life is like a dogsled team. If you ain't the lead dog, the scenery never changes."
Lewis Grizzard

By Dan Dawdy

Above left shows the top of the "Widow Maker". On the right, is the bend around and over the washer and dryer where the coal mine will be placed. On the far right, you can see the end of the castings we featured back in the November/December 2013 issue of the O Scale Resource. Within the mine area, there will be a run around track off the mainline using switches already in place (located at points 1 and 2 above), as well as, a siding to the mine using the new switch we built in the May/June 2014 issue of The O Scale Resource,

Almost a year ago, in the May/June 2014 issue of The O Scale Resource, I wrote "*Filling A Space"* and touched on what my plans were for the railroad. I said I was going to start at the top end of the "Widow Maker" hill where the upper level enters into a tunnel, and work my way down and around. I had this idea while sitting and looking at all that needed to be done on the layout. I thought that if I started at one end and worked my way around, I would be able to make some order out of the chaotic mess that lay before me.

With that thought in mind, my first step was to build a tunnel. Now, let me state right off that I am an expert at nothing. I look at articles in other railroad publications, look at YouTube videos and talk to other modelers. I'll extrapolate all this information into something I want to try. I have a tendency to go head long into it, sometimes with cataclysmic results, but most of the time it works.

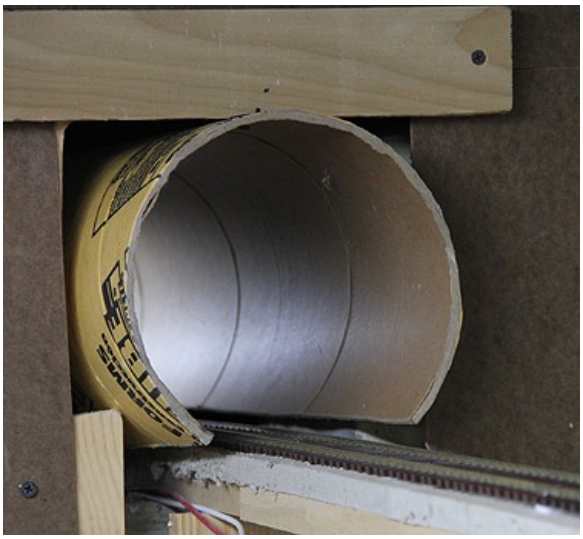
Before telling you about the tunnel, I need to mention the track heading into the tunnel. When I built that part, I laid the switch on level ground, and then went back to the grade leading into the tunnel. It was a very steep shot based on the fact that the hole in the brick wall was there, and that was what I had to aim for. That's one of the reasons why the "Widow Maker" is a 4.5% grade. When I built this track into the wall, I thought I could hide this unrealistic "bump" behind trees or something. Every time I looked at this area, I cringed. People at open houses looked at it, and I made many excuses for not fixing the area when I first built it. I do a lot of that – build something that is not quite right, and then ignore it for a while. I always go back and fix it later, but of course, that takes more time and trouble than if I had done it right the first time. So, while I was here, I decided to finally fix the problem.

In this early shot of construction, note the switch ahead of the flat car and then the very steep grade of the track going into the wall. It would have been much easier to fix this back then, but sometimes we think we can live with things, only to revisit it later and finally fix the problem. It may be a "man" thing.

In order to fix the problem, I had to detach the Homasote from the plywood in this area. One nice thing about using Homasote glued to plywood is that it's easy to slip a putty knife under, and consequently, pop the Homasote away from the plywood using a hammer. This is exactly what I had to do for the piece of Homasote the switch was laid on. I needed to angle it just a bit, and make it part of the grade. While it's not a great idea to have switches on a grade, it's not unprototypical. I shimmed everything to get the best transition I could, and while it's still steep, it looks much better and no longer stands out.

OK, back to the tunnel. I remembered this technique from somewhere, and I am not the first to do this. I decided to use an eight inch concrete form tube. Most good hardware stores carry these. I understand that most tunnel walls are not curved, and I could have fixed that by adding straight cardboard down the sides, but this was going to be about seven feet off the ground. While you could see in, it was not something you would notice. I measured the length of what I needed, and allowed at least six inches to stick out of both ends for the slope of the mountainside. This, of course, depends on your terrain. Since I have a small chop saw, I cut the tube by making one cut, then turning the tube and doing the next. Next, I measured about 2 inches off either side of the ties, and added that to the width of the track. This gave me my bottom cutout width. I marked the tube, and using a saber saw, cut out that measurement. Violà! Instant tunnel. When I pushed the tube through the hole, it needed to be shimmed. I also needed to enclose the space between the bottom tunnel sides and the spline that the track was on. I glued in some scrap

8 inch concrete tube cut to length, and then sliced for the roadbed.



The tube was test fit, and the larger hole area in the brick was framed in.

wood for that, allowing for ballast all the way to the side walls. I added wood shims on the top of the opening so I could screw through the tube into the wood. This also gave stability to the tunnel while the portal and scenery material was being added. I also needed to frame out the hole so I could attach scenery. That was also done using scrap wood. I did not care what it looked like as it was all going to be covered in the end. Lastly, a few test runs of trains to check for clearance and centering the tube and portal combination.

This is the foil inside the black tube before being sprayed black. Note the top of the tube where some black paint has been scraped off from the test fittings. This is not an issue, it won't be visible when installed.

Amy, my loving wife, painted the tube with a flat black latex paint to seal the cardboard. For the tunnel interior, I took some heavy duty foil, crunched it up, and then lined the inside of the tube with it using spray adhesive. This gives the hint of a rock interior, and again, as this was going to be so high up, it worked well. I then I sprayed the inside with flat black paint.

With the framing of the hole completed, I slid in the tunnel and attached it to the shims. Making sure that the tunnel bottom met the extra wood next to the spline, I added ballast to set that part of the track and continued down to the switch. The siding below was also ballasted at this time. You will notice in some of the pictures that I installed plastic coated hardware cloth (chicken wire) along the entire wall to get that part ready for scenery. I had a Chooch Enterprises portal, to which I added some weathering, and glued it to the tunnel tube.

Here, the main line has been re-shimmed and is being ballasted. The cardboard is attached to the fascia and hardware cloth has been added to the background.

Next up was applying the cardboard strips between the mainline and the siding, and the siding to the fascia. If this is new to some of you, it's simply cardboard strips bought or sliced from boxes and hot glued on each end. Yes, hot glue is HOT, and you will get some on you, no matter how careful you are. Trust me on this. You can shape the strips as you glue or after. As you can see in the above left picture, I only ran the strips in one direction. For a larger area, like the tunnel opening on the left, I came back the other direction and "weaved" the cardboard strips every few inches.

Once the hardware cloth was up and the cardboard glued, it was time to cover the scenery framework. In the past, I used heavy paper towels soaked in Hydrocal® to lay across the framework. Here, however, right in my way, was Amy's new washer and dryer, along with the paint booth, sink and toilet.

The plaster cloth process goes fairly quickly. I did two coats for stability. It's still not super hard, but there will be a final coat of Sculptamold.

I continued with the plaster cloth using small pieces on top. Once they were set, I was able to use larger, heavier pieces below. When adding a second layer,be sure to always wet the bottom layer first to help with adhesion.

You will note that to the left of the tunnel portal, the plaster cloth just seems to hang like a cheap dress. I was not impressed with myself on that one. Later, I went back and fixed it before going on to the next step; or waiting a few years like I have been known to do in the past.

I did not want to revisit the mess associated with Hydrocal®. Years ago, I saw a sale on bulk plaster rolls like are used in casts to set a broken bone. These are sold for the hobby, but the cost is much higher than the soaked towel method. I had purchased a box of seconds – the edges were frayed and could not be used in the medical field. Using these saved a lot of mess, and also sped things up. Still, I had plenty of visqueen (plastic sheeting) protecting everything below. A quick dip in warm water and up the strips went. I will say that smaller is better when starting from the top as the cloth is heavy when soaked with the water. Once the top row is up and dry it's easy to do the next row across. Remember to always spray water on the dry plaster before adding new cloth to it. If you don't, the dry plaster will absorb the water in the new layer and it may not bond well. By rubbing your finger on the overlapping areas, you can kind of ooze the plaster from the cloth and make a better

Window screening was used at the other end of the hill to tie in the rock castings and will flow around and behind the mine, eventually meeting the hardware cloth.

bond. The other end of the curve was already finished with rock molds heading down the hill. These two areas of scenery needed to somehow to be tied together. For this, I went back to my roots and used screening with paper behind for the relief. This was easier to work with than the hardware cloth, more flexible if you will. I used two coats of the plaster cloth to give it more strength.

As if all of this was not enough going on, I also needed to make the tracks into the mine area on the curve. In fact, I had to make the mine area as it looks now from just a flat spot in the corner. The two switches off the main for the run around tracks were there, but the new one I built (May/June 2014 issue of The O Scale Resource) needed to be installed, as well as, the siding for the mine. The mine itself was a kit from JV Models, and needed to be up above the track and built into a hillside. Being a very small mining operation, the siding would allow for the loading of two gondolas.

The Homasote got very wet as water dripped from the plaster cloth. In this instance, as well as, many others over the years, I have never seen Homasote fail from water in the manor described by others. Maybe I'm just lucky.

Using scrap foam board, I built up a platform for the building to sit on, along with a sloped embankment. I marked where the building legs and shaft would be, and then wrapped the foam in plaster cloth. Next, I cut a large piece of Homasote to sit on the ¾" plywood for the base of that area. Now I don't really like controversy, but I have used Homasote for many years. I buy 4' x 8' sheets and cut it myself. I have never had any problems with expansion or warping. The wood supports will be affected by humidity changes more than the Homasote. As you can see, I had water from the plaster cloth drip onto the Homasote for hours with no adverse effects. I always hear, "well I know a guy who knows a guy that said his Homasote warped, you have to seal it and even then it's a problem…" Please don't inundate me with email telling me I'm wrong. I can only state my experience.

Above, the mine is test fitted onto the sloping foam board. Only the small boards below are glued in place. The sloped board is not. We'll se why in a bit.

With the new switch in place, the run around track was tied in along with the siding. Again, the the switch needed to be shimmed as this whole area was built on a slight upgrade. Behind the mine, the hardware cloth coming from the tunnel and the screening coming up from the hill meet. Once again, Amy showed up just in time to quickly slap on some sky blue paint in that area, and the work progressed. One nice thing about screen is that you can hot glue it to the backdrop, or in my case, the brick wall, as well as to itself. Using smaller pieces allows you to shape the hillside just the way you want.

The screen was wrapped around where the mine would be placed. The blotches along the top of the screening are where I used hot glue to attach the screening to the brick, as well as, gluing two pieces of screening together.

I had the platform for the mine to sit on, and fit that into the corner. Now the problem was how to do the installation of the building, lighting, ground cover, etc. up on the layout without standing on Amy's new dryer. (Trust me, standing on the dryer was definitely not an option!) I went out on the front porch with my pipe and thought about this. I can't smoke in the house so, if you drive by in the winter and see a big brown thing with a hat, gloves, scarf and earmuffs, it's me smoking a pipe.

I wrapped the removable foam (mine base) in wet plaster cloth and let it dry. Next, I wrapped it in plastic wrap and laid it in place on top of the glued pieces of foam. Then, I used plaster cloth as normal going up and over the mine base.

I decided to try wrapping the plaster cloth covered foam in plastic wrap and then placing it into position on the layout. Next, I applied the plaster cloth around and over both sides. Once dry, I could slide the platform out and the plaster cloth would hold its position. Doing this allowed me to slide the platform in and out as needed so that I could work on it at the bench.

After the top coat of plaster cloth dried, I carefully slid out the plastic wrapped form board. This photo shows what is left. Since the plaster cloth will not stick to the plastic wrap, the base came right out leaving all the hardened plaster cloth to hang in suspension. Now, I could work on finishing the mine complex on the bench.

Let's see, a bunch of three pound bags or a 50 pound box? Hey, this is O Scale!

Back in the day I would have lightly skim coated the plaster cloth Hydrocal®, but this time I tried something I had seen and heard about for years, Sculptamold. I bought two three pound bags of Amaco Sculptamold at the hobby store, and gave it a try. Mixing two parts Sculptamold to one part water makes for a chunky peanut butter like consistency. I applied the mixture with a cheap plastic putty knife. The working time is 20 minutes or longer, so there is no need to hurry as with plaster. If it looks too chunky, take a paint brush dipped in water and smooth it out. You adjust the ratio by using more water if you want a soupier mix. Again, spray the plaster cloth with water before applying the Sculptamold. I was impressed with this stuff. It was easy to work with, easy to clean up, and very forgiving as far as terrain goes. I could have tinted it (and I should have) with a earth tone. The two bags only got me through the track and fascia parts, so I knew I needed more. A 50 pound box was ordered from Dick Blick with an on-line coupon, and in three days, I was back at work. Remember the foam platform? I put it back into its hole and added the Sculptamold right over the top of the plaster cloth. Once dried out it came again.

Meanwhile back to the tunnel, I really did not like what I had done on the right side. It was a shear cliff straight down toward the toilet. It looked totally silly. So, a little more cardboard, hot glue and plaster cloth. By doing so, detail

The sheer drop from the left side of the tunnel was fixed with some cardboard strips and more plaster cloth. Now, it appears more realistic, and the storage siding dead ends behind the small out cropping. As for the retaining wall, we'll look at those in another article in this same magazine.

was added, and it tied into the layout better. Next, I added some Sculptamold and it was quickly fixed.

Now it was time to clean the rails, connect the feeders and test the new track before ballasting the mine area. I use all live frogs and Frog Juicers from Tam Valley to power all manual switches. Luckily, I had a Hex Frog Juicer already installed for the other three switches, so I had three empty ports. All I had to do was add one wire to the frog and back of the Hex Frog Juicer and it was complete. I sent an Alco S2 and a few cars up the hill to test all the turnouts and trackage. I made a few minor tweaks and everything looked good, or so I thought. Then I began thinking to myself "Gee, would the R1s (Weaver 2-8-0) ever come up here? Maybe, let's see.". I began the run, and everything was going smoothly until coming out of the run around and then thud… the piston housing hit the scenery. Yes, I know there is a tool to check that, but I didn't use it. Now what was I going to do? After thinking about it for a while, I decided since it's just Sculptamold over plaster cloth over cardboard, how about whacking it with a mallet? Believe it or not, that worked rather well. There was not a lot of damage other than where I wanted it. New plaster cloth was placed over the "boo-boo" followed by Sculptamold, and you can't tell there was ever a problem.

The last two pages in this article will show an overall view of what was completed, and may help by just showing where things were.

The mine was placed back just for the picture, and will be again pulled for the rest of the work and the surrounding ground cover and weathering.

There is nothing you can't fix with a big enough mallet! Once I pushed the scenery in enough for clearance, I went back over the plaster cloth and added a little more Sculptamold.

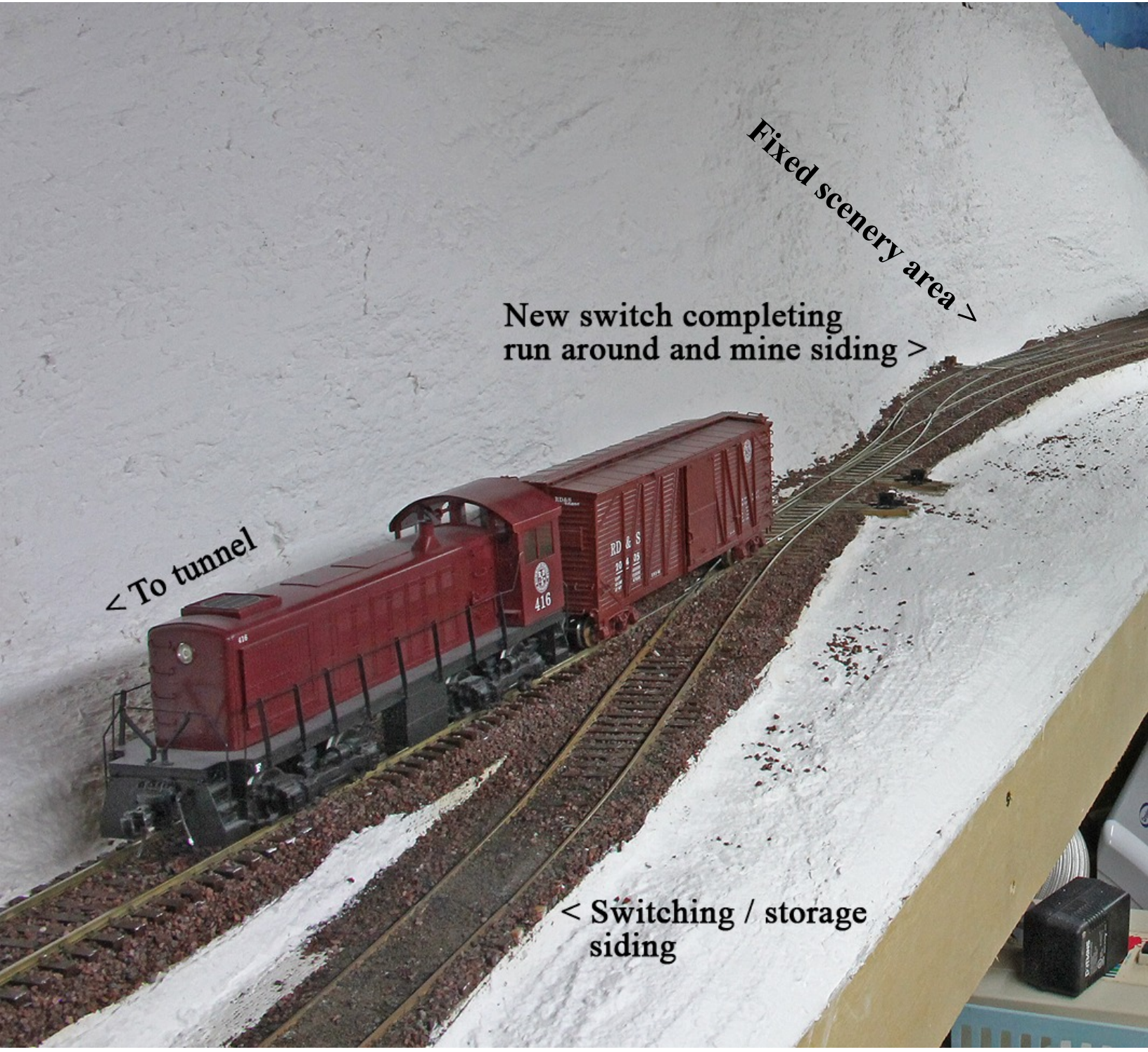
So, with that I'll close for now. It was a challenge, and probably would have been better if I were not "flying by the seat of my pants" and making things up as I went. If you take nothing away from this other than the the fact that there is no right way to do scenery, and any mistake along the way is easily corrected, then I have accomplished what I set out to do when writing this article.

The mine is almost finished. More weathering, wiring and ground cover are needed.

Next time, after a bit of recuperation, I'll begin the ground cover and rock staining to finish off this section of the railroad.

I shot a quick video of a train rounding the mine area then heading into the tunnel. Nothing real spectacular, but hey, everyone loves a video! Click here to view.

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



Making Retaining Walls from Castings

By Dan Dawdy

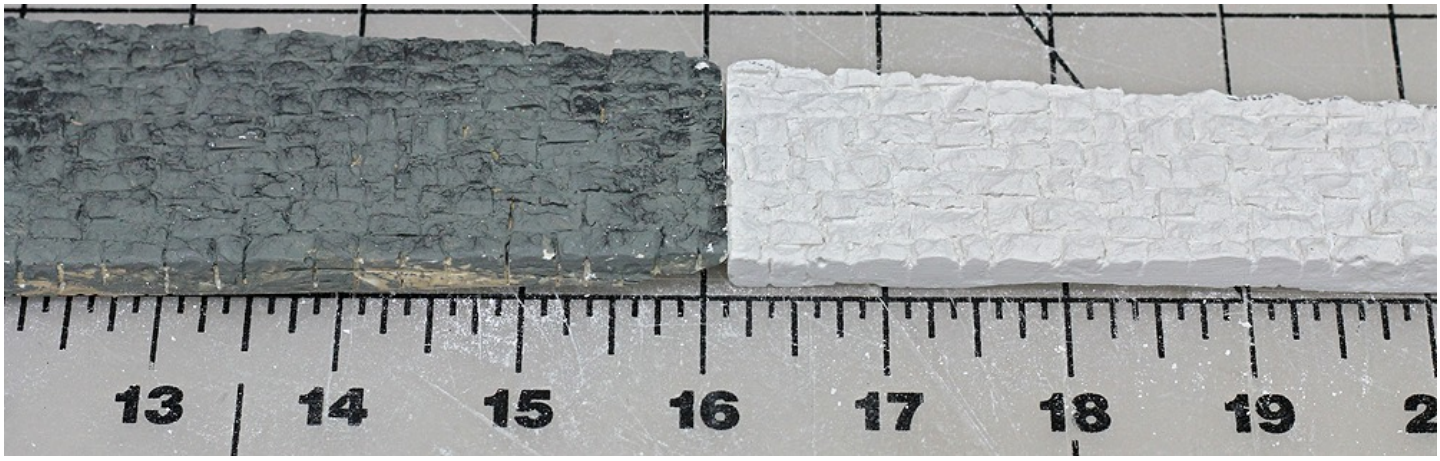
The progression from mold to casting is shown above. Although hard to see in the third image, I remove the mold when my finger will leave a good clear print in the Hydrocal®

Looking back at the previous tunnel article, I needed some sort of retaining wall, not only for the tunnel entrance, but against the mainline protecting the siding. All too often I see retaining walls used when the modeler gets themselves into a trap with a large vertical space. There is no real way of making it work other than a large retaining wall. But here, they were needed, and would have been prototypical. What to use… A few years ago when I bought my rock casting molds, I also ordered a brick wall mold. Maybe I could use that as a start. The mold is 14 1/2" long by 3 1/4" high, which makes for a nice large wall. When I bought it, I had also thought about being able to cut the plaster casting to make things like building foundations.

Ok, time to get messy. I mixed up a batch of Hydrocal® and sprayed the mold with some wet water (water with a bit of dish soap mixed in). I shake the mold to get the excess water out, then pour in the Hydrocal®. Once poured, I lightly tap the mold to release any air bubbles and let it set up. The mold will become warm as the Hydrocal® sets. About 10 to 15 minutes later, I gently unmolded the wall by pulling from the edges. Cleaning the mold, I made one more and called it a night.

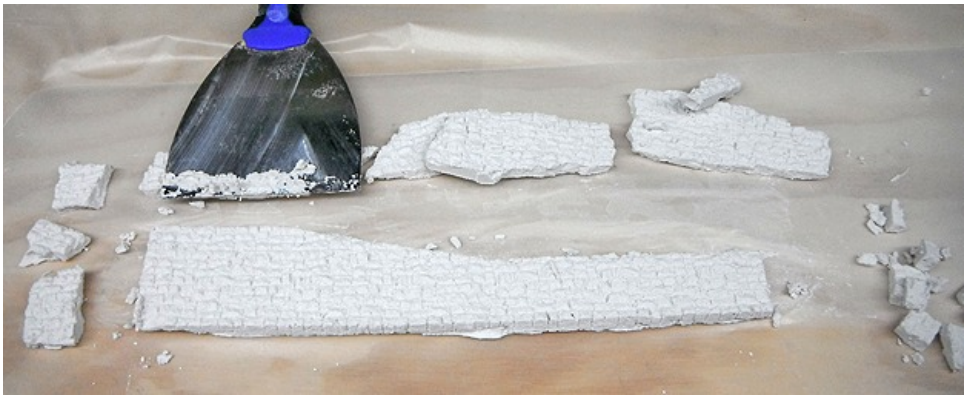
Now I had two castings, and it was time for some measurements. For the wall off the tunnel, I figured I had enough length, but the wall needed to be sloped towards the end. I measured where I wanted the slope to start

and end, and used a pencil to draw those lines. Now how to cut this stuff. Hydrocal® is hard, very hard. You can't scribe it. Well, let's bring out the power tools. I must admit that I had absolutely no idea how this was going to turn out. I used a saber saw with the speed set down as slow as it would go, and used a blade for fine cuts. On a flat surface, I started the long diagonal cut and to my surprise it went well. No breaks, but it will kick up a bit of dust. OK, so this is easy, or so I thought. Now I needed to make the lower wall which was going to be longer and much narrower. So, with the next casting, I again made my cut lines with a pencil and started the cut. This time it did not go quite as well. The main casting was fine, but the smaller half broke in two, and it



For the bottom wall, I need it to be larger than a single casting so I joined the two cut castings with epoxy.

was this part that would be the right side of the wall. A clean break is fine as it's easy to fix. If you have ever built buildings from kits that used Hydrocal® castings, you may have had a broken casting. Yes, you should be able to send it back and have it replaced, but if it's a clean break, it's easy to join the two pieces together and glue them with 5 minute epoxy – being very careful not to let the epoxy ooze to the top of the casting. Once finished, try to find the the crack. Many times you can't even see it. I take a bit of diluted while glue and run it down the crack and then sprinkle some Hydrocal® dust on top of it. Once dried, simply brush it off, and you are good to go. I was able to fix the cracked casting and use it for the right side of the lower wall. I butted the two castings together, did some minor sanding, and then glued them together. This junction not being a clean break will be more noticeable, but you can still fill in with some powered Hydrocal®, and using a dull X-ACTO knife scribe across the junction. Once painted, it will blend in.



My putty knife idea kind of worked, but I ended up with more scrap when cutting.

OK, let's stop here as I can imagine many people rolling their eyes at this cutting approach. A band saw would be ideal, but I don't have one. You could probably use a hack saw, or even try a Dremel. There are probably many other ways it can be done. One thought I had while writing this was that I could fill the mold and wait till it just begins to set up. I could then demold it, and use a wide putty knife to push down on the cut lines and make the piece that way. So, I tried just that. The problem I had was that there is a very small window of time when you can safely demold the casting and still make your cuts without breaking the casting. As you can see in the picture it did work, but there was more breakage than cutting it after it was dry.

Scribing lines to look like the pieces of stone across the top where I cut with the saw.

Now that we have our castings, we need to do a bit of work before panting – mainly along the cut edge. We need to scribe lines across this smooth area to conform with the rocks below it. You don't have to get crazy with this, just use a dull X-ACTO knife and freehand some lines as shown.

For paint, I used the cheap acrylics found at Hobby Lobby, Walmart, etc. I started with a base of gray as it kind of matched the tunnel portal. I had a small bowl of water so I could thin the paint and make it flow into all the cracks. Once that was dry, I dry brushed some black starting at the top and working down. Next, I used Scenic Cement and a few different colors of flock and turf to finish it off. If you are not happy with your first attempt with the scenic material, rub it off and start over. Once you are happy, the walls can be mounted into place.

I laid down a base of Sculptamold and carefully pressed the tunnel retaining wall casting onto it. I made sure to check with a level to make sure top of the wall was level regardless of the landscape behind. Once I had it positioned, I backed filled a bit with more Sculptamold and let it dry. I repeated the process with the lower wall, being extra careful because of the extra length. I let this dry for a day, and then came back in with more Sculptamold and totally backfilled the walls blending them into the scene.

Of course, there ready built walls on the market, but I try and use what I have. Also, it's always going to look better if the wall is built for the section it's going into, and not the other way around. The best part is, you can make a lot of different things from the mold, and if you don't like something or totally shatter a piece, you can always make another one. Don't throw out these mistakes, or happy accidents, my wife calls them. Once painted, they will look great in a junk pile somewhere else on your layout!

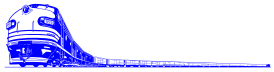
Test fitting the pieces together. It was it this point that I realized that the bottom wall needed to be much longer.

Both walls finished and in place. In a future article, we'll come back and continue with ground cover and clutter.

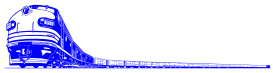
O Scale Shows & Meets

The O Scale Resource Magazine will now be providing a free listing of upcoming events. This small, text only listing will include the Event, Date, Location, Type of Event, and Contact Information. Click here to go to the sign up form. This form will take your information, and we will publish it in our next issue. If it is an annual event, you will need to submit your information every year.

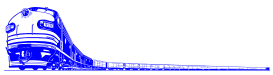
Big Bend Railroad Club Monthly Open House
March 3rd, 2015
Webster Groves Frisco Depot, 8833 Big Bend Blvd., Webster Groves, MO 63119
Monthly running of O-scale trains for public entertainment by the oldest model railroad club in the St. Louis area. Inside a former railroad depot built in 1910 and owned by the railroad club since 1994. Check web site or Facebook page for more information and year-end holiday run schedule.
Email: secretary@bigbendrrclub.org
Web Address: www.bigbendrrclub.org



Chicago March Meet
March 13,14 & 15, 2015
Weston Lombard Hotel
Lombard, Illinois
9:00 AM-2:00 PM each day
Email : info@marchmeet.net
Web Address: marchmeet.net

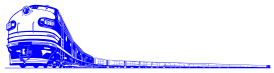


The Great Scale Model Train Show
April 11 and 12, 2015
June 20 and 21, 2015
October 24 and 25, 2015
Maryland Sate Fairgrounds Timonium, Maryland
Over 750 tables of scale and hi rail model trains and accessories, books, railroadiana, videos, train themed clothing and gifts.
Email: scarternichols@hotmail.com
Web Address: www.gsmts.com

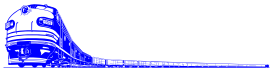


Brass Expo
April 11 and 12, 2015
Maryland State Fairgrounds Timonium, Maryland
An all brass train show held in tandem with the spring Great Scale Model Train Show. See over 100 tables of nothing but high quality brass model trains in all scales. Large white elephant consignment area, clinics, workshops, exclusive brass importers and retailers.
Email: scarternichols@hotmail.com
Web Address: www.brassexpo.com

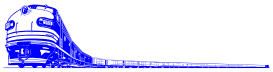
East Penn Traction Club 22nd Biennial National Trolley Meet
May 16th, 2015
Pennsylvania Convention Center, Hall G, Broad and Race Streets, Philadelphia PA
Electric Railroad and Trolley Meet with layouts in all scale from 3/4" to N gauge. Vendors, clinics and audio-visual presentations. Layout visits May 17. Complete information on our website.
Email: reiderj@verizon.net
Web Address: www.eastpenn.org



Cleveland 2 Rail O Scale Meet
October 31st, 2015
Lakeland Community College Auxiliary Gym 7700 Clocktower Drive Kirtland, Ohio
Email: J1d464@yahoo.com
Web Address: www.cleveshows.com



O Scale West
May 5 through 7th, 2016
Santa Clara, California
9:00 AM to 5:00 PM each day
Email: info@oscalewest.com
Web Address: oscalewest.com



Have an upcoming O Scale event? We would like to help publicize it. Send us the information up to one year out and we'll place it here along with a direct link to your Website and or Email. Click Here to send us your information.

The O Scale Resource — Classified Listings

Manufacturers

Pre Owned

Dealers

Proto 48

The old Chicago and Alton depot in Wilmington, Illinois before they tore it down. At one time the railroad was sold at a bankruptcy sale on the platform of this depot.