BAY AREA GARDEN RAILWAY SOCIETY

TRELLIS AND TRESTLE

FEBRUARY 2024

In This Issue...

JOIN US AT BAGRS.ORG, FACEBOOK OR INSTAGRAM

PRESIDENT'S PERSPECTIVES

2024 ANNUAL MEETING

ANNUAL MEETING: SATURDAY MARCH 9 : HILLER AVIATION MUSEUM

Registration for the Annual Meeting opens on **February 3**. Members who have paid their 2024 dues will receive an invitation to register and will be able to register on the BAGRS website at 'Events' (Exact link to go straight to registration will be shared in the email).
This year, there will be less time spent in general sessions, allowing more time for clinics/ forums on a variety of topics as well as more social and vendor time.
Outline program.

- 6:30 to 8:00 Live Steam Layout Set Up
- 7:00 to 8:00 Member Vendors Set Up
- 8:00 to 8:45 Welcome Desk & Breakfast
- 9:00 to 10:00 Annual Business Meeting & Member Survey Results
- 10:30 to 11:15 Clinics/Forums
- 11:15 to 12:00 Featured Speakers
- 12:00 to 1:15 Lunch
- 1:15 to 2:00 Clinics/Forums
- 2:30 to 3:15 Clinics/Forums
- 3:30 to 4:00 Contest results & Door Prizes

MEETING FEE

The fee to attend the 2024 Annual Meeting is $30, up from $25 last year.
The increase will help to offset higher food/ beverage/facility expenses.
Expenses will still exceed fees collected and the meeting will still be subsidized from the Society's general funds.

CLINICS/FORUMS

Are being finalized but will include:

- ◊ 2024 Open Railroad Program
- ◊ RC/Battery Conversion
- ◊ Building Bridges
- ◊ Advice for New Members

MEMBERS WHO HAVE NOT PAID DUES FOR 2024 BY JANUARY 31

Will not receive the Feb. 3 invitation and will not be able to register for the Meeting. Membership dues will NOT be processed at the Annual Meeting. So, if you wish to attend, you need to pay your 2024 dues no later than **February 21** and register for the meeting no later than **February 28,** when catering numbers will be finalized.

MEMBER-VENDOR TABLES AT ANNUAL MEETING : $15 per table

Registration also opens on February 3: also only for members who have paid dues for 2024!

ANNUAL MEETING HELP NEEDED

We need volunteers to help with the Annual Meeting tasks below.

Facility Set Up: 2 hours on the afternoon of Friday March 8: Leader Richard Murray

When the space at the Hiller Aviation Center is set up. The time window will be between 1 p.m. and 5 p.m. Richard will share the precise time window with you no later than Wednesday March 6.

Facility 'Tear Down' 4 p.m .to 5 p.m. on Saturday March 9: Leader Richard Murray

When chairs & tables are returned to storage.

Please contact Richard Murray steamer060@sbcglobal.net to sign up to help

DOOR PRIZES NEEDED TOO

Please contact Greg Hile at greghile@outlook.com if you can contribute

TOP SOCIAL MEDIA POSTS Top Posts on BAGRS social media will be revealed in the March Edition of *T&T* and displayed at the Annual Meeting. Meanwhile BAGRS railroads feature in *GR News* just released 'Top Posts.'

#1 Video
Herzog Line

#4 Video
Providenza Line

#3 Image
Leglise Line

#6 Image
Dibble Line

From the Editor's Desk

Roger Nicholson lives in Union City, California, and operates the *Crystal Cove & Rose Railroad*.

- **On the Cover.** Brian Harrison's "Roaring Camp themed" SVRR. A battery powered 2-Truck Shay is hauling a flat car, which is transporting a…squirrel eating a nut. Hey, you know, it happens! Brian has a unique, homemade wireless control system for his railroad, the details of which were previously published in an earlier issue of the *T&T* and which I will be reprinting again in a future issue. In this issue, Brian has given us an article on constructing a flashing railroad crossing light.
- **This month we begin Jim Ralph's entertaining series of articles detailing the construction of each of his Carnivale cars.** Jim has been publishing these in the Sacramento Valley Garden Railway Society newsletter, the *Valley Flyer*, and I received permission to reprint the series in the *Trellis and Trestle*. These cars are nothing but *fun*…or *weird*, it depends upon your point of view I suppose. I guarantee that you've never seen anything like them. Jim was running these cars on his brother Bill's *Porcupine Gulch Railroad* during the 2023 NGRC. Given that Jim is still actively designing and building new ones (using a 3D resin printer and a laser cutter!), I expect that we will see many interesting articles in the future from him. So, buckle up…you will be getting a regular dose of Carnivale for a while.
- **Do you have any old, printed copies of the *Trellis and Trestle*?** As you will see from this month's article on the update of an old battery powered LGB Uintah Mallet, there is some useful information in the old issues of the *T&T* that were published prior to 2008. Prior to this time, the *Trellis and Trestle* was physically printed and mailed out to members (at a considerable cost!). I'm hoping that some of you longer-time members may have some of the old printed copies that were mailed out to members stashed away somewhere. If you do and could loan them to me, I would be *very* interested in scanning them and digitizing them. I love to know the history of things, and I think some BAGRS' history shouldn't be lost.

Roger

WELCOME NEW MEMBERS

We would like to welcome BAGRS' newest members and invite you to tell us something about yourself. We are happy that you decided to join us, and we hope that you will enjoy getting to know other members. **Remember, you do *not* have to have a garden railroad to participate in the club or have to contribute to BAGRS or the *Trellis & Trestle*—approximately half our members do not have their own railroad.** Also, if I get some information wrong or misspell your name, please let me know and I'll take care of it.

If you would like to submit an article, member update, fun train-related thing you saw while traveling, open house you visited, photographs, videos, or have any questions or corrections, please contact me **(Roger Nicholson) at communications@bagrs.org**.

- **Lisa, Mike and Jack Griffin,** San Jose, California. Joined 4 January 2024. Railroad Name: Pilfered Creek Railroad, currently under construction.
- **Lauryn Guridi and Taylor Skillin,** Geyserville, California. Joined 14 January 2024. Railroad Name: *Camp Muni*, currently under construction.
- **Justin Hall,** Berkeley, California. Joined 2 January 2024. Railroad currently under construction.
- **Sean Mahan,** San Francisco, California. Joined 8 January 2024.
- **Michael Midlock,** Tiburon, California. Joined 18 January 2024. Railroad Name: *Leland Limited*.
- **Ronald Miller,** Cupertino, California. Joined 15 January 2024. Railroad currently under construction.

Don't miss out...

If you have not yet renewed your membership for 2024, this will be your last issue of the *Trellis and Trestle*, and you will not receive an invitation to the BAGRS Annual Meeting on March 9. **There will be no renewal offered "at the door" this year.** Members who joined on or after October 2023 were automatically renewed through 2024.

THE ELECTRONICS DEPARTMENT

Flashing Railroad Crossing Lights

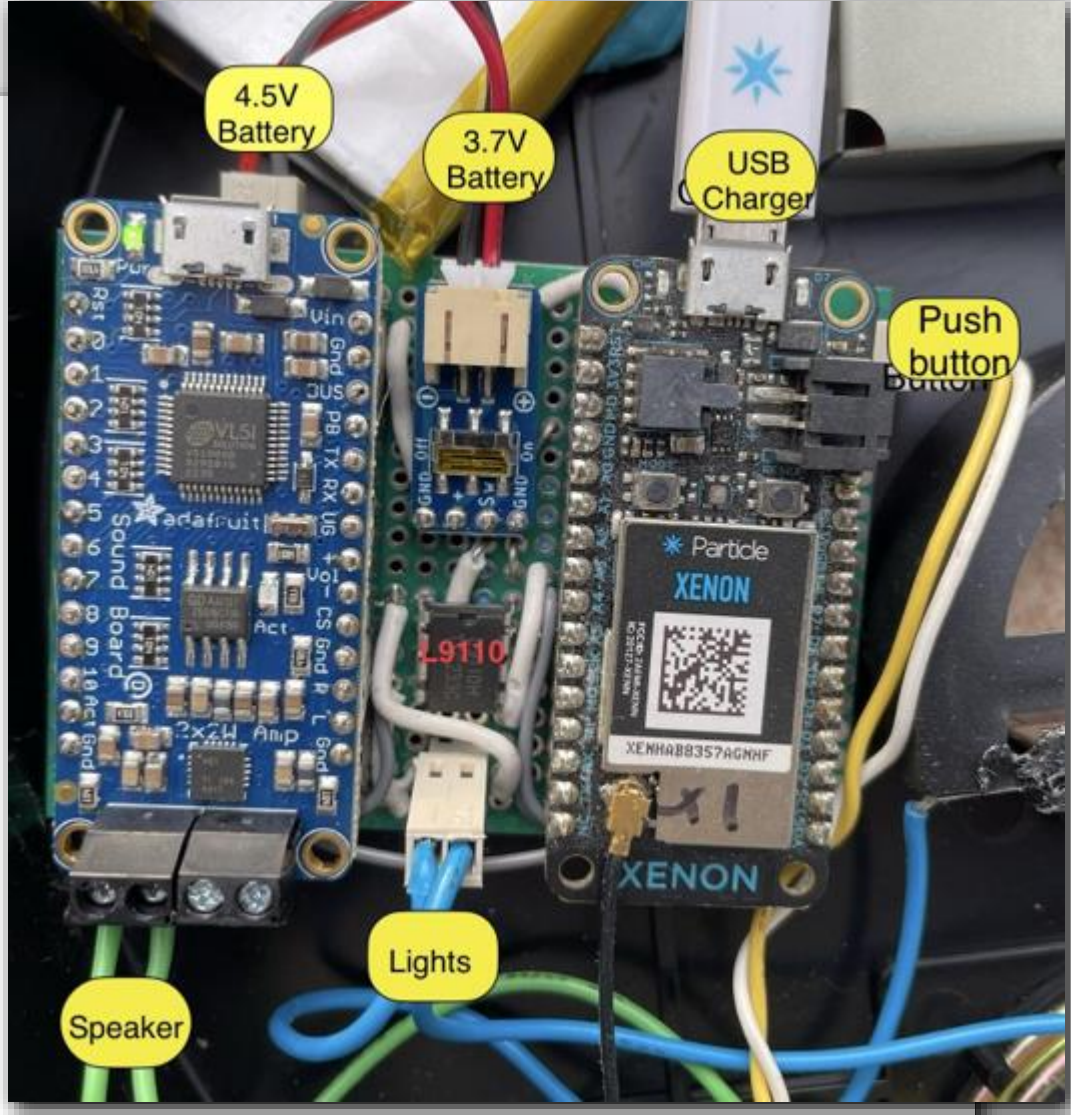
By Brian Harrison

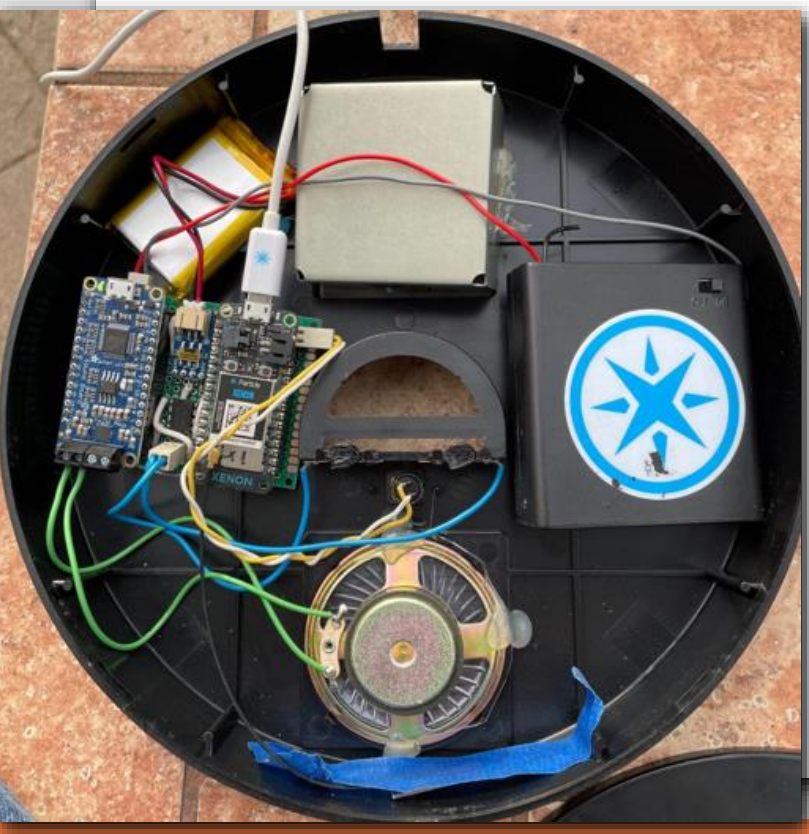
As I was leaving the BAGRS annual meeting last March, someone kindly offered me a toy railroad crossing signal with flashing lights and train noises. Never being one to look a gift horse in the mouth, I said sure, thinking this would be a great companion to the scale wig-wag and flashing lights that I had guarding where my railroad crosses the steps down into my yard.

When I got the lights home I realized I needed to make a few changes. The lights were 120V with random flashing bulbs, and I wanted something battery operated. The sound module was random train sounds, and I wanted a crossing bell. Plus I needed some 'magic' way to wirelessly sync the lights to my existing crossing signals.

First I replaced the 120V bulbs with 5V LED light panels ($3 each). There were only two wires running through the connector to the signal base, so I added a diode to each side and switched the power polarity to illuminate one light or the other. I planned to use an H-bridge DC motor driver chip to easily switch the polarity.

Next I needed a control board to communicate with the other signals or sensors and flash the lights. I already had some Particle Photon 2 boards I'd picked up for under $10 (similar to Ardunio controllers). They are programmable with lots of input or output pins and support WiFi and Bluetooth. Bluetooth Low Energy (BLE) is an ideal way to communicate between devices, and it is easy to advertise a piece of data (such as 'train coming') to anyone who is listening. They can easily be powered with a small LiPo battery, and include a USB charging connector. I first used the same 3.7V battery for the LEDs but they weren't bright enough, so I added a separate AA battery pack for the lights.





Finally I needed to play my own crossing bell sounds through the speaker that was included with the signal. I chose an Adafruit sound card with amplifier that I'd used in other projects. At $25 this seemed overkill, but they are very easy to use. I downloaded the bell sound I wanted onto the card and was able to trigger the bell from one of the Photon I/O pins.

I connected up the push button for ‘manual’ operation, wrote a little software to connect the various components, and had a working signal. The Photon software flashes the lights and rings the bell for 10 seconds after the push button is pressed and also transmits a ‘train on line’ BLE advertisement. Once the lights stop flashing, a ‘line clear’ BLE advertisement is sent. The Photon also listens for anyone sending a ‘train on line’ BLE advertisement and will flash lights and ring the bell until a ‘line clear’ is received.

I added another Photon module to my model wigwag crossing lights with almost the same software. This would transmit BLE advertisements based on its track sensors, allowing the trains to trigger the new crossing signal automatically!

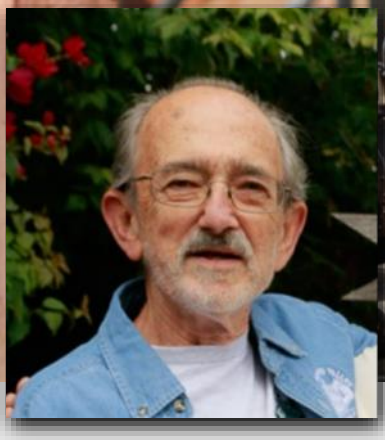
This was all great for about a week until a dog/grandchild/racoon/rain destroyed the wired track sensors for the umpteenth time.

That’s when I realized I really needed some wireless sensors... ■

Carnivale on the Green: A Railcar Based Traveling Carnival

Introduction

By Jim Ralph



Jim Ralph is a member of the *Sacramento Valley Garden Railway Society*, and is the brother of BAGRS member Bill Ralph.

What is CARNIVALE? It brings to mind memories of carnivals and amusement parks you may have visited, or seen in movies or books. Add to this what I call "everything carnival"—anything that could be supporting, or is even remotely related to a carnival operation and you have an idea of our inspiration.

The raised deck railway is a recent addition and was designed to bring CARNIVALE to the green. A single track circles the green on the deck with a siding located across from each bench. The sidings are a place to park and display additional railcars for individual viewing while a train slowly passes by.

Carnivals have always been meant to be mobile so they can travel from town to town, in a repetitive cycle of setting up and tearing down tents and makeshift structures and then moving on. In the case of our CARNIVALE, it is the train itself. “Everything carnival” is built directly onto the railcars. This fictitious CARNIVALE train would pull into a town’s depot, easily opening for business. Then when the show is over, it quickly (usually a good idea) closes and departs.

CARNIVALE is a fictitious train consisting of “all things carnival” railcars whose beginnings were in the 1930s, the heyday of the traveling carnival. But now it’s the 1950s and CARNIVALE has not aged well, in both its structure and its outdated attractions. Attempting to stop the continuing loss of customers, many of the attraction operators have taken their attractions to the seedy/dark side of the carny world, hoping to attract a wider variety of customers.

Each CARNIVALE car has its own theme, ranging from a sideshow, a game of chance, food service, an amusement ride, snake oil sales, gambling, a circus act, or animal show. Other cars might include restrooms, maintenance, crew residences, creepy stuff, and subjects yet to be explored.

As a scratch builder, this “everything carnival”’ theme provided me with an almost endless number of possible builds. The ideas for car themes come from many places: some from historic and current carnival attractions, some from reference books on the subject, still others from movies, memories, and everyday experiences that can be tied into the carnival world. Then the fun begins. Like *Ripley’s Believe It or Not*, each car has a backstory. The story might be real, fictional, or a blending of both. Which is it? You the reader can decide for yourself.

BASIC RAILCAR CONSTRUCTION PARTS

The car deck is made of ¼" MDF board. On an open car, it is either covered with strip wood or laser engraved 1/16" basswood plywood with a facing added to the deck edges. Due to the large number of cars being made, I decided to make my own truck assemblies to save on cost. They include mold cast wheels and spring assemblies in resin, laser cut coupling arms and hooks in acrylic and their center supports fashioned in wood. Axles are cut from 10D 3" common nails. After being assembled, they are mounted with screws to the deck, which will allow for possible future removal for replacement or repair.

The second photo shows the materials and molds for the truck assembly parts. I use Micro-Mark resins and mold rubber but other brands are also available such as from Sacramento's local Tap Plastics store.

Note: Since being guided into 3D printing by Dick Friedman, I have found some print files on line that will make various types of truck assemblies. Printing them would be easier, quicker, and make a more accurate assembly, but it would also require a complete remake and retrofit to all my rolling stock along with adjustments to the engine couplings. So I'll pass on that project for now and stay with my current production method.

I am writing a series of articles about CARNIVALE. Each will feature a car or two of interest, the ideas behind them as well as their backstory. I might include some construction notes and parts sources to help others to tap into their own creative side. Stay tuned! ■

THE LIVE STEAM DEPARTMENT

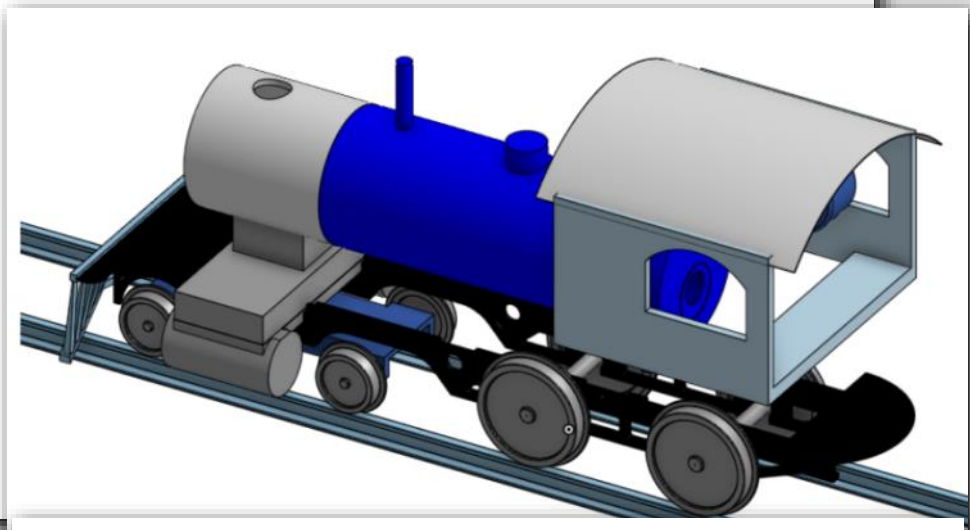
Ideas for a 4-4-0 Live Steamer in Garden Gauge

By Paul and Teresa Wallace

Thank you for the warm welcome to the Bay Area Garden Railroad Society and the opportunity to meet and boil some water. I am located on the Peninsula over by the Hiller Aviation Museum with a few other live steam projects so I figure my next adventure should be a 45mm gauge locomotive in the style of a 1950s amusement park train to run at the club track.

My inspiration is the 1950s style amusement park locomotive in the 4-4-0 wheel layout

Park trains are not built to any particular scale and are not represented in the hobby so we are starting with a Ruby kit from Accucraft for the boiler and a basis for fabricating frame extensions and cab. The Ruby is a 0-4-0 arrangement with the main rod and eccentrics on the second axle, so the other driver can be omitted for 0-2-0 operation or shifted to the rear without disrupting the main rod geometry or Stephenson valve gear, so we will use most of the Ruby running gear.



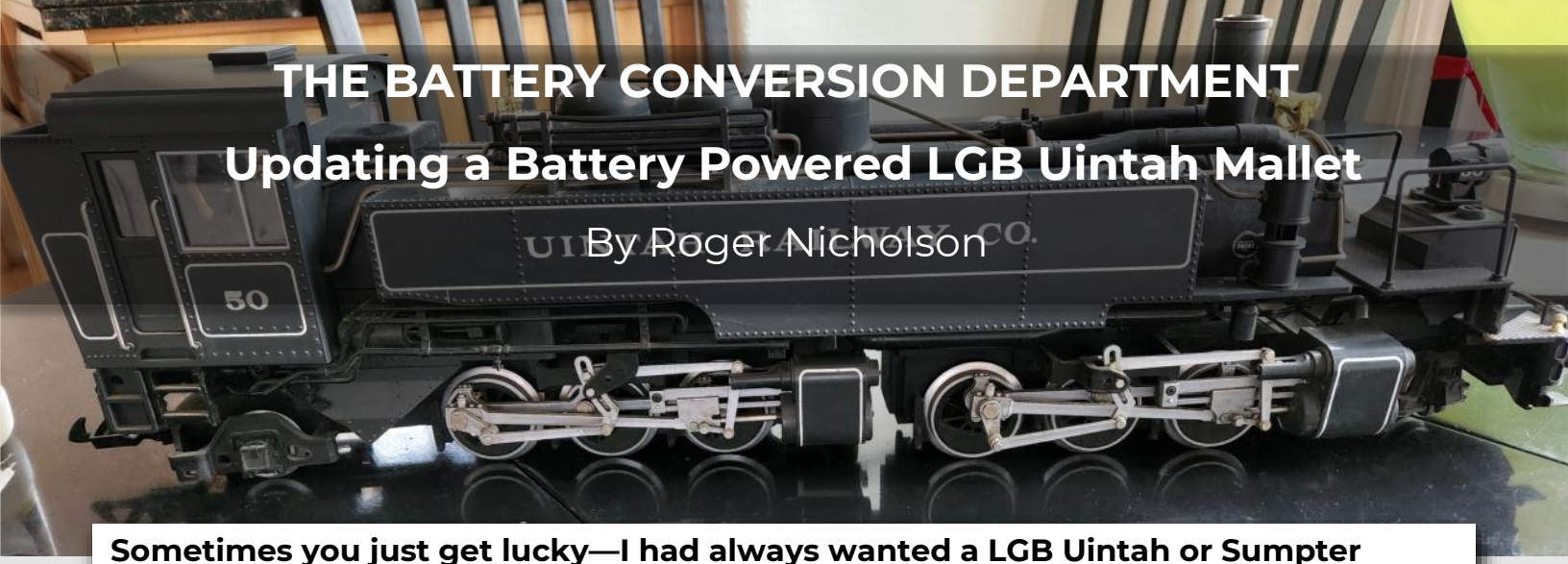
Modeling in CAD software to get a head start on design

The Ruby was briefly available with a metal tender as the “Mimi” but this set is now long discontinued, so we are looking for alternatives that have the right number of wheels and are about the right size. We picked up a tender from Lionel as a candidate but it turns out this is from the Lionel “Ready to Play” line that runs on 2” gauge track and, as they say, “The best thing about standards is that there's so many to choose from!” We have 3D printed new wheels to the G1MRA standard to correct the spacing until new metal wheels can be turned and placed in a redesigned bogie.

The gauge discrepancy was the motivation to get a 3D printer to reprint the original square wheels in gray to the G1MRA profile in brown

We have another month before the March meeting so the current goal is to bring something that can roll on the club track and work through the various standards for compatibility. Thank you for joining us on our adventure! ■

The 3D printer is also a great way to test the fit of the frame and cab before committing to metal

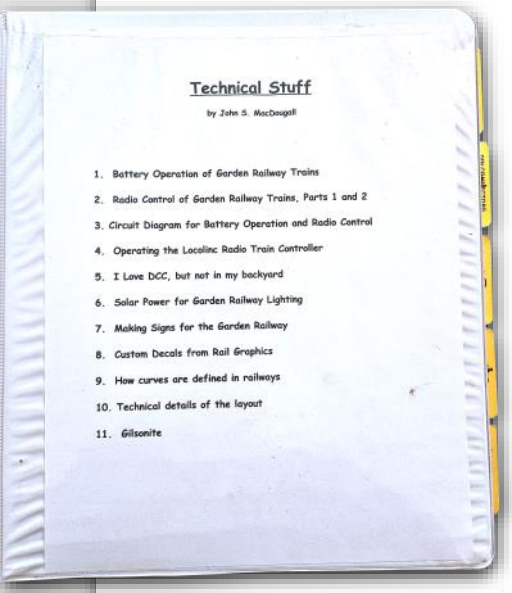


THE BATTERY CONVERSION DEPARTMENT

Updating a Battery Powered LGB Uintah Mallet

By Roger Nicholson

Sometimes you just get lucky—I had always wanted a LGB Uintah or Sumpter Valley Mallet, so when I spotted a Uintah Mallet for sale at the BAGRS annual meeting I was pretty happy. The sellers, however, wanted to make certain that I understood that it would *not* run on track power. Why? Because its original owner had converted it to battery way back in 2001! I was hooked. If it was *already* converted to some form of battery power, then that might save me a lot of work. I purchased the locomotive.


Technical Stuff

by John S. MacDougall

1. Battery Operation of Garden Railway Trains
2. Radio Control of Garden Railway Trains, Parts 1 and 2
3. Circuit Diagram for Battery Operation and Radio Control
4. Operating the Locolinc Radio Train Controller
5. I Love DCC, but not in my backyard
6. Solar Power for Garden Railway Lighting
7. Making Signs for the Garden Railway
8. Custom Decals from Rail Graphics
9. How curves are defined in railways
10. Technical details of the layout
11. Gilsonite

It turned out that this locomotive literally has a history, in the form of a binder called “Technical Stuff”, authored by its original owner, John S. MacDougall of Los Altos. The binder was given to me by the seller along with the locomotive. In fact, it turns out that MacDougall had published some of this information in a two-part series of articles in the December 2001 and June 2002 issues of the *Trellis and Trestle*. Those were the days when the *Trellis and Trestle* was physically printed up and mailed out to BAGRS members, and the BAGRS online *T&T* archives only go back to 2008.

I located and reviewed the binder as I was preparing this article. It is evident that MacDougall was a strong early promoter of battery conversion, and his articles described three of his six battery converted locomotives. “Figure 1” was the LGB Uintah Mallet that I had purchased.

Figure 1: LGB 2-6-6-2-T "Uintah" articulated with 2 motors. There are 12 sub-C cells hidden in the boiler along with a Locolinc radio system. As will be seen, the switch and charging jack are under the rearmost steam dome. There is also an auxiliary power jack under a "tool box" at the rear. The weight was removed from the boiler as the batteries were about the same weight.

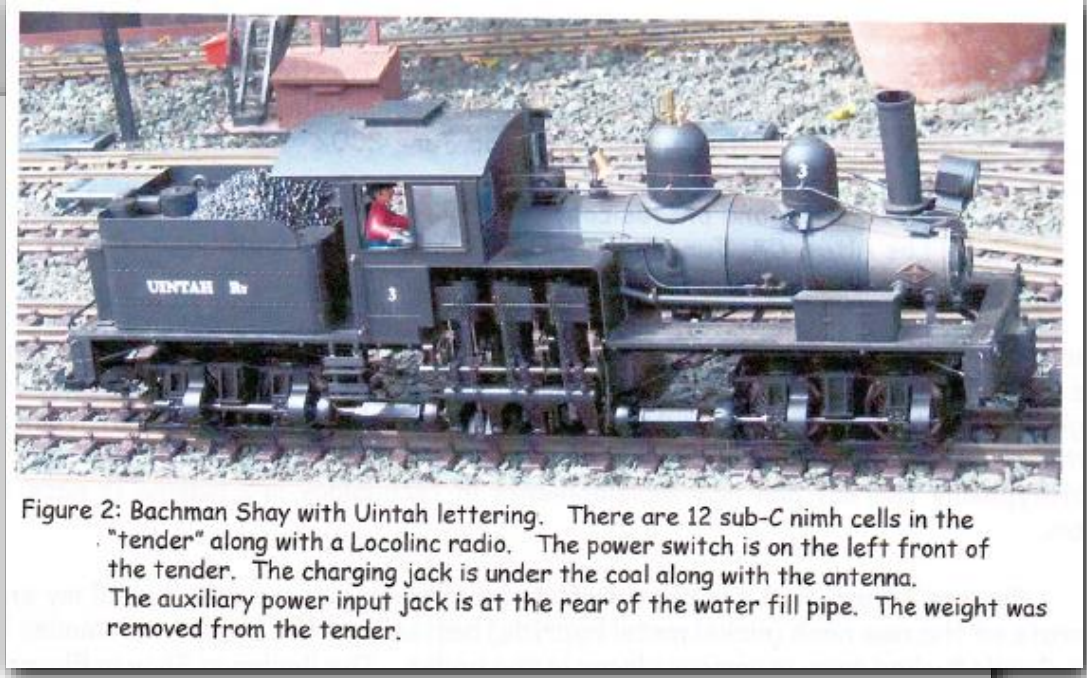


Figure 2: Bachman Shay with Uintah lettering. There are 12 sub-C nimh cells in the "tender" along with a Locolinc radio. The power switch is on the left front of the tender. The charging jack is under the coal along with the antenna. The auxiliary power input jack is at the rear of the water fill pipe. The weight was removed from the tender.

"Figure 2" was an early Bachmann 2-Truck Shay, which MacDougall had re-lettered with the "Uintah Ry" (Uintah Railway) road name.

Hmmm....this locomotive looked *really familiar* to me. Where had I seen this one before? I had a sudden epiphany, and I ran down to my garage workshop. Sure enough, it became apparent that MacDougall's Shay "Uintah Ry" #3 was sitting on my workbench!

BAGRS member Tom Elam had recently loaned me an old, beat up 2-Truck Shay he had acquired at the BAGRS annual meeting a couple of years ago for me to use for fine tuning my 3D printed Bachmann Shay power truck repair design. At the time that he acquired it, the plastic power trucks had crumbled (as is the case of many of these early Bachmann 2-Truck Shays). Tom removed the old obsolete electronics and changed the stack. Another modification since the 2001 photo is that a new, higher coal load had been added to hide a speaker. The holes for the missing switches and charging jack are all in the exact locations described by MacDougall in "Figure 2." This definitely appeared to be the same locomotive.

The good news is that the motors and mechanics are functional, and with rebuilt power trucks and some new battery electronics, it will someday run again on Tom's *White Wolf Railroad*.

Now I was intrigued. This was quickly turning from a "battery conversion" story into a historical treasure hunt! I wondered about the fate of the third MacDougall battery locomotive, a LGB 0-4-0 relettered "URy" (Uintah Railway).

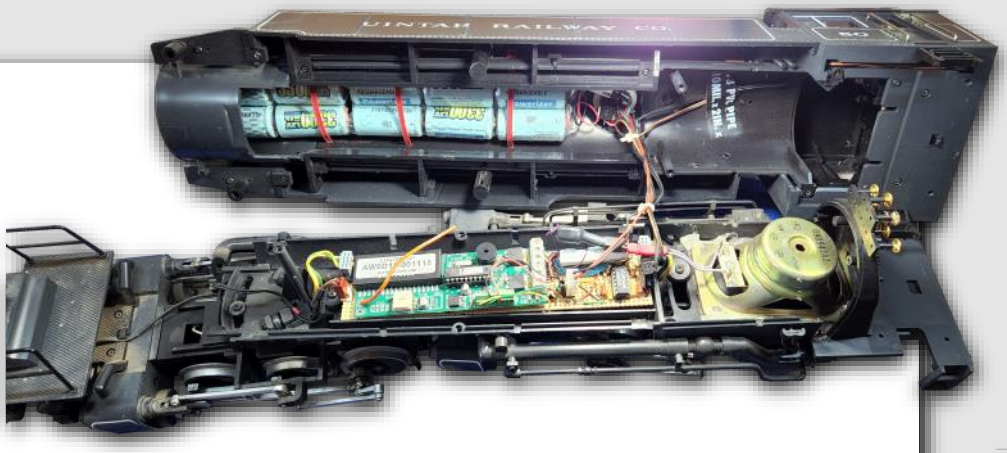
Figure 3: LGB 0-4-0T in Uintah dress. There are 9 AA nimh cells in the top front of the boiler. The Locolinc radio extends into the bottom of the cab under a cover. The antenna is in one of the side tanks. The power switch and charging jack are in the right hand steps. There is a plug for external power at the back.

I didn't have to wonder for very long. I quickly realized that I had also seen *this* locomotive before, and fairly recently. BAGRS member Gene Rickey had acquired it at a BAGRS annual meeting (no doubt the same one where Tom and I made our acquisitions). I first met Gene at the open house for his *Southern San Luis Valley Railroad*. He had this battery-powered locomotive sitting on a table. We tried to get it to run, but it would not move. So I brought it home, took it apart and got it working using its existing electronics (which had been updated to AirWire and Li-Ion in the 21 years since MacDougall's description in "Figure 3"). Here it is on the *Crystal Cove and Rose* during a functional test.

So, purely by chance, all three of these MacDougall battery locomotives passed through my hands, although I kept the Uintah Mallet of course! I like to know the history behind things—it makes them all the more interesting.

At some point during the past 21 years, MacDougall replaced all of his Locolinc receivers with AirWire receivers. At the time of acquisition, both the LGB Uintah Mallet and the LGB 0-4-0 had old AirWire boards installed (and those AirWire boards both still work.)

That was interesting, but lets talk about the Uintah Mallet! Things in the battery world were quite different 21 years ago, so I was interested to see what I could do with the Mallet in order to bring it up to date. This would not be a battery conversion, but rather an *update* of an already converted locomotive.



Since this locomotive has no tender, all of the battery and electronics are contained within the body of the locomotive itself. Opening up the locomotive revealed a large pack of 10 NiMh batteries in the boiler, an early model AirWire AW9D10 receiver, a small Digitrax sound decoder and a homemade circuit whose function was a mystery to me. I eventually deduced that this circuit controlled the “double chuff.”

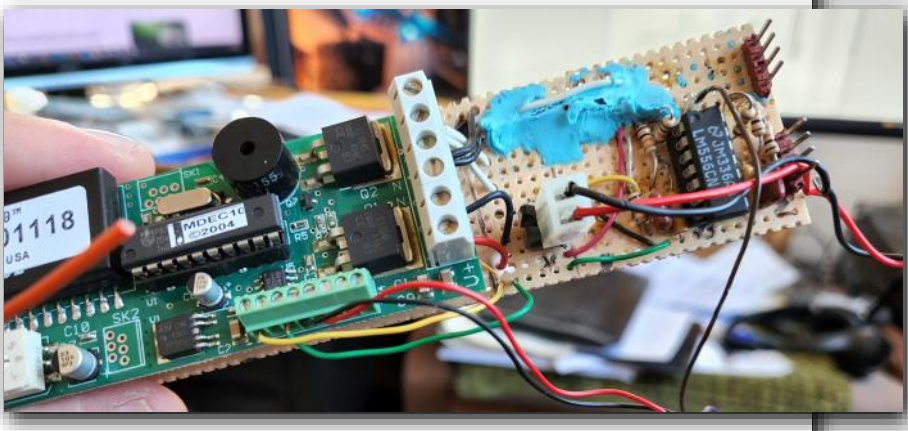
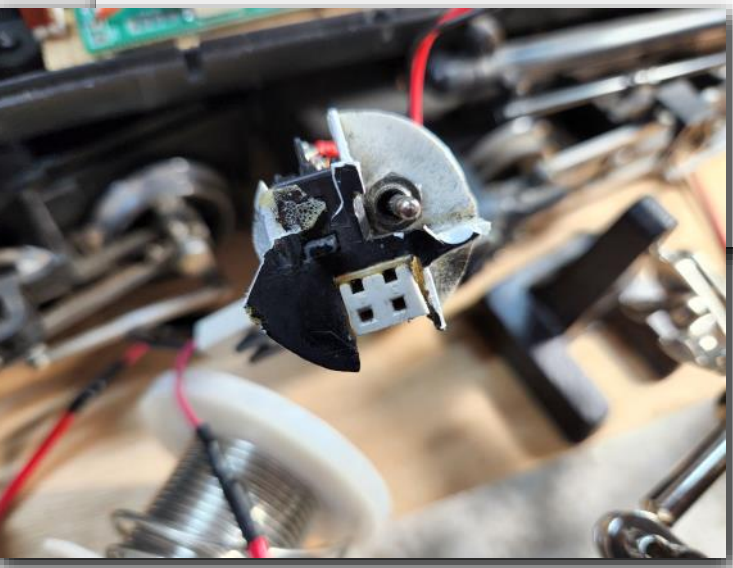
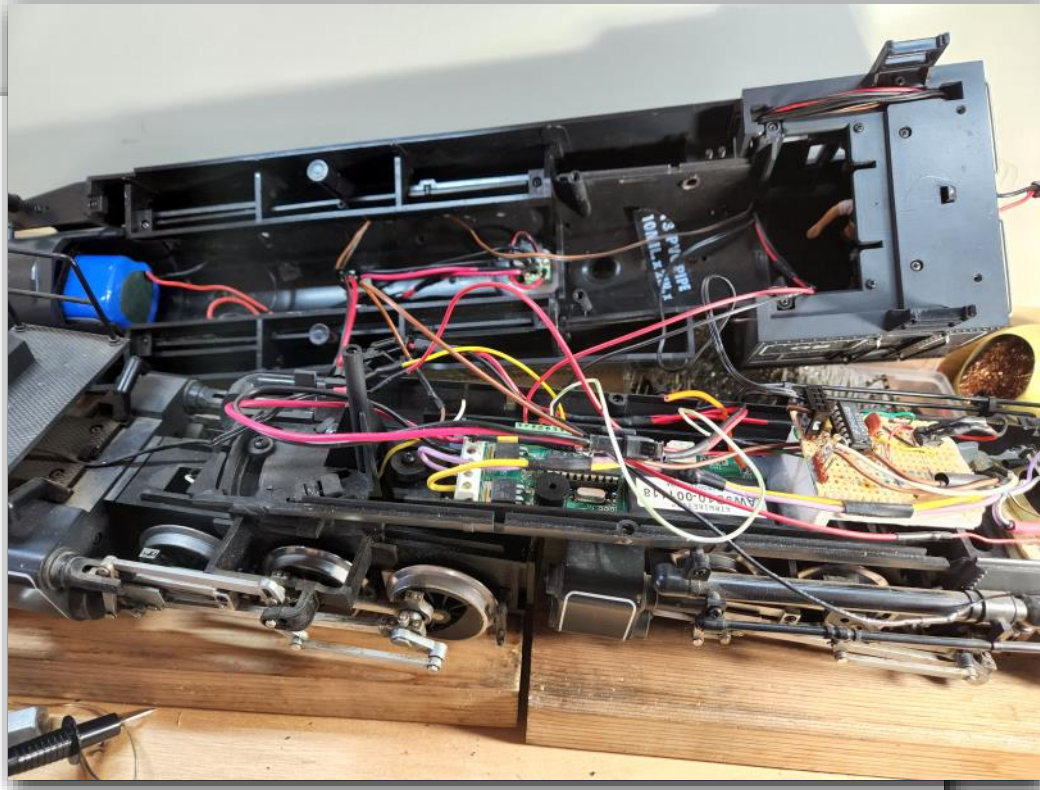


Figure 5: charging jack and power switch under the back steam dome

There was also a homemade charging jack and switch that fit into the first of the three domes (MacDougall’s “Figure 5”). This fixture did not survive the process of removing it.

I designed a replacement fixture which would hold a switch and charging jack and 3D printed it. The replacement is very clean and is completely hidden when the dome is in place. Center position is “off.” Switch *toward* the charging jack to charge the battery, and switch *away* from the charging jack to turn on the locomotive and run it. (This is how I choose to wire up the switches and charging port on all of my own battery power conversions).





The other item that needed to go was the old NiMh battery pack. I experimented with a variety of ways to suspend a 4S1P Lithium-Ion pack (with BMS protection) inside the boiler. The new battery only took up a fraction of the space of the old battery pack. I ultimately ended up just jamming it into the front of the boiler.

The early AirWire receivers do not like to have more than 18V applied to them. Since I run 14.8V Li-Ion batteries, this would not be a problem. If isn't broken, then I don't "fix" or replace it. The old AirWire board works just fine for my purposes.

After repositioning the various boards into new locations, installing new switches, and replacing all of the old wires with flexible silicone coated ones, I added an external battery car connector that can be used when the internal battery runs down (I also do this for all of my battery-powered locomotives). The switch for that is located under the middle dome—moving the switch toward the *front* runs from the internal battery, and moving the switch toward the *back* runs from a battery car.

Figure 6: External power plug at the back of the engine

Figure 7: A typical "trail" car

Lest you think that I am doing something new to this locomotive, MacDougall actually did it first. He states, "*Figure 7 shows a typical 'trail' car that can be used all the time to double the run time or in an emergency to get the engine back to the roundhouse.*"

This is precisely the same reason I wire every battery-powered locomotive to be capable of using a battery car if needed—it saves me the trouble of carrying a "dead" locomotive (or entire train) up to my garage storage area.

After tie-wrapping the wires and making everything neat, testing to make sure that the battery pack would charge through the new charging port, and making sure that all of the motors and lights worked, I reassembled everything.

I was very pleased with the result. The locomotive runs really well. No surprise there—it is LGB, and many of the oldest ones often seem to run like they are new.

Getting it ready to run is exceptionally simple: Pop off the top of the dome nearest the cab, and flip the switch away from the charging port. Turn on the AirWire transmitter and connect to locomotive address "50." It is ready to go at that point.

The only change that I am thinking of making is to see if I can fit a 4S2P (eight cell) 14.8V Lithium-Ion pack in it in order to double the run time.

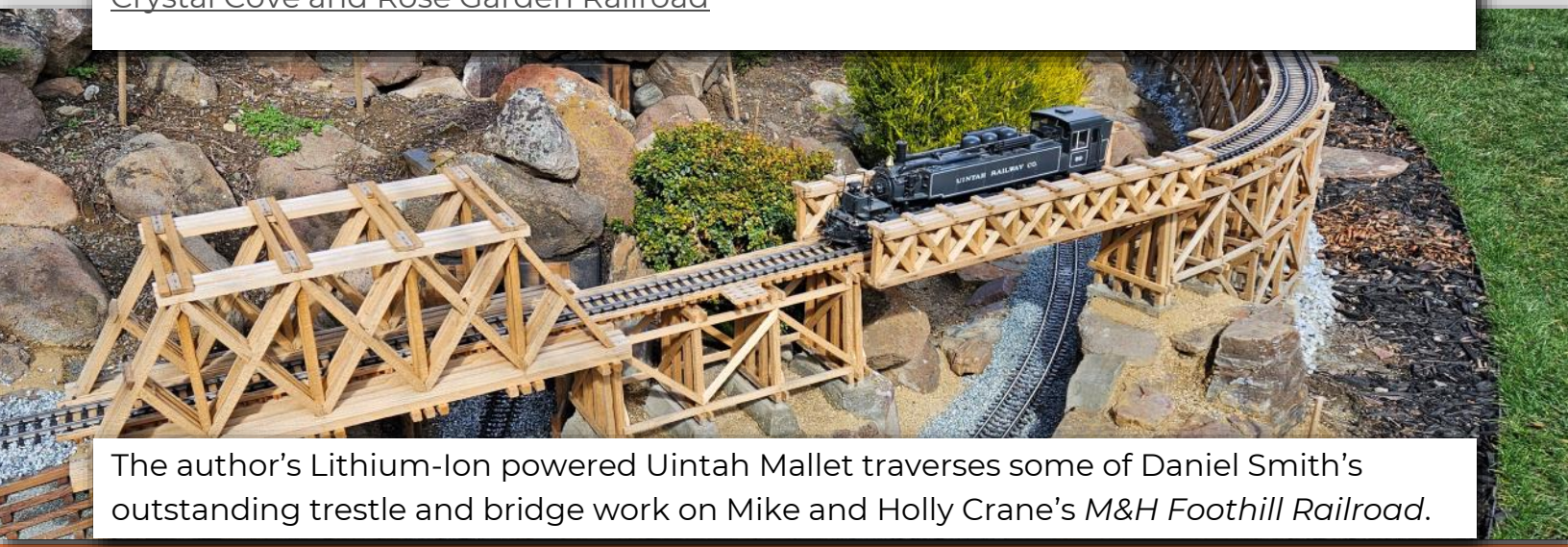
This locomotive was run during the 2023 NGRC and performed quite well. I expect that it will perform well for many years to come.

Finally, I'll share MacDougall's reason for converting to battery: "*What do I get for all this? I never clean my rails…I can go out at any time, open up the engine house, switch on an engine and transmitter and run out on the track to start operations*."

Well, it's nice to know that some things *haven't* changed in 21 years! ■

The Uintah Mallet navigates "Double Trouble Arch" on the *Crystal Cove and Rose Railroad* during the 2023 NGRC.

See this locomotive on YouTube: LGB Uintah Mallet Climbs the G-Scale Helix on the Crystal Cove and Rose Garden Railroad



The author's Lithium-Ion powered Uintah Mallet traverses some of Daniel Smith's outstanding trestle and bridge work on Mike and Holly Crane's *M&H Foothill Railroad*.

THE GARDEN DEPARTMENT

Learn to Prune Your Dwarf Trees (Invitation to Clinic)

By Nancy Norris

I want to invite you and your friends to an open house and bonsai-pruning clinic in San Leandro, 10 a.m., Saturday, March 16, at the San Leandro Historical Railway Society, slhrs.org, in Thrasher Park, corner of Davis Street and Orchard. Bring your own pruning shears!

Behind the 100+ year-old Southern Pacific depot, the G&O spreads out over 80' with miniature and dwarf plants in a raised garden to add scenery to the garden railway in two scales, both G (approximately 1:22.5 scale) and O-scale (1:48). Guests who prune at least one tree will be able to run a train afterward. In the depot, members will run trains on HO (1:96)-scale track.

I've included a companion to this invitation. Please read "*Pruning practices, part 1*" (which is reprinted in this issue) before the clinic to understand some of the lingo and concepts that will help you prune with confidence and success. This story, printed here in this issue of the *Trellis and Trestle* with permission from the now defunct *Garden Railways* magazine, will be available as a link on March 4: https://www.trains.com/grw/how-to/gardening/pruning-practices-for-miniature-trees/ This links to part 2 as well.

I'll see you at BAGRS' Annual Meeting, March 9.

Nancy Norris

Member, *Bay Area Garden Railway Society* and *San Leandro Historical Railway Society*.

This article originally appeared in *Garden Railways*, December 2016, and is being reprinted with permission of Kalmbach Media Co.

NANCY NORRIS

GREENING YOUR RAILWAY

Pruning practices, part 1: Transform conifer shrubs into scale trees

1. After four hours of an annual pruning, 24 trees are done, 12 to go. The author enjoys the contact with nature, aromatherapy, and art of pruning conifers. Art Gagne enjoys viewing his little forest, even when trains aren't crossing the redwood trestle. Keeping up with trimming these miniature (slower growing than "dwarf" varieties) chamaecyparis keeps them healthy, open to light, and resistant to pests, not to mention in scale for the railway. Taller plants would require more pruning time, so it pays to keep them small.

Pruning is a learned practice—no one starts out knowing how to best prune a woody shrub. All of us just have to take a stab at it and learn as we go. We make mistakes, try to forgive ourselves, then find that plants will forgive us and grow back. We see that cutting only the tips (pinching back, as in topiary) causes too many buds to sprout below the cuts, resulting in even more branches that require removal later in the season. So, we plug away at our craft to improve it and to keep plants in scale and in health—a good "practice" (**photo 1**).

Empathic pruning

Every year I teach pruning at clinics during the National Garden Railway Convention. I line up shrubs, pruners, and gloves, then give a demonstration and try to get volunteers to pick up the pruners and have a go at it. I've discovered that many a railroad gardener fears pruning because of "hurting" the limbs or life of the beings we call plants. According to scientific and experiential findings, both modern and primitive societies consider plants able to feel in some way.

I've done my own scientific research while a student at the University of Maine. I did get a "statistical difference" on multiple tests to prove that plants (or elements helping plants) respond to a human's telepathic suggestions. Beyond physiology, I've also experienced 45 years of growing plants, including two decades of pruning shrubs to keep them small, tidy, and healthy. It takes effort and interest. When I'm finished pruning a plant, I've done my best to slow down growth so it can be admired in the garden. Does the plant "hurt"? Do my knees hurt? Maybe a little, but it's a process of developing intuition about what's happening with the plants (**photo 2**).

2. Art Gagne's miniature whitecedars (probably *Chamaecyparis thyoides* 'Meth Dwarf', Zones 3-8) are trying to tell us something. See the dead branches all on the southwest side? Animal urine? Herbicides? Abrasion from passersby? Inadequate water? Maybe it's drying out from trying to grow a plant rated for Zone 8 in Zone 10. After pruning away dead material, we'll give them enough irrigation to get them through the hot afternoon sun.

3. The DNA of most upright conifers creates a strong vertical nature that results in many branches vying to be the leader—the candelabra effect. However, the cone shape, with the point at the top, is what we desire, to model a forest tree.

Pruning education

- Join a local bonsai club. Get hands on, one-on-one instruction.
- Watch videos online. *Garden Railways*' website has a demonstration at *www.GardenRailways.com*. Type "Rehab my railroad" in the search box.
- Follow instructions in Nancy Norris' book, *Miniature Garden Guidebook*, chapter 8, "Pruning trees for a scale appearance" (*https://kalmbachhobbystore.com/product/book/12444*)

Directional pruning

Using topiary-style pruning, the plant will eventually have to be replaced as it gets bigger and bigger each year, or will die when you cut into the center where no viable buds live. Directional pruning is similar to bonsai, the Japanese art of growing a (literally translated) "tree in a pot," where families keep one plant small and alive for generations, even centuries. Each pruning cut is a choice: this branch or that branch, keep or cut, strong branch or weak one? Most decisions come down to a question of which direction you want the branch tip to be headed.

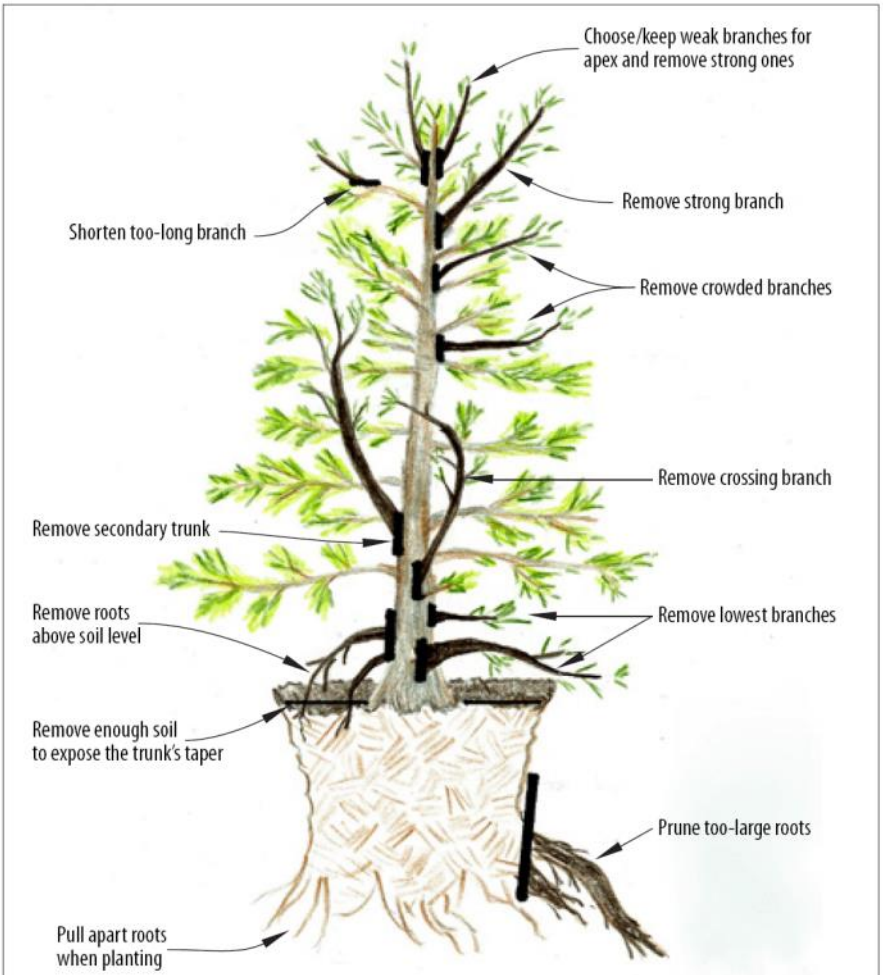


Figure 1—Prune off branches at black marks

REGIONAL GARDENING REPORT Zones are USDA Hardiness Zones

What's your pruning story?

Todd Brody
Santa Ana, California, Zone 10
The graying of the garden

It was our pleasure to be hosts for the 2012 Westcoast Regional Meet, where Nancy Norris came to see the garden as she gave us some help about pruning. I took her advice and cleaned out all of the dead stuff from "inside" the little chamaecyparis trees and was rewarded with a nice little blue-green "tuft" at each bare node. I see that in addition to not letting the light through, the dead stuff holds the moisture against the bark, which leads to rot in those areas. I think that these will come back nicely now. [*Dark moisture also invites slugs and snails to nibble on bark. If they girdle a branch it will die; if it's the trunk, the whole tree will die. —NN*]

Bob Evans
Lafayette, California, Zone 9
200 scale-feet tall

When I started building my railroad in 1994, I had always envisioned a mountainous region with a forest. I had to jackhammer part of a concrete slab in the area where I wanted to build and I used the rubble for the mountain, covering it with topsoil. I consulted Sharon Yankee at MiniForests by Sky about the best trees, and I bought my first 12 trees from her: six dwarf Alberta spruces and six Eric's white cedars. They were about 6-8" tall when I planted them. I used drip irrigation and located them in a sunny spot, so they grew pretty well. I didn't prune them for five years.

Then I went to a pruning clinic by Don Herzog of Miniature Plant Kingdom at a BAGRS annual meeting. For the hands-on clinic, I brought an Eric in a gallon can. Don taught me the basics of pruning, especially not to be afraid to be aggressive, and how to clear space between major branches. I remember leaving for the convention in the morning with a bush and coming home with an almost denuded stem. My wife and son were shocked at the difference.

Armed with my new-found knowledge, I attacked my 3'-tall Erics. Since I hadn't pruned them, the branches had gotten spindly, as the tips were reaching out for more light. I used Don's techniques. Since then I have pruned the trees once a year but don't top them. Using the 10' rule, I think they look good. Besides, in my vision for the railroad, the trees are not a regular forest, but a destination—a "Big Trees" nature area that justifies a quaint, German-style tourist hotel and hiking area with scenes of backpackers, campers, and wildlife.

Six Eric's white cedars (*Chamaecyparis thyoides ericoides*, Zones 4-8) are dwarfs, not miniatures. Bob (at 6'4") holds his hand to show 12 years of growth, at about 6" per year. Had he chosen a conifer rated as a "miniature," such as *Chamaecyparis thyoides* 'Top Point', he'd be showing trees up to his knees or belt. However, this forest fits Bob's expansive garden and stands out as a noteworthy landmark.

Even after years of pruning, most dwarf-conifer branches show their true colors—strong verticality and aiming for the sun. It sends young branches skyrocketing (**photo 3**) or sneaking up inside the shrub to create another trunk. As stewards, we can choose to keep the weaker branches (**photo 4**) and the horizontal or down-turning branchlets. Then we eliminate material, especially strong branches that detract from the shape we seek. This process helps the tree to grow more slowly.

To keep and shorten candelabra-type branches, cut them off at the elbow. Lift up or bend back each candelabra-forming branch, find a little branchlet underneath, and cut the branch at the point that will allow the little branchlet to remain as the new tip, with no stump. By angling the pruners horizontally, not vertically, no other branches will accidentally get cut. See **figure 2** for this concept.

Most gardeners like Japanese steel pruning scissors (**photo 4**) because of their leverage ratio—large handles combined with small steel blades that resist sap adhesion. Their thin blades flatten out against

4. Here we see the first of two sensible choices to get rid of the candelabra effect of multiple branches growing too fast and turning a cone into a sphere. Angle the pruners flat against the trunk. Cut the branch off completely to leave no stump. See the illustration for shortening candelabra branches.

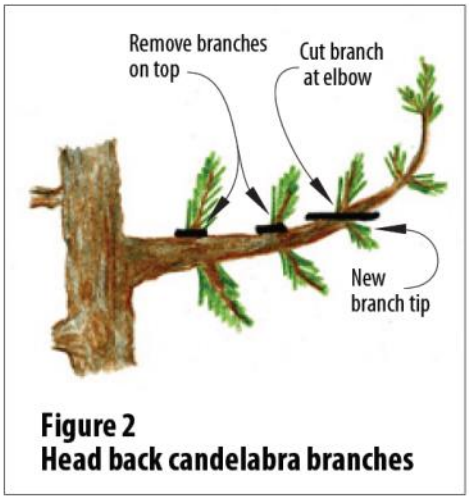


Figure 2
Head back candelabra branches

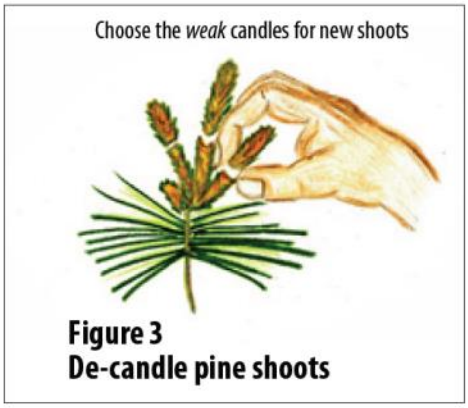


Figure 3
De-candle pine shoots

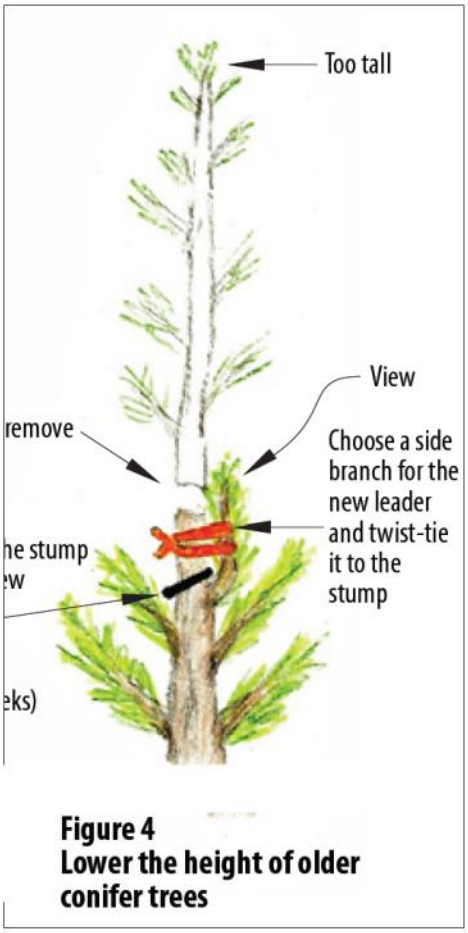


Figure 4
Lower the height of older conifer trees

the trunk to leave behind as little stem as possible. Stumps are ugly and sometimes sprout new branches. Gardeners with arthritic or other hand issues will like the ease of using ergonomically shaped or ratcheted pruners.

Time to practice

People, like Amadeus Mozart, Kobe Bryant, and Pablo Picasso all spent at least 10 years of practice to become successful. They practiced with purpose, learning by doing, as well as learning from others. Because we all have different learning styles, I've illustrated some of the most basic pruning cuts needed for our small bonsai-like conifer trees in **figures 1-4**.

Practice and reap the rewards. For example, once you've got the hang of aesthetic pruning, you'll be able to prune the full-size trees in your yard. Also, you'll be able to take a less expensive, non-dwarf conifer or 1:1 tree seedling from your local forest and keep it small (**photos 5** and **6**). In the next issue we'll look at broadleaf shrubs and some groundcovers to learn how to keep them small.

5. Neither a dwarf nor a miniature, this Atlas cedar (*Cedrus atlantica*, Zones 6-9) would be on its way to 60' or taller in its 10 years in the garden railway, except for regular pruning, perhaps two or three times a year. The best times are just before winter and early summer for keeping growth in check with the least damage.

6. The same Atlas cedar from photo 5 has been pruned in early summer after the spring flush of growth has started to harden. The leader has been shortened in height and all branches have been shortened in width. Fortunately, few new branches needed removing because of the age of this specimen and diligent pruning in previous years. A full but recently pruned dwarf Alberta spruce lives behind and to the right.

Dave's Corner

by Dave Frediani

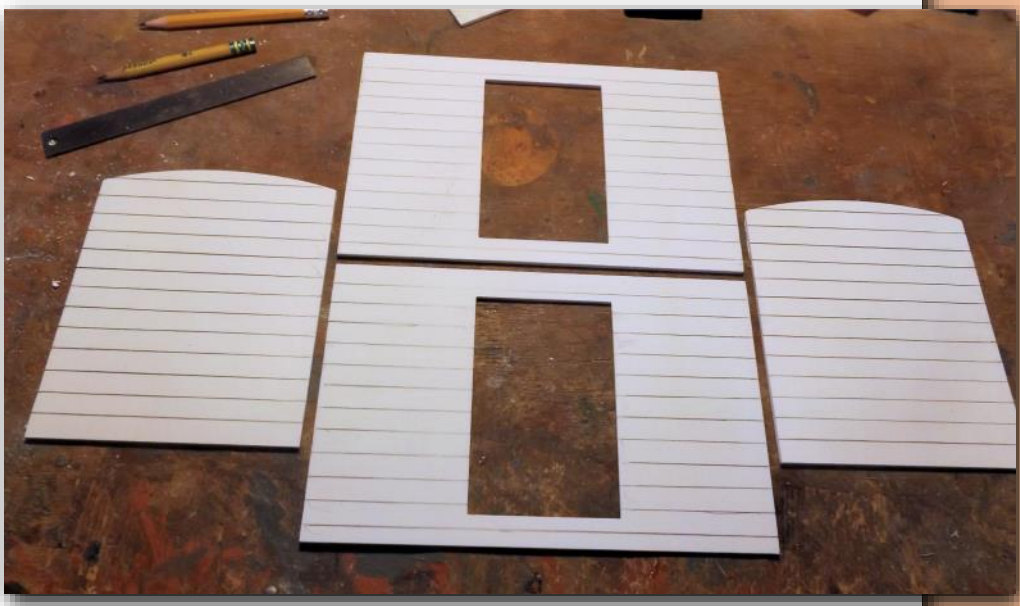
Dave Frediani lives in Sonora, California and, among his many talents, constructs 7/8 scale rolling stock.

BUILDING A SIMPLE 7/8 SCALE BOXCAR

I'm building a short freelance 7/8 scale boxcar for a friend and thought that I would share the process. First of all, I will be building this car out of 1/16" and 1/8" styrene with the help of some Evergreen styrene strips.

The measurements of the four main body parts are a length of 8-11/16", a width of 4-7/8" and a height of 6", before any trim is added.

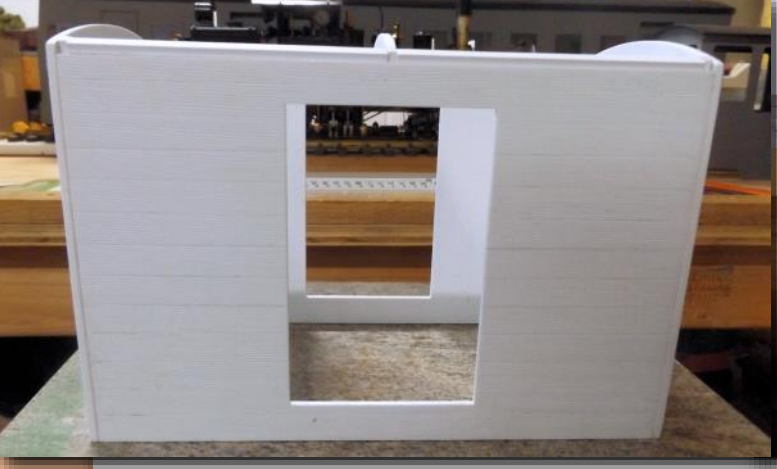
The two sides and ends of this car will be built of 1/8" styrene, and you can see the planking drawn out in pencil that will soon be scribed with a pocket knife and a ruler to form planking.



After the planking is scored, I will use a small piece of a hacksaw blade to scribe the simulated wood grain.

This photo shows the four main pieces of the boxcars body.

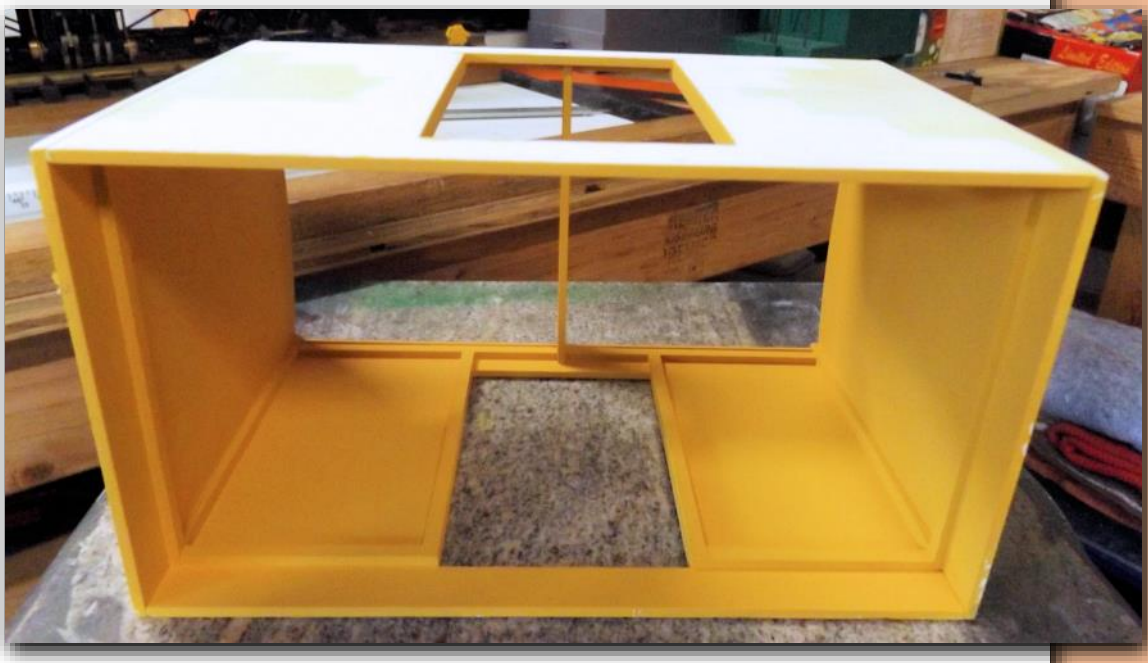
In the next photos you can see the four main pieces with the planking and wood grain completed, and glued together with Evergreen #188 strips in the corners and between the center roof rib for extra strength. I also added more of the Evergreen #188 strips to line the inside of the doors as well as along the lower insides at 5/8" from the bottom to support the floor to be installed later on. It's hard to see the planking and wood grain, but it's there.



I normally do planking and wood grain to the insides of all my cars, but this car will have all the locomotive's equipment for sound and R/C control as well as its batteries inside the car, so I saw no need to put a lot of detail inside the car.

The next step was to paint the inside of the car before installing the roof. It's so much easier to spray the inside of the car without the roof in place. After the roof is in place you can spray the inside of the roof.

Here is the inside of the car painted and ready for the roof.

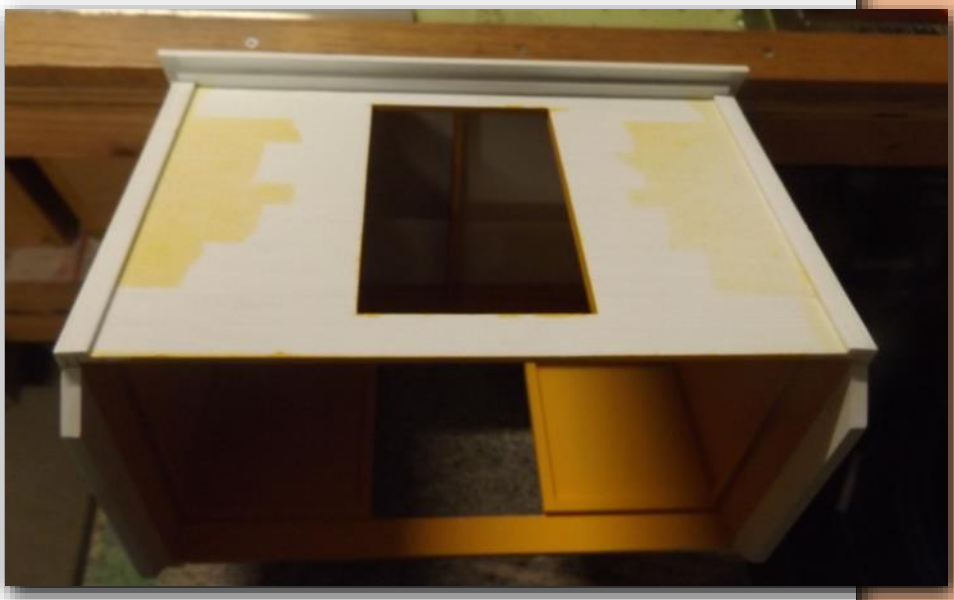


The roof will be made from 1/16" styrene. To start with, I cut a 1/16" sheet of styrene about 5/8" larger than the total size of the car. After installing the roof and leaving a 5/8" overhang, it's glued in place. The roof will be trimmed out after the glue dries.

After the roof was dry I trimmed the sides of the roof only with Evergreen #169 styrene strips that will lay against the sidewall and the roof of the car.

Next I glued Evergreen #159 styrene strips under the untrimmed roof, under the sides and ends of the bottom of the roof. On the sides of the roof only, I also glued Evergreen #155 strips alongside the #159 strips to form a wider roof overhang to make room for the outside bracing, to be installed later on. Now the roof can be trimmed to meet the styrene strips that were glued to the bottom of the roof.

Here's two views of the completed roof with it trimmed out.



With the roof all trimmed out, it's time to start on the outside bracing. In the above photos, you can see the corner bracing already installed. All the outside bracing is going to be Evergreen #169 and #168 strips that are scribed to look like wood grain as with all the other outside pieces.

In the next photos you can see all the outside bracing done using Evergreen #169 and #168. After completing all the outside bracing, I added doorstops using #189 strips over the #169 strips to stop the sliding doors when closed. I also added #187 strips, which are more like a small square strip on the top and bottom of #169 strips running horizontal that will become the tracks for the sliding doors. Last of all, I used #159 strips to go over the #187 strips to form top and bottom channels for the doors to slide in. I only added #159 strips on the top channels, so that I will be able to install the doors. After painting I will add the bottom #159 strips. All the numbers I used refer to Evergreen strips.

Here are views of the completed outside bracing, and an end view with floor ready to be installed.

For the doors I used Evergreen #4250 V-Groove and glued 1/16" styrene to the backs of the grooved Evergreen, which gave me the perfect thickness for the doors to slide back and forth in their channels.

Here you can see the two mounts that will support the truck assemblies. There's nothing special about them; the only thing is that they need to be 3/8" height where the trucks pivot on them.

I'm using two Bachmann 2 axle truck assemblies complete with metal wheels. The total cost of 1/8" & 1/16"styrene and Evergreen styrene strips used to complete this car is less then $35.00.

I've been waiting for couplers from Ozark Miniatures for some time now. They don't answer their phone or return emails, or fax's, so I had to take matters into my own hands. This is what I came up with. They still need a little more work, but they'll work out for now. I used six pieces of scrap 1/8" styrene, two longer pieces for the top and bottom, and four shorter pieces to form the pocket for the link & pins. Then I just cut and sanded them to the shape I wanted.

Here's the pair of couplers that I made from scrap styrene.

After working on trains for sometime now, you tend to have a lot of used parts laying around. The handrails, trucks, and wheels all came from my used parts box. To start a project like this, just check around and see what you can come up with; you may be amazed at what you find. ■

East Devil Hills Modeling Group

by Henner Meinhold

Henner Meinhold resides in Berlin, Germany. The *East Devil Hills Modeling Group* meets regularly to create, collaborate, and share incredibly machined models.

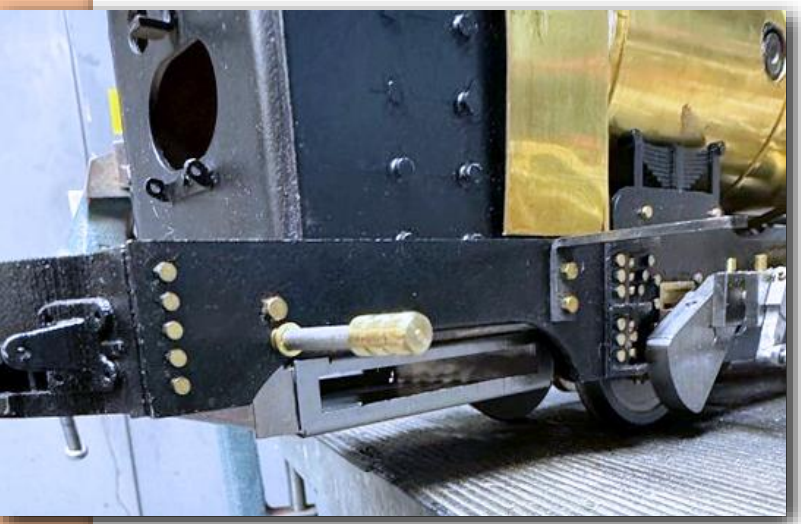
Rob's Darjeeling is nearing completion. He finished the sand-box on top of the couplers. I think some poor soul had to sit there and shovel the sand on the rails.

Here is a photo with the boiler added:

And, here is a photo with the lid opened. Of course on a model loco there is no sand, but Rob cleverly hid the lubricator in the box. So, no little people are endangered ;-):

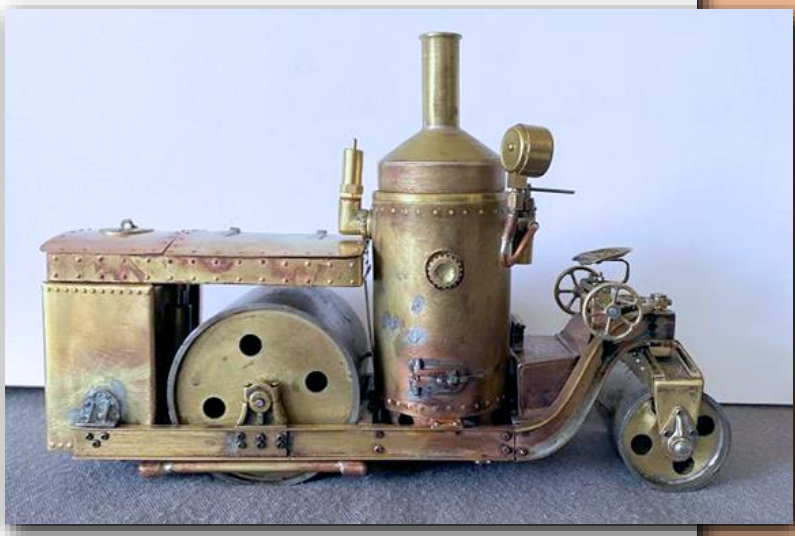
Next up he tackled the grate and ash pan, as this loco will be coal fired.

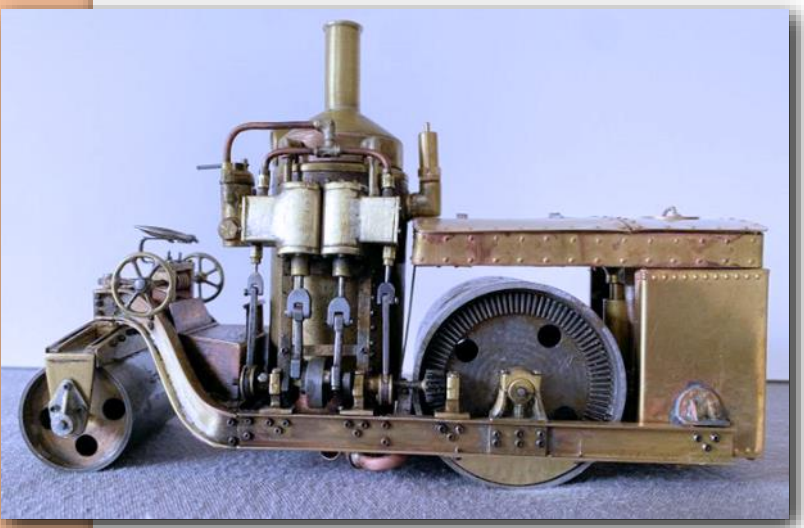
Here is the grate and ash pan installed:



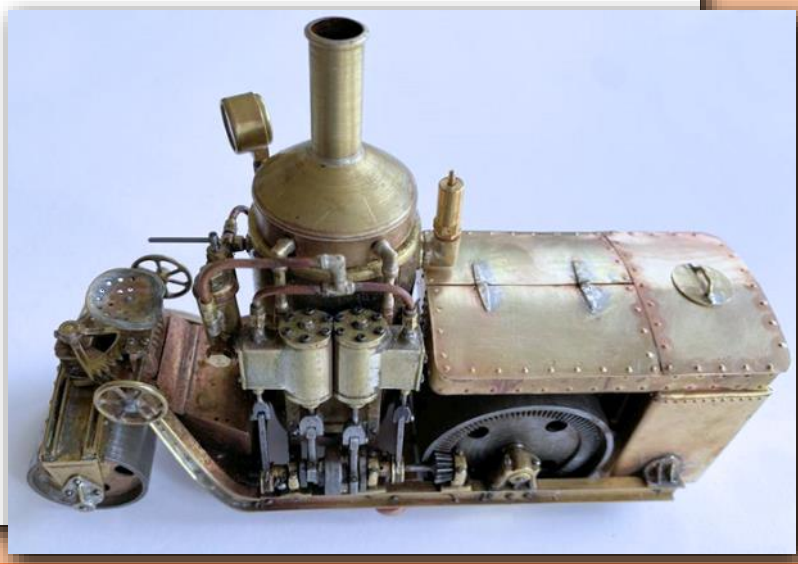
Ron Malouf sent me some more pictures of his beautiful steam roller in 1:20.

Like a Shay this roller is asymmetric with the engine on one side. Check out the integrated bevel gear:



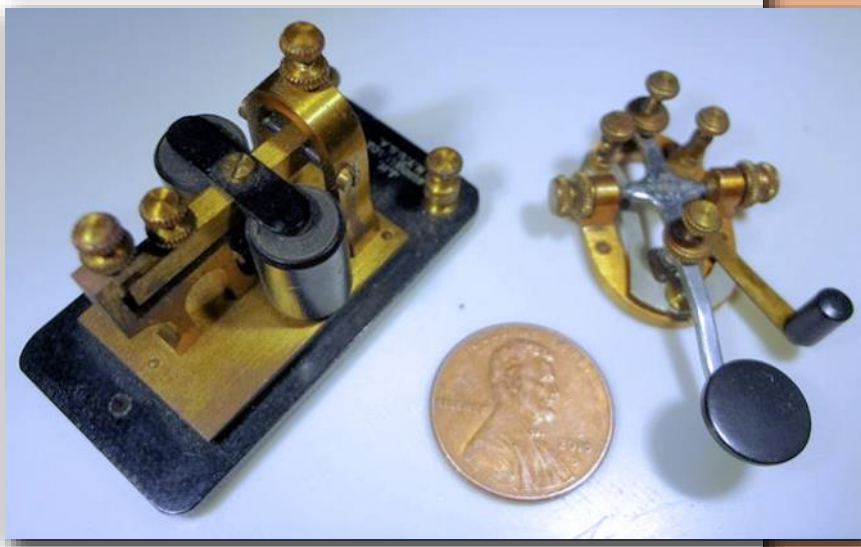


Here is another view from the top:



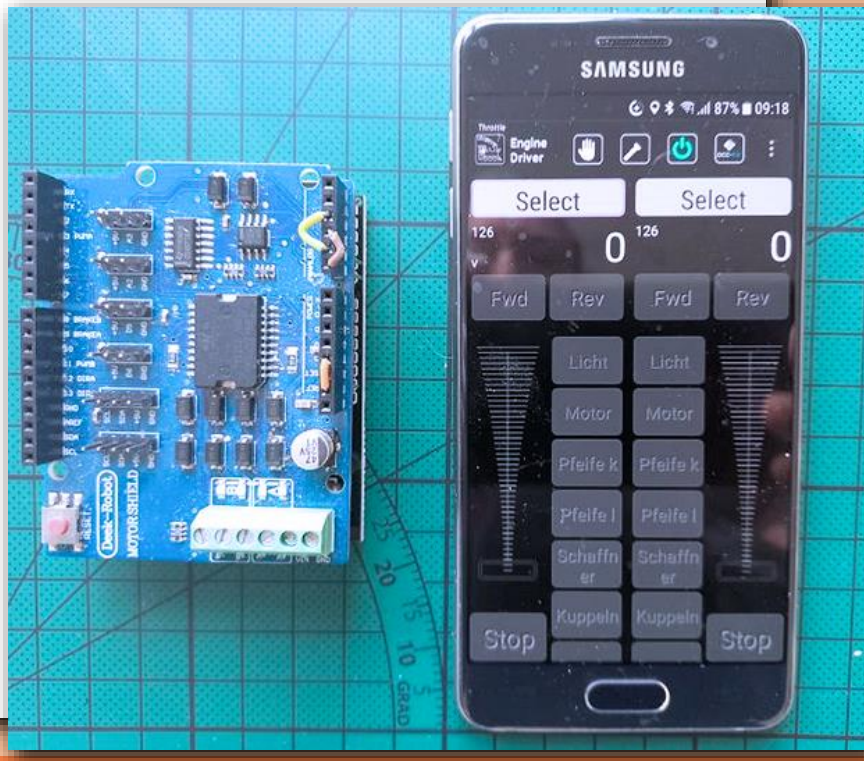
Bill Mansell is still modifying the good old Mamod. Here is newest version with spoked wheels and a beautiful stack. It reminds me of the Rowland Emmet caricatures:

Dennis is still waiting for new “orders” for his CNC mill. Meanwhile he restored a beautiful Morse telegraph set. A part was missing. He found out that the company is still in business and he managed to get the spare part:



I digressed from steam and built some wireless command stations for DCC control. The parts cost less than an incredible $10 (in words: ten). No soldering required. If someone is interested, please PM me.

Henner ■



Postcards from the Past

By Bill Ralph

Bill Ralph operates the *Porcupine Gulch Railroad*, and knows a thing or two about amusement parks and postcards.

WEST VIRGINIA UNIVERSITY PERSONAL RAPID TRANSIT

WVU Personal Rapid Transit connects downtown Morgantown with West Virginia University's three campuses using small electric automated cars operating on a 3.6 mile long concrete ground level and raised guideway. The government funded experimental trackless system designed and constructed by a consortium led by Boeing Vertol was completed in 1975. PRT's seventy-three enclosed vehicles carry up to twenty passengers with daily ridership of sixteen thousand students and faculty. The system's improvements over Disneyland's People Mover, completed eight years earlier, include the placement of seventy horsepower direct current electric motors aboard the ride vehicles rather than mounted in the roadway and pushing the vehicles ahead on rubber tires. The hybrid system is also simpler to maintain and speeds up to thirty mph compared to Disney's 7 mph.

Power is collected from rails on the side of the guideway similar to that of BART, but unlike BART and Disneyland's People Mover, the WVU PRT's concrete guideway is embedded with pipes that circulate heated gycol solution to melt snow and ice during West Virginia's freezing winters. ■

MEMBER UPDATES

From Dan Turgeon: Interesting story about the Knott's Berry Farm (SoCal) #41 Locomotive was shipped to CO for a major overhaul during Covid. Restoration of the 143-year-old locomotive was carried out by American Heritage Railways, which owns the Durango & Silverton Narrow Gauge Railroad.

"Durango railroad revives 143-year-old locomotive," Shane Benjamin, *The Durango Herald*, Jan 9, 2024.

Also, garden railroaders aren't the only ones who have problems maintaining their tracks!
Durango train gets stranded north of Hermosa

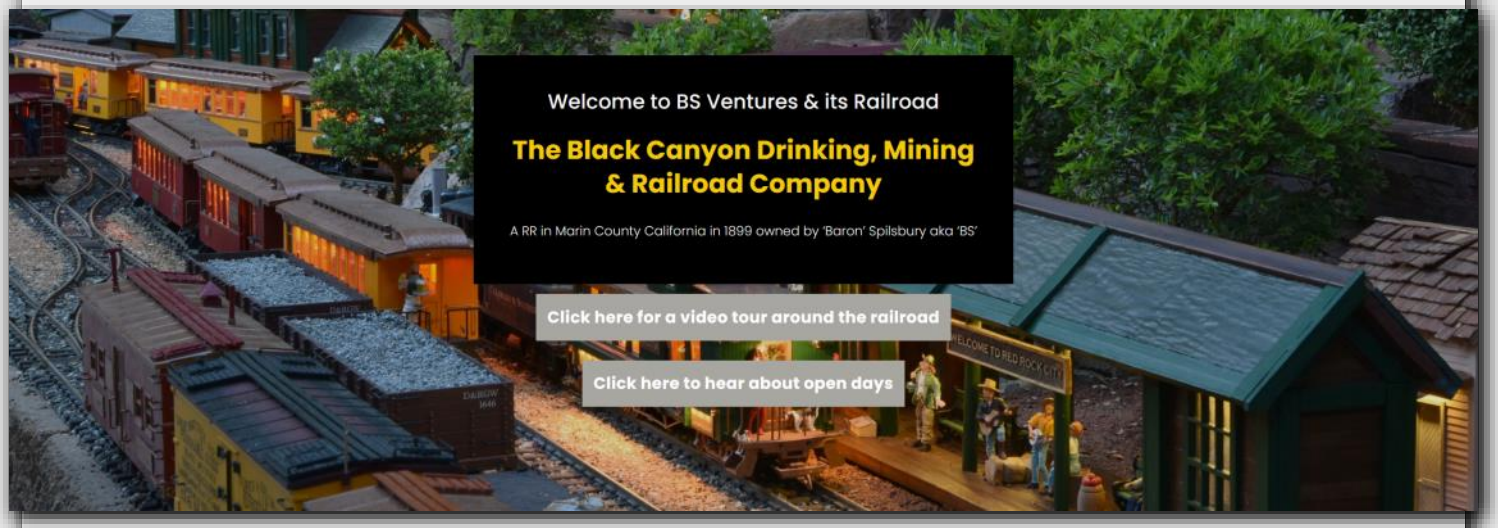
And finally, if you have never had the chance to ride the Durango and Silverton, here is a YouTube video that gives you the full ride experience:

Scenic Round Trip Silverton Train

From Nancy Schramm: Just wanted to mention and make sure that the club was aware that Dale McAnally's wife Pat passed on 3 October 2023. Dale has been in the club for ages and organized south county for years. Pat's obituary notes that, "A Celebration of Life with family and friends will be held in the spring, which was her favorite time of the year. Pat will be greatly missed by all who knew her!"

From Mick Spilsbury: I put up a website for my railroad. You may want to visit! There are videos and images and, of course, plenty of BS!

Check it out here: The Black Canyon Drinking, Mining & Railroad Company

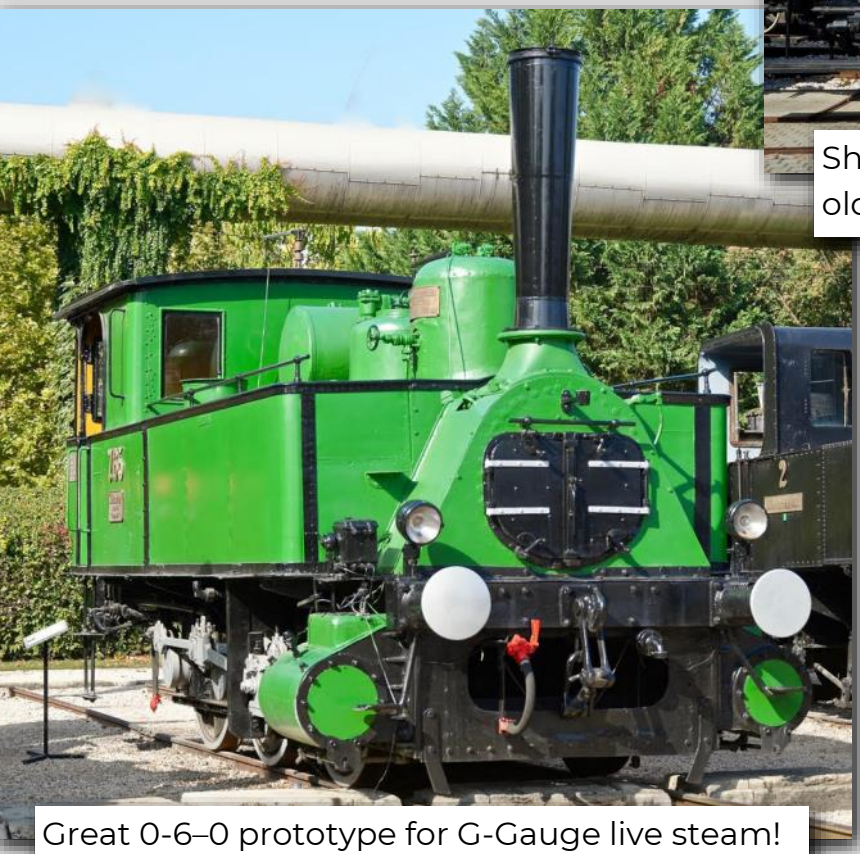


MEMBER UPDATES

From Morton Grosser: Sharona and I recently returned from a 3½ week trip to Eastern Europe. One of our train-related highlights was a visit to the huge Hungarian National Railway Museum. Here are some photos from the trip that our BAGRS members might enjoy.

Elegant 4-6-0 Ten Wheeler express locomotive

Sharona Wolff on beautifully restored 120-year-old Hungarian Postal car



Great 0-6–0 prototype for G-Gauge live steam!

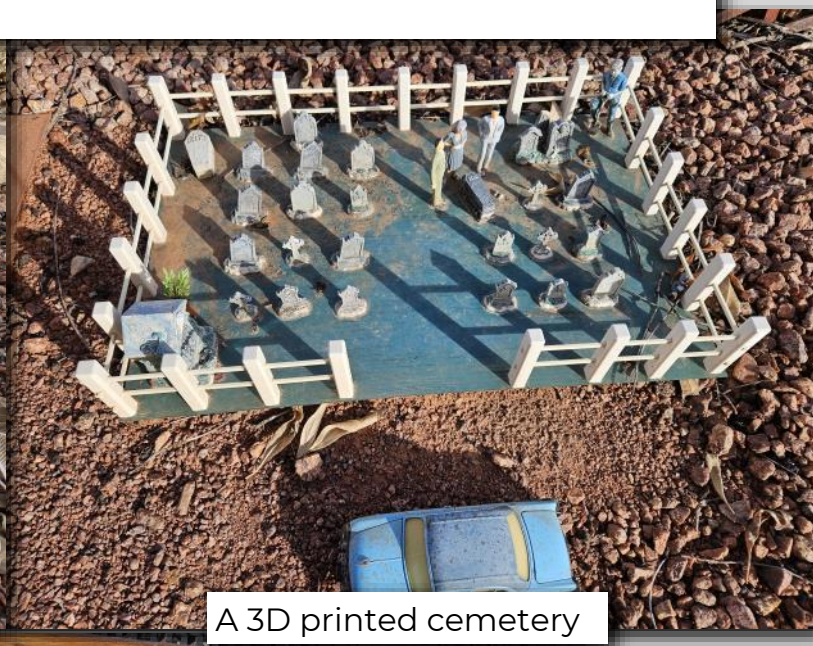
One of many rooms in the Hungarian National Model Railway Club headquarters

MEMBER UPDATES

From Roger Nicholson: I had the opportunity to visit BAGRS member Keith Johnson's *SBG Railroad* in St. George, Utah, a few weeks ago. The Johnsons used to live in the Bay Area, and when they moved to St. George, they continued their membership in BAGRS as well as joining the local *Color Country Model Railroad Club*, which has a G Scale railroad group. Since my parents also live in St. George (and are now members of BAGRS as well), I actually had the opportunity to visit a BAGRS layout while I was there visiting my parents! After working to help my dad pour more concrete for his "train shed," we headed over to the Johnson's to take a look. Keith is working on an article about G Scale railroading in southern Utah, so you will hear more about this and about Keith's layout in the future.

For now, one of the very interesting features of the layout is the extensive use of 3D printed buildings to replace older wooden structures that have succumbed to wind and sun (which can be pretty strong in St. George!). Keith uses PETG to print his outdoor buildings, and they have held up very nicely. So, here are a few examples of what 3D printing can do on your railroad.

On the left is a 3D printed PETG structure
On the right is an original wooden structure



A 3D printed cemetery

A 3D printed military huts and firing range

THE LAST PAGE

Just happened to spot this along the road…

If you ever happen to be driving along the Oregon coast in the vicinity of Tillamook (the place where cheese and ice cream are made), you may spot this “miniature” 24-inch gauge 4-8-4 “Northern.” It sits outside the *Blue Heron French Cheese Company* on Highway 101, along with a collection of other antique equipment and a petting zoo. It looks like it used to actually run at some point in the past, but hasn’t been steamed up in a very long time.

TRELLIS AND TRESTLE

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