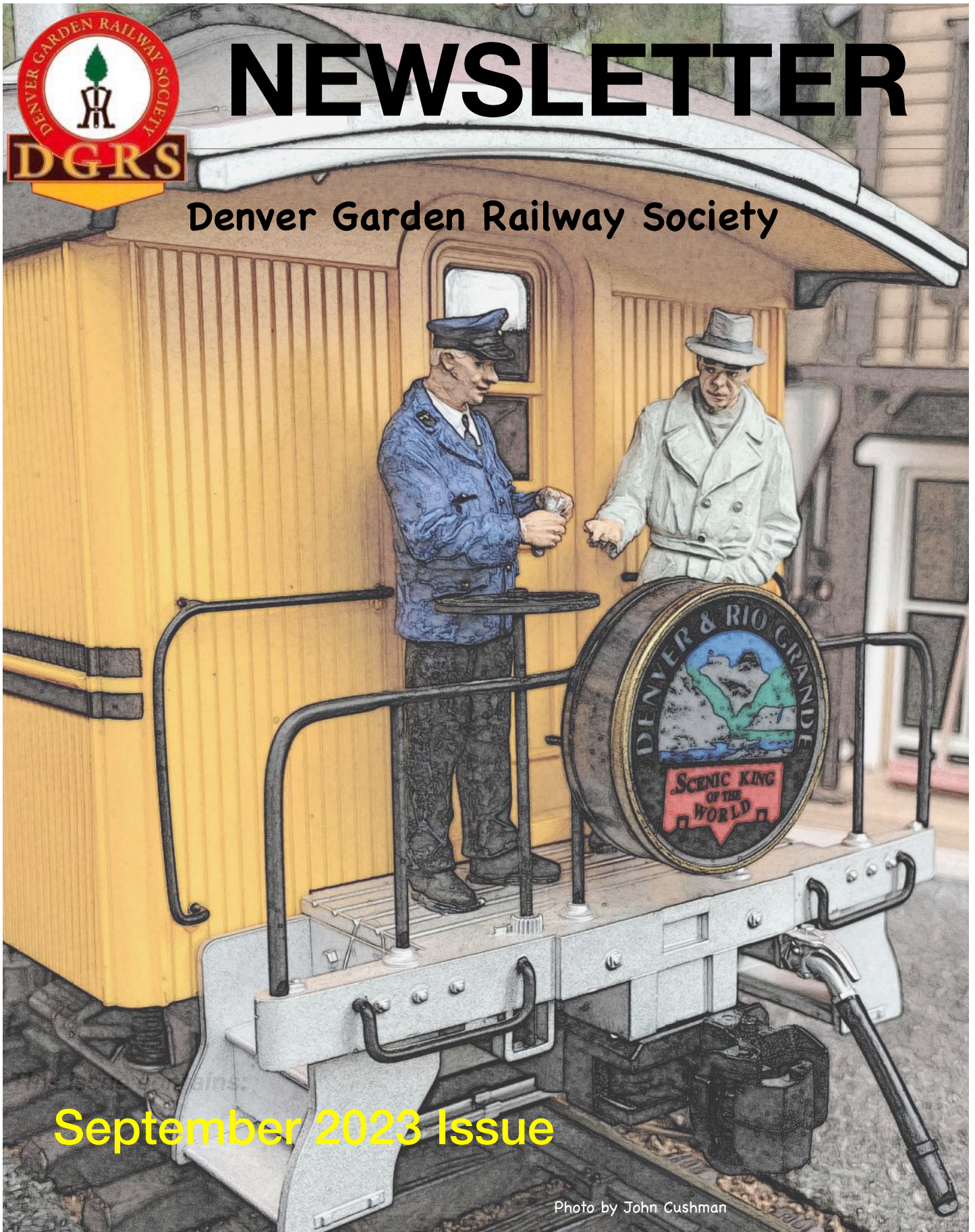




# NEWSLETTER

Denver Garden Railway Society



September 2023 Issue

Photo by John Cushman



## View From the Caboose

Greetings DGRS members. Our extended hot weather has hopefully allowed many of you to catch up on some needed repairs and run some trains, better late than never! I had the opportunity to assist our sole sustaining member, The Gardens on Quail, with some minor wiring issues and make some recommendations on the purchase of more reliable locomotives. The residents at this facility run these trains hard and the owner, Chuck Ochsner, is really passionate about providing this experience for them. Occasionally we have

members who need assistance with their railways and I encourage you, as DGRS members to assist if you can.

A huge Thank You to the Leise's and the entire Larkspur Consolidated Railroad Crew for their hard work to prepare for hosting our annual meeting/picnic on August 26th. Thank you for all who attended and providing the great food and fellowship, once again our hospitality lead, Michele Miller, organized a great meal. This was another memorable meeting and I always enjoy seeing the new clever additions along the route. Fortunately, I was two cars ahead of Achmed's camel when we came to a stop!

### Traveling Finds:

It's always fun to stumble upon an unexpected garden railway while you are traveling as happened to me this week while walking down main street in Frisco.

Located in the outdoor courtyard of the Frisco Lodge Bed and Breakfast (under the American flag in the photo) is a very eclectic, and not too level, elevated garden railway loop.

This long oval features a rustic bridge and tunnel, wood carvings, a waterfall and pond and a very uniquely constructed guard rail system!



Eric Petty



Eric Petty



Eric Petty

September offers many opportunities for DGRS members to get out and get involved. **Day Out With Thomas**, September 9-10, 16-17, 23-24 DGRS Railway operators needed, bring out that Thomas set and give it some track time. **DGRS Member Garden Railway Tours**, two on Saturday September 9, one on Sunday, September 10 and one on Saturday, September 16th.

We will resume our monthly meetings at the Clements Community Center this month on **September 26, 7:00 pm**. Please plan to participate in the Share and Tell segment of the meeting and show off something you have built or newly acquired.

Hope to see you out and about in September!

**Eric Petty**

### On the Cover

John Cushman took this photo of his Prieser figures on the AMS Jackson & Sharp Passenger Coach.



Pete Hendel

**Kent & Karn Crysedale, The K & C line  
Sept 9-10, 2023**

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### *Newsletter Contributors this Month - A Special Thank You*

- |                        |                                |                       |                    |
|------------------------|--------------------------------|-----------------------|--------------------|
| <b>Al Blount</b>       | <b>Doug Mayes &amp; Family</b> | <b>John Kaufman</b>   |                    |
| <b>Bob Leise</b>       | <b>Eric Petty</b>              | <b>Marilou Hendel</b> |                    |
|                        | <b>Jack Shelly</b>             | <b>Mathew Graham</b>  | <b>Pete Lammer</b> |
| <b>Etzel Willhoit</b>  | <b>Jim Desautel</b>            | <b>Michele Miller</b> | <b>Ron Keiser</b>  |
| <b>Cherylene Evans</b> | <b>John Cushman</b>            | <b>Nathan Bedford</b> |                    |
|                        | <b>John Hart</b>               | <b>Pam McGuire</b>    |                    |

# Programs

## September 26, 2023



Our regular General Meeting will be held at the Clements Community Center. Ed Dickens, head of the UP steam program, presents the story of the Union Pacific Heritage Donation Special.

## October 24, 2023

Our regular General Meeting will be held at the Clements Community Center. Speaker will be Michelle Kempema.

## November 28, 2023

Our regular General Meeting will be held at the Clements Community Center. Speaker will be Tom Klinger on the "C & S" books.

## January 30, 2024

Our regular General Meeting will be held at the Clements Community Center. James Mackay will talk on the South Park Restoration program.

## February 27, 2024

Our Annual Swap Meet and Pizza night along with our regular General Meeting will be held at the Clements Community Center.

## March 26, 2024

To be determined

**Ron Keiser**



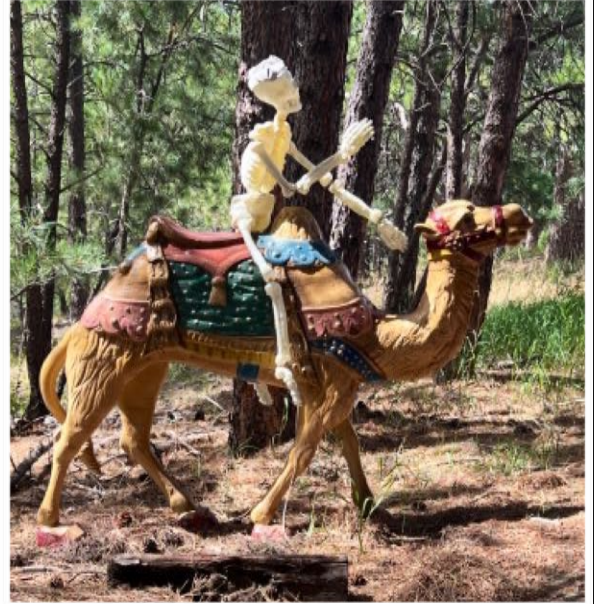
### From the July Meeting at the Millers:

Craig Evans showed the beginnings of his Steam Powered Heisler. Now he has it operational with REAL steam.

Go to: <https://photos.app.goo.gl/oZkAS4gBJ6S9nrLp8> or <https://photos.google.com/>

## Hospitality

Our August General Meeting at the Leise Farm in Larkspur was well attended. While the day prior was wet and gloomy, Saturday was warm and sunny. That and the promise of good food and train rides following might have had something to do with the great turnout. Many thanks to Bob and Glen Leise and the Larkspur Consolidated RR for graciously hosting. A lot of work went into preparing for us, and it was great to see the new features. Thanks as well to all who brought great side dishes and recipes to share. I think I've found a couple new favorites to try!



**GENERAL MEETING** on Tuesday September 26th at 7pm brings us back to the Clements Center in Lakewood. Snacks will be Cookies and Cobblers. Since the recipe sharing worked last month, let's try it again!

I'll be bringing apple and Palisade peach cobblers (and maybe a blueberry if I can find a good recipe!). Anyone with a rhubarb recipe to bring?...

If you'd like to bring either cookies or a favorite cobbler, please let me know and I'll adjust my amount.

**OCTOBER GENERAL MEETING** will feature Halloween themed snacks. Bring your scariest and yummiest creations!

**NOVEMBER GENERAL MEETING** on Tuesday November 28th will feature snacks from looking ahead to the winter holidays (since we'll miss the chance to share our holiday favorites with no December meeting).

**POST HOLIDAY PARTY:** if you want a say, make sure to be at the September 26th meeting. We currently have lunch reservations at both the Old Spaghetti Factory and Cinzzettis (for Sunday January 7th) but I'll need to let them know for certain by November at the latest. If no clear winner, we'll go with Old Spaghetti Factory for a change of scenery!

**FEBRUARY GENERAL MEETING** on February 27th 2024, will pair our traditional Pizza Party with the winter swap meet. All you can eat pizza on the club! And of course the chance to wheel and deal and catch up!

We hope to see you at these events. As always, find me if we haven't talked in a while, or you're new to the DGRS. We do have a good number of new members. Please remember to wear your badge if you already have one, so we can put names together with faces. For those who have ordered badges, there are some in the DGRS layout building, waiting to be picked up. And we'll bring them to the September meeting.

I can't wait to see everyone! Reach out if you have any questions!

**Michele Miller**

## Museum Happenings

Preparations for the 2023 Narrow Gauge Convention visit to the CRRM and Day Out With Thomas events started several weeks earlier in August with Michele Miller and Steve Hahn doing the the endless trimming of the Dwarf Alberta Spruce trees. Other plants and trees were also much needed track work was started and has been ongoing.

Several people scraped off the peeling paint on the damaged areas of the deck so new paint could be applied after a coat of Peel Stop binder/primer could be applied.

The Deck table tops were in very bad shape and have been covered with sheet material, sealed and painted. John Meixel Repaired the LGB mogul for use again. It will be restricted to pulling LGB or Bachman light weight cars in the hope of less strain on the drive train.

Larry Dorsey has rescued yet another building from ruin. He fixed the wood and gave it a coat of very nice colors.



Etzel Willholt

Saturday, Sept 2 was a good day to get some much needed work done at the museum. Michele Miller brought donuts, greeted visitors and dug up weeds.

Craig Evans was busy working on cleaning leaves and other debris from around the fence. Doug Mayes brought buckets of ballast and got it packed into place under and around the track. Extra ballast was used by Peter Gagnon the rose garden.

Dean Vanderberg played pond master cleaning the muck from the pond with Dave Miller. Dean left with plans to return later in the week with more equipment and supplies to finish the job. Ann and Rich Loring repaired the fence, then cleaned little buildings and helped with the weeding.

Cherylene Evans weeded and Etzel Willholt proved to be a most effective master of solving issues for everyone and coordinating our efforts.

It was a very productive day and the cloud cover helped to keep us all from cooking in the sun.



It was great when Max Longworth and his dad, Jason arrived to run trains while we worked. We made good progress, but there is more to be done. Please consider joining us for our next work session scheduled for October 7th. Bring you knee pads and gloves and let's get it done together!

## Alan Olson & Cherylene Evans



CUSTOM PAINTED BATTERY POWERED TRAIN BY JOHN KOS @ CRRM

## THE COLORADO RAILROAD MUSEUM

PRESENTS

**THE HIGH PLAINS 3 RAILERS' O-GAUGE MODEL RAILROAD**

**OCTOBER 7 & 8, 2023**

ENJOY THE SIGHTS AND SOUNDS OF CLASSIC TOY TRAINS

FROM 1918 TO THE PRESENT.

**LIONEL – MTH – WILLIAMS - MARX**

**BIG BOYS – CHALLENGERS – THE BLUE COMET – NORTHERNS**

DON'T MISS OUR SEARCH & FIND.

**COLORADO RAILROAD MUSEUM**

**17155 W. 44<sup>TH</sup> AVENUE, GOLDEN, CO 80403**

[WWW.COLORADORAILROADMUSEUM.ORG](http://WWW.COLORADORAILROADMUSEUM.ORG)

GENERAL ADMISSION RATES APPLY WHICH INCLUDES ACCESS TO ALL  
MUSEUM EXHIBITS INCLUDING

**THE DENVER GARDEN RAILWAY SOCIETY'S G-SCALE LAYOUT.**





## Train News

### Rocky Mountain Railroad Club

This page shows interesting railroad happenings as well as breaking railroad news. Check it often as you may learn about new events and ideas for your railroad. [Rocky Mountain News and Photos](#).

### Rail Pictures and Videos

Photos from all over the US. You can select the locomotive type, railroad, location, etc.

<http://www.railpictures.net>

### Colorado Railroads

Colorado Railroads, a site for the fans of past and present railroads serving the Centennial State.

<http://www.corailroads.com/>

### Abandoned Rails

Featuring thousands of miles of abandoned railroad routes in North America, illustrated with maps, pictures, and history.

<https://www.abandonedrails.com/>

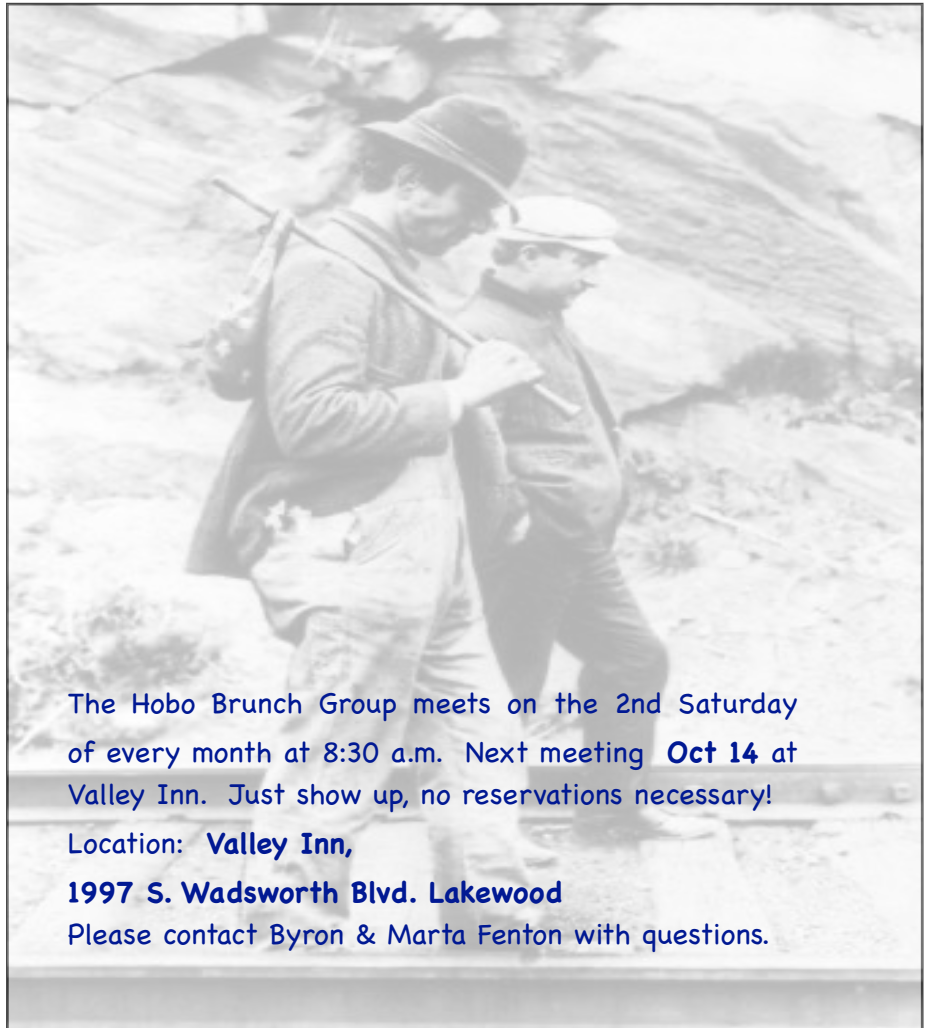
## Outreach at the Museum

We continue to share the hobby at the DGRS layout at the Museum. We also have potential opportunities at the Children's Hospital and Ronald McDonald House, both in Aurora. In the past, the club has had a simple layout at Tagawa Gardens around the holidays. More to come on that as well at the September 26th General Meeting.

Want to be involved? Talk with Terry Foley, Joe Foss, or Michele Miller at the next meeting, or via phone or email (see member list at end of newsletter for contact info).

**Michele Miller**

## Hobo Brunch



The Hobo Brunch Group meets on the 2nd Saturday of every month at 8:30 a.m. Next meeting **Oct 14** at Valley Inn. Just show up, no reservations necessary!

Location: **Valley Inn,**

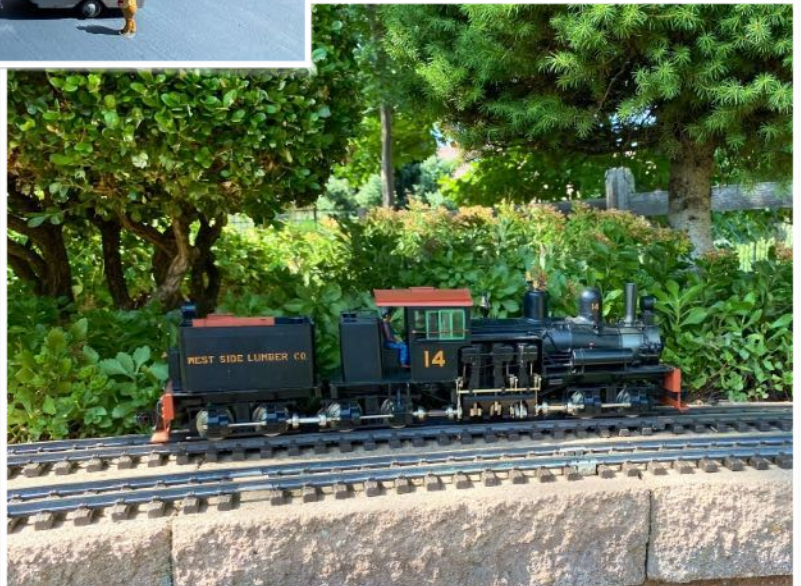
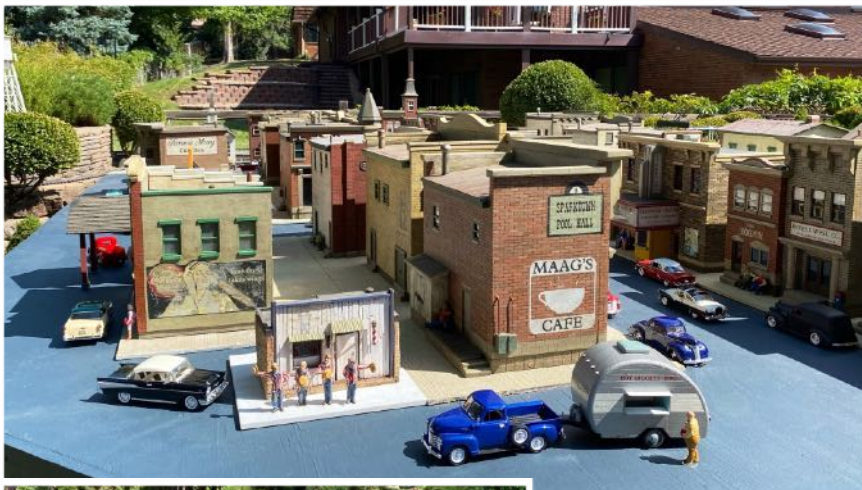
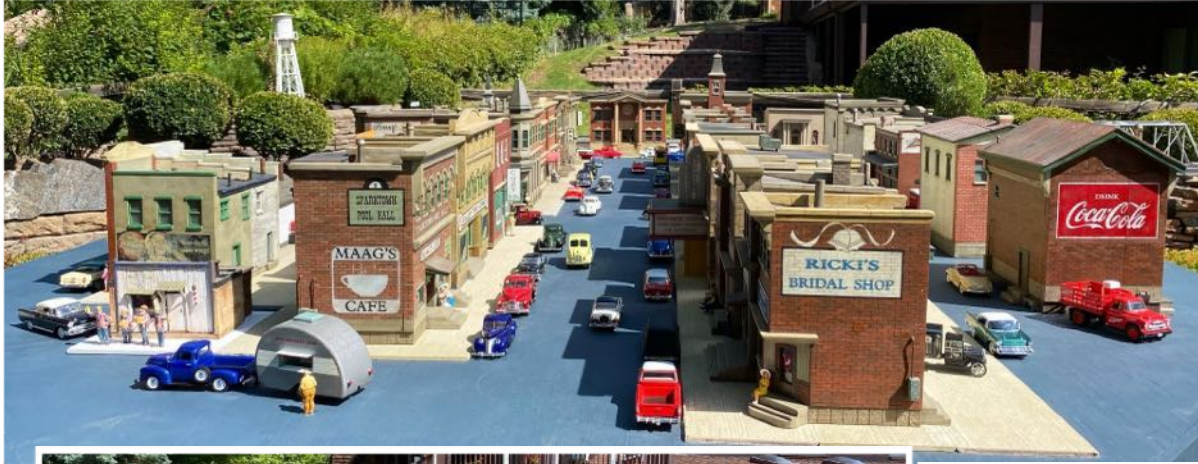
**1997 S. Wadsworth Blvd. Lakewood**

Please contact Byron & Marta Fenton with questions.

# Summer Tours

## August 20, 2023 - Doug & Ricki Mayes, Colorado & Sparktown RR

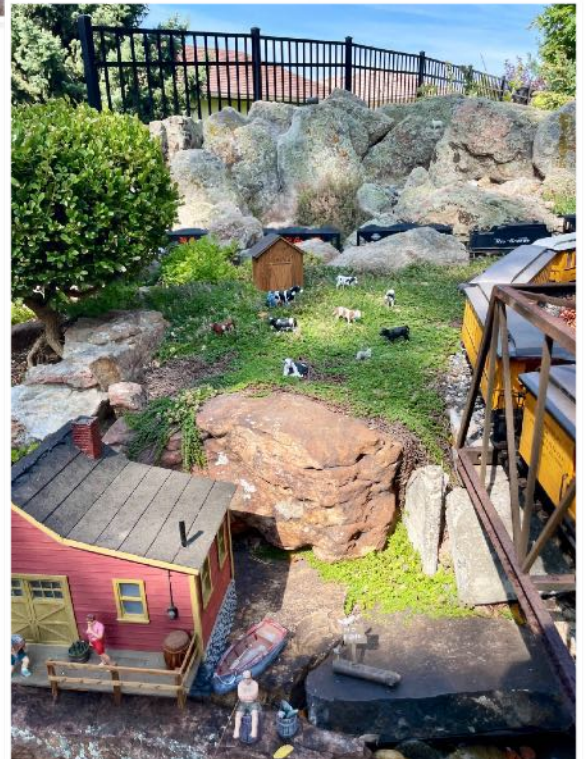
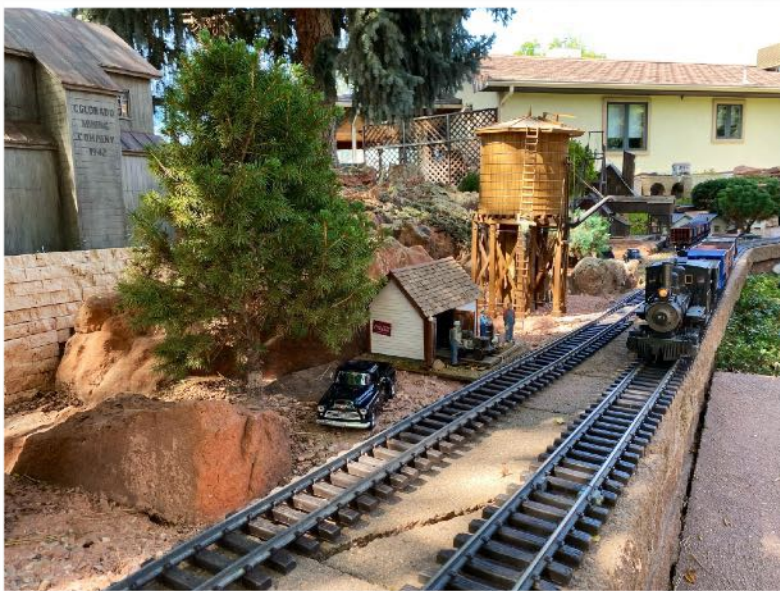
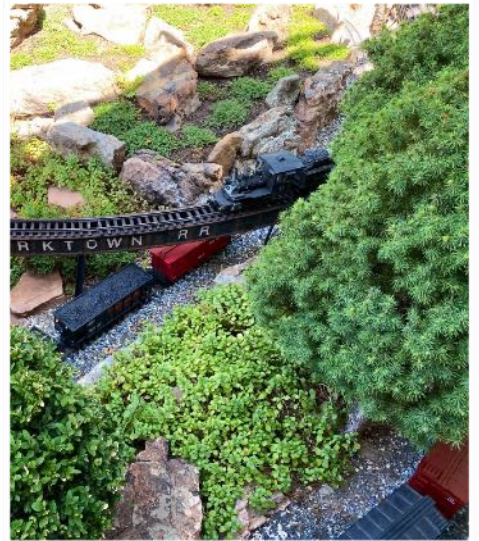
(All Photos by Paige Sorensen)



# Summer Tours (cont)

## August 20, 2023 - Doug & Ricki Mayes, Colorado & Sparktown RR

(All Photos by Paige Sorensen)



# CLINICS

So that we never stop learning, we will include information from past clinics, other clubs and organizations in this section of the newsletter.

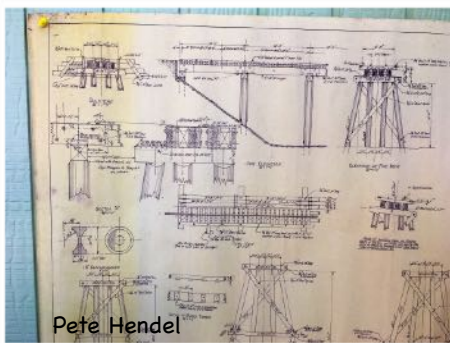
Hopefully, each month you should find something here that will be of interest to some of you, even if it was from years ago.

**Track Laying Clinic.** At the DGRS Meeting at the LCRR, two long-standing members of the club approached me with an idea for a clinic for our new members – Tips for Laying Track. I thought it was a good idea, so I approached two other members who I consider to be excellent track layers – Byron Fenton and Bob Poncar. I asked them if they would be open for helping with such a clinic. And both agreed. So, now we would like to know if there is interest in the club in attending such a clinic. Please contact me via email (see my address in the members only section) if you would like to attend such a clinic. If you don't want to use email, please call me on my phone. If there is adequate interest, we will present such a clinic. We could discuss such topics as preparing the ground, using ballast, suggested radius for curves, electrical connections, bridges, water features, or anything else that could benefit our new members, or any members for that matter. Please let me know your preferences. Thanks.

## Jim Desautel

**Please see the article on Miniature Painting later in this issue.**

Photos from George Fling's Trestle/Bridge Clinic on June 4. (no you didn't miss it, is was in 2016)



## Trestle building

George Fling makes the trestle building look easy and it can be, but there are a few things that you did not learn in George Fling's Trestle Clinic:

Buy twice as much cedar as you think you will need. Cedar is like ballast – it just disappears

Staples also disappear like ballast. Don't bother buying the staples in boxes of 1000 get the big box the first time or buy your second box when you go back for more cedar.

Narrow crown staple have twice the holding power of a single brad nail.

Use a diagonal wire cutter to trim the staples that missed the board, and add another staple to that joint.

Assemble your diagonal bracing on the bent before removal from the jig.

Measure twice and cuss once, or better yet cut off a little at a time until it is too short. Homer does not sell a cedar stretcher so if you make it too short either start over or add a little dirt at the bottom of the bent. If you like the stained look, stain the pieces after ripping but before assembly. Do a final touch up when the trestle is complete.

Staples will penetrate the skin so be careful how you hold things together when you staple

Two sets of equipment can be very helpful one in the shop and a second compressor, hose and nailer at the assembly site. This will allow you to make a few bents at a time and field assemble as you go. A battery powered small saw at the assembly area will allow for minor adjustments on the fly.

There are many types or styles of trestle that can be used you decide on the look that you think will be just right.

**Bob Leise**



**Here we see the finished product. 34 feet long and 4 feet tall at the center.**



## CLINICS

# Introduction to miniature painting

by Mathew Graham

(This article appeared in the April 2023 edition of the *"The Garden Whistle"* and is reprinted here with thanks and permissions from Mr Graham and the publisher of the *"The Garden Whistle"*. Note: Some spelling has been "Americanized")



## My background

- I started building model airplanes as a small child
- I got hooked on miniature war games when I saw a space marine tank in a Toyworld store
- My most recent painting has been 1:100 scale Flames of War figures for WW2 wargaming
- I started painting larger figures for model railroads for my father.

## Details of this presentation

- I will take you through the steps of painting resin miniature figures for use on your railway.
- This tutorial will be an introduction to basic techniques and an explanation of the steps I took to paint the figures shown at the beginning.
- I will work on the assumption that you are new to miniature painting and that all equipment has to be purchased new.
- Feel free to put up your hand to ask questions but I will endeavor to finish my talking point before answering.

## Step 1 – Mold line removal

- All figures, even injection molded plastic will come with mold lines out of the box along the joints of the mold.
- Mold lines might not be obvious at first but will usually be easy to spot on the painted figure.
- My two go to tools for mold line removal are a precision craft knife and a fine grit sandpaper.



### Precision craft knife

- If you have a local hobby store you want to support buy it there.
- If you want to save money you can get one for about \$5 from Bunnings (Amazon)

## Sandpaper and sanding

- About 240 grit (P240) would be my go to for sandpaper but a range of paper between 120 grit and 400 grit would be useful.
- Make sure you wear a mask with a P2 or N95 rating (roughly equivalent standards) while sanding. Any fine dust is bad for your lungs but resin dust can be especially toxic.
- A disposable surgical mask is a huge improvement over nothing if you have some lying around after Covid.

## Step 2 - Filling casting imperfections

- Almost all models will come with casting imperfections like air bubbles or gaps between pieces.
- These WILL be noticeable on the final model, especially if painted a light color.
- We can fix these imperfections by filling them with a modeling putty.
- My recommendation here is the Tamiya putty.
- Make sure to wear gloves and work in a well ventilated area.
- Fill any gaps that require it, wait for the putty to dry, then sand the putty until it is flush with the surface.
- Good alternative products are MrHobby Dissolved Putty and Milliput (pictured).
- Don't use Green Stuff because it tends to tear when you sand it.



## Step 3 - Washing the miniature

- We need to wash the miniature in warm soapy water and dry them thoroughly before we apply primer.
- Miniatures often still have mold release agent on them.
- They also pick up dust and oil from our fingers when we were removing the mold lines.
- If we don't remove these our primer won't stick to the miniature properly.

## Step 4 - Mount the miniatures

- Mount the miniature so you don't have to touch them directly while painting
- Bluetack the miniature to a suitable mount (in this case a plastic cup) using a part of the miniature that won't be seen.



## Miniature ready to prime



### Step 5 - Priming



- We **MUST** use a primer before painting for our paint to adhere properly.
- If you don't already own an airbrush and compressor then the best choice is a can of spray paint.
- Spray primer from the hardware store is good but it **MUST** be Matt for the next layer to adhere.
- However, I prefer the Tamiya Fine Grey based on my experience with it.

### Using spray primer

- The temperature where you are spraying is between approximately 10°C and 26°C
- The humidity should **BELOW** 70%, ideally closer to 50%.
- Spray from 20-30cm away from the model.
- Start spraying away from the model and make thin lines over the model as you spray.
- Don't spray too much paint on one area because the paint will run.

### Tools of painting - brushes

- Unfortunately exact paint brush sizes vary a bit between manufacturers, even though they all use the same naming conventions.
- In general a size 2 brush is perfect for laying down a base coat quickly (because it can hold more paint).
- A size 1 is for when more control is needed like painting highlights.
- A size 0 or even a 00 (2/0) or 000 (3/0) is only useful for painting eyes or other tiny detail (because it doesn't hold much paint and the paint on it dries quickly).



## Paint brush buying guide

- Kolinsky sable brushes are the best but are extremely pricey (as much as \$50 for one brush).
- I would recommend buying cheaper synthetic brushes designed for use with watercolors.
- Gordon Harris sell student brushes and college brushes for \$4 - \$5.
- The tips of synthetic brushes will tend to curl over time, you can straighten them out by dipping the tip in hot water and reshaping it.

## Thin your paint

- There's more to painting than dipping your brush in paint then brushing it on the model.
- The paint needs to be the right consistency to get smooth layers, if it is too thick it will create texture.
- Most acrylic paints can be thinned with filtered water but you can also buy acrylic medium to add to the paint, which can be easier to work with.

## DIY Wet Palette

- A wet palette will help with thinning paint to the right consistency and keeping it useable for longer.
- Making one is cheap and easy
- All you need is any container that you can seal up with a lid (my “go to” is old plastic fast food containers), a sponge, some baking paper and four ten cent coins (optional).
- Cut the sponge cloth so it will fit in the bottom of the container.
- Wet the cloth so it is damp all the way through but if you hold it up only a small amount of water drips out.
- Cut a piece of baking paper that will fit over the sponge. Run it under hot water to soften and dampen it before putting it on the sponge.
- Use a paper towel or tissue to sop up any big droplets on the surface of the baking paper.
- On each corner of the baking paper put a 1 cent coin. It will hold the corners down and the copper is antimicrobial.

### Finished Wet Palette



## My painting set up



### Step 6 - Preparing paint on the palette

- Wet the paint brush then wick of excess water on the paper towel.
- Make sure never to overload the brush with paint. If it gets into the ferrule it will ruin the brush.
- Place a drop of paint on your wet pallet (if you don't have dropper bottles transfer the paint with the brush).
- Use the paint brush to slowly add water or acrylic medium to the paint until it is the correct consistency.

### Correct paint consistency

- If the paint is too thick when apply a line of paint with your brush it will leave ridges on either edge of the line.
- If the paint is thinned correctly it should flow easily off the brush with only a light application of pressure.
- If the paint is transparent or begins to blob off or run off the brush into places you haven't put your paint brush it is too thin.
- While learning if you need to test the consistency of the paint then try running your brush along the back of your hand to check how it flows.

Please refer to this video to determine the correct consistency

<https://www.youtube.com/watch?v=lfGVQ3YLSrM&t=75s>



## Step 7 - Applying the paint

- Start in one place on the miniature and work outwards from there.
- Aim to apply your next brushstroke to the “wet edge” of where you have been working.
- Don't rework areas that you have already painted, let the paint dry first.
- You will usually need two thin coats to get good coverage but you can always add more thin coats if you need them.

## Painting the flesh



•It is always a good idea to start painting the lighter colors on a miniature first because they are less opaque.

•For these models I started by painting the all the flesh in Vallejo Panzer Aces Flesh Base 341

## Painting the eyes

- If you want to avoid painting the eyes just leave flesh base. At a distance this gives the impression of eyes in shadow.
- If you want to paint the eyes start by painting them a 50:50 mix (use your wet palette) of a light grey and white.
- Don't use pure white it will be too stark.
- For my grey I used Vallejo Model Color 70.986 Deck Tan because it's a warmer grey.
- Then paint in the eyes with a dark brown. I used Vallejo Model Color 70872 Chocolate Brown.
- Then go back and tidy the eyes up with your light grey



## Painting the flesh (continued)



•On your wet palette mix one drop of a Vallejo Panzer Aces Highlight Flesh with **two** drops of flesh base.

•Use this to paint the first highlight on the flesh. It will cover about 80% of the base in areas that would get more light.

## Painting the flesh (continued)



•On your wet palette mix one drop of Vallejo Panzer Aces Highlight Flesh with **one** drop of flesh base.

•Paint another highlight this time covering areas that would get more light.

•This includes things like the front of the legs, the top of the hands, the nose, the top lip, the forehead, the top of the cheek bones etc.

•Paint a final highlight with **two** drops of Highlight Flesh mixed with **one** drop of Base Flesh.

•Use small amounts of this mix on areas that would get a lot of light.

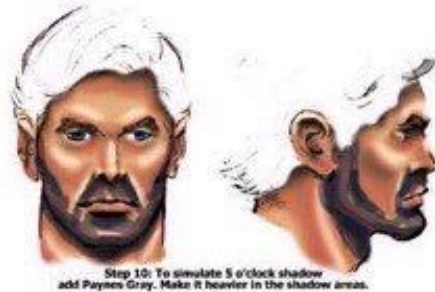
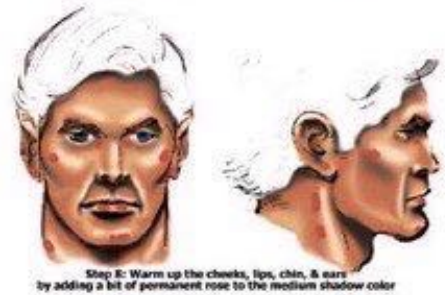
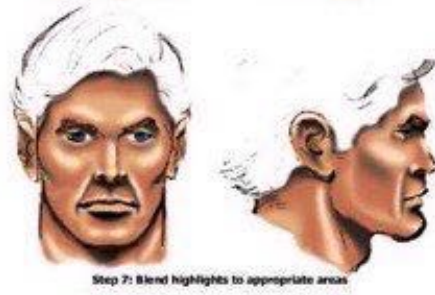
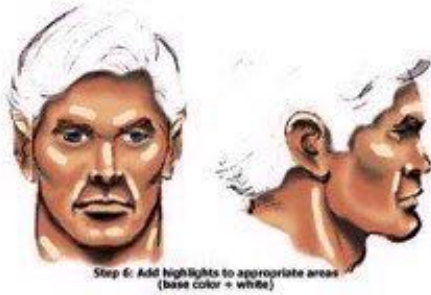
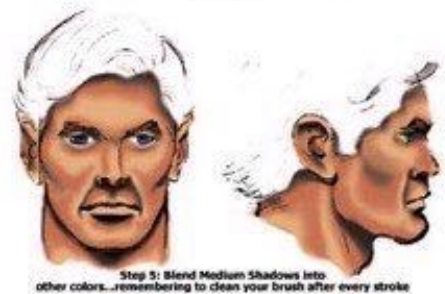
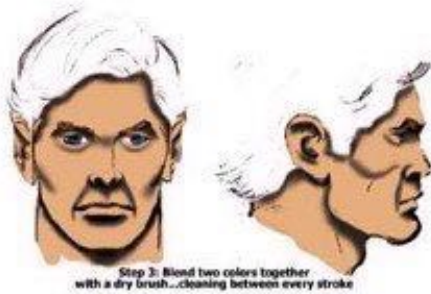
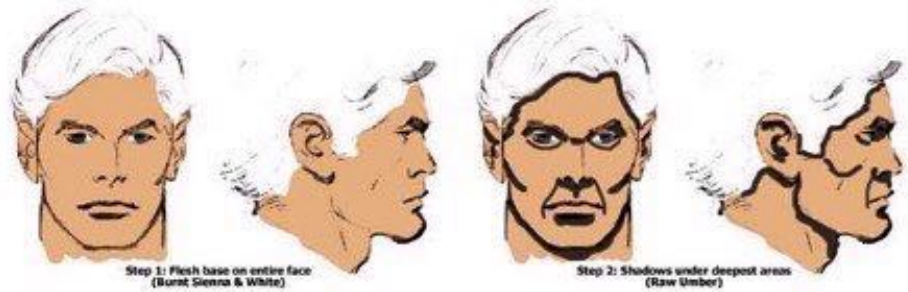
This should only be 20% or less of the face.

- Make sure to paint the top lip with this final highlight
- Paint the bottom lip with Vallejo Model Color 70.803 Rose Brown.
- Paint in the eyebrows with a charcoal color (never use straight black) or a dark brown like Vallejo Model Color 70.941 Burnt Umber.



## Useful guides for painting face

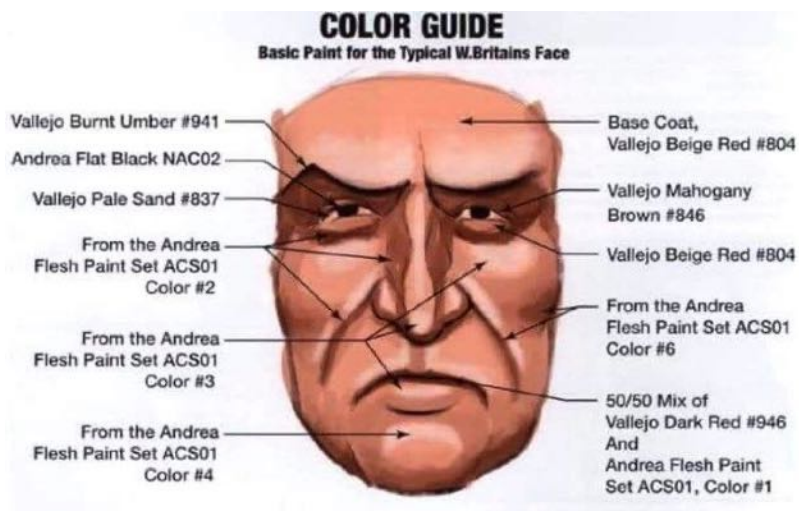
Found this and hope it can be of help !



to view a larger image, go to: <https://www.pinterest.com/pin/466122630164114771/>

## Useful guides for painting faces

Go to: <https://www.pinterest.com/pin/9570217950533174/>



## Painting the base coat for clothing



- Paint the clothes browns, greys, green, blues etc.
- If painting a black item like boots or a coat use a charcoal color (very dark grey) as a base.
- Try to be neat when painting at the edge of the flesh.
- The darker colors will easily cover up flesh in the wrong place but it will be a lot harder to tidy up the flesh if you get a dark color on it.

## Painting the highlight for the clothing

- To get the highlight colors I mix a little bit of a light color with the original color for that clothing item.
- For black I add a small amount of light grey (deck tan is a good choice)
- For other colors like browns and greens etc I add a very small amount of a warm beige like Vallejo Model Color 70.819 Iraqi Sand.
- I found that one highlight was enough on the clothes to give them a sense of depth when viewed from a distance.



**That's all that I can present and I hope it helps you to paint these little people.**

## New Member Information

Technically there is only one "G scale" ..it means 1/22.5 scale, Meter gauge on 45mm track, and nothing else. But the terms "G scale" and "G gauge" are very often used in the generic sense to mean "any model trains, regardless of scale, that run on 45mm track". Technically that usage is incorrect..but its been done that way for ages, and its not likely to go away anytime soon.

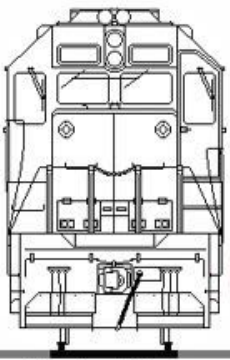
When speaking of "any trains, regardless of scale, that run on 45mm track" in the generic sense, it is better to use the term "Large Scale" instead of "G scale"

**Scot Lawrence**


**Rochester, NY USA**

SA #2089, [www.scotlawrence.com](http://www.scotlawrence.com)

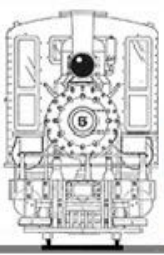
**Real, Full-size, 1:1 scale Locomotives**



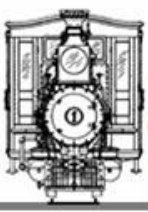
Standard Gauge




Meter Gauge




3-foot Gauge

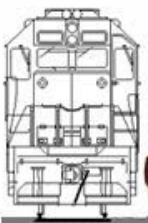


2-foot Gauge

Real, 6-foot tall person. 

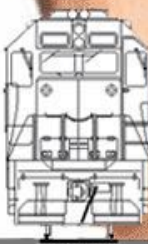
**Model Locomotives. various scales, all running on 45mm track.**

One Foot 



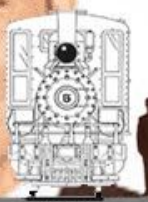
45mm

1/32 Scale.  
correct for standard gauge on 45mm track.




45 mm

1/29 Scale.  
close, but not 100% correct for standard gauge on 45mm track. (slightly oversized)



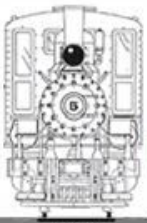
45mm

1/24 Scale.  
often used to model 3-footers, but not correct for 3-foot gauge on 45mm track. (slightly undersized) but is correct for 42" prototype gauge.



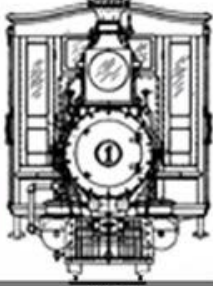
45mm

G Scale.  
1/22.5 scale  
Correct for Meter gauge on 45mm track.



45mm

Fn3 Scale.  
1/20.3 Scale  
Correct for 3-foot gauge on 45mm track.



45mm

7/8n2 Scale.  
1/13.7 Scale.  
Correct for 2-foot gauge on 45mm track.

EMD GP38-2 and Electric locomotive drawings are from: <http://paintshop.railfan.net/>  
Other drawings from my personal collection.

Scot Lawrence - 2008

from Garden Railways years ago

# Scale and gauge<sup>1</sup>



WILLIAM ZUBACK

Confusion about scale and gauge continues to plague our hobby, so we felt that it was again time to try to set the record straight. The tables printed here will answer what is perhaps the most-often asked question *Garden Railways* hears: What are the differences between the scales and gauges? Over the years, all these scales and gauges have evolved, and some (which we have not listed) have died out. Granted, it is confusing, but we have attempted to print the correct information here in the most understandable form possible.

It may take some study to learn it all. If you don't feel like taking the time, just use the information below as a reference.

## Track gauges as they relate to the different scales

Scale	Actual gauge	Represented gauge	Scaled gauge
1:8	Ga. 1	15" narrow	14"
1:13.7	Ga. 1	2' narrow	2'0"
1:19 <sup>5</sup>	Ga. 0	2' narrow	2'0"
1:20.3	Ga. 3	Standard <sup>6</sup>	4'2 <sup>3</sup> / <sub>4</sub> "
	Ga. 1 <sup>7</sup>	3' narrow	3'0"
	Ga. 0	2' narrow	2'1"
1:22.5	Ga. 3	Standard	4'8 <sup>1</sup> / <sub>4</sub> "
	Ga. 1	3' narrow	3'3 <sup>1</sup> / <sub>2</sub> "
	Ga. 0	2' narrow	2'4 <sup>1</sup> / <sub>2</sub> "
1:24	Ga. 3	Standard	5'0"
	Ga. 1	3' narrow	3'6"
	Ga. 0	2' narrow	2'6"
1:29	Ga. 1	Standard	4'3 <sup>1</sup> / <sub>2</sub> "
1:32	Ga. 1	Standard	4'8"
	Ga. 0	3' narrow	3'4"

### Proportions of a model to its prototype

Scale name	Proportion	Written scale
1 1/2" scale <sup>2</sup>	1:8	1 1/2" = 1'0"
7/8" scale	1:13.7	7/8" = 1'0"
1.6mm scale	1:19 (approx.)	1.6mm = 1'0"
1.5mm scale	1:20.3	1.5mm = 1'0" <sup>10</sup>
LGB (G scale)	1:22.5	.533" = 1'0"
1/2" scale	1:24	1/2" = 1'0"
—	1:29	.414" = 1'0"
1 scale	1:32	3/8" or 10mm = 1'0" <sup>8</sup>
0 scale (USA)	1:48	1/4" or 7mm = 1'0" <sup>8</sup>

### Track gauges commonly used in the garden

Gauge 3	2 1/2" or 64mm <sup>8</sup>
Gauge 1 <sup>4</sup>	1 3/4" or 45mm <sup>3</sup>
(No name)	1 1/2" <sup>9</sup>
Gauge 0	1 1/4" or 32mm <sup>8</sup>

## Footnotes

- Scale is simply the proportion of the model to the full-size item, while gauge is no more than the distance between the rails measured from the inside edge. The terms are sometimes incorrectly used interchangeably.
- 1 1/2" scale is commonly used for larger, ride-on trains. However, there are some modelers who are using this scale on gauge-1 track to represent 15"-gauge railways, such as those designed by Sir Arthur Heywood in Britain. We've not listed the larger, ride-on gauges in this scale because they fall outside the scope of *Garden Railways* magazine.
- There is a slight discrepancy between the metric measurements and the imperial. Today, gauge 1 is considered to be 45mm.
- Gauge 1 is commonly—and incorrectly—called "G gauge" by some manufacturers and dealers. This is an unfortunate misnomer that merely adds to the confusion. G-scale trains run on gauge-1 track.
- 1:19, or 1.6mm, scale evolved from gauge-0 (32mm) track. The idea was to choose an existing gauge and design models of 2'-gauge trains around it, which is why this scale works out quite well. However, modeling for other gauges in this scale is almost nonexistent, so only gauge 0 has been included here.
- Standard gauge on full-size railroads is 4'8 1/4". Anything less is considered narrow gauge. Anything more is considered wide or broad gauge.
- There was a gauge 2 (2"), which was quite popular in the early part of the century, but has long since died.
- There is a slight discrepancy between the metric measurements and the imperial.
- The correct gauge for accurate modeling of 3'-gauge trains in 1/2" scale. Little is commercially available in this gauge.
- The correct scale for accurate modeling of 3'-gauge trains on gauge-1 track.



## Publications

The best experience of the DGRS newsletter is to read it online or download it and read it on the computer or tablet. Articles and topics provide links to photos, videos, additional information and enhanced content that supplements the article.

If you print it and read it off-line, you will miss a lot of the content. As an example, there may be links to other web sites, documents and movies that you would not be able to access if the newsletter was printed.

Any links in this newsletter were active at the time of publishing. In some cases, the web site may have ceased operation, the material was removed or expired, and it is no longer available. We have no control over these issues, but try to make sure the links are active at publication time.

The newsletter content is for DGRS members and all Garden Railroad club members. We do not share email addresses nor telephone numbers within the general part of the newsletter. For DGRS members, there is a Members Only section that is not distributed to other organizations.

If you need to contact DGRS, the following email addresses are available:

Club President: [president@denvergardenrailway.org](mailto:president@denvergardenrailway.org)

Web Site: [webmaster@DenverGardenRailway.org](mailto:webmaster@DenverGardenRailway.org)

Newsletter: [publications@denvergardenrailway.org](mailto:publications@denvergardenrailway.org)



Pete Hendel

## A Ride on Goose #5

by Cherylene Evans

Craig and I grew up in the 4 Corners and have always been aware of the train that traveled between Durango and Silverton. However, the Goose was just another maintenance vehicle as far as I knew.



Today, I have a much better understanding of the history of the Galloping Goose fleet.

The Goose was a rather featherbrained idea to cut the costs of running the railroad in the 1930's when the Great Depression had suppressed the need for a lot of the freight and passenger traffic through the mountains. They decided to use an automobile for passengers, add a frame, a box for freight and flanged wheels. The vehicle would use gas instead of tons of coal and eliminate the need for an engineer, a fireman, and a brakeman. It would just need a motorman.

The first motor was built using a Buick Master 6 car with flanged wheels from an old railroad car and a box built on the back of it. A cow catcher was added to the front so it would look like a train.

The folks who saw it were not sure just what that thing was. The wheels were not perfectly round, and rolling on poorly maintained track the thing bounced and waddled down the track. The engine covers from the car were kept open to prevent the engine from overheating. Naturally they flapped up and down with every bump of the track. The thing had a honking horn rather than a train whistle whistle. Folks thought the crazy contraption looked like a mechanical "galloping goose". The name stuck!

This motor proved to be so successful that they built 6 more, but no two were alike. They were built using a 1920 era Pierce Arrow automobile and various spare railroad parts.

Our 4 hour trip on the Galloping Goose included a stop to trade off the motorman trainee at an old water tower.

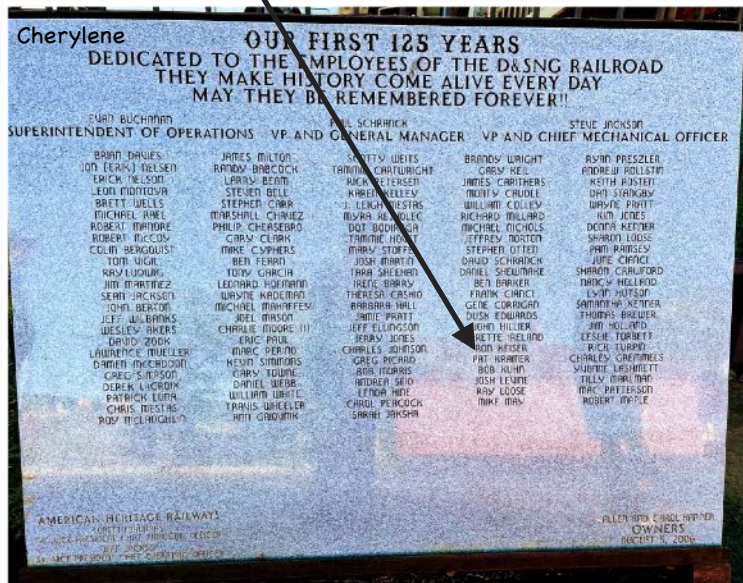
We are lucky to have goose #2,#6, and #7 at the Colorado Railroad Museum in Golden. Goose #1 has been replicated and is on display at the Ridgeway Railroad Museum in Ridgeway, Colorado and Goose #4 is in Telluride, Colorado Goose #3 is at Knotts Berry Farm in California.



Goose #5 lives at the museum in Dolores, Colorado. It is trucked to Durango and to Chama for special events when they sell tickets for rail fans to ride it.

They were training Motormen on our trip and they stopped about once per hour to put a new motorman in the drivers seat. The guy on the right works for the railroad. He informs the crew of speed limits, and safety hazards along the track. The guy on the far left is the experienced motorman/teacher. The guy in the middle is the motorman trainee.

Our own Ron Keiser has his name in Granite in Durango. We feel very proud to know him!



I frequently monitor the [DurangoTrain.com](http://DurangoTrain.com) site looking for any special events that we might enjoy. If you want to enjoy a spectacular adventure, you also might enjoy checking it out.

They have winter rides too!



## LCRR Hosts the August 2023 Meeting of DGRS

by Jim Desautel

On August 26, 2023, the crew of the Larkspur Consolidated Railroad (LCRR) hosted the August meeting of the DGRS. This has become a nice tradition for the LCRR crew as they enjoy hosting the club and giving everyone who wants to, rides on their trains. The day included three elements – The General Business Meeting, followed by Lunch and Train Rides. Overall, about 70 people attended the meeting and then enjoyed the lunch and train rides.

### General Business Meeting.

Eric Petty, President of DGRS, conducted the meeting. There were reports by all Committee Chairs in attendance, followed by a good discussion about communication within the club and for club activities. See the Minutes of the Meeting later in this edition of the newsletter for details.

### Lunch.

Michele Miller, with some help from the LCRR crew, arranged for a great lunch of hot dogs and side dishes provided by all club members. One of the new features of the lunch was a recipe card placed next to each dish provided by a club member for anyone who wanted to use their phone to take a photo of the recipe so they could replicate at home. I saw several members taking such photos. It seemed to work out well. See Michele's report elsewhere in this edition of the newsletter for more details.

The LCRR crew calls the Leise home the "Harvey House" when eating on work days. Glen prepares delicious meals. On this particular day, the Harvey House was glad to help serve so many people. Although most attendees had a chance to relax while eating and visiting with their friend, one train engineer was so busy giving rides he didn't have time to eat. On one trip around the layout, Glen actually met Bob along the route and gave him a hot dog as he passed.

### Train Rides.

The last element of the day was the LCRR crew giving anyone who wanted, a ride on the five LCRR trains operating that day. Since the train rides were occurring at the same time as lunch, club members could choose which they wanted to do first. Some chose ride the trains, and some chose to eat lunch. The trains ran for 3 – 4 hours to ensure everyone who wanted, could ride as much as they wanted.

Among the special things that happened during the day were rides to family members that club members bring with them. Several examples come to mind.

First was Doug and Ricki Mayes' grandson, Bryce. Bryce loves trains and the movement of the trains.

Bryce has ridden with us many times before, and he always enjoyed it. As he finishes one ride, he gets back in line to ride again. He seems to enjoy riding on a different train each time, but it really wouldn't matter to him which train he rode – he just likes to ride.



Jim Desautel

After a couple of rides, his Mom seemed to have to talk him into eating some lunch rather than riding again. That warmed my heart, not only to see that he loves to ride, but that he needed to be “talked into” eating by a loving mother rather than riding again. Bryce has always been a welcomed passenger, and we look forward to taking him on even more rides.

Second was David and JoAnn Varney’s seven grandchildren. When I watched their vehicle arrive and park, I was quite surprised to see so many people keep exiting from the car. I’m guessing, but it seemed their ages ranged from around 16 to 3.



Marilou Hendel

My first thought was I hoped they all would enjoy riding the trains, but I had no idea how much they would enjoy themselves. As it turns out, the grandkids help their grandparents run and operate their trains during open houses and shows. Not only do David and JoAnn run G-Scale, they are also involved with narrow gauge HO and others, and they receive lots of help from the older grandkids.

As it turns out, David is quite the modeler, and has developed a modular layout he takes to various train shows. At these shows, the older grandkids help out extensively. So to say the grandkids enjoy trains is an understatement.

David and JoAnn are truly blessed.

But this day was about ride-on trains, and all the Varneys enjoyed the rides. The older ones let the younger ones go first, but they got their turns as well. After finishing one ride, they would leave their seats and check-in for another ride. I am not sure how many times the various kids rode, but my heart was warmed to see at least one or two on many trains.

At one point after they had eaten and rode several times, several of the trains were parked on a siding so the engineers could also eat lunch. During this impromptu break, I looked over at one of the trains parked on the siding, and my heart smiled when I saw one of the younger granddaughters (who was 5 years old) sitting on one of the passenger seats on the train. It seemed to me that while there were other chairs available at the station, it appeared she just wanted to be near the train. Maybe she was thinking of the ride she just finished, a train ride on another day, or perhaps even working with her grandparents on their various layouts. But whatever the reason, she looked happy and content – again it warmed my heart.





Overall, the Varney grandkids appeared to enjoy themselves. It was refreshing to experience such considerate, thoughtful, and caring children. Later I learned that several of the older grandkids had ridden on the LCRR trains before, and wanted to return. They also encouraged their younger siblings to join them, which they did. Railroading seems to be a family affair for the Varneys. It was great to see younger people be interested in railroading.

For the LCRR crew, the day was a great success. The trains operated effectively and everyone seemed to enjoy themselves. And at the end of the day, those club

members who were still around visiting with each other, also helped tear down the awnings, tables, and chairs to help the LCRR crew put things away. They were a great help.

One thing really stood out to the crew. So many club members stayed around a long time just so they could enjoy visiting with each other, enjoy the perfect weather to be outdoors, and to watch and/or ride trains. We hope you enjoyed the day – we did!



## 7 1/2" RailRider

by John Hart

Several years ago I saw an online film made at a Train Mountain (Oregon) Triennial. The array of live steamer and diesel consists was incredible. This would be a great subject for a 3D stereoscopic video! Point-of-View shots, taken while riding one of these 1.5" gauge trains, or traveling just in front of a steaming 'big boy' and looking back at it, would be just the ticket. With this in mind, I decided to build my own "engine" to run me around on the tracks while filming with a 3D video camera on a gimbal. This little engine, that I decided to call a RailRider, had to be small and nimble: light enough to pick up and carry around to different shot opportunities with just one hand. Also, it needed electric power in order to chase down and follow interesting locomotives and cars.

This article describes the construction of the RailRider, which benefited from my years-ago experiences building electric bikes, long before such became readily available from China. Courtesy of the Larkspur Consolidated Rail Road, I was able to test the RailRider on their wonderful 7.5" gauge line at the August DGRS meet-up. Thanks to LCRR!



The RailRider posing alongside a beautiful Santa Fe diesel about to leave the loading area.

To keep the RailRider as light as possible I used a minimal amount of wood (2x2 fir) for the frame, a couple pieces of half inch plywood for platforms and stiffening, and a cheap plastic seat from Amazon. The heaviest parts are the two sets of wheels, obtained from [Ridetrains.net](http://Ridetrains.net) at a cost of about \$100 each. These came with bearings, mounting brackets, and the rear one has a 20 tooth chain-sprocket. But, I'm already up to 13 pounds!



Big time fun on the line

The driveline consists of a brushless 3-phase motor (one of my old mountain bike motors), a timing belt reduction gear, and an additional 2:1 reduction in the chain drive.



Brushless 3-phase motors are rated by max-power, torque/amp, and free-run speed (rpm/volt). The hi-tech, 95% efficient, 2.5 pound Astroflight 3210 motor I used can go up to 3hp (which is way overkill here, but wildly fun for an e-bike!). Its free-run speed (or "speed constant") is  $\sim 270\text{rpm/volt}$ . With a 24 volt battery, that's about 6000 rpm, or 100 rps. Ten mph (the speed limit at Train Mountain is 7mph) requires 10rps at the 4" diameter rear wheel. Accounting for some load, I chose

a total gear reduction of 8 (4 at the timing belt, and 2 with the chain, for a 12.5rps rear wheel free run). How much torque will I need? To push myself and the Rail Rider up a 4% grade requires a force of about  $200\text{lbs} \times .04 = 8$  pounds. The 3210 has a "torque constant" of 5 in-ounces/amp. After the gear reduction of 8 this is  $40$  in-ounces/amp = 2.5 in-pounds/amp at the 2" radius rear wheel, or 1.25 pounds of force per amp on the track. Thus, it will take about 6.5 amps to get me up the hill. Perfect! The cheapest high-energy-density batteries are Lithium Polymers. My 4 pound battery, shown below, is 24 volts and has 13 amp-hours of capacity. With this I could go up a 4% grade for about 2 hours. Much cheaper and somewhat lighter brushless motors spin faster (higher speed constant) and would work ok, but would require substantially more gear reduction.



Brushless 3-phase motors are rated by max-power, torque/amp, and free-run speed (rpm/volt). The hi-tech, 95% efficient, 2.5 pound Astroflight 3210 motor I used can go up to 3 HP (which is way overkill here, but wildly fun for an e-bike!). Its free-run speed (or "speed constant") is ~270 rpm/volt. With a 24 volt battery, that's about 6000 rpm, or 100 rps. Ten mph (the speed limit at Train Mountain is 7mph) requires 10rps at the 4" diameter rear wheel. Accounting for some load, I chose a total gear reduction of 8 (4 at the timing belt, and 2 with the chain, for a 12.5rps rear wheel free run). How much torque will I need? To push myself and the Rail Rider up a 4% grade requires a force of about 200lbs x .04 = 8 pounds. The 3210 has a "torque constant" of 5 in-ounces/amp. After the gear reduction of 8 this is 40 in-ounces/amp = 2.5 in-pounds/amp at the 2" radius rear wheel, or 1.25 pounds of force per amp on the track. Thus, it will take about 6.5 amps to get me up the hill. Perfect! The cheapest high-energy-density batteries are Lithium Polymers. My 4 pound battery, shown below, is 24 volts and has 13 amp-hours of capacity. With this I could go up a 4% grade for about 2 hours. Much cheaper and somewhat lighter brushless motors spin faster (higher speed constant) and would work ok, but would require substantially more gear reduction.

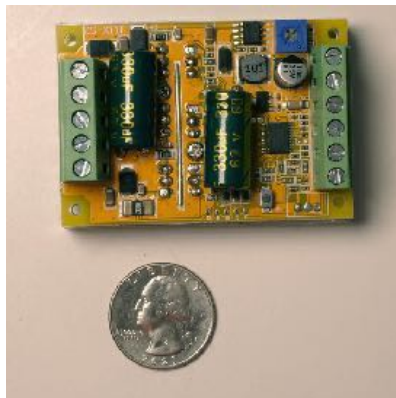


The control panel (speed, reverse, brake, etc.).



The LiPo battery under the seat

I went with a tiny, cheap (~\$15) motor driver. No downhill regeneration, but given the efficiency of the RailRider this is not really needed. Regen controllers are bigger and more expensive and must be used carefully with LiPo batteries, which are prone to FIRE if over-charged, or if charged after over-draining.



**Left:** RioRand 300Watt Hall-less Brushless Motor Controller (Amazon). 25 amp peak, 16 amp continuous current. Input power from battery, and 3-phase motor outputs on the left. Connections for speed (potentiometer), stop, brake and fwd-rev are on the right. I fused this for 20 amps.

My son urged me to put on some sort of hi-tech bicycle disc brake. For a 4% grade? Really? Nah:



Foot brake in run position



Foot brake in 'stop' position (Note: Heels are on the wheels)

I was overjoyed with the RailRider's performance at the LCRR. At less than 35 pounds I could lift it on and off the track and carry it around with relative ease. It effortlessly made all the up-grades, and I rarely had to use foot-braking as the geared-down power-off motor-torque was enough to stop the rig except on the steepest down-hills. Going around the LCRR loop twice used only 2 amp-hours of battery energy (or about 1 amp-hour/mile). It clicked and clacked over rail joiners, through switches, and over the one crossing, without a single derail. The wood frame flexed just enough to smooth out vertical irregularities in the trackage, so that all four wheels were always in contact with the rails.

Train Mountain here we come in '24, and for the triennial in '25.



# Burma Shave



For those who never saw any of the Burma Shave signs, here is a quick lesson in our history of the 1930's and '40's. Before there were interstates, when everyone drove the old 2 lane roads, Burma Shave signs would be posted all over the countryside in farmers' fields. They were small red signs with white letters. Five signs, about 100 feet apart, each containing 1 line of a 4 line couplet.....and the obligatory 5th sign advertising **Burma Shave**, a popular shaving cream.

DON'T STICK YOUR ELBOW  
OUT SO FAR  
IT MAY GO HOME  
IN ANOTHER CAR.  
Burma Shave

TRAINS DON'T WANDER  
ALL OVER THE MAP  
'CAUSE NOBODY SITS  
IN THE ENGINEER'S LAP  
Burma Shave

SHE KISSED THE HAIRBRUSH  
BY MISTAKE  
SHE THOUGHT IT WAS  
HER HUSBAND JAKE  
Burma Shave

DON'T LOSE YOUR HEAD  
TO GAIN A MINUTE  
YOU NEED YOUR HEAD  
YOUR BRAINS ARE IN IT  
Burma Shave

DROVE TOO LONG  
DRIVER SNOOZING  
WHAT HAPPENED NEXT  
IS NOT AMUSING  
Burma Shave

BROTHER SPEEDER  
LET'S REHEARSE  
ALL TOGETHER  
GOOD MORNING, NURSE  
Burma Shave

CAUTIOUS RIDER  
TO HER RECKLESS DEAR  
LET'S HAVE LESS BULL  
AND A LITTLE MORE STEER  
Burma Shave

THE ONE WHO DRIVES  
WHEN HE'S BEEN DRINKING  
DEPENDS ON YOU  
TO DO HIS THINKING  
Burma Shave

SPEED WAS HIGH  
WEATHER WAS NOT  
TIRES WERE THIN  
X MARKS THE SPOT  
Burma Shave

THE MIDNIGHT RIDE  
OF PAUL FOR BEER  
LED TO A WARMER  
HEMISPHERE  
Burma Shave

AROUND THE CURVE  
LICKETY-SPLIT  
BEAUTIFUL CAR  
WASN'T IT?  
Burma Shave

NO MATTER THE PRICE  
NO MATTER HOW NEW  
THE BEST SAFETY DEVICE  
IN THE CAR IS YOU  
Burma Shave

A GUY WHO DRIVES  
A CAR WIDE OPEN  
IS NOT THINKIN'  
HE'S JUST HOPIN'  
Burma Shave

AT INTERSECTIONS  
LOOK EACH WAY  
A HARP SOUNDS NICE  
BUT IT'S HARD TO PLAY  
Burma Shave

**Do these bring back any old memories?**

**If not, you're merely a child.**

**If they do - then you're old as dirt..LIKE ME!**



# Garden Railway Club News

This section is an opportunity for our members to learn from the efforts, tips, techniques, and news of other garden railway clubs. Please Click on each club name below or go the following link to access all the clubs:

<https://www.denvergardenrailway.org/index.php/links-to-other-clubs/>

[Northern Colorado Garden Railroaders](#)



**Northern Colorado  
Garden Railroaders**

[\*\*\*Mile High Garden Railway Society\*\*\*](#)

**THE GARDEN WHISTLE**

[New Zealand Large Scale Newsletter](#)

[Bay Area Garden Railway Society](#)



[Puget Sound Garden Railway Society](#)



[Rose City Garden Railway Society](#)



[North Texas Garden Railroad Club](#)



[Gold Coast Garden Railway Society](#)



[Northern Ohio Garden Railway Society](#)



[Garden Railroading News \(GR News\)](#)

digital magazine

[Central California Coast Garden Railroad Society](#)



## 2023 DGRS Calendar

DATE	EVENT	DETAILS
September	Day out with Thomas at the CRRM for 3 weekends (September 9-10, 16-17, 23-24)	The DGRS will need operators for all days from 10am to 4pm.. Contact Alan Olson if you are available.
Sept 21, Thursday	Choo Choo Sew Everyone is invited and will be welcome.	Contact Cherylene Evans for time and details: 8061 W Grand Ave, Littleton CO 80123
Sept 26, Tuesday	<b>General Meeting.</b> Speaker Ed Dickens head of the UP steam program, story of the Union Pacific Heritage Donation Special.	7:00 PM, <a href="#">Clements Community Center</a> 1580 Yarrow St., Lakewood, CO 80214
Oct 3 Tuesday	DGRS Board Meeting	7:00 PM, @ Doug Mayes Office. 7114 W. Jefferson Ave, Suite 210, Lakewood 80235 or via Zoom
Oct 7, Sat	DGRS Workday at the CRRM	10 am at the CRRM. Knee pads are advisable.
Oct 7, 14, 21 & 28, Sat	CRRM Train Rides	Regular train rides will resume starting Saturday, October 7 through Saturday, October 28.
Oct 19, Thursday	Choo Choo Sew Everyone is invited and will be welcome.	Contact Cherylene Evans for time and details: 8061 W Grand Ave, Littleton CO 80123
Oct 6, Friday	Colorado Rails and Cocktails	Our popular lecture series concludes for 2023! This evening, the spotlight will be on Train Robberies in the American West with historian Lauren Giebler.
Oct 21-22, Sat & Sun	CRRM Harvest Haunt	The DGRS will need operators for both days from 10am to 4pm.. Contact Alan Olson if you are available.
Oct 24, Tuesday	<b>General Meeting.</b> Our regular General Meeting will be held at the Clements Community Center. Speaker will be Michelle Kempema.	7:00 PM, <a href="#">Clements Community Center</a> 1580 Yarrow St., Lakewood, CO 80214
Nov 1, Wednesday	DGRS Board Meeting	7:00 PM, @ Doug Mayes Office. 7114 W. Jefferson Ave, Suite 210, Lakewood 80235 or via Zoom
Nov 10, Friday	THE POLAR EXPRESS™ Train Ride Tickets	The magical holiday theatrical experience THE POLAR EXPRESS™ returns to the Colorado Railroad Museum, with the 2023 Season Opening Night scheduled for Friday, November 10. Tickets will be going on sale soon.
Nov 16, Thursday	Choo Choo Sew Everyone is invited and will be welcome.	Contact Cherylene Evans for time and details: 8061 W Grand Ave, Littleton CO 80123
Nov 28, Tuesday	<b>General Meeting.</b> Our regular General Meeting will be held at the Clements Community Center. Speaker will be Tom Klinger on the "C & S" books.	7:00 PM, <a href="#">Clements Community Center</a> 1580 Yarrow St., Lakewood, CO 80214