Newsletter of the Piedmont Garden Railway Society.

May 2018

Editor: Scott Williams

The month May was named for the Greek Goddess Maia, who was identified with the Roman era goddess of fertility, Bona Dea, whose festival was held in May.

What all this 'fertility' means for most of us is that the grass in our lawns seems to need mowing about every 3 or 4 days now. And what are all these crazy weeds that seem to be coming up absolutely everywhere I don't want them to? And why did I think putting Weed and Feed down last month was such a good idea? [Sigh]

All that aside, Spring has finally Sprung!! It's time to get outside and spruce up those garden railroads or better yet, build the Garden Railroad you've been planning all winter.

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Thinking of an elevated garden railroad in your backyard?

If you've thought of building a garden railroad in your yard but the thought of laying track down at ground level seems like too much bending and stooping for putting trains on the track, or just too permanent a structure using timber or stone retaining walls etc., and getting down on your knees to maintain it sounds unattractive, then consider building a layout that hovers a foot or two above the ground. There are lots of discussions of this on the Internet and you can build something resembling an indoor train layout platform that floats above the ground on supports.

Consider these supports for such an endeavor:

You don’t have to build a garden layout down on the yard unless you want to. This should give you some ideas to spark your engineering thoughts and take them to new heights.

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Randy Theis announces the annex of his garden layout with some update photos.

This addition will add several new loops of interest and allow everyone to view multiple trains in operation from above and alongside the tracks.

In this photo Randy has just put down his cool beverage and gone outside with his camera to see how Kathy is coming along with the retaining wall. This wall and step arrangement will allow people to stand comfortably alongside the track and view it and give access to trains from both above and below. They've added drainage along the inside of the wall and will grade the clay next, add landscape cloth and put 2-3 inches of 3/8" chips down for initial surface.

Randy has also added lots of new and freshly painted storage shelves in the garage area to store all the new trains he's been purchasing recently. That's a heck of a lot of work and they've really been busy up there on the mountain. Looking good folks!! Keep those reports and photos coming. Let us know when the next Gandy Dancer event will happen.

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Gandy dancers event at Bill and Cathy Lockhart's.

Bill and Cathy Lockhart hosted a Gandy Dancer event at their home in Greer on Saturday April 5th. Several friends and PGRS members worked on replacing some existing track, reconfigured a switch yard and helped build an indoor train staging area.

The Lockharts served a delightful lunch of pizza and dessert. Les brought his steamer to test some of the track.

Randy sent me some photos of the event.

A note from Terry Ketcham on how he weathers trains.

At the last TrainFest I was asked how I go about weathering large scale rolling stock.
I don't think many of us would ever consider applying any kind of permanent weathering to our equipment, fearing that it would take away from the value should they ever decide to sell the rolling stock at a later date. I don't have any long term plans on selling any of my equipment so I have no problem trying to turn a shiny box car into one that looks like it has been earning its keep for a number of years. I purchased a few HLW 1:24" scale box cars, gondolas and flat cars that I wanted to lightly weather to give them a "used look". I used spray cans of paint on the below cars.

The first thing I do is to wash the car in warm soapy water to remove any manufacturing residue. Usually a tooth brush works fine for this. The first car I tackled was the undecorated box car. HLW's paint looked too orange to me so I elected to repaint the car. I removed the roof and the trucks at this time and sprayed the car with Rust-oleum Rusty Metal Primer.

The trick is to keep the can at least 24" away from the model and spray quickly from left to right, not up and down. I do all my spraying outdoors. I thought I'd spray the roof with a flat black to give the car a two tone look which I thought added some interest so I used blue painters tape to mask off the catwalk and then sprayed the roof black. When that dried I removed the tape, covered the roof with painters tape and sprayed the catwalk with the Rusty Metal Primer. The roof is still unattached from the car body during this process.

With the plastic wheels still on the trucks, I sprayed the trucks with a Flat Gray Primer again

keeping the spray can a good 24” away. The trucks are still separate from the box car at this time. After the paint had dried, I replaced the plastic wheel with metal ones. I think the Gray Primer brings out the details of the plastic trucks which are usually shiny black in color.

I then placed the car body on a 2”x4” block of wood to elevate the car off of the work surface. Using the Flat Gray Primer I aimed the spray can at the work surface a few inches in front of the elevated car. This seems to allow the paint to bounce off the work surface and allowing a gray mist of paint deposited onto the bottom edge of the car. I think I practiced this technique using a cardboard shoe box as a box car and experimenting to see how the paint would bounce off the surface and onto the bottom edge of the car. I also sprayed a light coat of the Flat Gray Primer to the roof to tone it down a bit. I installed Kadee couplers and hand painted them with a rust color.

The manufacturer’s gondola paint color was much more acceptable to me so I just bounced some Light Gray Primer on to the bottom edge of the car and sprayed the trucks with the same color. I put painters tape around the lip on the gondolas upper edges and sprayed the inside bottom of the car with a Flat Brown paint.

So in most cases I'm just adding a "used" look to the cars.
Of course there are many other ways to weather cars, I'm sure the internet can supply you with additional information to help you determine which method works best for you.

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My Denver, South Park & Pacific Railroad Project.

I had little prior knowledge in Denver narrow gauge railroads until I bought the above locomotive from the late Tony Potter's collection. I heard LGB Moguls ran great and always wanted one and couldn't resist it.

In doing research on the D.,S.P. & P.R.R., also known as the "Damn Slow Pulling & Pretty Rough Riding" Railroad, I found it was one of the four early railroads coming out of Denver a little after the middle of the 19th century and one of the two railroads that decided to go Narrow Gauge with Denver and Rio Grande being the other. D,SP&PRR was kind of the underdog to D&RG and in fact D,SP&PRR ceased to exist in 1889 but other railroads ran its lines afterwards.

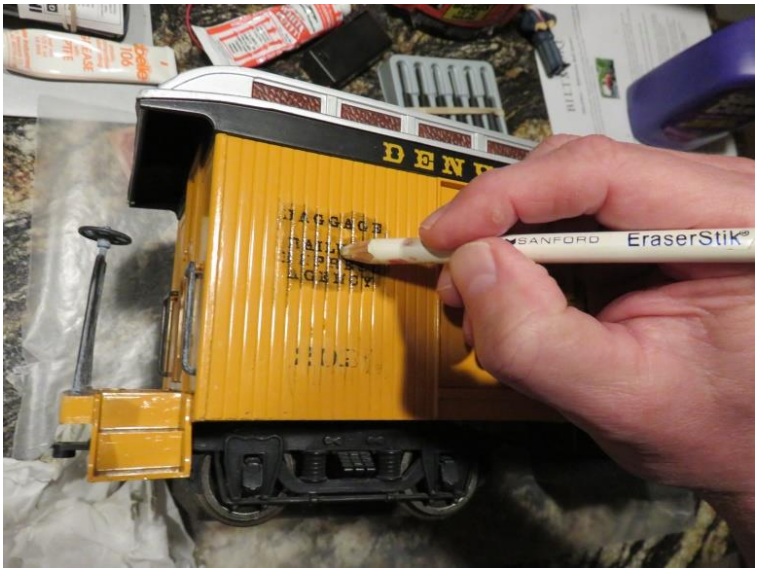
My research so far has not provided any evidence why LGB thought the pretty red boiler was accurate and Russian Iron or flat black is likely more correct **BUT**, the kids at Apple Valley last

week seemed to *really* like it along with its [great!] working smokestack so I think I'll l keep it stock for the novelty factor.

Now I need some rolling stock right? Well, D,SP&P LGB cars on ebay go for about 50 plus dollars with about 12-20 bucks shipping **if** you happen to win the auction. 70-80 bucks each. [ouch!!] But, I already happen to have this Bachmann D&RGW combine I bought for 20 bucks and all it will need is a few dollars of paint and decals to make it in to a D,SP&P car.

I buy decals from Jeff Damerst at Shawmut Car Shops and needed some for two other projects I am also doing. The "8x10" sheet is 20 bucks for the sheet, plus 3 dollars shipping so why not fill the whole sheet up? First step, remove the D&RGW lettering:

Solvaset and an ink eraser does a great job at removing factory lettering **if** you let the Solvaset soak in to the lettering for about 15 minutes and have patience to do **a lot** of gentle 'erasing'.



Before:

After:

Next step; remove the roof and paint the body of the car the approximate shade of red LGB used for D,SP&P cars. Unlike Terry Ketcham's ***very good*** advice, I ALWAYS forget to wash or clean the surface before spray painting, but I've lucked out so far. I would however urge you to follow his advice to avoid shedding tears later. I found a Krylon Satin red that had the exact shade I was looking for, disassembled the car and popped out all the windows all of which is very simple to do if you own a smaller phillip's head screwdriver.

In the end I saved myself ***maybe*** **10** bucks from trying to just buy an LGB model on ebay but what I got in return is a model I made myself which looks just like what I wanted…**and** it was great fun to take a car I had just laying around that I was never going to use and turn it in to a useful piece of rolling stock and I learned a lot about another US railroad in the process.

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Member Photos:

This month the member photos looks like…it's just mine to fill the space. **PLEASE** send me your photos to include in the member photo section of everyone's current or even past projects to share with club members. We want to see what you're working on.

If you attended Trainfest you may have noticed the Editor's kitbash that took an old Bachmann Combine, chopped the roof, cut in four new windows, mounted a power and trailing truck underneath from an HLW Maintenance of Way car and Voila', a Doodlebug. I just installed the decals and glossed over them and it is lettered for my future garden railroad. [Some more detail parts are still going to be added.]

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Trivia Question: Trains obviously work best when they have little or no grade to enable a locomotive to pull as many cars as possible. However, even when engineers survey the flattest route between two points they have to cross areas where the geography dips and drops below level. A solid fill would be ideal but costly to create. What was the solution to this problem employed by 19th century engineers and used even today?

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** A reminder from Terry Ketcham that PGRS club members are invited to come by the Apple Valley Model Railroad Club in Hendersonville the last Saturday of each month to run their large scale trains on the club layout from 10 – 2 pm.

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Trivia Answer: **Trestles.** This is an interesting article on the construction of trestle bridges on the Rio Grande Southern that you may enjoy and might help you design trestles for your layout:

http://www.rhyman.org/articles/trestles-rgs-style

Wooden Trestle Construction on the Rio Grande Southern Railroad

INTRODUCTION

When completed, the Rio Grande Southern Railroad had 142 bridges scattered along its 162 miles of track. Almost all of the original bridges were rebuilt or replaced at one time or another. The early Howe truss bridges were replaced with simple open deck trestles, and many of the smaller bridges were replaced with earthen fills and culverts. By the end of operations, 111 bridges were left on the railroad; virtually none were original. The reasons for replacing a bridge were many, but for the most part, the arrival of heavier motive power or damage caused by weather and high water resulted in replacement.

At first glance, most of the trestles appear to be similar. However, a closer look shows that all differ in detail. The RGS built its bridges following accepted and proven engineering practices, but did not adhere to strict standardization. Thus, all of the bridges look similar in overall design, but still have individual characteristics. Some detail differences in the bridges occurred due to unusual circumstances in placement or geography. Other differences were due to the availability of materials and the financial status of the line when repairs were made. Changes also occurred depending on what practices were in favor when the bridges were repaired. Thus, over time, all of the bridges slowly changed.

This article details some of the basic design standards and building techniques that the trestles adhered to, no matter their differences in detail. It explores some of the more obvious differences, particularly on the large timber trestles on the high line over Lizard Head Pass between Vance Junction and Rico. In addition to explaining prototype construction methods, techniques are presented for building accurate scale models of these trestles.

TRESTLE COMPONENTS

A trestle is composed of an open, braced wooden framework that supports the railroad above ground level. It consists of a series of identical (or nearly so) vertical supports called bents holding up a succession of short bridge spans called the deck. All wood portions of a trestle are designed to be in compression and never in tension. The space between two adjacent bents is called a panel. The components that make up a bent include sills, posts, caps, sway braces, and sashes. The components that make up the deck include stringers, ties, guard timbers, guard rails, and running rails. Additional components that connect adjacent bents include girts and wall braces.

BENTS

There are two types of bents – pile bents and frame bents. The pile bent has round posts, usually twelve inches in diameter, which are driven directly into the ground. Pile bents were not made higher than thirty feet due to the length of available wood material (generally no longer than 60 feet). This is because each pile is a single piece, and a sizeable portion of it must be driven into the ground. Also, the round configuration is not easily adapted to the construction of tall trestles. Piles were always driven with the narrow diameter down.

The frame bent has square posts sitting on a horizontal bottom support member called a sill. The sill is a square timber of variable length usually resting on a separate foundation. Posts and sills are usually 12” square timbers.

Both pile and frame bents have a horizontal cap resting on top of the posts. The cap equally distributes the load from the bridge deck above to the posts below. Caps are usually 12” x 14” x 14’ timbers.

There are a minimum of four posts in a bent – two inner posts and two outer posts. The inner posts are usually (but not always) vertical. Occasionally there is a third inner post. The outer posts are angled 2″ to 3″ per foot. This angle is called batter. Additional intermediate posts may be present in the bent between the inner and outer posts. These are also battered, either at the same angle as the outer posts, or at some lesser angle. Batter is expressed as a ratio of spread to height, e.g., 2:12, 2½:12, or 3:12. Figure 1 shows representations of the three most common batters.

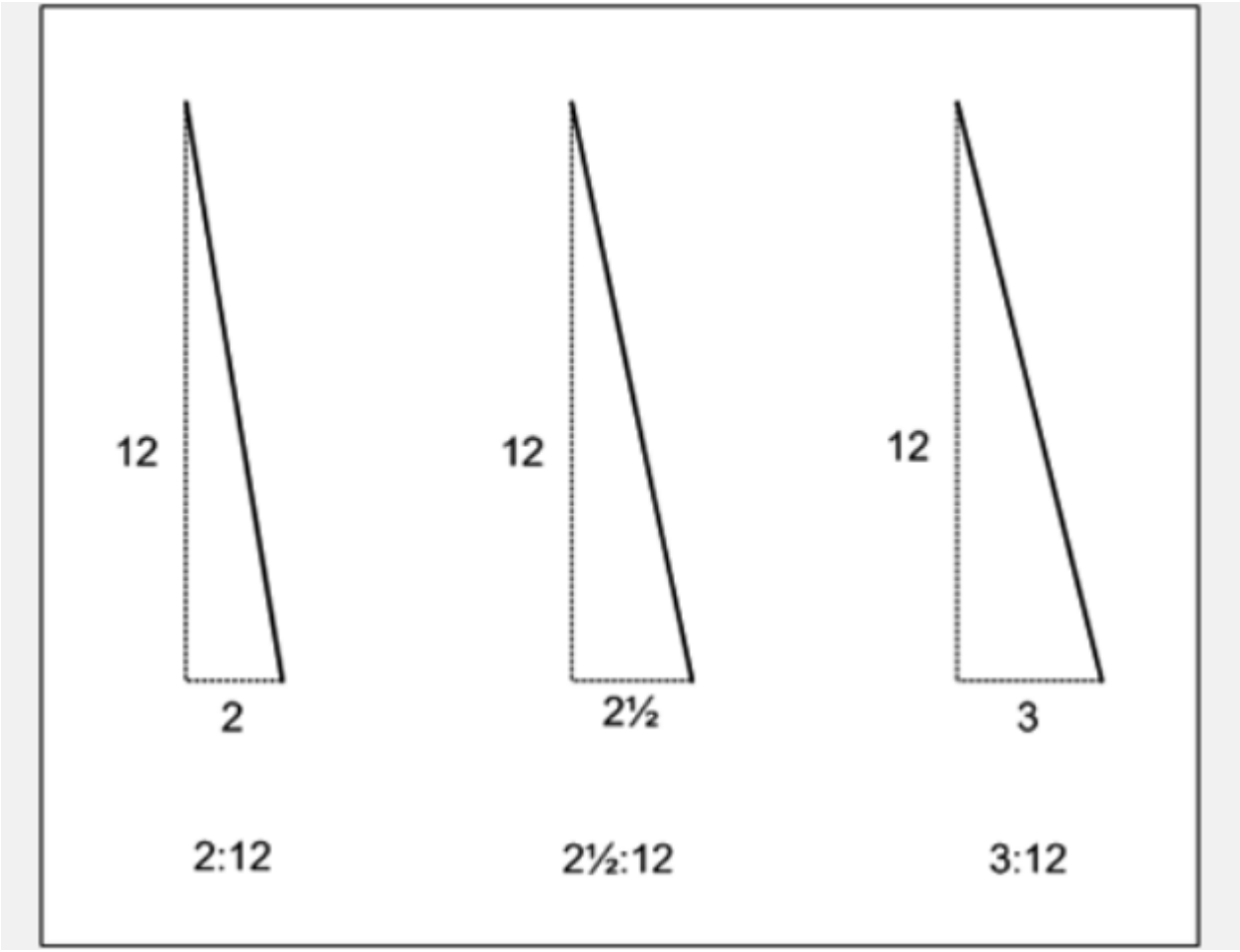

Figure 1 - Batter

The drawings in this article represent typical bents from curved, tangent and compound (both curved and tangent) RGS trestles. Tangent trestles were generally built with a batter, or slope, of 2:12 on the outer posts. Curved trestles generally had a batter of 3:12. Compound trestles generally used a batter of 2½:12. Of course, since this is the RGS we

are discussing, there is no such thing as a definite rule and exceptions can be found everywhere.

Two major styles of trestle bents were used on the RGS. One style used two vertical posts in the center and the other used three. A few trestle bents were built without any vertical posts and used 1:12 batter for the inner posts.

Frame bents were typically built from around five to a maximum of thirty feet tall, also due to the length of available posts. If a taller trestle was required, the bents were divided into stories, separated by horizontal intermediate 12″-square sills. In normal practice, the bent heights varied as necessary for the bridge to fit into the terrain. For heights under 16 to 20 feet, one story was used. For heights over this, anywhere from two to five stories would be used; the upper stories were normally the full height and the bottom one was adjusted to fit as necessary. On a multiple story bent, the stories are numbered from top to bottom.

BRACING

Most bents have diagonal sway bracing for reinforcement. These sway braces are lengths of 3″ x 10″ or 3″ by 12″ lumber attached to the cap, posts and sill at an angle somewhere between 30 and 60 degrees. Sway bracing typically runs from upper-right to lower-left, although many reversed examples are found. The ends of the sway braces were sometimes cut at an angle to match the ends of the caps and sills; others were left as normal perpendicular cross cuts. If the distance from corner to corner of the bent was longer than the available bracing boards, two boards would be used. The RGS bridge crews were very resourceful when it came to using whatever material was available to get the job done!

Occasionally, bents have horizontal 3″ x 12″ braces on each side of the bent about halfway between the cap and the sill. These horizontal braces are called sashes. Although sash bracing is common on pile bents, it is rarely used on frame bents. Bridge 58-A, the Meadow Creek Trestle, is a notable exception.

To make a trestle rigid along the length, horizontal timbers called girts are placed on top of the sills or sashes, and connect each bent to the next. Girts of various dimensions can be found on different trestles. Sizes of 6” x 12”, 8” x 8”, 8” x 10”, 8” x 12”, and 10” x 12” are common. Again, the bridge crews tended to use whatever material was available.

When extra longitudinal stiffness is required, the bents are connected with wall bracing. This bracing lies parallel to the sides of the trestle and connects the posts of adjacent bents with crossed pieces. Wall bracing is generally the same size as sway bracing. The RGS did not use wall bracing often; again, a notable exception is found on Bridge 58-A.

FOUNDATIONS

The bottom sill of a frame bent is called a mud sill. It may rest on a variety of foundations. Some trestles had the mud sill attached to the tops of piles driven into the ground. Others rested on blocks of used bridge timbers, typically 8″ x 18″ x 3′. Occasionally a mud sill would rest directly on the ground. In the later years, poured concrete was common. Here are three examples: Wooden blocks at Bridge 57-A, poured concrete at 46-D, and poured concrete at 45-A.

Photo 1 - Bridge 57A Foundation (Upper Gallagher)

Photo 2 - Bridge 46D Foundations (Ophir Highline)

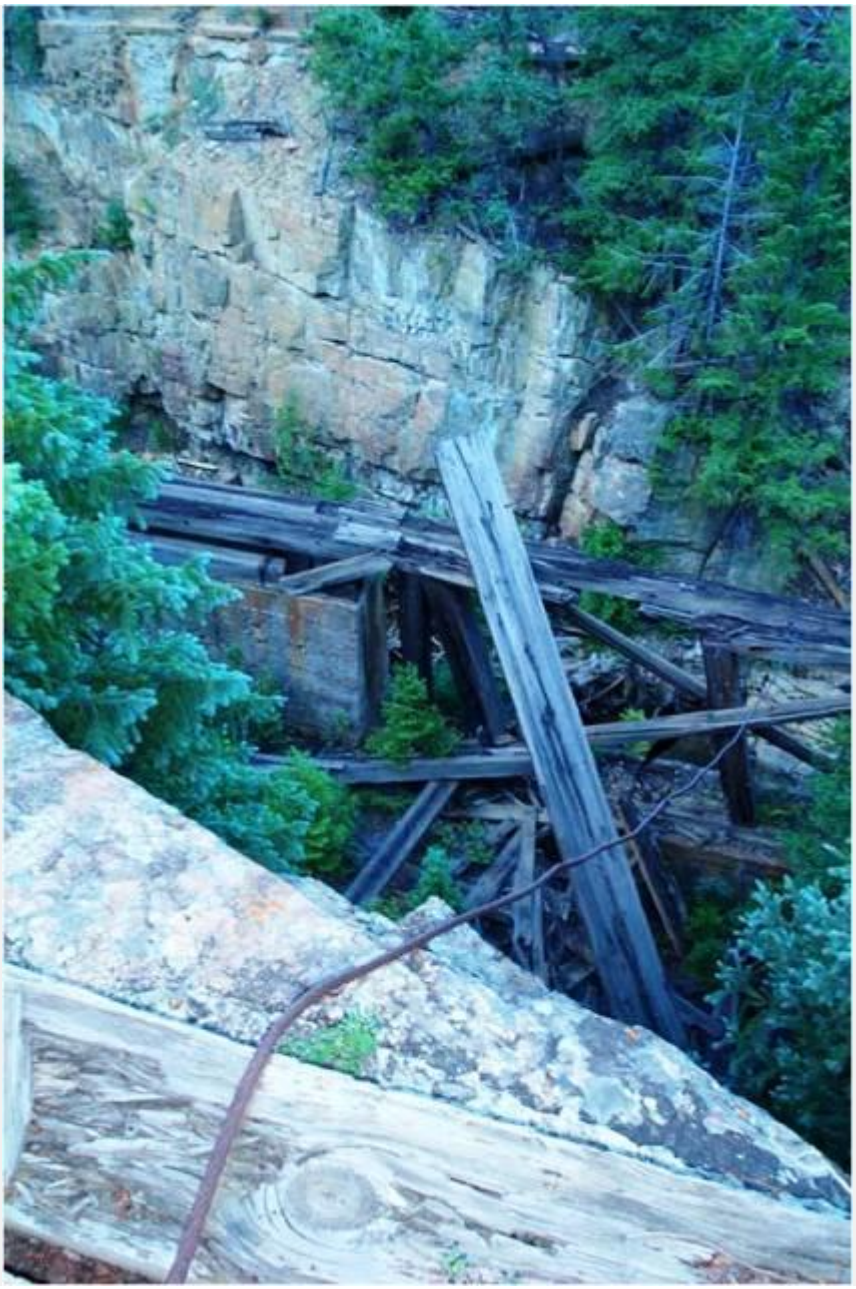

Photo 3 - Bridge 45A (Ophir Loop)

DECK

The deck of a trestle starts with wooden stringers set on top of the bent caps. The bents were generally placed 16 feet apart, with stringers of 8 x 18 inches. If the bents needed to be farther apart, stringer size was increased to 8 x 24 inches. Standard 8″ x 18″ stringers were 32 feet long and spanned two panels. Three stringers were bolted together into a single beam, leaving a 1 ½” space between the individual stringers for ventilation. Two beams were placed side-by-side, about two feet apart, on the caps.

Bridge ties were laid on the stringers, and guard timbers ran the length of the deck at the tie ends. The guard timbers were usually notched to fit over the tie ends and hold them in alignment. Galvanized sheet metal was placed on the tops of the bent caps and on the tops of the stringers to protect the wood from falling cinders. Running rails, gauged at three feet, were spiked to every tie. Guard rails, when used, were generally spiked to every fourth tie. Initially, the guard rails were located inside of the running rails. Later, they were moved outside of the running rails, probably to provide clearance for blade flangers.

Photo 4 - Bridge 51A (Trout Lake)

CONSTRUCTION DETAILS

The trestle photos in this article are mostly of the Trout Lake trestle deck. Other photos show timber remnants from other trestle sites. Trout Lake is the only one of the large Rio Grande Southern trestles still standing. It was maintained for a while after abandonment by the state of Colorado, but for the most part, it exists today just as it did when the RGS ran trains over it. The dimensions of the wooden members of this bridge are consistent with normal railroad practice, and the metal hardware used to tie the bridge together is basically the same as observed in the remains of many other bridges.

CONSTRUCTION METHODS

The following figure shows the method generally used by the RGS to tie trestle components together. This style of construction has been observed at some of the major bridge sites on the railroad that contain enough material for examination. It is also evident in the water towers still standing.

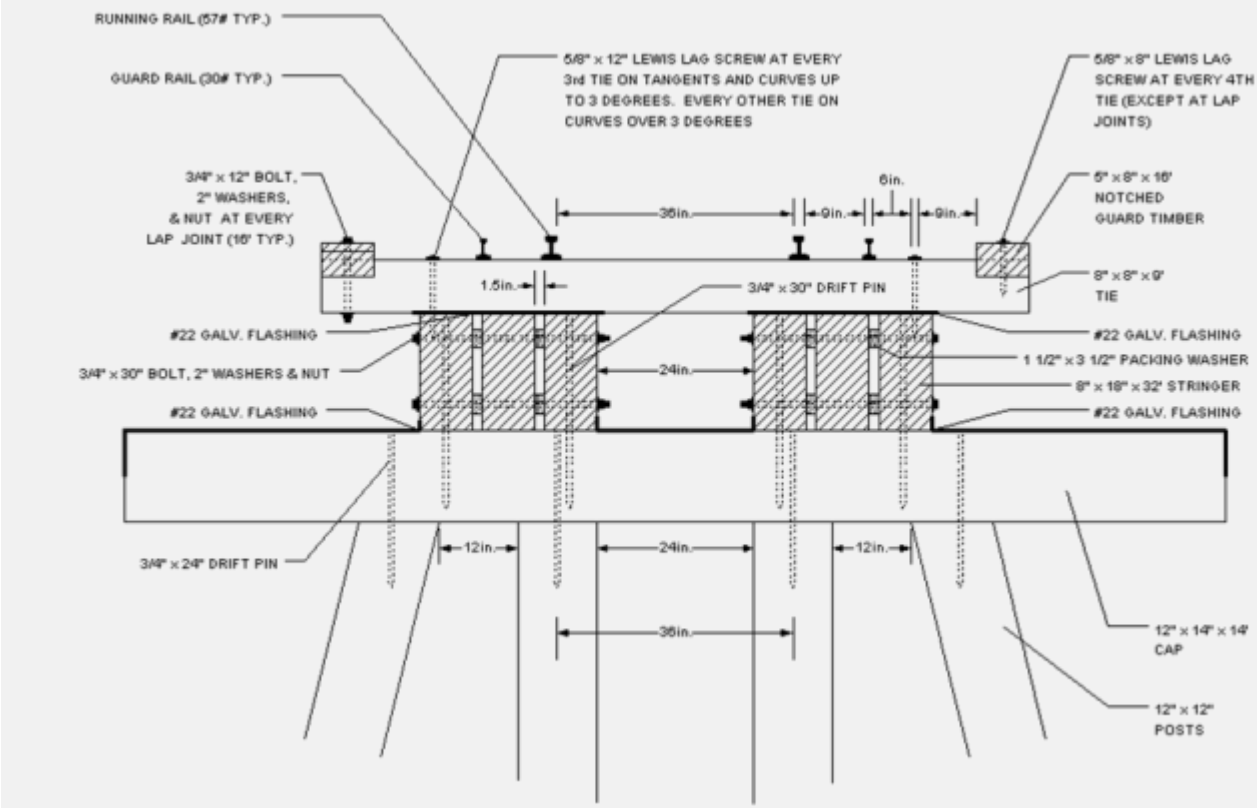

Figure 2 - Connection Details

The cap was attached to the posts underneath it by driving a round 3/4″ diameter x 24″ long steel drift pin down through the cap and into the post. This was done for each post and for each story of every bent. The deck beams were attached to the caps by driving a round 3/4″ diameter x 30″ long steel drift pin down through the stringers and into the cap.

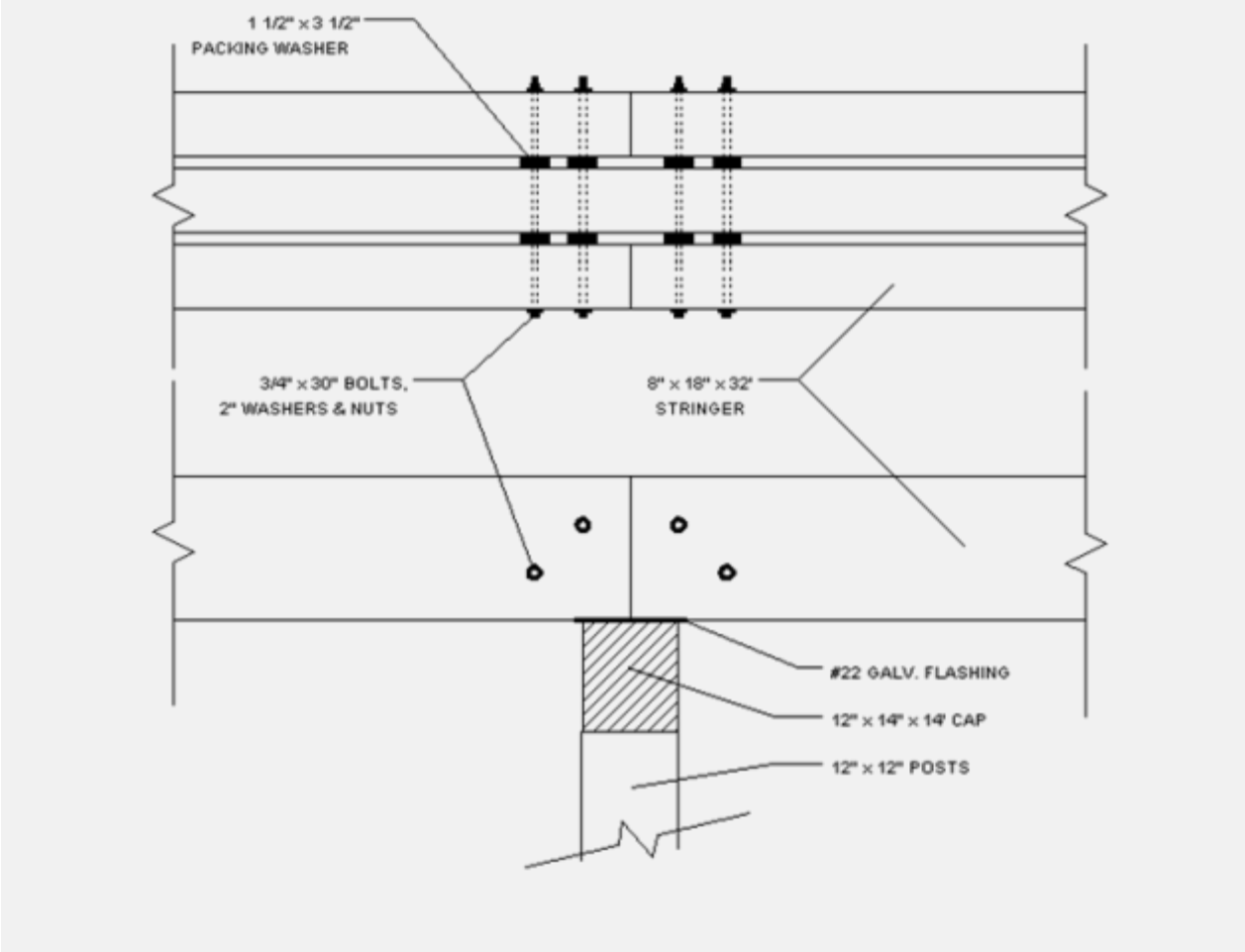

Figure 3 - Stringer Detail

Photo 5 - Stringer / Bent Detail

Photo 6 - Deck Underside Detail

The individual stringers making up each beam were bolted together with 3/4″ diameter x 30″ long bolts, 2″ washers and nuts. 1 1/2″ x 3 1/2″ packing washers were placed on the bolts between the stringers to maintain spacing. These stringers were typically 32 feet long and spanned two panels. The ends of the stringers were staggered as shown. The ties were typically attached to the beams with 5/8″ diameter x 12″ long Lewis lag screws. The screws were placed in every third tie on tangents and curves up to 3 degrees, and in every other tie on curves over 3 degrees.

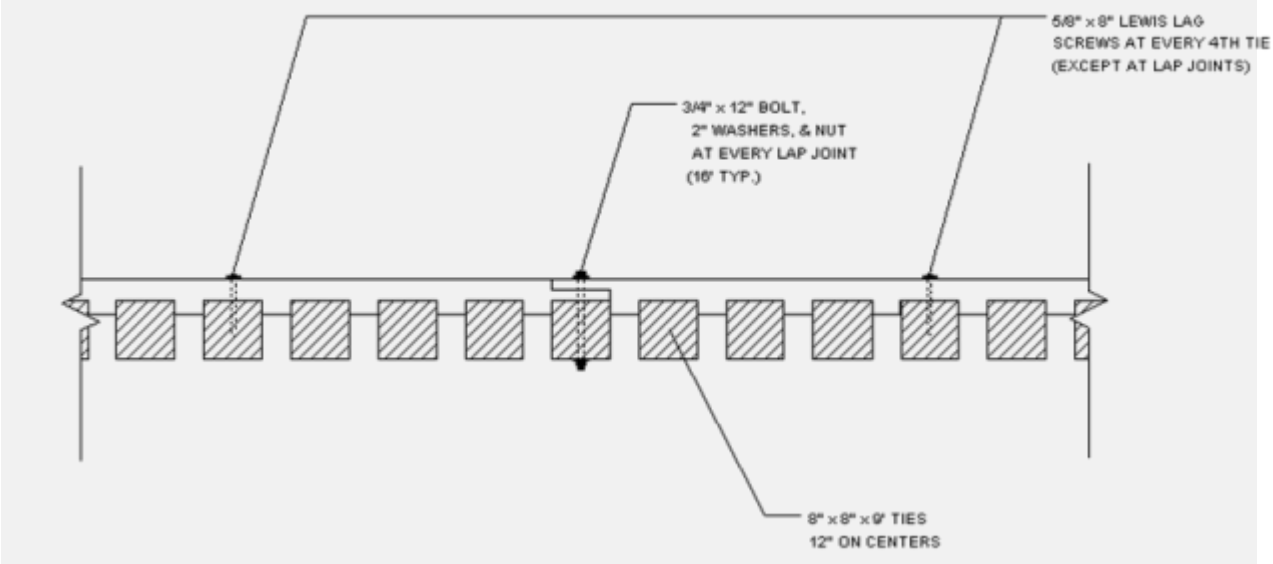

Figure 4 - Guard Timber Connections

The notched guard timbers were typically screwed to every fourth tie with 5/8″ diameter x 8″ long Lewis lag screws, except at lap joints where two guard timbers were spliced together. At lap joints, the two guard timbers were attached to the tie with a 3/4″ diameter x 12″ bolt, 2″ washer and nut. Here is a close-up photo of the guard timbers on Bridge 51-A.

Photo 7 - Guard Timber Detail

Anywhere from one to three small bridge nails (8″ or 9″ long with 3/8″ shaft) were used to attach the sway braces to the posts. These are often called boat spikes. They are found with both circular and square cross-sections. The sway braces usually ran from the lower left to upper right. This unit or story was often assembled off to the side and then moved into position on the bridge.

Each story was attached to the one below by toe nailing several full sized bridge nails through the post and into the cap of the story underneath. In the bottom story, the mud sill would probably be attached before the story was moved into place. As each story was positioned and attached to the story below, girts were added between the bents to stabilize them. When finished these bridges were strong and stable. The bridge at Ames, (43A), which was built in a very precarious location, stood for almost thirty years after abandonment with no maintenance whatsoever.

This photo shows a close-up of a sill from the Butterfly Trestle (44-A) remains. Note how two pieces were lap-joined together. The two boat spikes are where a vertical post was toe-nailed to the sill.

Photo 8 - Spliced Sills and Boat Spikes (Bridge 44A)

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Membership:

Please consider sharing this newsletter with friends who might be interested and if they wish to become members ask them to contact our PGRS Secretary/Treasurer for a membership form.

Don Watson
125 Mistletoe Trail
Hendersonville, NC 28791

docwatson@morrisbb.net

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Train Lover Luncheons:

The current luncheons are:

Columbus Area: Meets every Third Thursday of every month at Larkins Carolina Grill, 155 West Mills Street in Columbus, NC 28722. @ 1:00 PM. Contact Pete Gendron: 954-812-6270

Greater Greenville Area: Meeting the first Tuesday of every month - at 11:30. Meeting at the A&P Restaurant on Rte 14 in Greer. Contact Ken Majchrzak at: kemajchrzak@gmail.com or call Ken at: 864-385-4951

Asheville Area: Meets the 4th Thursday each month. We meet at 11:30 AM at Gondolier Italian Restaurant and Pizza located at 1360 Tunnel Road, Asheville 28805. Contact Tim Wagner timwagner2012@gmail.com
The location is on the east end near the VA hospital, so it is recommended that you access Tunnel Road from I-40, exit 55. Take a left at the first light after you exit and a left at the next light. The venue will be on the right a few hundred yards from the intersection.

Charlotte luncheons are meeting at Bubba's BBQ 4400 Sunset Rd. (exit 16, rte. I-77).
at 11:30am on the third Tuesday of each month.

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Send any idea, project, photo, something you found surfing on the Internet, etc., no matter how great or small you may think them to be to your newsletter editor. We all love trains so…if it's about trains, and you've got it on your computer, chances are you won't be the only person who might enjoy reading about it.

Send your input to: srwavl@outlook.com

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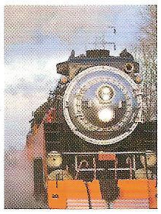
Business Related to Our Hobby

Any Member who has a business related to our hobby is welcome to submit an entry for inclusion in **PGRS Trackin'** each month.



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Peggy Keyes
Owner / Chief Conductor
RightTrackTrainMuseum@gmail.com
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