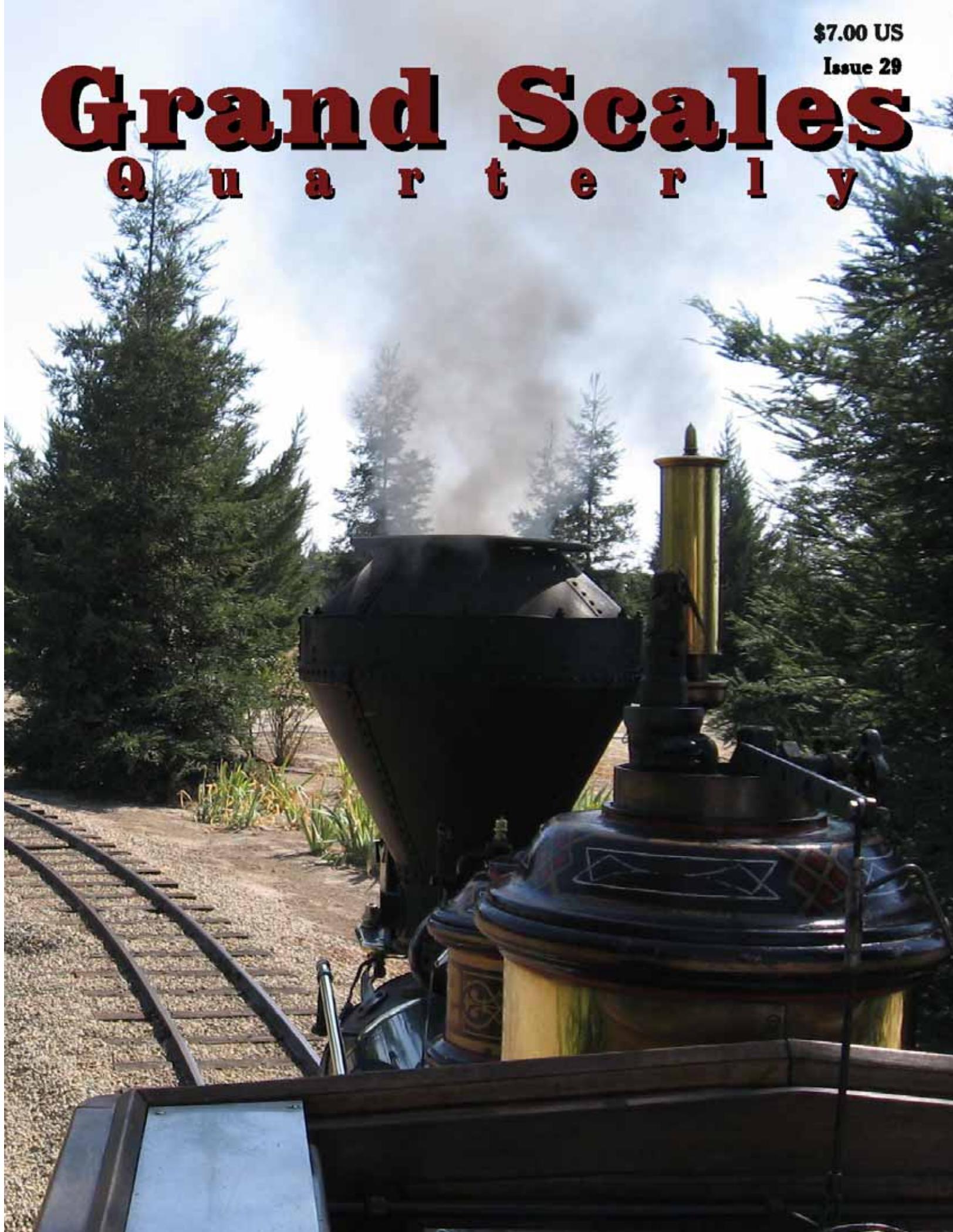


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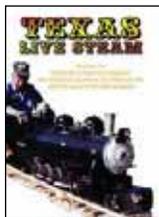
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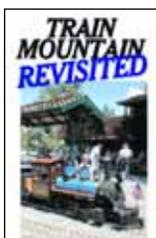
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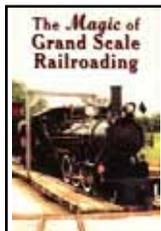
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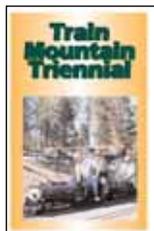
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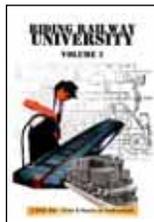
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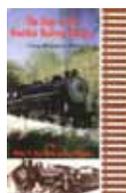


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Grand Scales

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Published by
Robinson & Associates
P.O. Box 8953, Red Bluff, CA 96080 USA
530-527-0141
E-Mail: srobinson@theskybeam.com
www.grandscales.com

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The purpose of The Grand Scales Quarterly is to foster an exchange of information and encouragement to any who have an interest in Grand Scale railroading (12" gauge and larger scale equipment). It is the sincere hope of the publisher that this journal is found by you, the reader, to be both informative and enjoyable.

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IN THIS ISSUE

From the Dispatcher.....	5
News from Around the World.....	6
Bud Hurlbut.....	9
Knott's Berry Farm.....	10



Woodland Park Memories.....	21
Night Train to Romney.....	25
Minimum Radius Curves.....	39



On the Cover:
The Sonoma rounds a curve on the H&W RR. Learn more about curve design on page 39.

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FROM THE DISPATCHER

by Greg Robinson

Welcome to the first digital issue of the *Grand Scale Quarterly*. We are very glad you've joined us through this transition. We love paper magazines, but the realities of publishing are changing fast. Some folks had reservations when their favorite radio shows moved to the television in the 1950's. There wasn't as much left for the imagination, but there was a lot more to see.

In this issue and in coming issues we think you'll enjoy the greater size and number of photos. And we think you'll appreciate being able to click right to the web sites of railroads being discussed in the news and the articles.

Beyond the bells and whistles, though, we hope you find the substance to be just as rewarding. We continue to strive for a balance between the historical, the educational, and the entertaining. Please let us know what you think of the articles in this issue. We value your input.

TRENDS

The global economy has affected more than just international banks and hobby magazine publishers. Amusement parks have been closing. Park trains have seen their ridership falling. And private hobbyists have felt the need to curtail some of their recreational spending.

But the woe isn't universal and in some cases seems to be easing up. Many of the meets, special events, and galas this year have been well attended. Both in America and in the UK, railways have been able to move their Grand Scale engines around to visit other railways, enjoying the camaraderie and pleasing the crowds.

A number of vendors are keeping their momen-

tum, maintaining their ability to serve the hobby. Hillcrest shops has a number of interesting private and commercial projects in works. And Wasatch Railroad Contractors, who are busy with standard gauge work, are orchestrating a money-saving group build of Grand Scale boilers, allowing some to jump into steam at a time when they might have otherwise needed to delay. Other vendors too are still in full production. Such "economic indicators" within the scale railroad community are a good sign.

Of course, these events and vendor activities are just the high profile side of things. We have also been hearing from many folks who are happily operating their home railroads for family and friends as they have been doing for years now. And we've been hearing from volunteers who keep the various clubs and support groups humming along nicely.

The Grand Scales are still growing apace.

GRATITUDE

There is a lot of gratitude in the renewal of GSQ. Sure, many readers have shared their appreciation upon learning that this issue was on the way. But the real gratitude is on the part of the publishers, Susan and myself. We are grateful to be able to continue to serve this hobby and this industry.

So many of you have shared stories of how GSQ has been beneficial to you, and that you very much want to see it survive. You have shared words of encouragement and expressions of support. Even if those words were received quietly, we want you to know that it made the difference. GSQ is here because you wanted it to be here. Thank you.

Sincerely,

Greg & Susan

Grand Scalers have proven themselves, by and large, to be uncommonly honest people. Thank you for respecting the copyright of this magazine. Although copying a digital file is very easy, sending it to someone who doesn't have a subscription is unfair to those who do . . . and is akin to breaking into our sons' piggy banks and taking money from them.

NEWS FROM AROUND THE WORLD

NORTH AMERICA

Deer Forest Fun Park (Coloma, Michigan) was a family attraction that last for 60 years. It had a train ride. The owners were hoping to sell the 20 acre park as a whole, but no buyer was found. The collection was broken up and sold to the highest bidder. <http://www.wndu.com/localnews/headlines/62398762.html> <http://www.deerforest.com/>

The web site for the **C & H Railroad** (12", Tecumaseh, Kansas) has a neat feature on their "Telecommunications" page. It is a Morse Code translator. Just type in a phrase, and it will display the correct dots and dashes for your telegrapher. It will also play synthesized audio of how it might sound -- electronic beeps, not classic metallic clicks unfortunately. But it's great fun. And their web site also has some fantastic photos of their line. www.candhrailroad.com

The next public runs on the **Emerald Hills Railway**



(12", Redwood City, California) will be held October 31, November 26, and December 12. For more information send and e-mail to train@amsmrp.com or go to <http://www.amsmrp.com/train/>

The Fall Festival at **Hill Ridge Farm** (16", Youngsville, NC) will be running through November 15. Their engine is a steam-outline 4-4-0. www.hillridgefarms.com

The **Meadows & Lake Kathleen RR** (18", Deadwood, OR) is for sale. All the ties, 14,000 ft. of rail, track hardware, and equipment. For more information visit their website. <http://members.peak.org/~kmr3/M&LKRailroad/>

After years of daily running, the "Little Puffer" Class E Cagney at the **San Francisco Zoo** (22", S.F., CA) was due for major repairs. Earlier this year it spent two months in Cheyenne, Wyoming being rebuilt by the **Wasatch Railroad Contractors**. Wasatch is also



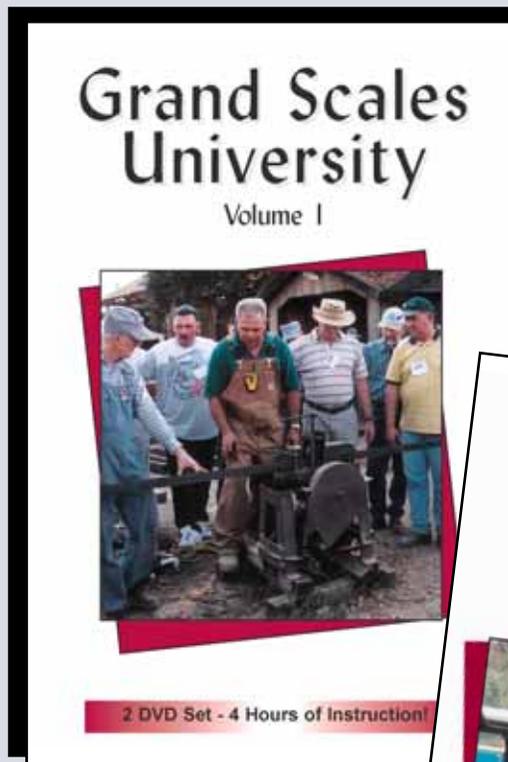
The San Francisco Zoo's *Little Puffer* at the Wasatch shops.

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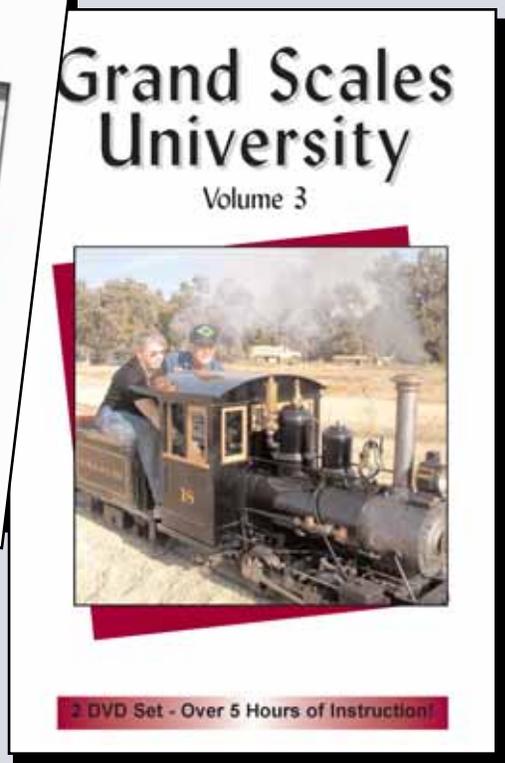
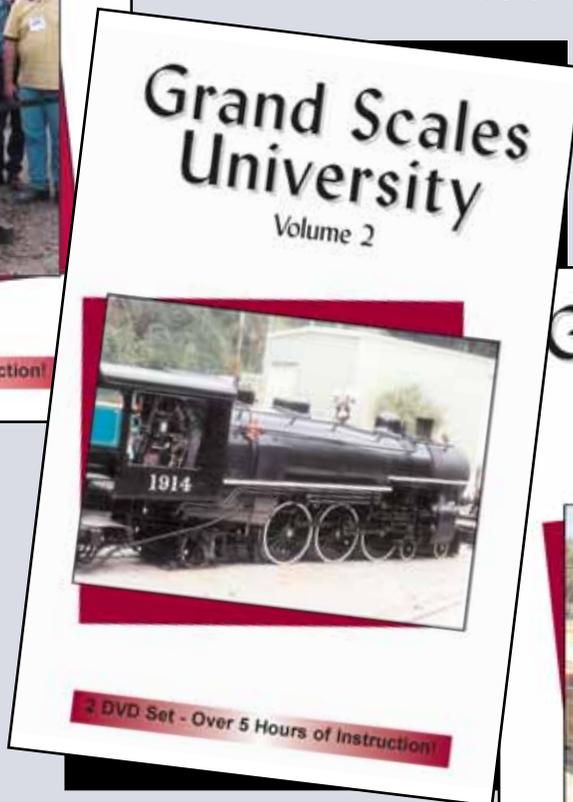
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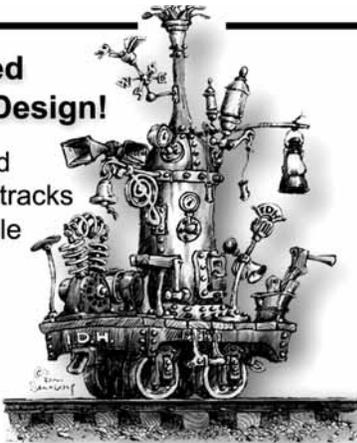
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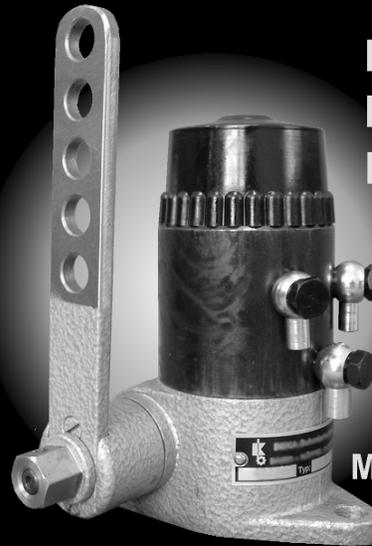
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Fantasonics.....8	Real Trains.....30
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Grand Scale University.....7	Scaled Plus.....4
Hillcrest.....8	Video Production.....38
Live Steam Locomotives.. 23	Wasatch23
LocoGear.....3	
LocoParts.....20	
MBSI.....8	
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Ohio Valley Trackwork.....44	
RMI.....45	

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BUD HURLBUT

THE EARLY YEARS

By Richard Harris

His circles of friends within the business are extensive. He's not widely known by the general public. Hundreds of thousands of people still enjoy his rides to this day. His foray in the amusement business was all done by accident, but he has entertained people for over 60 years. When Bud Hurlbut started in the amusement business there was no Knott's Berry Farm or a Disneyland of any kind. Hurlbut rides have stood the test of time for decades. His rides still transport guests year-in and year-out. Here, through various stories and many visits shared with author Richard Harris, is Bud Hurlbut's story.

I (Bud Hurlbut) had started visiting amusement parks in 1948 or 1949. I was taught designing by my Father, Ray, when I went to work in his machine shop. You see I knew a little about designing so I decided to design some rides. I had a small shop in Whittier, California, with some old machinery. I thought that I was going to be a big time amusement ride manufacturer, and that's all I wanted to do.

The first ride that I designed was a small train. It looked pretty good, so much so that other amusement park operators bought it before I could build the first one for myself. Before I could finish my train, I had built and sold twelve others.

I ended up calling them the Hurlbut Train. It was 14" gauge and pulled gondola cars. This was a simulated steam locomotive with a gas engine.

MEETING WALT DISNEY

I first met Walt Disney at my small amusement park, which was located in Whittier, California. He would bring his daughters there, and I saw him just sitting, looking at the rides. This was in the early 50's, before Walt had opened up DISNEYLAND®. I walked up to him one day and asked him his name and he responded with "I'm Walt Disney".

I saw him a couple of weeks later and walked up and said "Hi Mr. Disney, how are you doing?" He said "call me Walt". This began a friendship that would endure for many years to come. He was study-



ing how things worked.

I said, "Looks like you're interested in rides."

His response was "just kind of looking". He really was a nice gentleman. I sat down with him and answered a lot of the questions he had.

Walt would often visit another park too. It was located on the corner of Beverly and La Cienga. That park was owned by Dave Bradley and was called Beverly Park. Walt got to know Bradley very well. Dave Bradley had a lot of movie stars show up at his lot and it was a lot closer for Walt Disney to drive to Dave Bradley's lot than mine...When I spoke with Bradley I told him that I was being visited by this gentleman who knew a lot more than we did about amusement rides. Once I told him who he was, he told me that Disney had visited him several times before.

Bradley ended up doing some research for Walt Disney for his now famous park in Anaheim. Walt had fixed him up with some camera equipment and sent him overseas to Europe to photograph some rides there.

Walt had very different ideas and he knew what he wanted to do in his amusement park. Later on, Walt invited me to the Walt Disney studios and

A BRIEF HISTORY OF KNOTT'S BERRY FARM

In 1920 Walter and Cordelia Knott moved to Buena Park, Calif. In 1927, Walter Knott bought ten acres of land. The Depression hit a year later and land prices dropped. While maintaining the original payments, Walter bought an additional ten acres at the lower price and spent the last of the family's savings to build an adobe structure that became the Farm's first permanent building.

Ready for occupancy in 1928, the building was 80 feet long and housed a tearoom, berry market and nursery where berry plants were sold. By now, the Knott's had four children - son Russell and daughters Virginia, Toni and Marion. All working together, they formed a family bond that prevailed throughout the years.

Mrs. Knott did all the cooking and her three daughters served the Chicken dinners in the five-table Tea Room. Since 1934, over 20,000,000 guests have eaten chicken dinners at her famous restaurant. In fact, the restaurant bearing Mrs. Knott's name has grown into one of the country's largest full-service family eateries.

It was not until the 1930s that Walter Knott became associated with the "boysenberry" which became the family's trademark. Walter took these scraggly looking plants known as the "boysenberry" from Rudolph Boysen and nursed them back to health and named the new berry, a cross between a loganberry, red raspberry and blackberry the "boysenberry" after its originator Anaheim Parks Superintendent Rudolph Boysen.

Rudolph Boysen kept experimenting with a new strain of this berry but the plants kept dying. Today, all boysenberries in the world can trace



Mr. and Mrs. Knott in the early days of Knott's Berry Farm.

their roots to Walter Knott and Knott's Berry Farm.

To give waiting customers something to do and to pay homage to the pioneering spirit of his grandparents and his love of the Old West, Walter developed Ghost Town, eventually the first of Knott's Berry Farm's six themed areas.

The first structure was the Gold Trails Hotel, which had originally been constructed in Prescott, Arizona, in 1868. Adhering to authenticity, Walter brought in other buildings from deserted ghost towns and Knott's Ghost Town as it exists today emerged. In keeping with Walter and Cordelia's original goals, Knott's Berry Farm continues to grow and to combine quality, wholesome family entertainment with nostalgia and history.

Additions have been made

throughout the years. In the 1960s, The Calico Mine ride and then in 1969 the Timber Mountain Log Ride were added. That is when Knott's built its second themed area: Fiesta Village, a tribute to California's early Spanish heritage.

Knott's remains America's oldest "themed" Amusement Park and 12th most visited in the country. The park was free until 1968 when the amusement portion was enclosed and more attractions were added. When admission was added it was only a dollar back in 1968.

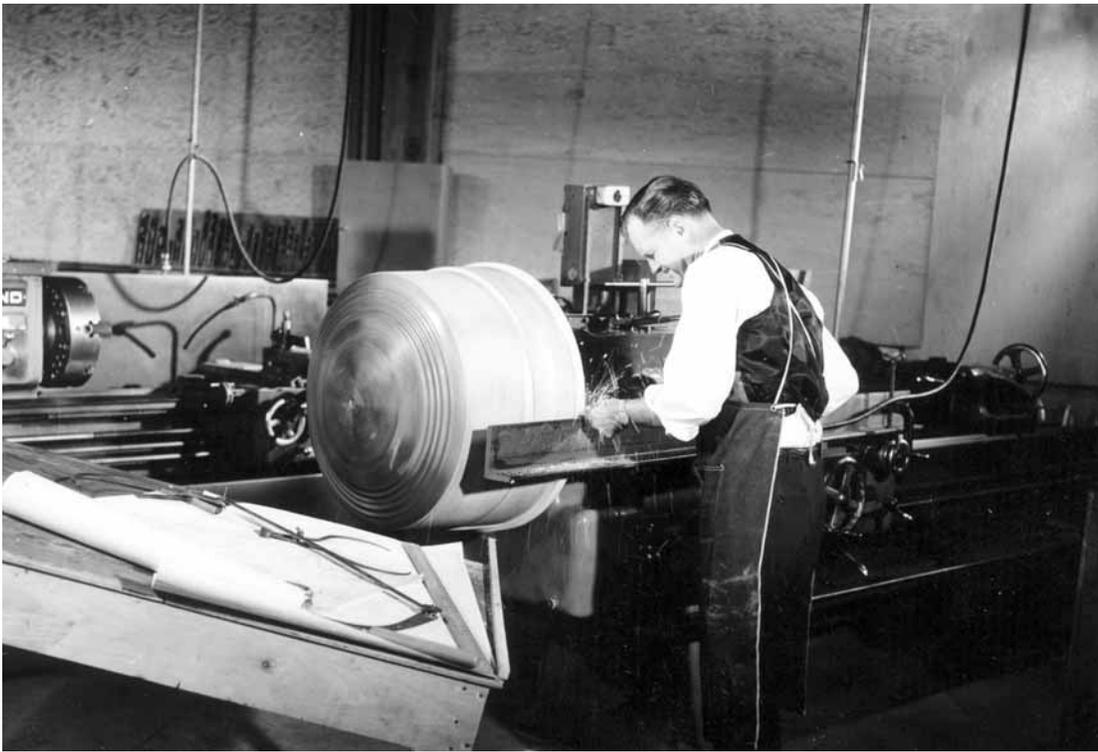
Although renamed Knott's Southern California Resort, it continues to keep some of the nostalgic and historical aspects of the park. One hopes that the remaining elements will never be demolished in favor of some new thrill.

continued from page 9 . . .

then we went across the street to see this piece of property that was not yet developed. You see this is where Walt was thinking of building.

Back in the 40's and 50's, there were amusement parks on just about every street corner in Los Angeles

and Orange County California, just like you would find filling stations. These parks were focused on older teens, not kids. It was the little kids that had the money because Grandma and Grandpa would give it to them or take them to the small parks that were around. I started doing kid-dieland rides in 1945.



Bud Hurlbut working on his lathe.

Right after WWII there was a lot of war surplus to use. They had all of these fuel tanks, which were mounted under the wings of airplanes. These tanks were approximately five or six feet long. I had bought some of these and cut holes in them to make cockpits out of them to simulate airplanes. Then all I had to do was add wings and a tail. These fuel tanks made great airplanes.

The next ride I did was a ferris wheel and we also built what we used to call "car rides". We had these little touring cars with front and rear seats, which went around on sweeps in a twenty-foot circle. There was a little boat ride in a water tank.

Dave Bradley also ended up being an amusement ride builder. One of the rides he manufactured was the helicopter ride. The Allen Herschell company had a somewhat similar helicopter ride (hydraulic rather than pneumatic), which was a popular kiddieland ride. The ride was invented by David Bradley (US patent # 2922648), and the production rights of this Amusement ride were acquired by the Allen Herschell Company in 1956. The Allan Herschell Company was founded in 1915 in North Tonawanda, New York. *(For more information on the Allan Herschell Company and MTC trains, see GSQ issues 17,18,20 and 21.)*

Another good friend of mine, Harry Suker, had an amusement park called Suker's Kiddieland

over on Firestone. I was located over in El Monte, so Harry, Dave Bradley and I had formed a kind of triangle. It might seem we were in competition with one another, but we really weren't.

We were all far away from each other and we all ended up becoming very dear friends... very close... and we used to share how we ran our parks. To this day Harry and I still see each other. Harry has retired and moved out of

California along with his wife.

The main difference was that I made rides and operated them while they purchased their rides and operated them. I had trains running in their parks and had owned a couple of rides. When I put my first train over in Dave Bradley's lot, his first passenger was Franklin Delano, Junior, Franklin D. Roosevelt's son.

Walt Disney brought several of his men to my shop on different occasions in the early 1950s. On one occasion, when I was visiting, Walt invited me over to his house to ride his miniature steam train.

I spent several Saturdays over there and it was just like being with an old neighbor. Walt would sit on the floor and just relax. And we would talk about trains and other amusement rides that he was interested in. That was some of the most enjoyable times that we ever had. Walt was a great guy and I was touched when he later said that those were some of his best, most enjoyable days. I got to know Walt quite well.

MUSIC AT KNOTT'S

I went to high school with a guy by the name of Cliff. His father exported tractors to foreign countries and bought old music boxes and music



This Hurlbut locomotive once ran at Nixon's before eventually being moved home to Bud's shops in Southern California.

er to go and see the collection. She asked me if I'd be interested in getting a commission for help in selling the collection. They really want to get rid of the stuff so I said okay, I'd do it. I could really use the money for some new shoes at that time (laughter), so I took Walt to the music machines. Walt had two gentlemen with him. One was Dick Irvine and the other gentleman I can't remember.

The first place we went to was Don Nixon's (former President Richard Nixon's brother) restaurant, called Nixon's, where we had lunch. Walt would often go there to

machines.

They'd come in these big crates, all torn down and half rotten, and his hobby was tearing them apart and rebuilding them. When Cliff's father passed away I went out to his shop. In this fifty-foot-long building was the darndest collection you have ever seen in your life! All these music machines and big musical boxes along the walls, and down the middle there were two more rows of the same. These machines were all complete and looked like pieces of beautiful fine furniture. Cliff's father had placed no value on these since it was just a hobby to him.

Cliff came over to me one day and said he had a problem. His dad had passed away and he had all of these music boxes and their pneumatic bellows to sell. They had to be played once or twice every two or three weeks to get the air change in the bellows. Cliff told me he needed to dump this load of stuff and asked me if I would buy them and I said I would think about it and get back to him.

I asked myself what would I do with them. In 1954, I met with Walt Disney at his home in Hombly Hills, California, not far from the Walt Disney Studios, to talk about this collection. He thought it was interesting but soon went on to other topics. Later we met again for lunch and he asked about the collection. About four weeks later Walt called me and said he wanted to go and see the collection.

I made arrangements with my friend's moth-

have a bowl of beans.

I had one of my trains over at Nixon's. After the train was used at Don Nixon's it was moved over to Knott's Berry Farm Lagoon. In later years the train was moved to Castle Park in Riverside, California. This small train is now sitting in my shop.

At the end of lunch we went out there and Walt was amazed at the collection of these music machines. A lot of the music was European. Walt called me a week later and we went back out there. He bought up the whole collection.

Walt did eventually install one on Main Street in Disneyland. On opening day, one of the instruments sat right in front of the penny arcade on Main Street. The Welty is located in the candy store which used to be the penny arcade. It was black and polished and almost as tall as the ceiling, Walt had also put a machine on the Mark Twain steamboat dock. He also gave some of these to Mrs. Disney and he kept some of the smaller machines in their home.

CAROUSELS

The first carousel that I obtained was one that I traded for one of my trains and some cash. I kept it in storage for a couple years. I bought a piece of ranch property on Washington Boulevard with the idea that I would open up my own amusement park. Then I bought that Dentzel carousel.

About this time I went to see Walter Knott

ALL ABOARD!

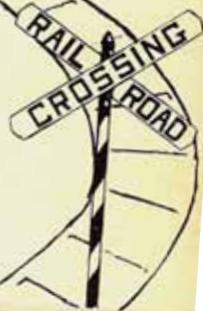
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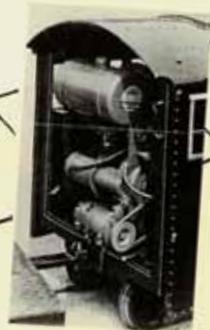
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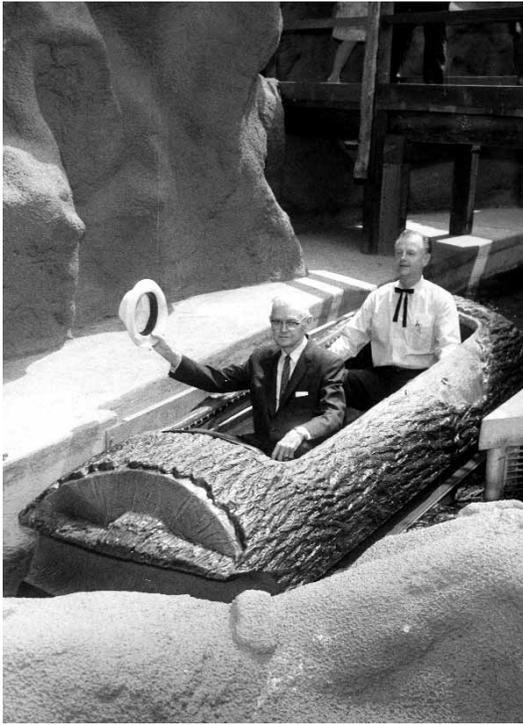
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about putting a couple of amusement rides in his park. At the time he didn't see much value in putting in a couple of rides. He wanted to keep Knott's Berry Farm as a ghost town and he could not visualize it any other way. I knew Walter because I went to school with his daughters and got to know the family.

I used to visit Walter on a regular basis. One day I told Walter that I had a merry-go-round and I offered to put it in with one of my trains. Walter was worried that his park would look like a carnival.

One day, Walters's son, Russell, came out to my place to see my merry-go-round. I told Russell that I had it in storage but he still wanted to see it. Russell talked like he was serious so we went over where I had it stored. Russell said they might be interested in having it over at the farm. I laid out my plans for the building that was going to house my carousel. The ride was paid for and I knew that Knott's Berry Farm was going to be a good location for it.

As I sat in Walter Knott's office with Walter and Russell, they said lets go out and take a look at the location that I have in mind. Like every thing else we did at Knott's, we walked out and found a good location. Then Walter took the heel of his shoe and scratched an X were he wanted me to put the carousel. In June of 1955 we opened the ride.

The carousel sat north of McDonald's farm It originally came from Hershey Park in Hershey, Pennsylvania, where it had run for about twenty-two years. It was driven by a fluid clutch, which gave it a smooth ride.

In 1936 the carousel appeared at Brady Park in Canton, Ohio, where it ran for eight years before going into storage. Interesting side-note: President Dwight Eisenhower worked for the company producing the figures, in his youth, carving animals out of wood.

When Walter and I agreed on what was going to happen we did not write any thing down. All we had to do was shake hands, and that was the way we worked it. And that was my start in Knott's Berry Farm.

FAST FORWARD TO 1960

Where the Calico Mine ride sits was originally called Bewitched Village. Bewitched village was where they trained animals and kept them on display. That is where Knott's Berry Farm had a horse show, which was a good idea but it just didn't workout as well as Walter thought it would.

Financially, I knew that The Calico Mine ride would do a lot better than the horse show. I spent a lot of time with Walter and we would walk the park a lot. He asked me if I had an idea for something that



Page 14, left: Walter Knott and Bud Hurlbut enjoying the log ride at Knott's Berry Farm.

Page 14, Right: Construction of the Calico Mine.

This page: photos taken inside the Calico Mine.
(Photos courtesy the Orange County Archives.)

could go in place of the horse show.

I told him that I could come up with something and that I thought we should do something pertaining to mining . . . and that was the start of the mine ride.

Before the construction of the Calico Mine train I had done some research on the gold rush days in California. After I researched it all out, I did a storyboard for Walter. I drew all the pictures with the explanation on how this ride would work. Walter was not satisfied with just the story board so I went back and built a scale model of the Mine Ride.

After Walter had approved the ride I had to go in and tear out the entire horse arena. The arena was made from concrete and wood. I got a bulldozer in there and started tearing out all of the bleachers and pushed all the concrete and wood to the outside of the arena area so we could get started working on the Mine Ride.

Back in the 60's there were really no big rides like the Calico Mine train or like the log ride. Amusement parks back then had not seen any big rides. When Walt Disney opened up Disneyland,



nobody had ever seen anything like it.

I was on the ground floor and I had no idea what I was doing. When I started thinking about the Calico Mine train, I thought about one car with two people and that did not really make any sense to me so I thought about capacity. I thought about one level for the mine ride then figured that that wasn't enough so I finally ended up with eight levels.

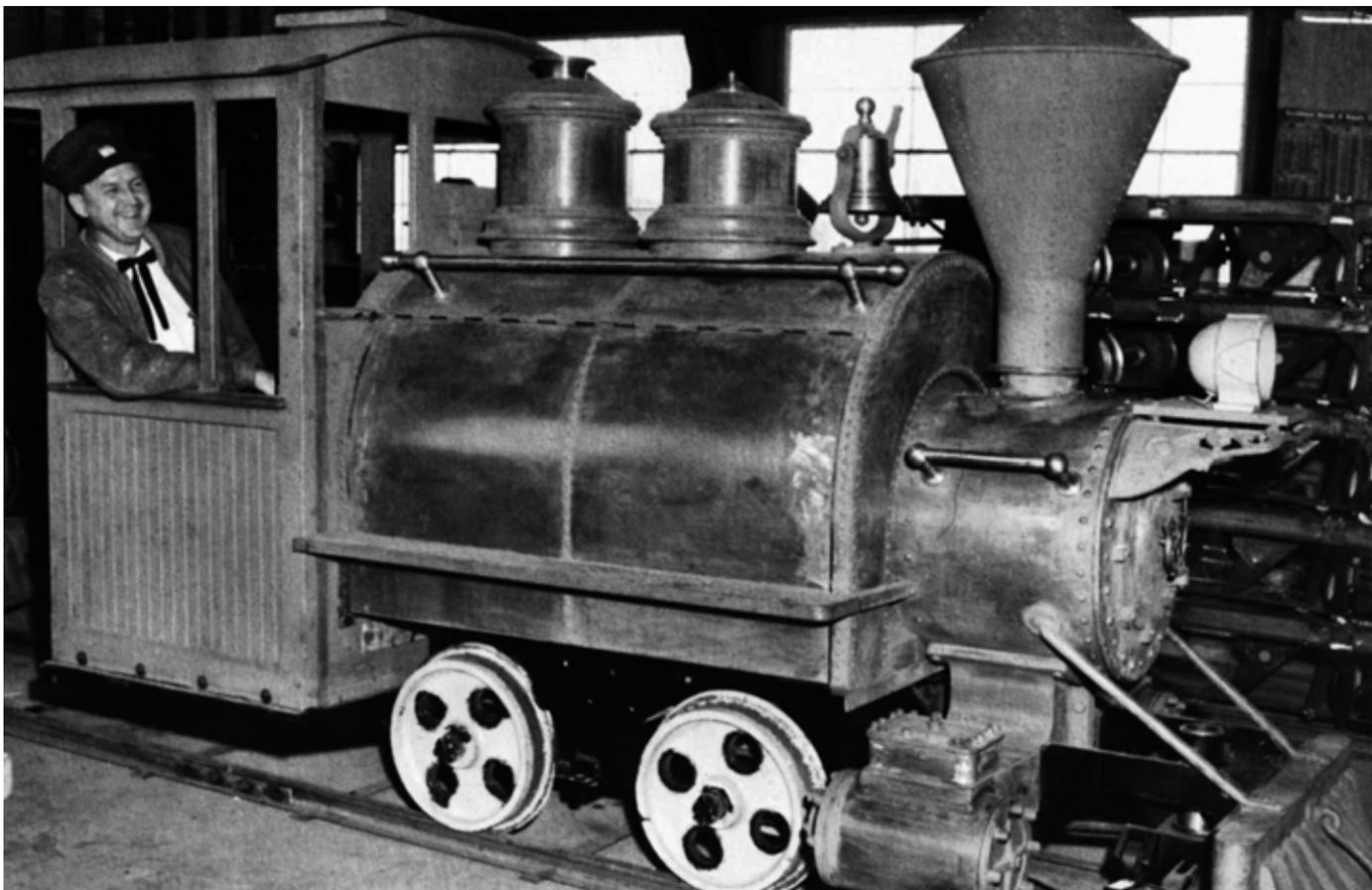
The Calico Mine train at this point was just a little dark ride with individual cars already built and ready to go. Then I had to sit down and figure what kind of operating system that I needed to operate this

ride.

I was planning an electric track and then I thought about and figured that I knew how to build trains and that is what I ended up with. I soon ran in to a new problem and that was money, or lack of it. I needed money for construction. In 1960 it cost me three and a half a million dollars to build the ride. By today's standards, it would cost about twenty million dollars plus the cost of the trains and the mannequins!

back and up at the hotel window next door to see what's going on upstairs. Claude was also the one who did the miner with the burro, the statue which became the staple for Knott's Berry Farm.

I had some rides in Fiesta Village and others over at Knott's Berry Farm lagoon. Over at the lagoon I had some paddle boats as well as some row-boats. To finance the mine ride I had sold everything: my house, my ranch, and my new Cadillac. The only thing that I had left was my pick-up truck. My wife



Bud at the throttle.

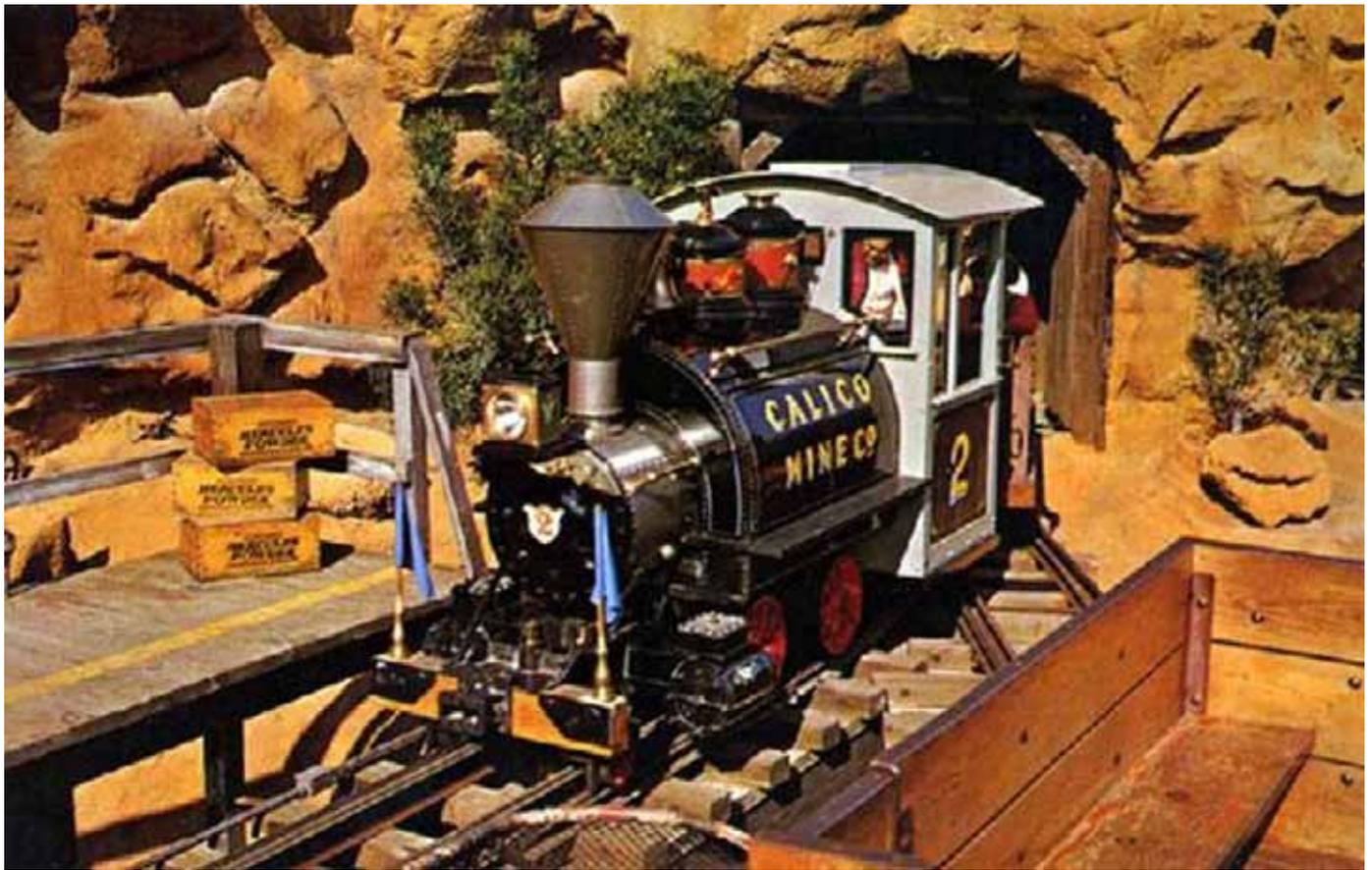
The mannequins in the mine ride were created by me and my staff. A couple of them that were also done by Claude Bell. Three mannequins that Claude did were located in the square right before you go up the lift and head in to the Cavern Room. The mine ride is a total of eight stories, two stories down and six stories up.

Claude Bell was the one that made Knott's famous for their "peek-ins", like a talking inmate named "Sad Eye Joe." He's a dummy that you can actually talk with! When you visit him you can look

and I drove that pick up truck around for quite a while.

Once the construction was under way, Walter Knott would frequently come out and see what was going on. One day I walked around the corner and saw Walter walking on one of the beams. I was worried that he could have fallen off.

The first locomotive was built by myself, along with Harry Suker and my Dad, Ray. I had designed all the locomotives with different shapes so they didn't look alike. I had done all of the welding

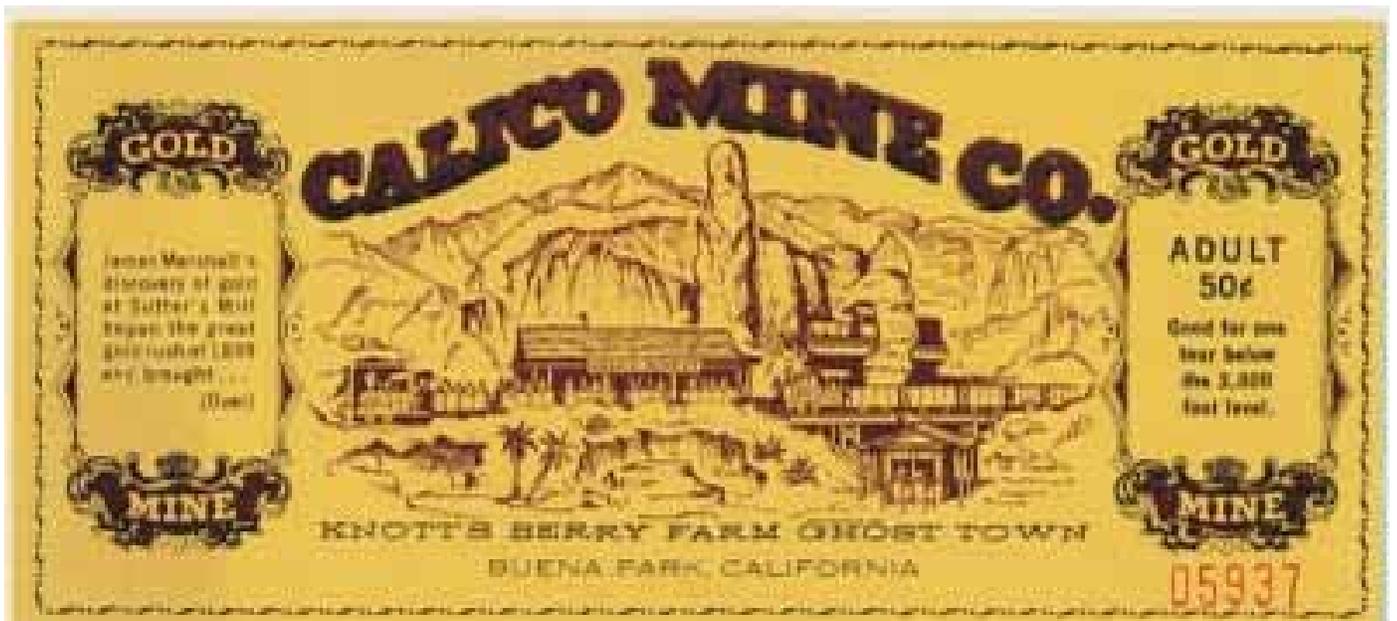


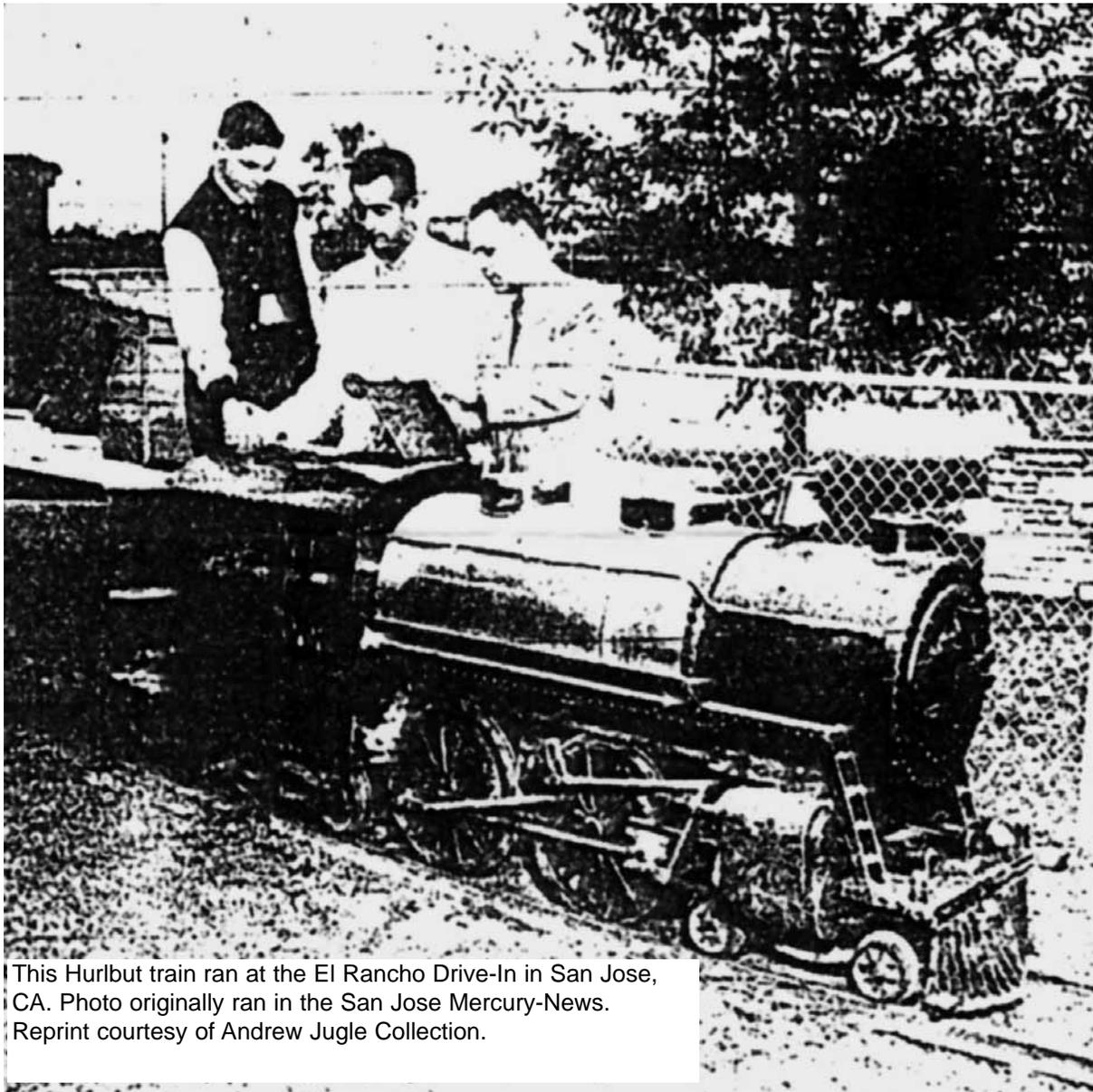
on the locomotives and built everything on them. My dad helped me a lot as well.

The glory hole in the Calico Mine is larger than you will find in real mines. The figures you see in the glory hole were built in my shop. They were pretty crude by today's standards. When I did the lighting on the mannequins, I did not light them too well but they did look good in there and were rough

looking when lit.

As you ride the Calico Mine train it returns to the glory hole area several times. When you get to the top of the glory hole it is an impressive sight to see. I tried to put as much activity in the glory hole as possible. I shined lights so that shadows would add to the experience and the effect. I used mainly electric motors and very little air pneumatics in there.





This Hurlbut train ran at the El Rancho Drive-In in San Jose, CA. Photo originally ran in the San Jose Mercury-News. Reprint courtesy of Andrew Jugle Collection.

The rock tumbler inside the ride was also designed and built by me. I had used a box full of rocks to dump into it and it added to the action. It ended up being loud and was close to the train cars. This received a lot of attention. We had a steam room and bubbling clay pots that were very effective .

I worked on the clay pots a long time to get them to go "bloop, bloop, bloop" and not "put, put, put". I traveled to Yellowstone to see their bubbling pots. I used steam because it would condense into water and I felt it would turn out to be a good effect. It made you feel like you were down in the bowls of the earth.

Soon, I encountered problems with the ride structure. I had a problem making the moun-

tain look like it was realistic. See, you have to remember, it was eight stories and I had to put a full size train along the side of it. There had to be a size relationship that didn't make it look phony.

The ore cars are larger than what you would find in a real mine. Real ore cars were either pushed by hand or pulled by a mule. The tunnels were not very big at all.

Since I had to do things within the limits of the building, the locomotive was only six feet in height where people stand up. When you enter the ride you bought your ticket and entered under the trestle and you would come up the back side of the ride.

I can remember the time that Walt Disney came to visit me at Knott's Berry Farm. Walt want-



Scene from Knott's Berry Farm, courtesy Orange County Archives.

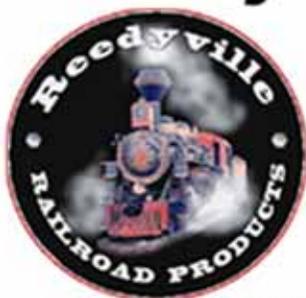
ed to ride the mine train. We had seen that there were no people in the front so I figured that there was hardly anybody in line. Boy was I wrong. When we got up to the ramp there were about two hundred people in line. Walt really enjoyed what I had done with the line. He said that was a sneaky thing that I had done, making it look like there were no people in line. ~~www~~

We would like to thank Bud Hurlbut for his many contributions to the railroading and amusement hobbies. Also, thanks to author Richard Harris for sharing these memories with us. [Richard Harris is the author of Early Amusement Parks of Orange County, published by Arcadia Publishing. More information can be found at www.amazon.com]



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BY CLIFF CORCORAN

Woodland Park was (and is) a large combination zoo and open space (picnic, sports field) park in Seattle, Washington. The park is split by Hwy. 99 (Aurora Ave.) with three foot bridges that span a six lane road. The Miniature Train Company (MTC) train ride was installed, as near as I can determine, in the late 40's, and operated until the train was damaged beyond repair in the late 70's.

I was one of the teenage ride operators that worked at the park in the 1966-68 time span. (I was

actually driving the train, before I had a license to drive a car! We need to keep that quiet, as it was likely not in compliance with some rule or other. Just between us!)

At first, the train ride was a stand alone attraction, running the rather large loop starting at a replica train station, complete with office and a covered platform that extended both directions from the central ticket booth/office. The train was joined in the mid 60's by a pretty decent amusement park that was constructed in the area within the tracks at the South end of the loop.

The amusement park started as primarily a kid's ride area but added some more robust rides during its operation. The area maintained its railroad centric theme by using a retired caboose as the rest rooms, and the area was adjacent to the static display of No. 1245, a Great Northern 4-8-0 Steam locomotive on display.

The MTC train was a G-16, (16" gauge) two engine (A-B unit) locomotive with four passenger cars. At the time, I didn't appreciate the special quality of my job, but I do remember it as a



great way to earn date money!

The train was not new by any means during the time I was the engineer, but it was pretty reliable, and always started in the mornings without too much coaxing. It had the standard V-4 Wisconsin Air Cooled engines. Those engines, as many of you know, had a splash oil crankcase, 6 volt electrical system, and vacuum controls and braking systems. The operator's cab was in the rear of the B-Unit and had an angled, flat steel seat (augmented by a pad that we found somewhere), with adequate leg room for my 6-foot frame.

Typically, I would start my run from the station by sitting backwards on top of the engine, with my feet in the cab. I'd reach down and release the brakes allowing the train to begin creeping away from the station platform, or if I felt like it, give it a



brief burst of throttle to get the train moving a bit more quickly.

I remained watching backwards for the first few yards to check that people were not trying to jump on and see that the departure went smoothly. Just locking eyes with latecomers who were thinking of jumping on the moving train was often all that was needed to avoid that activity.



If the ridership load was light, and especially when cute girls were on my train, I might decide to mischievously stand next to my train and slyly release the brake lever. The slight incline and idling Wisconsin's would slowly cause the train to creep forward, slowly gaining speed.

I always enjoyed the panicked look on the girl's faces as they realized that the train was moving and I was (apparently) paying no attention. They had the brief feeling that they were going to be on a runaway

train with all of the drama that teenaged girls could imagine. I'd look astonished, and nimbly hop onto the engine and take my proper place, with a quick look of forced relief back at the targets of my little act. ***

[Editor's Note: While park trains have a long tradition of introducing boys to cute teenage girls, the publishers of GSQ do not advocate the movement of trains without crew aboard...even for purposes of romance! We thank Mr. Corcoran for his delightful memories and hope to share more in the future.]



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NIGHT TRAIN TO ROMNEY

By Colin Fleetney

Before my account starts I feel I should say a word or two about the Romney, Hythe and Dymnchurch Railway as it was during the early 1950's.

The 15 inch gauge line ran, as it still does, in a sweeping curve roughly parallel with the English Channel coast, south-west from Hythe, across the Romney Marsh, linking together the towns of Hythe, Dymnchurch and New Romney, together with several villages. The line terminates at the tip of Dungeness, a point of shingle and sand that hooks dangerously out into the English Channel some fourteen miles from Hythe.

In the 1950's the RH &DR called itself "The smallest public railway in the world". It had good reason for that boast as it was a common carrier. It handled freight, mainly sand and stone from quarries into which it had spur lines, as well as passenger traffic which, like that of any other railway, consisted of ordinary people going about their business. Like any other railway it issued Cheap Day and Market Day tickets. However, during the months of April through September the population of the coastal area was swelled by thousands of vacationers, few of whom had private transport in those days, and it was these people who were the life-blood of the railway.

The line had originally been double throughout its length. However, shortage of rail after World War 2 caused the company to lift, and for re-use, the 5.5 mile section of the `up` road (that is the road to Hythe) between New Romney and Dungeness. Although singled, the Dungeness section was not down-graded and continued to remain part of the main line, carrying, during the summer months, very heavy traffic.

The road. The rail used is 24lb. per yard in 30ft. lengths spiked direct to wooden sleepers placed some 22 inches apart. Sea shingle is used as ballast. The 8.5 miles of double track from Hythe to New Romney is completely fenced. The 5.5 miles of single track from New Romney to Dungeness Point is unfenced.

Bridges. The longest is a lattice-iron box-girder bridge built on a skew. This bridge is 56ft. long and almost 13ft. wide and carries the line across a deep waterway. Other road and waterway crossings necessi-



A 10-12 hour day on a Romney engine during the height of summer, when it was frequently hot enough to "fry an egg on the cab roof", caused one to pick up a bit of grime. Indeed, locomotives were kept cleaner than the drivers. This shot was taken towards the end of the day, judging from the color of my face! Photo, collection of the author. *[We regret that some images are not clearer due to age and quality. However, we thought them interesting enough to include. -Ed]*

tated 11 over and under bridges, with spans varying from 18ft. to 40ft.

The level-crossings are protected, on the public road approaches, by the standard "CROSSING - NO GATES" sign. On one crossing the permitted speed of a train is 15mph, on all the others trains are restricted to 5mph. Specials, because they are scheduled to run between timetable trains, are of necessity fast through intermediate stations, therefore in order that they can maintain their high speed they are seen across the level crossings by flagmen. The level crossings are protected after dark by lampmen.

The railway owns about 60 bogie coaches most of which seat 8 adults in considerable comfort. One set of vehicles is electrically lit and steam heated. There are, apart from the ballast-train vehicles, box cars, at



least one of which is marshalled in every passenger train for passengers luggage, prams and so on.

The locomotive fleet, the construction dates of which run from 1925 through 1931, consisted, in the 1950's, of seven 4-6-2 and two 4-8-2 locomotives.

Two of the 4-6-2's, numbers 7 and 8 are three-cylinder engines but of the middle engine only the cylinder and crosshead guides remain in situ, the motion-work and crank-axes being removed before World War 2.

Numbers 9 and 10, are based on a class of 4-6-2's built by the Canadian Pacific Railroad.

The two 4-8-2's, numbers 5 and 6, were built to serve a branch line which would have had a continuous 1 in 50 rising gradient. The branch would have been over 2 miles long and would have connected the RH & DR station at Hythe with the London/Dover main line at Sandling. Although this scheme was shelved, the powerful 4-8-2's are ideally suited for mixed traffic, their small driving wheels make them good time-keepers by giving them tremendous acceleration.

Two locomotives, numbers 2 and 6 are still (at the time of which I am writing) fitted with their

original small tenders, all the other British-type engines had, by that time, been fitted with much larger tenders holding far more coal and water while giving the driver more protection from the weather. Both types of tender run on two bogies.

In the 1950's the two Canadian Pacific 4-6-2's still had Vanderbilt tenders which were fitted with water-scoop gear that would have enabled them to pick up water from troughs, on the run. The troughs were to be installed on the half-mile straight just north of Greatstone Dunes station. Like the Sandling Branch, the scheme was shelved during the 1930's.

The cylinders of all the locomotives are 5.25" x 8.5", the boilers carry 180psi and all, apart from number 2 which is superheated, run on saturated steam.

The RH&DR followed the policy of the 19th century railways of one driver to one engine. Should an engine fail, then the driver took over the rostered spare engine. The driver's rest-day coincided with his engine's boiler washout and maintenance day.

A word with regard to speed. The reader will understand that 30 miles per hour on a 15" gauge track is equal to 100 miles per hour on the standard-

gauge and will appreciate this fact as the following story unfolds. The reader will also, I hope, believe that he or she is with me virtually driving the locomotive through blackness of that rain-filled night some 56 years ago.

DRIVING A NIGHT TRAIN

During the 1950's, when the seaside holiday was still fashionable, the two-day Hythe Venetian Carnival, which took place every second year, was an important event to the holiday industry along the south-west Kent coast. During the Carnival, the RH&DR ran extra trains, the last of the day being the 10:00pm from Hythe to New Romney.

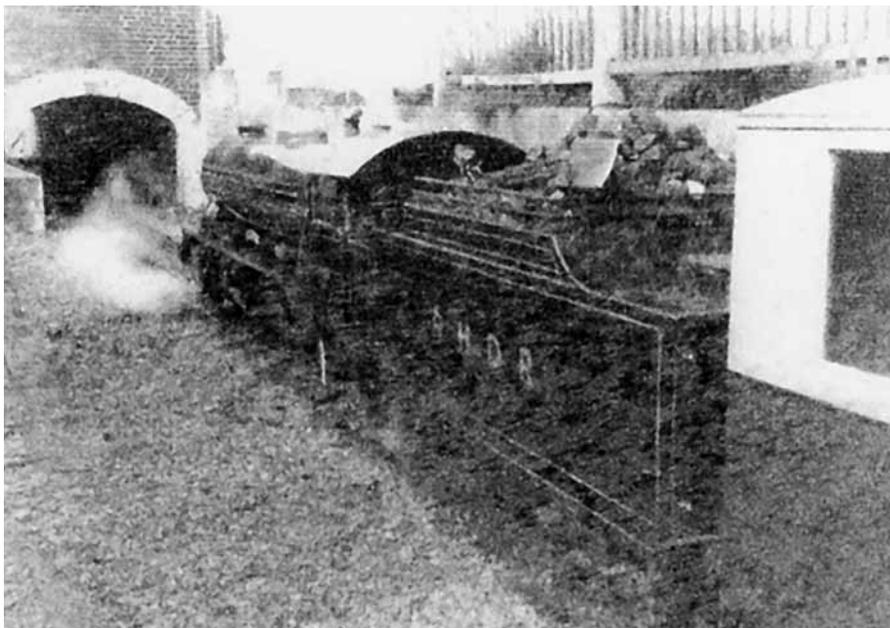
This last train was an extension of Turn 4 on the enginemens' roster. I had booked on at New Romney engine shed at 11:00am and, after shunting duty, had headed the 12:00 noon train to Hythe. Since that time I had covered some 40 miles in the general timetable.

The night of our trip was autumnal, with a strong, gusty wind and low cloud carrying sudden cold drenching squalls. Beyond Hythe station lights the night was very dark indeed. Of the 12-coach train, 8 vehicles stood under cover of the train shed, the soft light reflecting on their blue and cream paintwork.

As people flocked along the platform no interest was taken in the train, for to locals and holiday-makers alike the 15 inch gauge line was simply "the railway" - the common carrier across the Romney Marsh. As people crowded along the rain-driven platform, they were of one mind only - to get to their beds.

My locomotive, that year, was *Samson*, one of the two 4-8-2, Mountain class engines. She had been built by Davey, Paxman & Co. in 1927. Her driving wheels were just over 19 inches in diameter. Despite the weather I had kept her clean and her brass and copper wetly reflected the overhead lights in the engine yard. Her livery, that of the old London & North Western Railway, of black lined with white and crimson, looked well as the rain ran off the oiled surfaces.

An hour ago I had brought the train, as empty stock in, fast, from New Romney. As all other services had now ended for the day, this last train would have the entire system to itself. All the level crossings would



Above: *Samson*, at New Romney. Collection the author.

have lampmen protecting them, while with the signal boxes closed for the day, all signals would be set to "Clear".

I had turned the engine and then cleaned the fire and ashpan on the shed road. I kept her in this position, under the the water tank, in order that I could keep topping up her small tender. During this time I topped up both cylinder lubricators and all the wick-feed oil boxes. I had then, as was the custom at any layover (whatever the weather), cleaned the paintwork, polished the brass and copper and cylinder-oiled the smokebox and chimney.

I finally checked the two headlamps. These were mounted at either end of the front buffer beam. With lenses of some two inches diameter, these oil lamps were not intended to light the road ahead, they simply indicated the approaching train to the crossing-keepers.

Some ten minutes before departure time I had my tea can filled in the buffet adjacent to the booking hall and had wedged it securely in the right-hand corner of the footplate, next to the cylinder drain-cock lever. I then took the engine across the yard, to the train.

A LONGER TRAIN STILL

The train was quickly filling up, and as I dropped down to the leading coach, the station master instructed me to pick five coaches from No.1 platform. These five vehicles put the train over the limit for one

locomotive because three of the coaches were 24-seater semi-opens. These semi-opens were far from ideal coaches in which to travel on a raw, wet, blustery night. They had slatted wooden seats, roofs, glazed windows, but no doors, but to the anxious late passengers flooding into them they were better than Rolls-Royce cars. I viewed these vehicles somewhat differently, for they were notorious for acting as powerful brakes, by catching and retaining the wind.

Wearing a long black raincoat buttoned up to the chin and with the collar turned up, the wind buffeted me as I stood looking back along the platform when, with a final blast from his whistle, the station master raised his green lamp above his head. I tugged on the brass chain under the cab roof and the deep note of *Samson's* organ pipe whistle answered him.

LEAVING THE STATION



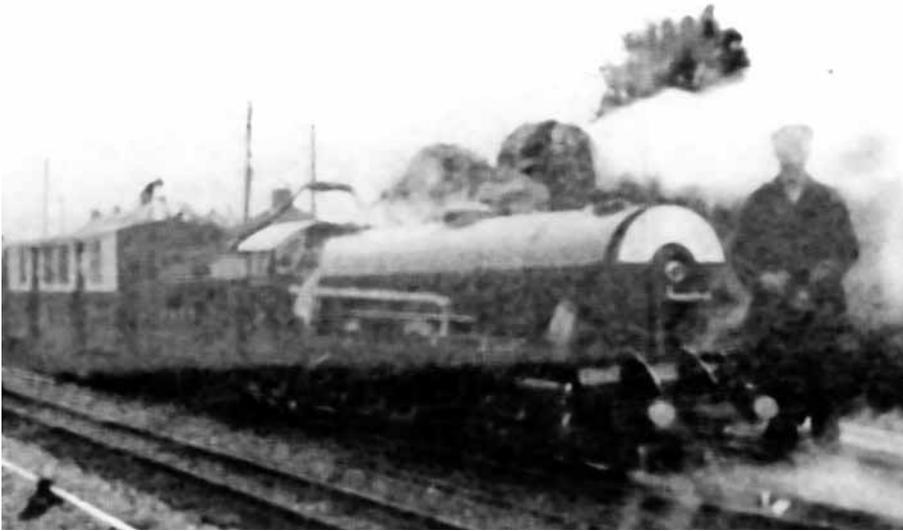
Hythe station postcard. Collection GSQ. Date unknown.

Samson was carrying a big, deep fire. The blower was just cracked, holding her a little below the red line, with the safety valves feathering, with the water bobbing, almost out of sight, in the top of the Klinger water gauges. This situation would mean that I would not have to use an injector until the train was well under way. The brake handle was up and the ejector was blowing a good 26-27 inches of vacuum along the train.

The extra coaches were standing well out beyond the platform ramp and the station master blew a series of blasts on his whistle to spur the last of the passengers on, along the ballast, over pointwork, signal wires and point rodding, in their scramble for seats.

I moved the brake handle down to the `run` position, then used both hands to ease the regulator open. As the steam-chest gauge needle rose I snapped the blower valve shut. The needle rose through 150 - 160 - 170 and the drain cocks sent twin jets of white roaring ahead, lifting and blowing dead leaves. The engine was taking the strain when the driving wheels gave a half-revolution slip. I caught the slip in the usual manner by snapping the regulator closed and instantly reopening it.

I closed the drain cocks and the slow exhaust bark sharpened. She shouldered through a cross-over and entered the down main line. While I stood, watching the coach roofs snaking over the cross-over, the



The *Marshlander* at Romney was the prestige train. It ran at 2 pm from Hythe to Dungeness where it gave its passengers time to use the station restaurant, tour the lighthouse, or go bird watching before returning to Hythe. Here I am oiling round while the water crane is filling the tender. Afterwards, the engine would be uncoupled, and drawn forward about 50 feet to the coal yard to take on some 10 baskets of coal.

wind reminded me of what faced me out on the marsh so I screwed my uniform cap down, harder. I gave her more steam and, as the last vehicle, the baggage car (packed with singing young men) cleared the cross-over, I took one more look along the train and sat down.

The firedoor rattled to the suck of every exhaust beat and the water level, due to the lift of the regulator, was out of sight in the glasses which were illuminated by light from the cracked open firedoor or my hand-held electric torch.

From Hythe station it would be a heavy flog up hill to Botolph's Bridge Crossing, well over a mile ahead, the first half mile or so being a continuous series of reverse curves. The engine was labouring, the crack of her exhaust rebounding from the various buildings that flanked the line, her boiler swinging left and right, left and right, to the stroke of the pistons.

Although I was sitting with my face just clear of the cab side (Romney engines drive on the left) I had to keep moving across the cab to the right side as we approached every right-hand curve, otherwise my view ahead was hidden by the boiler.

Now, almost half a mile out from the station and running at about 10mph, sure footed in spite of the rain, the engine was becoming lively. She lurched as

she hit the occasional low joint and the rear of the engine slammed against the pony truck bolsters.

TENDING THE FIRE

At night, to preserve one's vision, the technique was to virtually close the eyes when firing. In the normal Romney manner I was firing with my right hand while opening and closing the door between every shovelful with my left hand. I was maintaining the big, deep fire by building it right up to the lip of the firehole and was firing every 20/30 seconds or so, to the rear corners, under the door, across the front (there was no brick arch) and finally a skim or two across the firebed.

The crunch of the shovel into the wet coal on the shoveling plate and the ring when the blade struck the firehole still sounded loud although the countless sounds of an engine getting into her stride were beginning to dominate the footplate.

She was fully extended, still in full gear with the regulator main valve virtually fully open, carrying just under 180 in the boiler with 172 on the steamchest gauge. The stream of cinders soaring from the chimney rim was continuous and would look, to the uninitiated, like flame. Later, when she got more lively, she would start to throw cinders out of the ashpan.

Despite the lift of the regulator, the water was now showing in the gauges, so, by using my torch to see the overflow, I started the slow injector situated under the right-side of the cab.

The train entered a cutting that increased in depth until, with a roar and a filling of the cab with smoke, the engine passed under a road bridge. As we left the cutting I was able to wind the expansion gear (valve gear) back by three full turns on the wheel and the exhaust took on a finer note. The slow injector was hardly keeping up with evaporation, so I started the fast one, under my side of the cab.

Palmarsh Curve marked the end of Hythe's western suburbs. From this point there would be open country until Burmarsh Road was crossed, over three miles ahead.

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CUTTING THROUGH THE NIGHT

The train was now clear of any protection except the occasional willow tree or clump of hawthorn, elder or gorse. Now running at some 15mph we were winding through pasture land. The night was saturated with noise; there was the singing of the injectors just holding the water at half a glass, the ring of the firing shovel, the pounding of the exhaust and the endlessly repeated stuttering of the Mountains wheels over the rail joints. All these sounds together composed a music that told me all was well.

And there was the rain, always the rain, which had increased and was slashing against the cab sides and stinging my face, causing me to peer ahead through half-closed eyes. Drifting off the cab roof, the rain was hitting the stacked coal and then running through the coal to flow off the shoveling plate on to the footplate, as black mud.

I knew, of course, exactly where we were at any given moment. I knew every drainage gully that echoed as the engine passed over it. I knew every clump of bushes, heavy with rain, that swooped out of the darkness to claw and scabble at the engine, causing me to quickly pull my head back inside the cab.

We were now sweeping round a wide left-hand curve to the foot of the third of a mile straight that would take us up to Botolph's Bridge Crossing. As the engine entered the foot of the straight I knocked off both injectors. Instantly the boiler pressure started to climb. Now running at almost 20mph she was lurching and rolling periodically and frequently throwing cinders from the ashpan, many of which would bounce from the roadbed through the rear coupled wheels the spokes of which caught them and threw them, in glowing arcs, into the foliage lining the road. I had the fire-door cracked open an inch for top air. As we entered the straight I sounded two long blast on the whistle followed by two short.

A MANNED CROSSING IN DARKNESS

Botolph's Bridge Crossing, so named after a Saxon hermit who lived in a stone cell near this spot, was not the best of places at night. It was bleak, it always seemed to be windswept, even on the best of days, causing the dense, tall rushes lining the road to constantly sway and sigh. It did not help the imagination to know that the ruins of a Roman fort, the scene of a massacre in 400 AD, was just along the road and

until 1825, there had been a gibbet here. No, not the best of places.

The lampman sat in his car listening to the rain on the roof and the restless sighing of the reeds. Once departure-time from Hythe was past he frequently glanced at his watch. Eventually he reluctantly left the security of the car carrying his red and green lamps. He had timed it well, within a minute or so he heard, against the drive of the wind, the engine blowing for the crossing. There was no road traffic about so, standing between the two tracks and he held his double-lensed red lamp to the road and his green lamp, above his head, facing down the track.

As I let go of the whistle chain I could see an emerald green dot far ahead, so I popped the whistle to let the lampman know I had seen him. I then took a quick look at the fire, using the shovel to deflect air and flame so that I could see the bed.

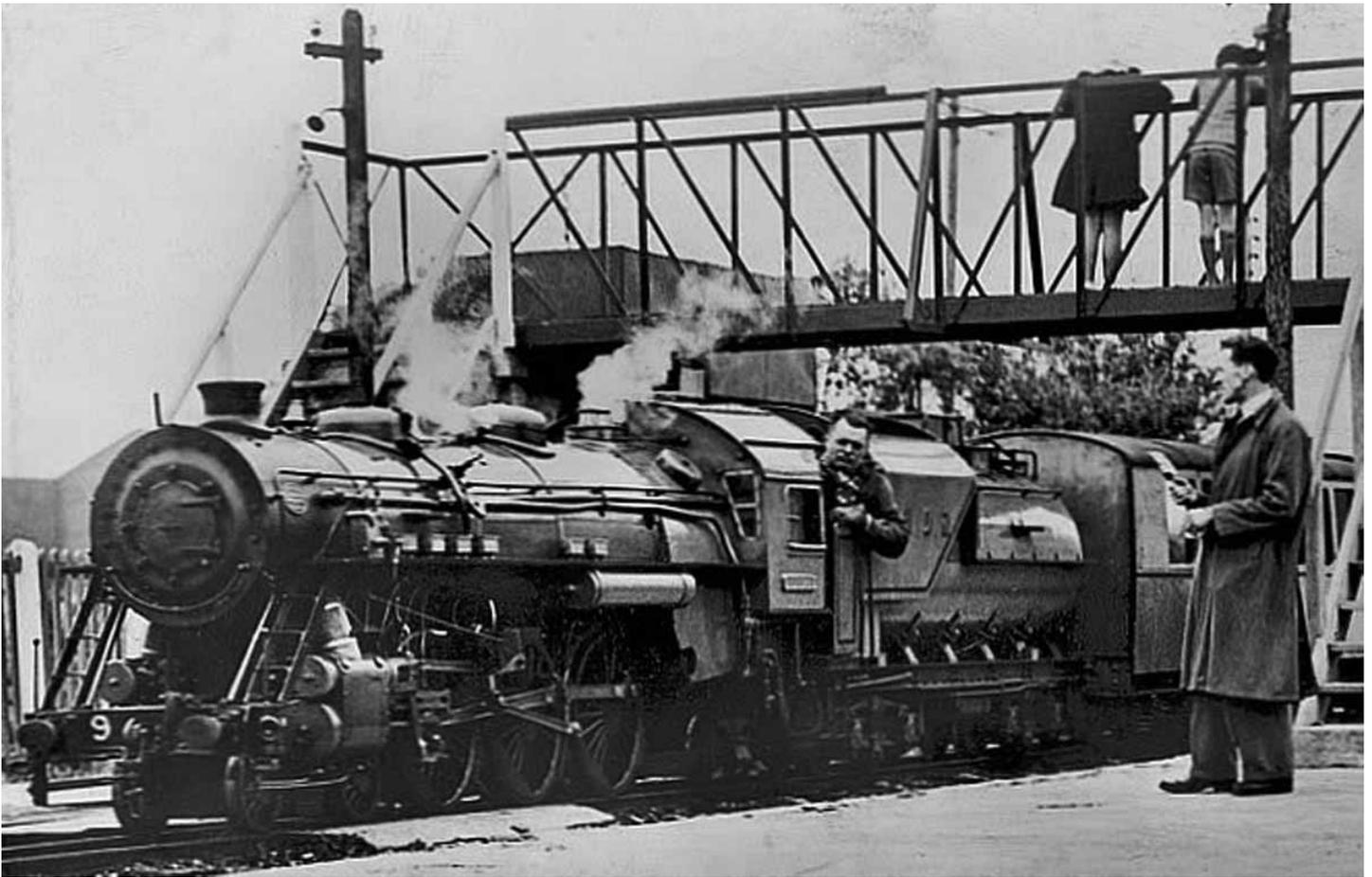
The lampman, facing down the straight, with his back to the wind and rain, heard the whistle pop and watched the continuous eruption of red and yellow cinders approaching him and, low down, the twin white lights rocking to the dip and swing of the front end of the engine. Suddenly the firehole door was opened and a great shaft of light beamed up illuminating the roiling underbelly of the exhaust steam. Only when he heard the rails coming alive with a gentle `tick-tick, tick-tick` and he could clearly hear the exhaust beats, did he stand clear.

The road trembled to the engine's passing and, for a second he felt wafted heat and smelt hot cylinder oil. He glimpsed the driver's face and was aware of a waved hand. Then, as coach after coach swished across the road he saw countless faces, white in the dark interiors.

He paused, out on the road, and watched the retiring sway of the red tail lamp on the rear of the baggage car as the `clack-clack` of its rear-most bogie passing over rail joints faded. Once again the sound of the wind in the reeds reasserted itself.

GETTING UP TO SPEED

Once clear of Botolph's Crossing and the 40ft. long New Cut bridge, just beyond it, the road was level and I was able to ease her in. Instantly, with the partial closing of the regulator, the water level dropped and I augmented the slow injector with a half-minute or so of the fast one.



Vintage postcard featuring RH&DR No. 10, *Dr Syn*. Canadian outline two-cylinder 4-6-2 Pacific locomotive, designed by Henry Greenly and A.L.S. Richardson. Built by Yorkshire Engine Co. (2295) in 1931

While using my torch to watch the injector overflow I took a quick look at the sight glasses of the mechanical lubricators up by the smokebox, yes the cylinder oil bubbles were rising steadily up through the water. The valve-gear and cross-heads were faithfully doing their endless dance sequences and the wheels, brakes and so on had not picked up any bits of bush, twigs or reeds.

Despite the wind gusting along the train causing those damned semi-opens to act as efficient brakes we were running at about 25mph and carrying 130psi on the steam-chest gauge.

For nearly two miles now the line ran almost straight between wheat fields and pasture to Burmarsh Road Crossing. Almost straight, because at Star Dyke bridge the line turned rather more to the south.

The rain, driving across the tender top, had caused the coal to clog and not slide forward to the shoveling plate, thus making it difficult to reach from the footplate. So, once clear of Botolph's I was able to stand up on to the front of the tender and, with the fir-

ing shovel and pricker, pull coal forward and generally tidy up. It was a case of "one hand for yourself and the other for the ship".

While I was up there I took a quick look along the train, the silver roofs swaying and dipping as rain water wafted off them in the wind. The work took far less than one minute but I was glad to turn forward and down into the security and warmth of the cab. I glanced at the gauges; boiler pressure, steam-chest pressure and brake vacuum, all was well. I then awarded myself a cup of tea.

RUNNING FOR PASSENGER COMFORT

Star Dyke bridge was coming up and with it possibly the worst length of track on the railway. Without adjusting the regulator I gave the train just a touch of brake. As the brake ejector sighed and the vacuum gauge needle fell from 28 inches - the running figure - down to 20, then climbed quickly to 24 and then slowly back to 28 - the brake blocks touched gently along the entire train. As the exhaust beat sharpened in

response to the extra load, the couplings tightened, causing the train to stiffen and steady.

The bad length was actually on the bridge and, as always as she entered the 20ft plate-girder construction, she took a plunge and then rolled violently causing the tender swung viciously as the engine slammed to and fro on its pony truck.

Due to my stiffening up the couplings, the passengers would have felt the bad length merely as a swing and shudder of the coaches. The speed had dropped fractionally as we crossed the bridge and turned west so once I judged that the baggage car had cleared the bridge, using both hands I eased open the regulator until I had 170psi on the chest gauge.

I let her accelerate for no more than a minute then eased her back, started the fast injector and fired round. Once again I swept the footplate. Burmarsh Road was two-thirds of a mile ahead. I gave it a minute or so and then sounded for the crossing.

“A NASTY NIGHT!”

Burmarsh Road Crossing. The railway approaches this road at an angle until, within 100 yards of the crossing, the track swings to the right in order to cross the public road at 90 degrees. With

continuous trees and bushes flanking the road I could not see the lampman's green light until the engine had taken the right-hander.

With the regulator closed, the blower on and both injectors singing, I had been braking gently for about 400 yards. Both safety valves lifted well before she shouldered round that final curve. In anticipation, I had crossed to the right side before the smokebox lurched to the right. I saw the green light and popped the whistle in acknowledgement. I then put the brake lever up, into the big ejector position in order to get the blocks clear of the wheels - fast. Then I spun the reversing wheel into full forward gear. With both hands I opened the regulator until she was cracking briskly, in response the safety valves eased off and muttered into silence. I then closed the blower valve and stopped both injectors.

She was getting away with it as we crossed the road. “A nasty night!” shouted the lampman. I enthusiastically agreed.

Once across Burmarsh Road and through the weed-grown platforms of Burmarsh Station, demolished in the late 1940's, I put the brake lever into the `run` position and attended to the fire. The road was now straight and level to Dymchurch station which



Vintage post card from the 1970's. Collection GSQ.

could be seen as twinkling lights, some three-quarters of a mile ahead. To the left now, was meadowland, beyond which were a few houses, Dymchurch church and the sea. To the right stretched the Romney Marsh; miles of arable and pastureland intersected by countless drainage dykes.

APPROACHING DYMCHURCH

As we approached Dymchurch home signal I opened the blower, closed the regulator, spun the reversing wheel into full forward gear once again and started the slow injector. A hand-held green light told me that the Newchurch Road crossing was protected and clear, so, without sounding the whistle, I ran past the houses flanking the crossing and, braking hard, rumbled across the 36ft. girder bridge spanning Marshland Dyke and then into the station.

The station master was standing, oil lamp in hand showing its green aspect, at the point where Marshland Bridge ended and the down platform commenced. As the engine ran past him, he held his lamp above his head and I looked back, keeping my eyes on that green light, with my hand on the brake lever. We ran along the empty platform, through the 60ft long train shed, out into the open air and on, up the platform, the smell of hot cast iron brake blocks mingling with the tarry scent of coal smoke.

The coach doors were already opening and people were jumping out, although the speed was still brisk. Finally, when the leading vehicles were well beyond the end of the down platform ramp, I saw the green change to red. I dropped the brake lever down, the vacuum system gave a sustained, hoarse gasp, the brake blocks bit hard and the train came to rest with the rear of the baggage car just clear of the bridge.

With the valve gear in mid position and the drain cocks open, I climbed down to commence a quick check round. The valve gear, the big ends and the coupling rods. I then touched the wheel centers with the back of my hand - they were just warm.

Using my torch I looked in all the oil boxes, checking the wicks and oil quantities. I checked both mechanical lubricators and their driving linkage. I checked that the brake gear and the guard-irons under the front buffer beam had not picked up twigs, rushes or, on a windy night, small branches. Finally I checked that the headlamps were burning brightly.

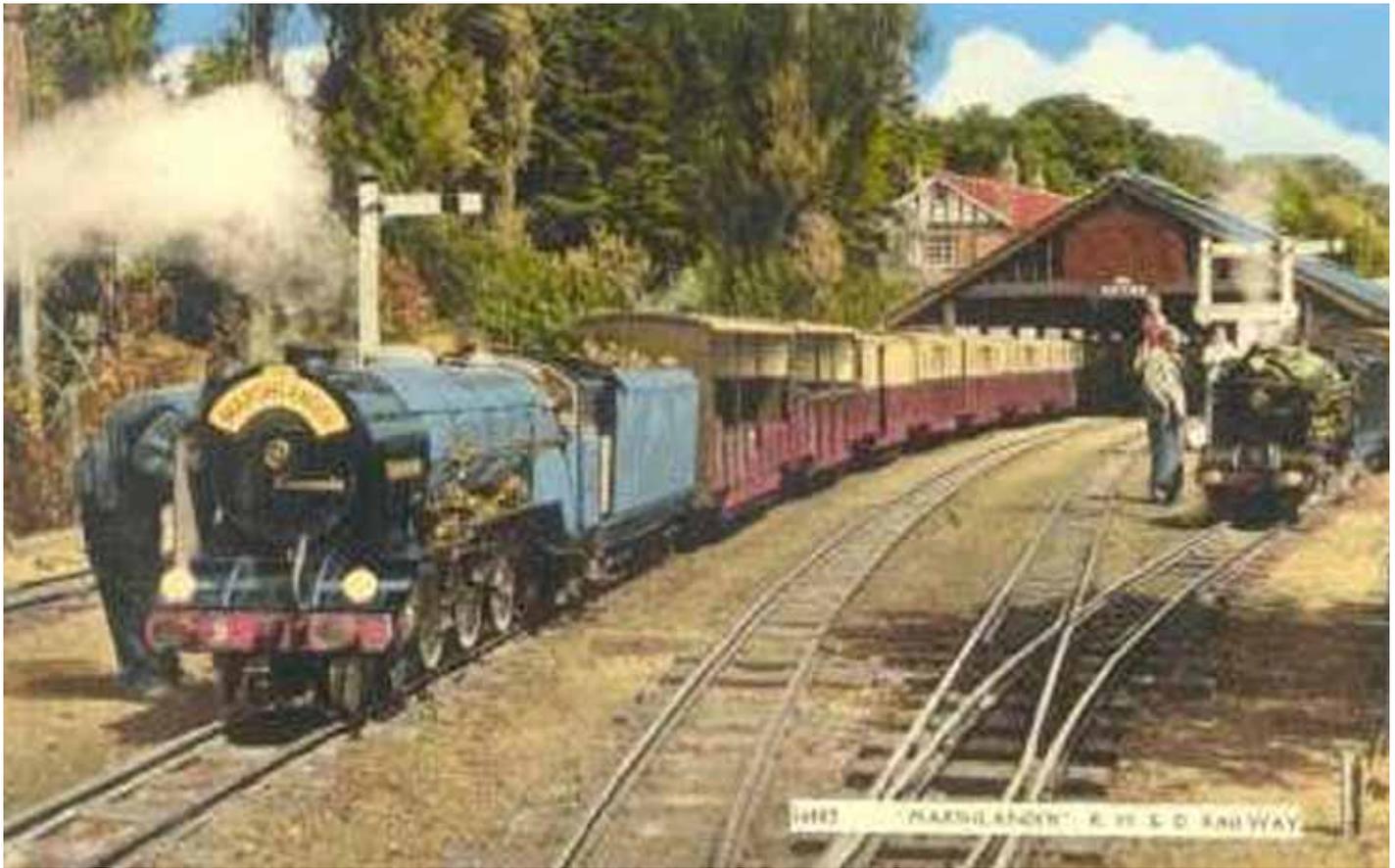
On returning to the footplate I found that, despite the injector still burbling away, the safety valves were feathering, and there was little more than half a glass of water showing in the gauges. I was firing when the station master blew his whistle and showed the green light. In order to avoid sounding the whistle late at night surrounded, as Dymchurch station is, with houses, I waved an acknowledgement, brought the brake lever up, through `run` to the large ejector position and watched the gauge needle climb, inch by inch.

I spun the wheel into full gear, opened the regulator, closed the blower and shut down the injector. While the brakes of the rearmost coaches were still just touching, the engine moved off with drain cocks sending billowing white clouds ahead. Within an engine length I closed the cocks and she crisply shouldered into the load and got the weight of the train as she clattered over crossovers, past the signal box and over the points giving access to the yard. Beyond the station limits and round a tight curve was the crossing over St. Mary-in-the-Marsh road. The lampman was giving the train a green light and several road vehicles stood, waiting.

A DESOLATE SCENE

Beyond the crossing pastureland opened up on both sides of the railway. Once through a gentle right-hand curve the line was straight and on a falling grade for the mile or so to St. Mary's Bay station. I used this mile to build up both the fire and the water level in preparation for the long winding climb from St. Mary's Bay to Black Hut curve. St. Mary's Bay station is in a hollow, the tracks climbing in both directions. With Newchurch road crossing immediately beyond the west end of the platforms the driver of a down train always approached the station with care.

In daylight the engine of a down train would come to a stand occupying the road, at night this practice was dangerous, thus I brought the engine to rest with the smokebox just clear of the road. This position, unfortunately, meant that the last few vehicles of the train were out, beyond the platform limits, requiring any passengers for the Bay to walk along the ballast before gaining the platform. In fact few people left the train while I put a few last touches to the big fire that was pulsing and vibrating to the



Vintage postcard from the 1960's.

pull of the blower.

The station master, wet, cold and bored, was leaning against the cab door. He glanced along the platform patterned by black puddles on which the wind was driving wavelets. It was a desolate scene with the wind causing heavy smoke to beat down and billow along the train while the coaches, trembling to the gusts, shone wetly in the light from the platform lamps. "I suppose you might as well push off; no one else seems to want the Bay". I nodded and eased the regulator open.

As the engine started to move, the station master walked ahead, out to the middle of the public road, displaying a red light. There was no traffic about, but he would stand in this position until the baggage car cleared the crossing.

Since Burmarsh, the railway had been running within half a mile of the sea, now as the train left St. Mary's Bay, it faced a run of over two miles to New Romney, a run that would take it inland until it was a full mile from the sea.

The section began with the long winding climb to Black Hut curve. With a heavy fire, the water bob-

bing at around two-thirds of a glass, almost a full head of steam and running in full-gear, the 4-8-2 started to pound up the bank, shouting at the rain-filled sky.

I intended to burn her down whilst running this section. I would watch the fire carefully, frequently levelling it with the pricker which caused fountains of glowing cinders to explode from the chimney. Or I would toss just a tiny amount of fuel into any hole blown in the bed.

The wind and the gradient were causing a noticeable drag on the labouring engine but I let her have her head and she got up to, and maintained, some 12mph. This section comprised of curve after curve and, between moving constantly from one side of the cab to the other in order to see the road ahead, I could look back, across meadowland and see, in the gloom, the entire train following the engine.

Once round Piggery Curve I shut off the injector and again lightly levelled off the firebed with the pricker. The compact mass of red and white hot coal that could only be seen by using the shovel blade to deflect the top air - and then only through virtually closed eyes - was holding together well and burning

down evenly.

The scrubland fell away on either side and the train crossed open pastureland before gaining the summit at Black Hut. As coach after coach crossed the summit and the weight came off her the engine instantly responded, quickly picking speed. I was waiting for this moment, with my hand on the regulator, easing her in and bringing the reverser up several turns of the wheel. I let the speed increase to about 20mph by which time she was rolling and tail-wagging.

Ahead was the Duke of York's bridge, a lattice steel box span, 56ft. long, carrying the railway across a deep drainage dyke. The surface of the water was about 10ft. below the bridge decking. With the wind thrumming through its girders and tie-bars, the bridge shuddered in response to, first the hurried clatter of the engine's wheels, followed by the rhythmic bang-bang...bang-bang...bang-bang...bang-bang, of the coach bogies.

Once clear of the bridge the line descended into the Warren, a wide, shallow, curving cutting lined with dense gorse. A few minutes later I could see, looming up ahead, the grey shape of the twin

portals of the Warren bridge. This bridge was wide, carrying a busy main road over the railway, and the tracks were separated by a central dividing wall. As we passed through the bridge I moved over to the right side of the cab in anticipation of a very long right-hand curve as the bridge cutting fell away.

Clear of the cutting, I could see, as I looked to my right, across arable land, New Romney outer home signal, half a mile ahead. This, the only coloured light signal on the railway, was on caution. I opened the blower, closed the regulator, started the injector and let the brake blocks just kiss the wheels.

Entering New Romney station, *Samson* clattered over complex of track-work. To the left of the train and some 2ft. above the level of the main line, the engine shed stood, black against the sky. To the right, stacks of rail and standard-gauge sleepers (one standard-gauge sleeper would cut to three for the 15inch gauge).

On the right we continued past sidings and the fitting shop. I was applying the brakes to the wet wheels quite heavily now as we crossed set after set of points. On the left, having passed the engine shed yard and turntable, was the signal box and the points



allowing access to the high-level terminus station. To the right now was the coal yard and the standard gauge siding, followed by flower beds. Finally, on the right, came No.4 platform, serving the up main line.

At the same moment, *Samson* ran past the ramp of No.3 platform, serving the down main line. With the brakes biting hard and the safety valves whispering, the engine rumbled under the long train shed roof, out into the open-air again and past the wide, main steps connecting the main line platforms with the high-level station. Towering above the engine now was the main office block of the railway surmounted by its clocktower. I brought the engine to a halt with the tender filler lid adjacent to the water crane hose and the smokebox some 10ft. from the portal of the road bridge.

The coach doors were swinging open and people were leaving the train long before it had stopped. Now, as I, torch in hand, watched the water level rising in the tank, people were flocking up the main steps to the booking hall and ticket barrier. Once the tender was full, I hurried round the engine flicking open the oil box lids, lifting the wicks from their tubes and hooking them over the edges of the boxes.

As the last of the passengers cleared the platform, the shunter walked forward through the train shed, slamming the coach doors. After telling me where we would be putting the train for the night he walked back to the baggage car and stood in the open doorway. He then slowly swung his green light across his body, indicating that I should propel the train back.

The train wound slowly off the main line and up the short, steep grade that took it past the signal box, then along the edge of the shed yard and on to the road situated between the engine shed wall and the down main line. As the baggage car started to descend the grade towards the points that connected the road to the main line, the shunter's lamp changed to red. I brought the train to a stand within a coach length. The shunter then scotched the train and uncoupled the engine. Next morning the extra vehicles would be detached and the normal length train would be returned to service.

The shunter, after bidding me "Good night", walked to the signal box and set the roads allowing me to take *Samson* into the shed yard, where I raked out and closed the ashpan. Then with a feeling of relief rolled open one of the big shed doors and finally got out of the wind and rain.

In the shed, in mid-gear, brakes on and drain cocks open, I "filled her to the whistle". That is I started the fast injector and left it running until lack of space in the boiler caused it to fail. While the injector filled the boiler I spent a few minutes simply sitting in the cab, finishing off the last of my tea.

With the damper closed the wafer thin fire would soon die away and when the fire-lighter booked on at 4am next day the water level would be showing in the top of the gauges and there would be some 10psi in the boiler.

An engine had to be cleaned immediately on coming on shed. There could be no question of leaving the work until next day. In good weather, cleaning took around one hour, in bad weather it took between one and two hours.

When the engine was virtually up to `glass case` standard, she was covered in order to protect her from flying soot and ash caused by the firelighter when, in the morning, he cleaned out nine smokeboxes, nine fireboxes and nine sets of fire tubes. Each engine had its own set of covers which, when not in use, were carefully folded and stored so as to keep the inside clean. The covers, made of soft blankets, shrouded the engines down to rail level. The covers were cut so as to allow the chimney, safety valves and whistle to protrude.

All that remained now was for me to have a shower, then making sure all the lights were out, I left the nine engines, under their blankets, resting like sleeping pigs quietly snorting, muttering and gurgling as they cooled down. ■■■■

Colin Fleetney was a seasonal driver on the RH&DR. At the time he was a young sea-going engineer working on every possible type of steam vessel he could. Fleetney tells us "I had the time of my life, for a few years, going to sea between the end of September and Easter and driving on the Romney Easter through September."



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MINIMUM RADIUS CURVES

by Kell Schmidt

What is the minimum radius (not diameter) that my planned railroad can run on? This is one of the most frequently asked questions and continues to be one of the most misunderstood, over-looked and under-appreciated concepts in Grand Scale railroading. Rarely do we see this concept get any consideration as the cause for equipment failures, increased operational expenses, such as fuel and water, premature wear and derailments. Yet this may be one of the silent reasons for many of the problems which are occurring out on the tracks. The subject is steeped in civil engineering equations and can become quite overwhelming for us non-civil-engineering types. So let's pretend we're at a train meet and discussing whether or not we can come to some sort of rule of thumb regarding practical minimum radius curves. For those of us looking for a formula to establish a minimum radius, well, it

really won't matter, because the resulting answer is a theoretical minimum radius which is not much use in determining the answer that we seek as you will see below.

It didn't take long to figure out that I was in over my head. I discovered that civil engineers have two types of minimum radiuses. And two kinds of Super-Elevations. And it's like "OH NO! There are practical minimum radiuses and theoretical minimum radiuses!" There are the AREA (American Railroad Engineering Association) superelevations and Equilibrium superelevations. Some manufacturers only give the theoretical radius for their equipment. The practical radius is up to the one building the railroad. And that's when things get interesting. We will be looking for a rule of thumb to determine the practical radius of a curve given the equipment we intend to operate.



Laying track at Convention Loop on the **Hillcrest & Wahtoke** (15", Reedley, CA)

REAL WORLD

According to the *American Railway Engineering Association* (1915), there is a theoretical and practical radius through any given switch. For a standard gauge number 6 switch, the theoretical radius is 273.95 feet. The practical radius is less, at 265.39 feet. So if a manufacturer gives the minimum radius of a locomotive as 270', you might think, "Oh goodie, I can use a number 6 switch and everything will be perfect." At least as a No. 6 switch is concerned. But that is the theoretical number. The practical radius of 265' which is too tight. Let's apply our number 6 switch (274 ft / 265 ft) to an EMD GP-60. Minimum radius for our GP-60 (59ft. 9in. in length) is a 29 degree curve which is over 195'. Yes! We can use our number 6 switch. But I kept reading. Minimum radius for two GP-60s is a 24 degree curve or 285'. Well outside of our number 6 switch's practical minimum radius of 265'.

I read some more and it wasn't pretty. Minimum radius for a GP-60 with one 50' boxcar is a 15 degree curve or 379'. "Oh s...witch." Now I need to install a number 8 switch which has a 487ft. practical radius. That's an increase of 184' for a 50' boxcar.

So I'm thinking, "What's wrong with this picture?" Two GP-60s are longer than a GP-60 and a 50ft boxcar, yet the minimum radius is expanding by huge margins. Curtis Ferrington and I figure that the brake rigging of the boxcar limits its turning radius. As well as the couplers lateral swing in the coupler pocket, which we'll get to a bit later. Modern diesel locomotives have their brakes as an integral part of the truck, which allows for tighter radiuses. Something to consider when determining a practical

minimum radius.

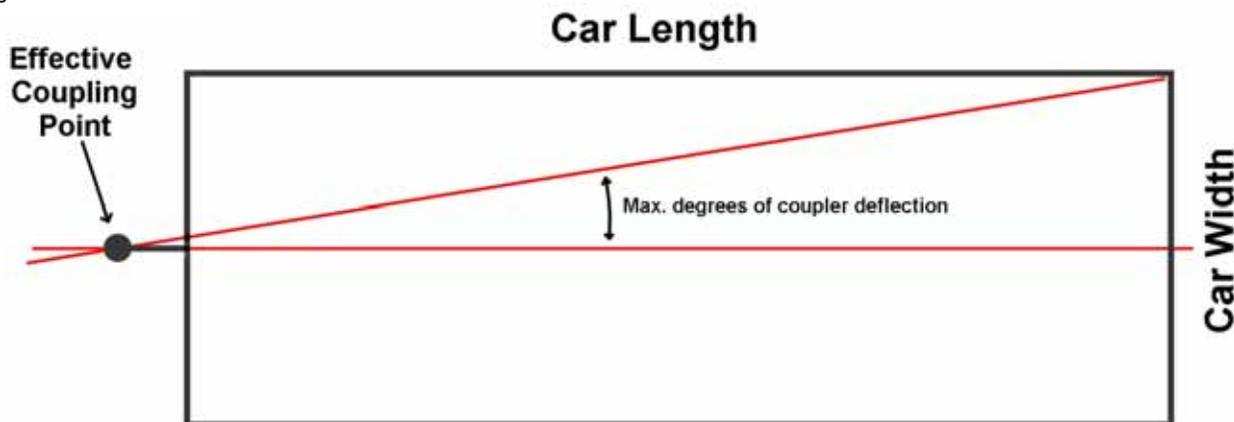
Then I read about the mathematical formulas for speed, tractive effort, rolling and lateral resistances of freight cars in pounds per ton, at various speeds, grades, track curvature, weather, etc. And just when you get a bead on things, someone comes along with a counterintuitive conclusion, at least to me. Experiments conducted by Professor Edward C. Schmidt (no relation), on the Illinois Central Railroad, found the rolling resistance of lighter cars to be greater than the rolling resistance of heavier cars. A car weighing 75 tons at 35 mph had a rolling resistance of 5 pounds per ton. A car weighing 20 tons at the same speed had a rolling resistance of 11 pounds per ton. Can you hear Sir Isaac Newton laughing?

Rolling resistance on curves introduces several more layers of complexity. Such factors as wheel profile, fixed wheel length of trucks or drivers, and whether axles are fixed or "differential" play largely into the discussion. Of one basic rule there is no doubt. The sharper the turn, the more resistance. Tight turns can apply the brakes on your rolling stock as well.

COUPLER SWING

So far, I have alluded to tractive effort, resistance, grades, curves, weight, speed, length of locomotives and cars, brake rigging and lateral coupler swing (AAR type). All of which combine in varying relationships to determine minimum radiuses. But the one factor that consistently limited radii used for all types of railroad equipment was the lateral swing of the coupler in relation to the length of the equipment in question.

figure 1



On page 176 in Volume 4 of Narrow Gauge Pictorial by Robert L. Grant (1985), you will find a table giving the lengths and widths of the great equipment in the pictorial. First I drew a line down the centerline of the car. I then drew a diagonal line from the effective point of coupling (which, of course, would vary between knuckle, ling and pin, and drawbar couplers) to the upper right corner of the car. The angle between these two lines suggests the maximum degree of lateral motion that a coupler should be allowed to move. (See figure 1.)



Is this rule broken in the go-around-corners park train practice? All the time. And it might not be the the end of the world, but a desire for minimal wear and maximum safety would suggest some respect for this principle. I did the same for our Hillcrest & Wahtoke RR gondolas, which follow Eric Thomsen's design. The relationship was the same as on the D&RGW cars. So I'm thinking that the lateral swing of a coupler in combination with the length and width of the car, is the primary variable which limits the radiuses one can build to. [*Editor's note: Webster's indicates that 'radiuses' is an acceptable alternative to the more formal 'radii.'*] And I will further suggest that this angle not extend outside the side-sill of the car. The reason is so that the pulling forces that are being applied through the car, remain within the gauge of the rails. Thus helping to prevent "string lining" the train in a curve. Better to have four flanges working to hold the car on a curve than just two flanges. In the case of a "jimmy", two flanges are better than one. I admit to SWAG-ing this a bit. Maybe a reader can give an authoritative voice here.

FUNDAMENTAL QUESTIONS

So let's ask ourselves a series of questions, as it relates to determining minimum practical radiuses. These questions will be considered by all who want to build a Grand Scale railroad. But not all who are

building a railroad will weigh these questions equally, as everyone's situation is different.

1. What will be the maximum speed of our railroad?

Speed is the variable that multiplies the forces acting upon our railroad. If our speeds are going to be at or below ten miles per hour, then speed will not be a primary consideration. If your railroad is going to operate at speeds greater than 10 mph, then you will need to become more familiar with calculations associated with easements and super elevations of curves.

2. How often is the railroad going to operate?

If the railroad is private, then radiuses could be a little tighter. The extra wear on the flanges and other moving parts from the increased side loads probably isn't going to wear out the railroad in your lifetime, since the line is not in operation daily or even weekly. But if your are a private railroad that wants to be open to visiting equipment, or run publicly, then you will need to build to a larger minimum radius. Some portable carnival-type railroads have had to replace their rail when head has been almost completely cut away by flanges that have likewise been honed down to a razor edge.

3. What will be the single largest piece of equip-



Switch being installed.

ment to run on my railroad?

By large, I am referring to a number of things. Weight is a factor. There is also the fixed wheel base of a side rod locomotive, or four-wheeled cars such as the "jimmy" cars. Or the length of the largest car or locomotive with trucks.

4. Do I want switches?

First off, the answer should be "yes", always "yes". Very few railroads, commercial or private, have remained forever happy with choosing to avoid switches. Not only do I want switches, but what pur-

pose will the switches serve? Here speed and length of equipment play a role in deciding what number of switch to use and where to use them, as in the mainline or the yard. A No. 6 switch on the Hillcrest and Wahtoke RR (15 inch gauge, 5 inch scale) has a radius of about 65 feet. The placement of switches can greatly effect minimum radius, grade and speed.

5. What are the grades of my railroad's location?

This where you will need to get an accurate survey done. Land can be deceiving. It might look level, but it isn't. I guarantee. And it can take as little as a half of a percent grade to effect practical minimum radius in some circumstances.

6. Other considerations.

One could even argue that the wheel diameter, the wheel tread angle and the angle of the flange in relation to the inside head of rail play a factor in minimum radiuses. I want to digress a bit and point out that if you are buying parts/equipment from different manufacturers, then it is critical that those manufacturers are building to the same standards. HO Scale has the NMRA to ensure that Athearn rolling stock, Atlas engines and PECO switches, all work together. The Grand Scale Community has no such governing body and as such, we are on our own. So make sure you know the critical questions to ask.

DYNAMIC EQUILIBRIUM

There is a principle called Dynamic

Equilibrium (DE) which is a universal concept throughout academic disciplines. DE is present in all the variables mentioned so far. A simple definition is "when different components of any systems, though often changing, continue to find balance (i.e., input=output)". For instance, when laying out a reverse curve, there should be at least one car length of tangent between curves. A longer tangent may be needed if superelevation of the curves is involved. This same principle applies to switches as well. There should be about a car length of tangent through the switch.

DE is also achieved in the superelevation of a curve. The super being present before and after the curve by at least one car length, in order to maintain DE. But superelevation in our scales is not required at speeds under 10 MPH. But then again, if you are railroading in the 7+ scales, it could be a big factor, since the weight of the "cargo" is far out of proportion to the size of the riding car. The Hillcrest and Wahtoke RR superelevates their curves to avoid a low spot in the cross elevation of the outside rail. Low spots in the outside rail are prime locations for derailments.

ONE ROUGH METHOD

And I mean rough! So here is my thought, my rule of thumb, on a practical minimum radius. Measure the coupler to coupler length of three cars. Or one locomotive and two cars. At the H&W, we mainly run 14' cars coupler to coupler. Add 14' three times. That gives us 42'. Double that figure and we get a practical minimum radius of 84' on the mainline. This will give you a maximum track speed of about 7 mph without superelevation and about 12mph with 1.25 inches of superelevation. These calculations are AREA superelevations, not Equilibrium superelevations. I told you it's complicated.

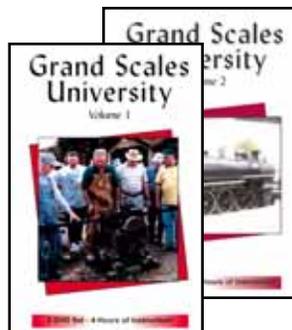
Our rolling stock (not locomotives) at the Hillcrest and Wahtoke Railroad will negotiate lesser radiuses, around 50'. But 50' results in maximum lateral coupler swing and is recommended on back tracks at very slow speed (1 to 3 mph). All new mainline track has been kept to a minimum radius of 90' with a superelevation of about 3/16 (.18) of an inch. This makes our maximum speed about 9mph accord-

ing to AREA calculations.

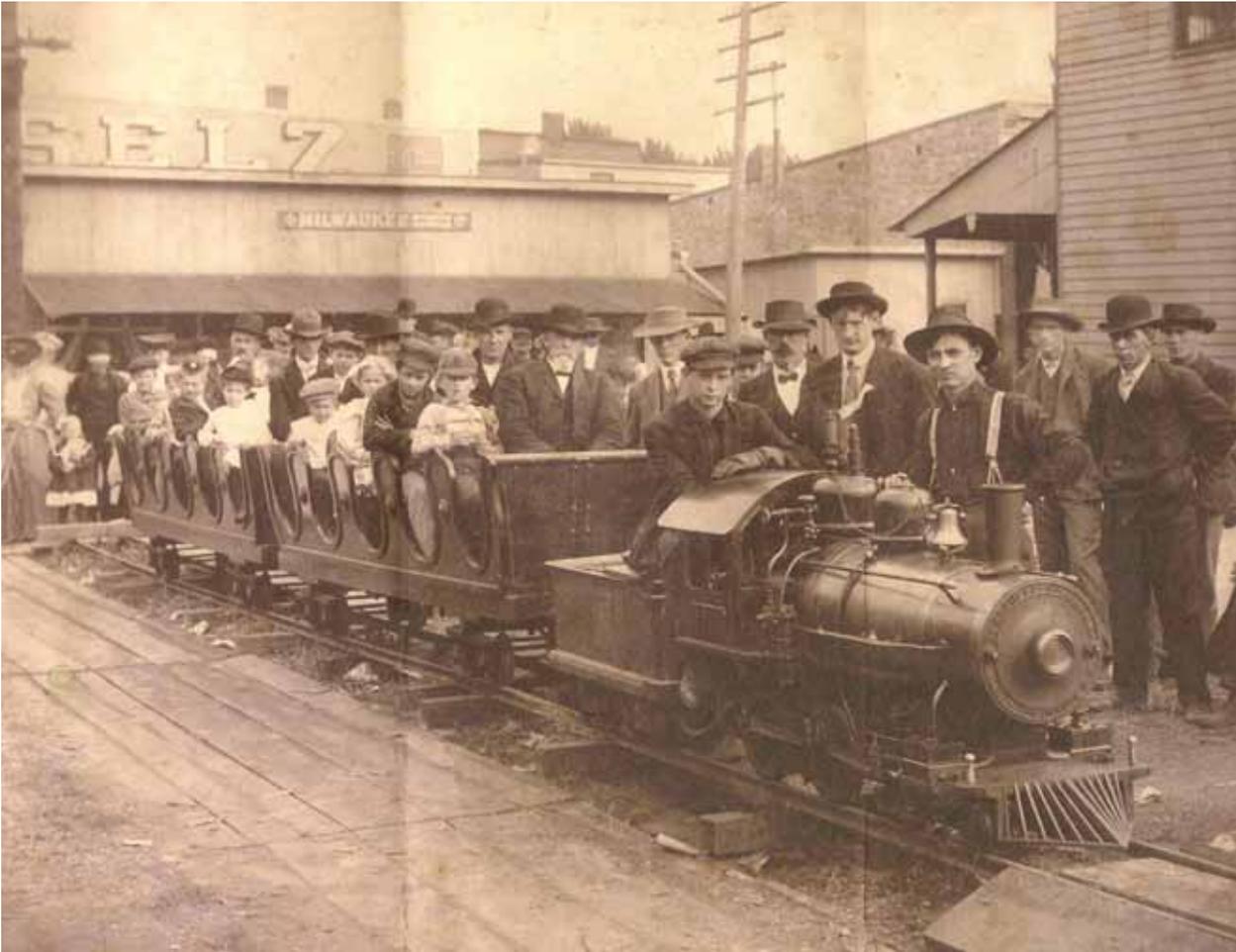
Let's also look at the other way. Let's say that you only have 60' of radius available for your right-of-way. That means you can build three cars, each measuring a maximum of ten feet long coupler to coupler. Ten feet added three times is 30'. Double thirty and you get 60'. So now can build or buy cars that are 10' long coupler to coupler with a measure of confidence. The GSP&P No 13 is about 18 feet in length. Add two 14 foot cars. This equals 46 feet. Double that and your mainline radius is about 92 feet. Very close to the 90 foot mainline curves on the H&W RR. Minimum practical radius for back track is about 65 feet based on the radius of our No 6 turnout. Why three pieces of equipment you ask? To maintain dynamic equilibrium through switches and reverse curves.

In summary, the question of practical minimum radiuses is not one to be overlooked. And not easy to determine. The answer lies within the totality of the railroads location, resources, era the equipment is built to, and the operational goals of the railroad. Railroads with smaller, lighter equipment operated occasionally for family and friends can afforded tighter practical minimum radiuses. Commercial operations with larger equipment, faster speeds and heavy trains will want to make their curves as wide as possible. And if you have brakes, depending on the type used, then the practical minimum radius may be larger still. ~~***~~

[Sources for this article include the Engineering Handbook for Recreational Railroaders (available from the GSQ gift shop), Civil Engineering for Outdoor Railroads, Vol. 1, miscellaneous references on the Internet, personal observations, a little head scratching and plenty of coffee. Your comments are welcome.]



For more information on track laying and switch construction, see Grand Scales University Vol 1 and Vol 2 (available from the GSQ gift shop. Details on page 7 of this issue).



Do you recognize this photo? One of our readers was kind enough to send it our way. Unfortunately, the photo was separated from the letter. One of the signs says "Milwaukee (something)" Any information would be appreciated. If you are the sender please let us know. We can be certain, however, that this is a thoroughbred Cagney with original riding cars. What a gem!



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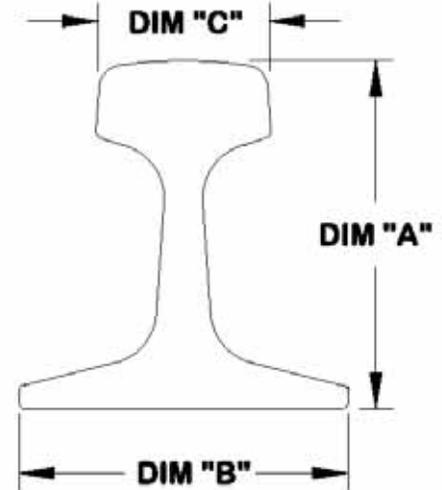
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1" ALUM	1	25.4	0.940	23.9	0.50	12.7
1½" ALUM	1½	31.8	0.940	23.9	0.50	12.7
1" STEEL	1	25.4	0.940	23.9	0.50	12.7
8#	1.5	38.1	1.500	38.1	0.75	19.1
12#	2	50.8	2.000	50.8	1.00	25.4
18#	2.5	63.5	2.500	63.5	1.25	32.1
25#	2.75	69.9	2.750	69.9	1.50	38.1
30#	3.125	79.4	3.125	79.4	1.69	42.9
45#	3.5	88.9	3.500	88.9	2.00	50.8
50#	4	101.6	4.000	101.6	2.13	54.0
60#	4.25	108.0	4.250	108.0	2.38	60.3



RAIL TYPE	QUANT.	PRICE/FT SUS	10' STICK	20' STICK	30' STICK	6m STICK
1" ALUM	1-10	\$1.25	\$12.50	\$25.00	n/a	\$24.61
	11-50	\$1.15	\$11.50	\$23.00	n/a	\$22.64
	51-100	\$1.05	\$10.50	\$21.00	n/a	\$20.67
	>100	\$1.00	\$10.00	\$20.00	n/a	\$19.68
1½" ALUM	1-10	\$1.25	\$1.95	\$25.00	n/a	\$24.61
	11-50	\$1.15	\$1.85	\$23.00	n/a	\$22.64
	51-100	\$1.05	\$1.65	\$21.00	n/a	\$20.67
	>100	\$1.00	\$1.55	\$20.00	n/a	\$19.68
1" STEEL	1-10	\$1.75	\$17.50	\$35.00	n/a	\$34.45
	11-50	\$1.70	\$17.00	\$34.00	n/a	\$33.46
	51-100	\$1.65	\$16.50	\$33.00	n/a	\$32.48
	>100	\$1.60	\$16.00	\$32.00	n/a	\$31.50
8#	ALL QUANTITIES	\$2.90	\$29.00	\$58.00	\$87.00	\$57.09
12#		\$3.90	\$39.00	\$78.00	\$117.00	\$76.77
18#		\$3.90	n/a	\$78.00	\$117.00	\$76.77
25#		\$5.42	n/a	\$108.33	\$162.50	\$106.63
30#		\$6.50	n/a	\$130.00	\$195.00	\$127.95
45#		\$9.75	n/a	\$195.00	\$292.50	\$191.93
50#		\$10.83	n/a	\$216.67	\$325.00	\$213.25
60#		\$13.00	n/a	\$260.00	\$390.00	\$255.90

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	>100	\$0.85
	1,000+	\$0.80
8# PLATED STEEL	EACH	\$1.20
	>100	\$1.10
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nearing completion on the rebuild of a Cagney for a private party in Northern California (not as much heavy lifting as the world they did on Union Pacific 844).

<http://www.sfzoo.org/openrosters/ViewOrgPageLink.asp?LinkKey=14106> <http://wrrc.us/>

As of Wednesday, September 23, 2009 **Cypress Gardens** (24", Winter Haven, Florida) was closed for good. They ran two Chance C.P. Huntingtons that were relatively new. Cypress Gardens was long billed as Florida's "Oldest Theme Park". <http://www.cypressgardens.com/>

The **State Fair Railroad Company** (16", Hutchinson, Kansas) ceremonially opened the fair. Brothers Bobby and Tommy Schmitt run the railroad in honor of their father who founded the operation forty years ago. They are running an Allen Herschell steam outline.

<http://www.hutchnews.com/Fair/train2009-09-11T20-44-20>

UK & EUROPE

The **Kirklees Light Railway** (15", Clayton West, West Yorkshire, UK) lost its founder, Brian Taylor, in the Spring of this year. He had sold the line a few years ago to the owners of Stately-Albion, a premiere manufacturer of mobile homes. The Friends of KLR recently celebrated their fourth Gala weekend. Visiting locomotives included *Sian* from her stables at **Windmill Farm** and *Wroxham Broad* from **Bure Valley**.

<http://www.friendsofklr.co.uk/>

At the **Cleethorpes Coast Light Railway** (15", Cleethorpes, Lincolnshire) *Might Atom* has joined

the rest of the Sutton Miniature Railway, making the collection complete. Serious repairs are in order. No. 24 is up for it's 10 year overhaul and boiler testing. She is expected to be out of service for six months. And *Effie* was scheduled to spend six weeks at **Saltburn Miniature Railway**. <http://www.cleethorpescoastlightrailway.co.uk/>

Our friends at **Rhyl Miniature Railway** (15", Rhyl, Denbighshire, Wales) have had a busy summer. In addition to their normal running, their "Little Giant Gala" weekend drew a lot of attention, there was a reunion of three "Little Giant" 4-4-2s in steam: *Joan*, *Synolda* (from **Ravenglass**), and *Red Dragon* (from **Windmill farm**). Simon Townsend also had the pleasure to taking his Cagney 4-4-0 and running at **Eaton Hall**. The past few years of the RMR have been a truly spectacular success story, and we will be seeing more of them in GSQ soon.

<http://www.rhylminiaturerailway.co.uk/>

SOUTHERN HEMISPHERE



Synolda and *Joan* doublehead at **Rhyl**, May 2009. Photo Collection RMR

The **Whangaparaoa Railway** (15", Whangaparaoa, New Zealand) has been working on a new coach over their winter. And the donkey Eeyore is now

feeling better after a bout of hoof problems.
<http://www.rail.co.nz/main.htm>

The **Driving Creek Railway** (15", Coromandel, New Zealand) is now so busy that even running three trains running, an 86 seat total capacity, they are recommending that visitors book ahead of time to guarantee a chance to ride the steep switchback line up to the lookout tower.

<http://www.drivingcreekrailway.co.nz/Introduction.cfm>

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3" Scale 3 Truck Shay Type Geared Steam Loco

Contact Jeff Badger
831-212-5545



Parts were cast beginning in 1964; completed in 1980. A new, non-code boiler, built by Ed Perry (Fresno, CA) was installed Oct. '95. Locomotive was sold in 1998 and stored in N. CA. When I purchased it in Nov. '08, it was dismantled and had not operated since arriving in CA. At that time, there was a problem with pistons / valves. Engine was removed and sent to Ken Kukuk of Westside Locomotive Works. New pistons, rings, valves were installed. I have replaced all the plumbing and fixtures, converted it to fire oil with a Von Bodden style burner from the Billy Jones Spot, and made other repairs. The locomotive still needs to be finished, which involves mostly detailing and fine tuning. Also included is a restored caboose w/ new interior featuring a pot belly stove and lighting.



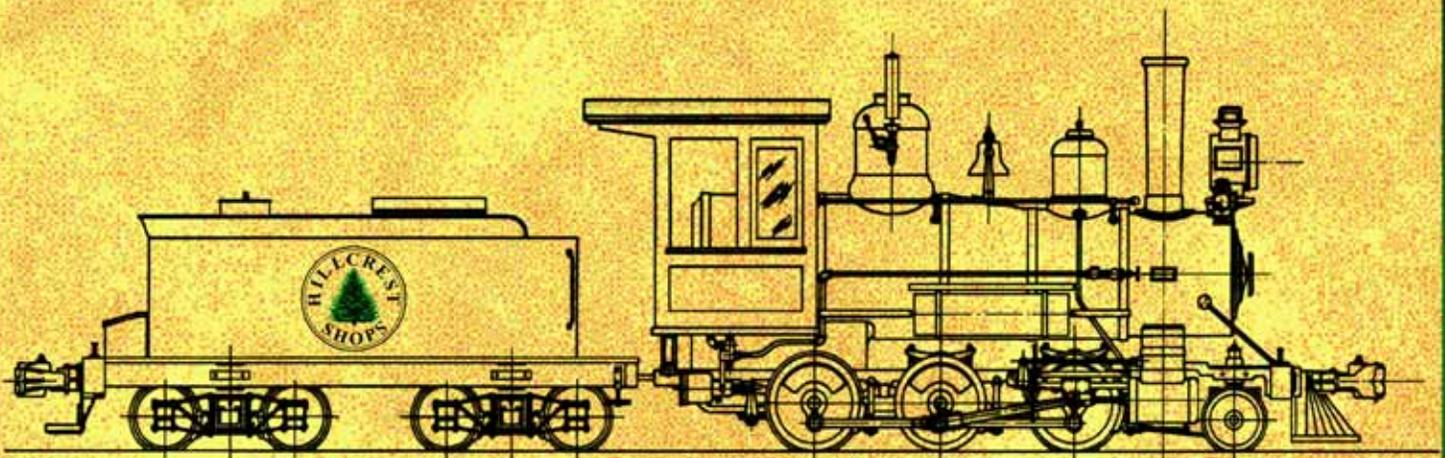
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Crown 4-4-0 Steam Locomotive & Tender

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Purchased in 2004 from the Heritage Railway (Ontario, Canada) for use at Camp Wawona, a church youth camp. It is currently set up as an automatic diesel burner using a small gas operated generator. It has a code boiler which was recently certified to 150lbs of operating pressure. With the automatic system, the burner has a high limit set at 140psi (low limit is 120psi). Locomotive has a 3/8th in. Penberthy and a 2N Metropolitan for injecting water. A manual lubricator injects oil into the cylinders. This locomotive has been tested and is ready to go. Included is a new stack and misc. paperwork. Sold As-Is, Where-Is.

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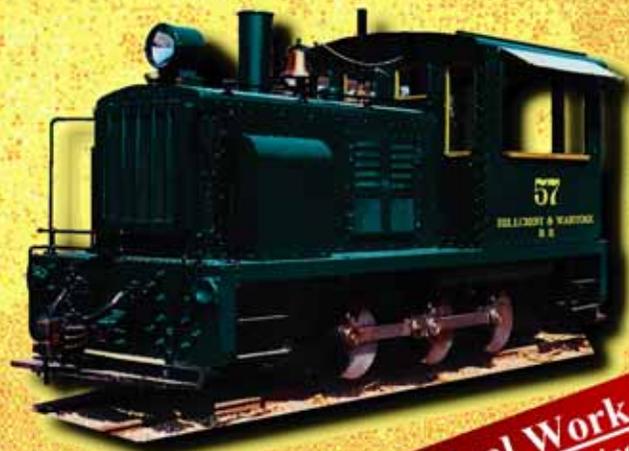
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