

The



October 2018

Milepost

Official monthly publication of the Pikes Peak Division of the National Model Railroad Association



A BNSF Railroad tank-train, heading southward to Kansas City, as it crosses the east-bound lanes of U.S. Route 36, about 1.25 miles east of Laclede, Missouri, on Saturday, September 15th, 2018.

*Don't forget,
the October
meeting is at
the mall...*

**NEXT MEETING: Friday, October 12th, 2018
at 7:00 PM at the Chapel Hills Mall, 1710 Briar-
gate Boulevard, in Colorado Springs, on the
Upper Level, in the former Gordmans store,
between Sears and Burlington Coat Factory,
on the north side of the mall.**

Calendar Events

Next Meeting Program

There will not be a formal program at the October meeting. This month will be the judged and open contests.

Reminders

If you have any model railroad cars, models, books, scenery items, or etcetera, that you don't want anymore, please consider donating them to the Division's monthly meeting raffle to help raise money for the Division!

Charalee Topinka wants to remind everyone who is a model railroader — each person has a technique or a way of doing projects that is known only to him or her. A clinic can be anything that pertains to model railroading or railroading in general. It could be anything, maybe a material that no one but you have thought of. Have you made a special tool to make life easier to achieve what you want to accomplish? Even a historical presentation on a railroad you know about. Everyone has ideas on how to do things.

For our monthly meetings, a clinic or presentation of about 30 or more minutes would be greatly appreciated.

Please contact me, Charalee Topinka, at (719) 646-2783, or at charaleetopinka@yahoo.com, and always give me a telephone number so that I can call you back.

I wish also to thank all the presenters for their time and efforts as presenters for the Pikes Peak Division.

From The Editor

Due to family and health issues, the second part of the *Pikes Peak Division's 2018 Annual Layout Tours* article will be postponed until the next issue of *The Milepost*.

Thank you to everyone who contributes to articles, photographs, and information to *The Milepost*. It is greatly appreciated! Remember, this is your newsletter — it is e-mailed out to over 110 model railroaders each month — why not contribute an article, story, or photograph to share with everyone else?



The Milepost, Volume 38, Number 10, October 2018, is published monthly, as an electronic document (Adobe PDF file), by, and under the authority of, the Pikes Peak Division (Rocky Mountain Region), of the National Model Railroad Association. Our meetings are usually held on the second Friday of each month at the Sand Creek Police Station, 4125 Center Park Drive (southeast of the intersection of Fountain and Academy), in Colorado Springs, Colorado, at 7:00 PM. Please come to one of our meetings. We'd love to meet you. All scales are welcome. Besides our monthly meeting, we have swap meets, train shows, and other model railroad (and railroad) activities. All content in this journal is copyrighted to its respective owner unless otherwise noted. Please do not use content from this newsletter in other publications, newspapers, magazines, books, web sites, etcetera, without explicit case-by-case permission. The editor of *The Milepost* is Mr. Michael Murdock. He can be contacted at the e-mail address of: midnightriver@gmail.com. Thank you.

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CHAIRPERSONS

SEPTEMBER 2018 MEETING MINUTES

September 14th, 2018 Minutes of the Regular Meeting of the Pikes Peak Division of NMRA

The meeting was called to order at 7:02 PM, by Assistant Superintendent, Charalee.

No visitors present (few members ≈16).

August minutes were accepted as published in *The Milepost*.

Treasurer's report was given by Frank.

Dusty discussed plans for PPD swapmeet and show at the church on Saturday, December 8, 2018. Will hold in spite of the overlap with a show in Boulder the same weekend. Have sold about 20 tables as of now. Setup will be on Friday evening before the show. Church ladies expected to have lunch available.

Elizabeth Maline presented expenses of \$99.44 for the Division picnic. Motion made and passed to cover the bill.

Mike Maline asked if anyone was interested in serving as the TECO chairman after Mike Peck steps down.

Discussed TECO 33 to be held October 13-14, 2018, at Chapel Hills Mall. Asked again for volunteers from the PPD to assist with the show.

J.B. and Dusty announced the Pike Masters Club will have an open house all day in the City Auditorium on December 1 to coincide with the Festival of Lights downtown that day.

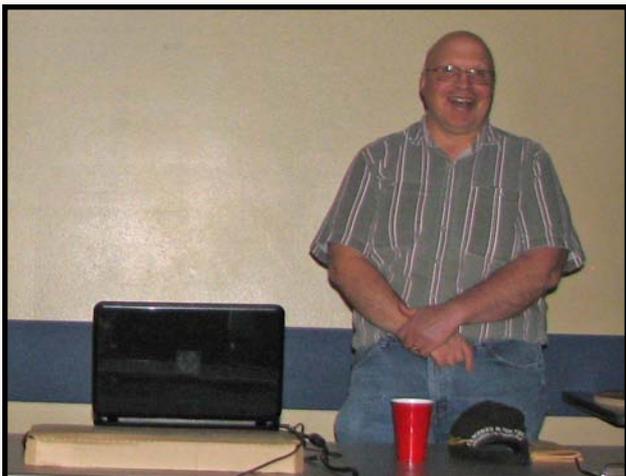
Only two (very nice) entries in the contest, so no voting.

Program was a PowerPoint show from Wade Mountz on building small Dioramas prepared and presented by Charles Marchbanks. The four examples were donated to the Youth in Model Railroad-ing group for their use.

Meeting was adjourned.



John Emmot.



Photograph by John Emmot.

CONTEST CORNER

At each monthly PPD-NMRA meeting, a contest is held. A contest must have at least three entries for voting. Below is the 2018 contest schedule:

October *Judged & Open Contest*

November *M.O.W. Equipment*

December *No Contest, Christmas Party.*

There was not enough entries at the September meeting for a voting contest to occur. Here are the entries:



Photograph by John Emmot.



John Emmot.



October Superintendent Notes

October Division Meeting Being Held at 7:00 PM at Chapel Hills Mall Event Center.

Judged contest at the meeting and no formal program. My 3-D printing clinic will be held during the TECO Showshow.

Help Still Needed for October TECO Show

Upcoming Train Shows

We have reservations locked in for the Lower Level Event Center for TECO Show in 2019 January and March and first dibs on the Upper Level if available. The upper level may be not be available in 2019 as they may be a permanent tenant there.

October 13—14: TECO 33 at Chapel Hills Mall Upper Event Center

October 27th 9 am – 5 pm and Sunday October 28th 10am – 5 pm

Rocky Mountain Hobby Expo at Denver Mart 451 E 58th Ave, Denver, CO 80216 Interstate 25 at 58th Avenue Exit

Nov 17-8 RARG (Rails along the Rio Grande) Train Show at Balloon Fiesta Pilots Pavilion, Albuquerque

November 24-25: Rocky Mountain Train Show at Ranch Events Complex, First National Bank Building, Larimer County Fairgrounds, Loveland, Colorado.

December 8: 9 AM—3 PM: Pikes Peak Division Swap Meet at Trinity Methodist Church, Colorado Springs

January 12-13, 2019: TECO 34

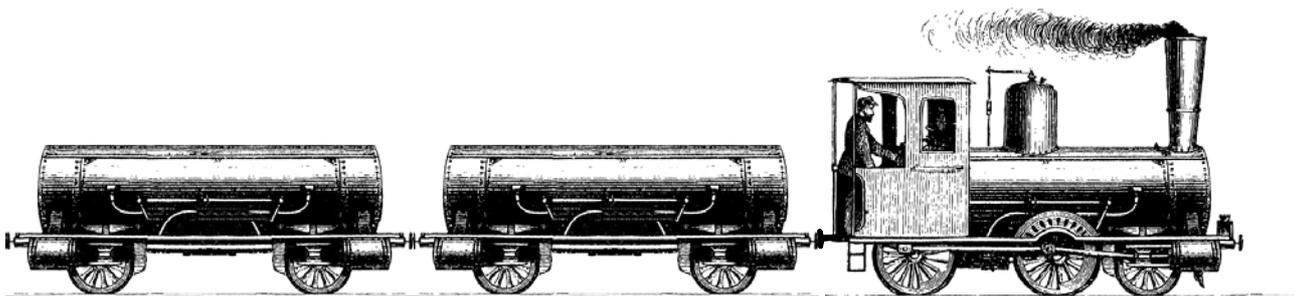
February 2, 2019 10:00 am - Sun Feb 3, 2019 4:00 pm.: Great Train Show, *Colorado Springs* Event Center 3960 Palmer Park Blvd, Colorado Springs, CO 80909.

March 2-3, 2019: Rocky Mountain Train Show at the Denver Mart, Denver, Colorado.

April 20, 21: TECO 35

July 12-14, 2019: NMRA NATIONAL TRAIN SHOW, Utah

July 24-27, 2019: Santa Fe Railway Historical and Modeling Society, Pueblo Colorado.



Modular Musings

Trick or Treat, Ready or Not, here we come. October is a full month with a meeting and TECO in the middle and Halloween at the end.

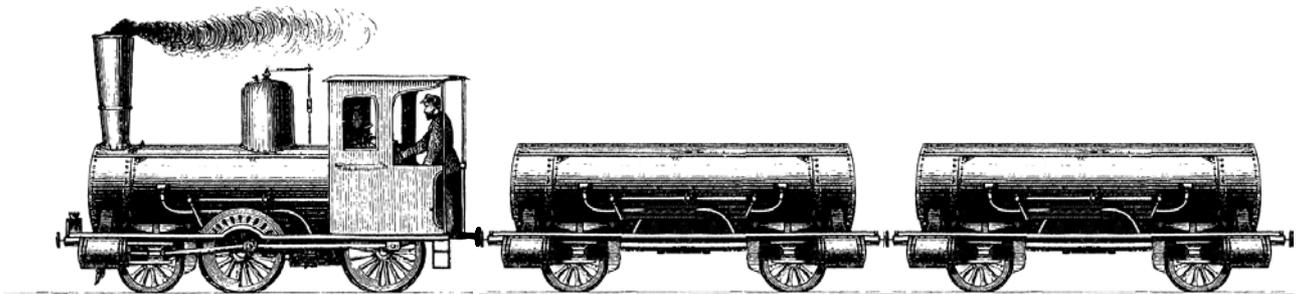
First, the meeting. This is the month when the contest is bit different. There will still be a popular vote for the favorite model in any category. Don't bring previous winners for this. There will also be a panel of 'judges' to evaluate any models for NMRA Merit points. Those that score more than 87 ½ points will get credit toward the Master Model Railroader Awards. Entries will require the *forms from the NMRA website* to be judged. Because of the module setup and preparations for the TECO show the next day, THE MEETING WILL HELD AT THE UPPER LEVEL EVENT CENTER AT THE CHAPEL HILLS MALL at 7 PM following the TECO setup.

Then the TECO show, setup of the PPD module layout will begin about noon on Friday, October 12. Entry to the space will be through the doors to the parking lot, east of SEARS on the north side of the Mall. Gerry Drewes will be bringing two 16 foot sections this time. The layout won't be too much different as Mike Maline will not be here for the show. My plan is for 44 feet on each leg of the boomerang. We should have the Velcro on the skirting material by then and we will need to install the mating side on the modules. Owners should think about placement of short Velcro pieces on their modules. I believe we will have sticky back material. We may also staple them to wood as needed. We have 8 pieces of new Plexiglas available. Many are spoken for, but if you need some, let me know. The breakeven cost is \$18.81 each. I expect to have the usual DC and DCC tracks for running during the show. Everyone is welcome to bring trains to run. There will be a sign-up sheet at the meeting.

For planning purposes, we expect to have TECO shows at the Mall in January and April, dates to be confirmed. The rest of that story is that The Great Train Show will be in Colorado Springs on February 2-3. The question is, does the PPD want to setup a module layout at that show? We do not need to organize the show, just setup and run. There might also be some monetary compensation for an appearance. We must submit an application for the show, so we should decide soon if we want to go.

And finally, Happy Halloween!! Hope to see everyone at the setup and meeting.

John



Internet of Things (IoT) and Railways

By David Bristow

What is IoT?

Several organizations such as the International Telecommunication Union, the Institute of Electrical and Electronics Engineers and the Object Management Group are in the process of developing formal standards for IoT processes and protocols. But for a working definition AT&T's introduction sentence to their IoT website "The Internet of Things links together networks, devices, and data" or Wikipedia's "The Internet of Things (IoT) is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these things to connect and exchange data, creating opportunities for more direct integration of the physical world into computer-based systems, resulting in efficiency improvements, economic benefits, and reduced human exertions." are sufficient for our use.

IoT is not new, Kevin Ashton coined the term in a presentation to Procter & Gamble in 1999. Ashton also pioneered the use of Radio-frequency identification (RFID) in supply-chain management. RFID uses electromagnetic fields to automatically identify and track tags attached to objects.

How are Railways Using IoT?

Around 2005 with the rise of smart city projects as a result of IoT and Big Data, the rail industry realized how these innovations could be exploited to revolutionize the development of solutions to complex problems they faced such as providing passengers with improved experiences, smart ticketing, passenger infotainment, rail traffic management systems, Positive Train Control (PTC), dynamic route scheduling and planning, condition-based maintenance (CBM), and rail data analytics, to name a few.

In its simplest form IoT involves sensors, communications, actuators and data processing engines. Some of the types of sensors used in the railways include accelerometer, GPS, temperature, pressure, strain gauge, RFID, optical, and camera and some of the types of actuators are; motors, servo motors, relays, and lights. The availability of high bandwidth communications over the past couple of decades has increased dramatically so that satellite and cell services can cover a significant amount of the rail lines in the US at reasonable prices. The data processing engines run the single chip ARM processor to the large servers using multiple Intel 64bit processors.

Today, some newer locomotives are equipped with more than 200 onboard sensors that monitor performance and health, process more than 1 billion instructions per second and provide about 10 gigabytes of data per year. Many railways are either upgrading their locomotives with IoT devices or are planning to do so. Placement of IoT devices is occurring across all forms of rolling stock to provide data on critical components.

The data collected and analyzed from the myriad of sensors both on the trains as well as on or near the tracks can be used for multiple purposes such as:

Predictive Maintenance - Railway assets such as rolling stock, tracks, and other pieces of infrastructure are typically maintained on a regular schedule based on either time or distance. When failures occur outside of that maintenance schedule responses to those repairs is reactive. This unplanned work typically leads to additional costs, and delays, culminating in poor customer experiences. By shifting to predictive maintenance by using Big Data analytics on patterns of wear, use, failure histories across the fleet and environmental conditions dynamic models are

employed to predict when a specific railway asset is likely to fail. Predictive maintenance changes the paradigm of the maintenance processes to a just in time approach that saves money, both on unnecessary scheduled maintenance and on the expensive and disruptive reactive maintenance. **Safety** - By combining data on trains, cargo, topography, and weather, detailed models predict the risks associated with running specific trains through areas prone to strong winds and determine when and how fast it is safe to operate their trains. This approach with constant real time data improves safety and allows freight trains to travel closer together and at higher speeds ultimately resulting in greater freight carrying capacity.

Asset Optimization – Over the past century railways have invested immense capital resources, which is unlikely to be repeated. Passenger and freight numbers continue to rise, to meet the ever-increasing demands forcing all concerned to find ways to more efficiently exploit a finite set of resources. Rolling stock manufacturers combine knowledge of rolling stock with sensors and analytics to reduce customers' fuel costs. Some railways are shifting from fixed timetables to experiment with dispatching trains on demand. Sensors on everything from toilets, soap dispensers to food vending machines and trash bins provides facilities management teams the ability to proactively direct on-train staff to get ahead of potential problems and providing station-based suppliers to have the needed items ready to load when the train stops at the next station. Some railway operators have initiated experiments with remotely operated freight trains that like the driverless automobiles of the future have no engineers!

Passenger Experience – Having created network connectivity for operational needs, railways can expand its use to provide passengers benefits. Longer rail journeys seem more appealing to business passengers if they have the option to remain productive and connected. Additionally, like airlines railways can provide a selection of entertainment streamed to personal devices. With access to real-time data a rail operator's ability to deliver timely information to passengers, before they board, during their journey, and even as they travel the last mile to their destination. At-seat displays can be updated with reservation information, and arrival, departure, and connection details can be provided in real-time, both for public display or even pushed directly to affected passengers.

IoT Technology

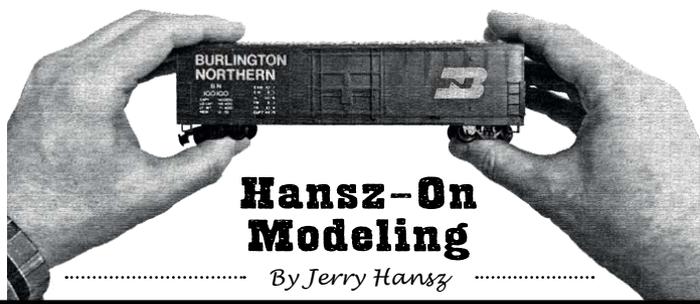
Just as there are multiple definitions of IoT there are several different protocols that are used to move the data between the devices. They can be divided into two groups, client server and peer to peer. One highly popular protocol in the client server group is Message Queue Telemetry Transport (MQTT).

MQTT is a simple and lightweight messaging protocol. It is a publish/subscribe architecture that designed to be open and easy to implement, with up to thousands of remote clients capable of being supported by a single server. Equally as important there a multiple implementation of the open source client software that are available for micro controllers such as TI-Tiva, Arduino, Raspberry PI, and ESP8266WiFi.

IoT in Model Railroading

While there is a significant number of articles and research papers on the topic “IoT in Railways” there are few describing the use of IoT for model railroads. But as we model railroaders emulate the slight larger 12” to the foot scale, it seems that there are several parallels that one could draw. For instance, the railway's notion of PTC mirrors the modeler's Digital Command Control (DCC) usage.

The concept of publish/subscribe support by MQTT, or as the new Layout Command Control (LCC) standard refers to as producer/consumer allows sensors to publish their data about a specific event such as the closing of a turnout without concern of who needs to know or what is to happen when that close



ANOTHER LITTLE PROJECT

Was watching TV news. Again, a recall for salmonella. Also reminds me of Listeria outbreaks in the past. So, I decided to create a small business using parts from the Design Preservation Models Designer Bulk Pack.

I pulled out some wall sections, door and windows, and cobbled up a building for my new company "Hometown Produce". The company provides produce of questionable quality for the Oidar and Unter-Talheim markets. There are two vendors associated with the company, Sal Manila Eggs and Les Sterea lettuce.



The building front.



The railroad side.

I provided a truck door on the front, and a rail height door on the rear. The main office entry is on the front, and the unsuspecting customers can enter on the rear (railroad side).

A fleet of vehicles is needed for local deliveries. I raided my accessory auto boxes and extracted three vans and a pickup. I lettered them with homemade decals. The first step was masking and painting out the existing lettering. Then my decals were added.



Sal Manila van number 1.



Sal Manila van number 2.



Sal Manila pickup.



Les Sterea van.

Their local business prospered, so they expanded to other markets. To serve those markets, they conned two reefer companies into adding their logos to a couple of ice bunker refrigerator cars. Wonder how long before the FDA catches on?



The Santa Fe evidently got a little cash.



Send lettuce nationwide.

After the decals dried, they were shot with some clear flat and reassembled.



The fleet.

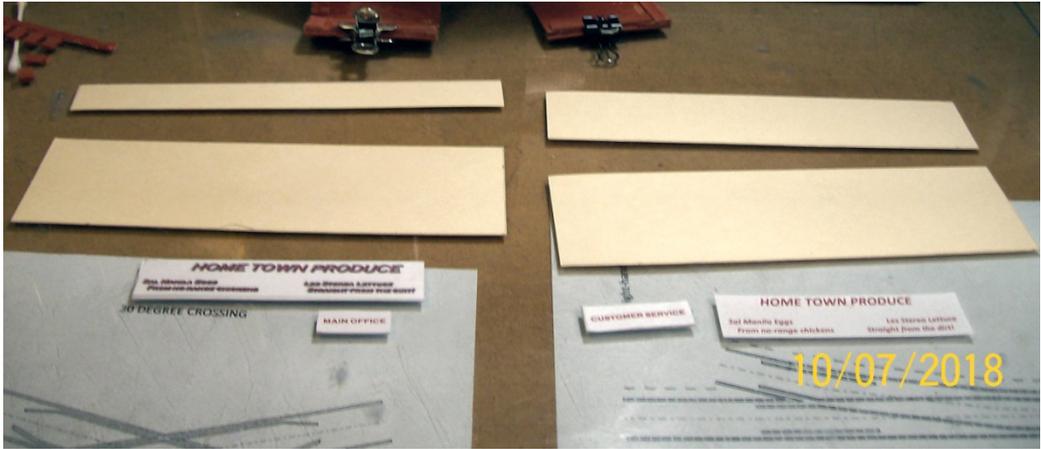
Once we looked for a location for the building, we found we were maxed out! No more building space! So- what to do? The Oidar yard has about 2 inches between the first track and the wall. Unter-Talheim has about 1 inch. So, I took the Dremel with a cutoff disk, and made two buildings. One is about 1 inch deep, the other about 2 inches.



After the cut.



The two halves with corner trim installed, and roof and back pieces cut.



Back pieces, roof pieces, and signs.

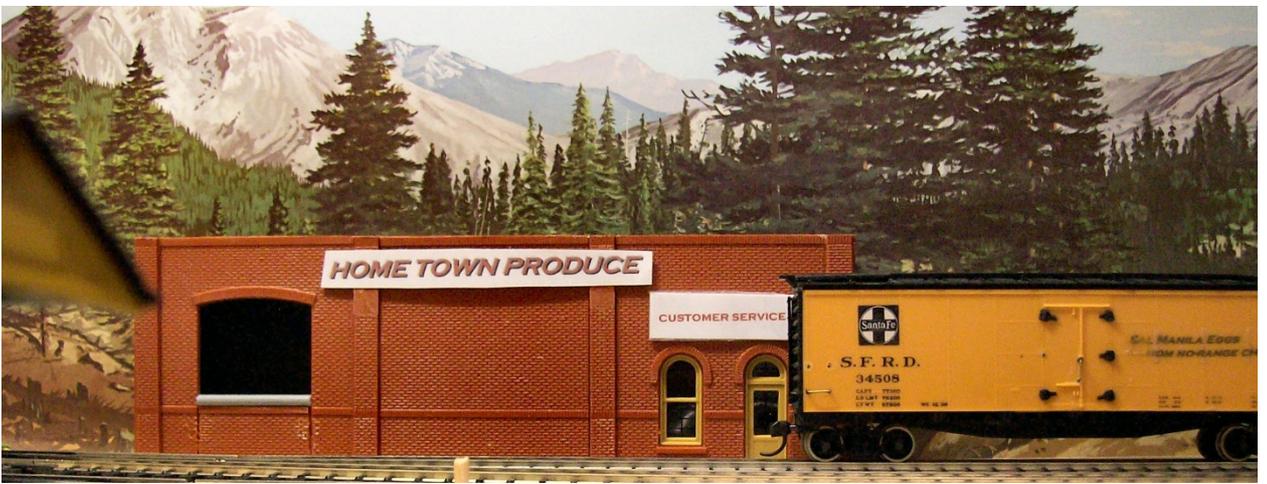
When a false back was installed, they fit in Oidar and Unter-Talheim.



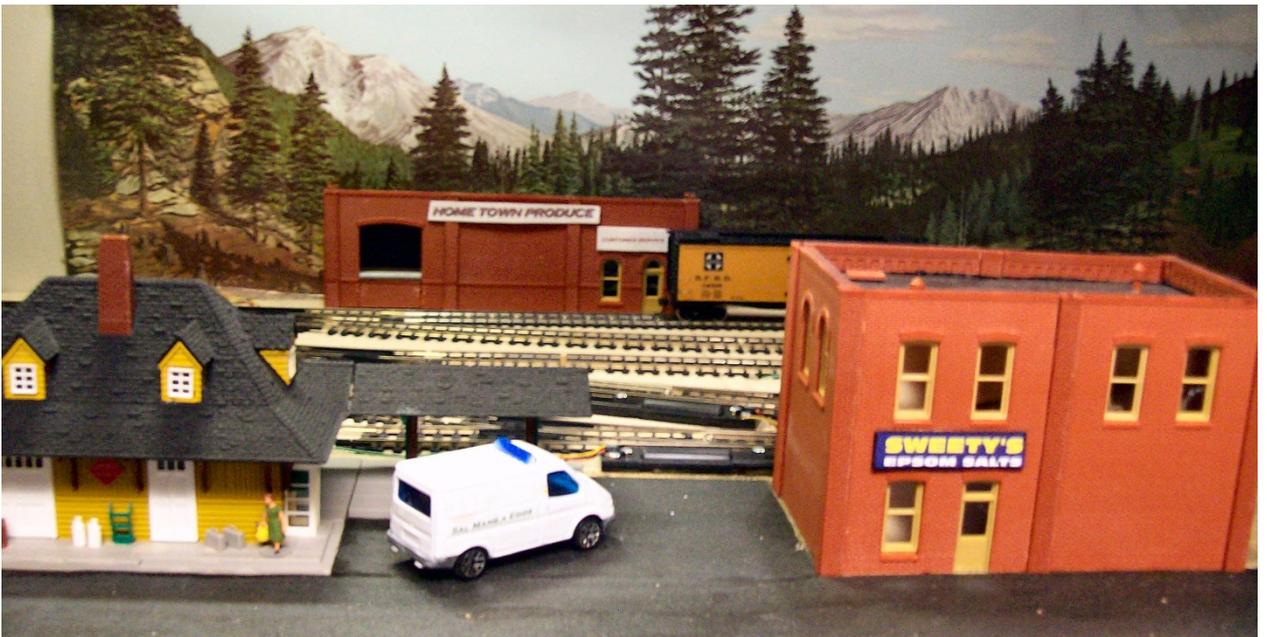
The Unter-Talheim building manager was too cheap to do a good sign!



The Oidar building in place.

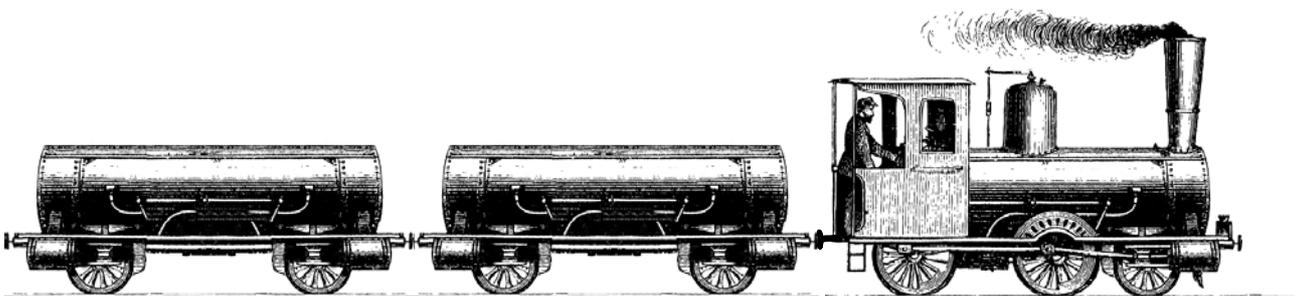


The Unter-Talheim terminal.



Unter-Talheim, with a van parked at the station.

Well, another project completed. More waste of material!?



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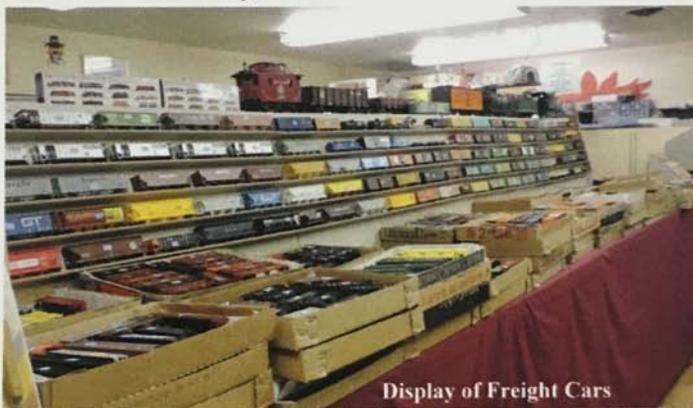
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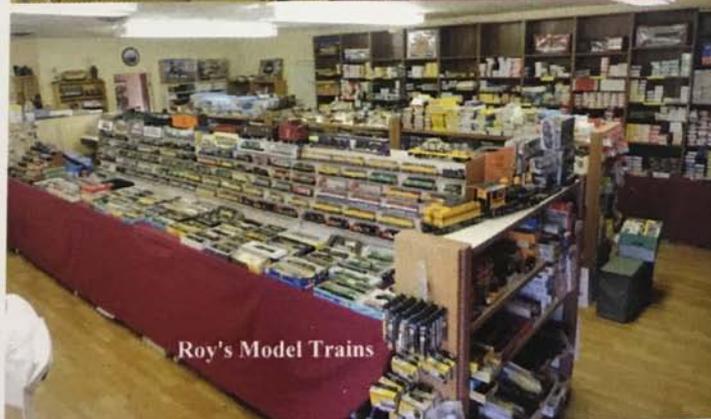
Website: Roysmodeltrains.com

Email: roysmodeltrains@comcast.net

Phone; 719-728-0503



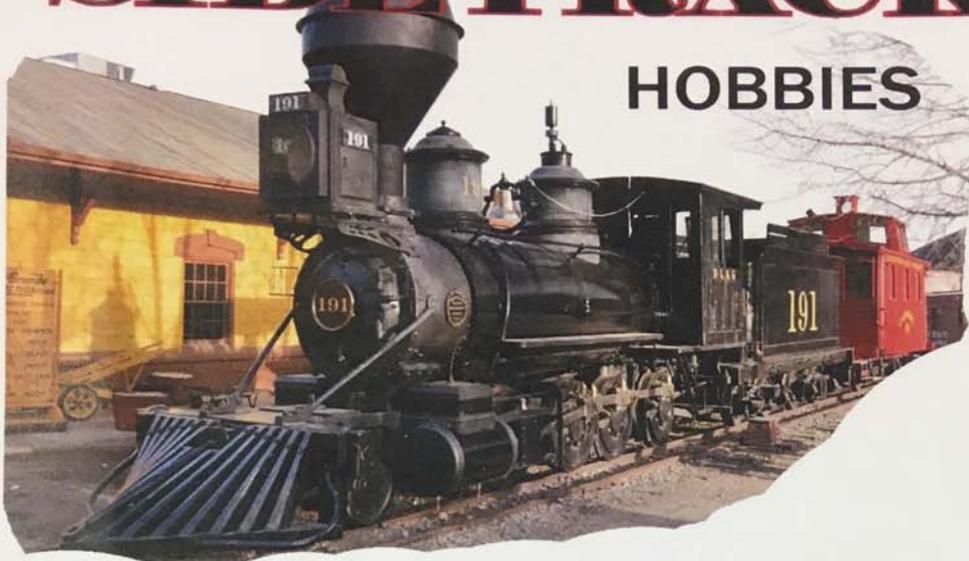
Display of Freight Cars



Roy's Model Trains

SIDETRACK

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Sat 10-5 Sun 10-4

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\$6 per person
\$10 Family of 2 or more
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