

# THE MILL

April 2020  
Vol 4 Num 2

A look at a Stephen Johnson's  
HO scale Union Railroad

Lineside Reprints

What's on the bench:

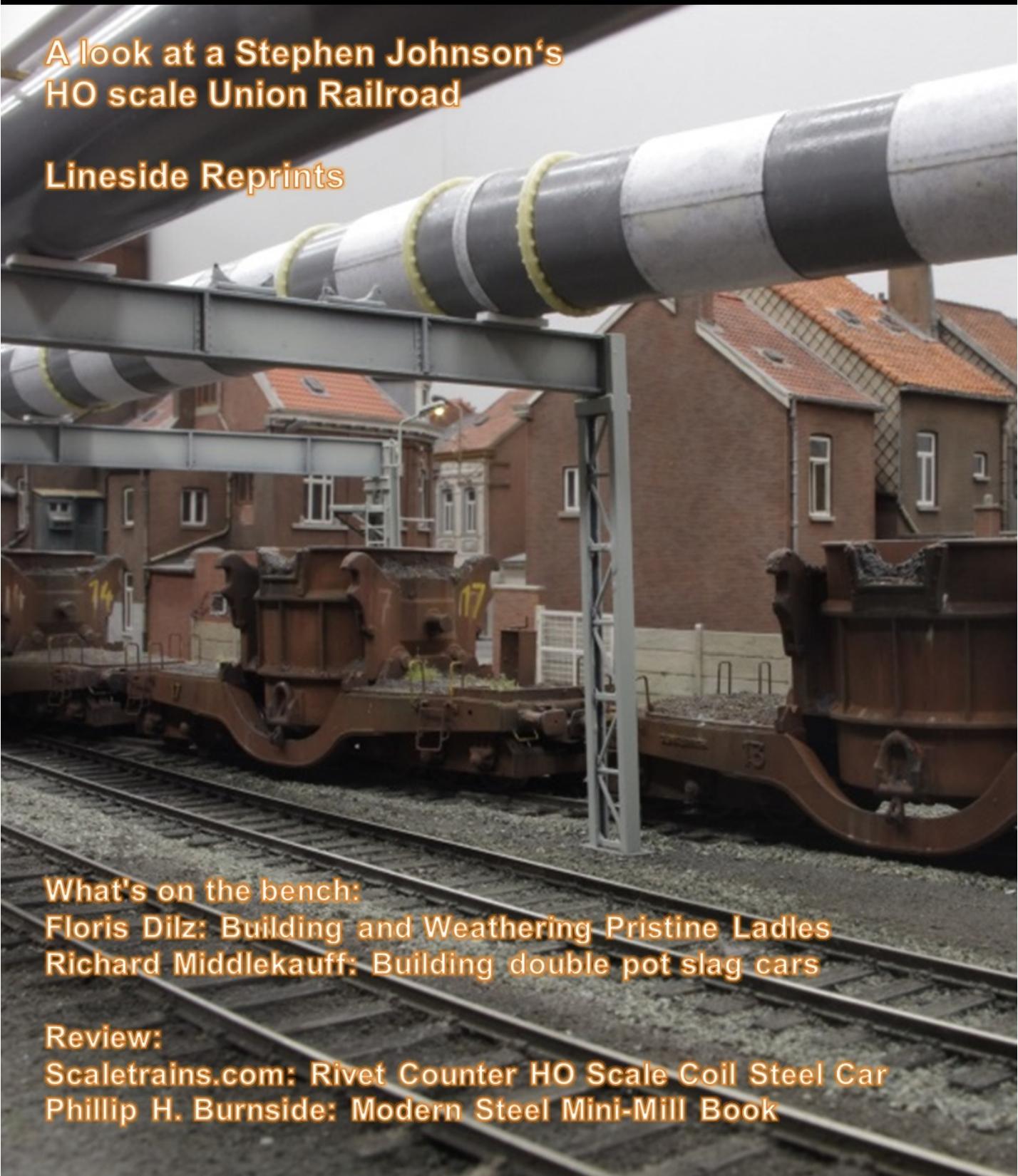
Floris Dilz: Building and Weathering Pristine Ladles

Richard Middlekauff: Building double pot slag cars

Review:

Scaletrains.com: Rivet Counter HO Scale Coil Steel Car

Phillip H. Burnside: Modern Steel Mini-Mill Book



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## The Mill

The Mill is a publication of the Steel Mill Modeling and Steel Mill Pictorial groups and is sent out to the readers quarterly. The Mill is only available in PDF format and is free to subscribe.

## History

The Steel Mill Modeling group was founded on October 21, 2014,  
April 1st, 2020: 1,964 members  
<https://www.facebook.com/groups/708840849171343/>

The Steel Mill Pictorial group was founded on July 14, 2017,  
April 1st, 2020: 1,185 members  
<https://www.facebook.com/groups/1561038727264008/>

## To Sign Up

To sign up to receive the newsletter, send an email to Don Dunn at [don\\_csx@hotmail.com](mailto:don_csx@hotmail.com).

## The Purpose

This newsletter is to recognize the members of the steel mill community that would like to share their modeling ideas, on how-to builds of steel mills and equipment and the members who like to share their knowledge of the steel industry in general. This also includes industries that support the steel industry including coal, lime store, slag, coke, etc.

## Thank You

I like to thank the members of the Steel Mill Modeling Group, Steel Mill Pictorial Group and the Yahoo Steel Mill Group for what you all have done to make this newsletter possible. Thank you all who have contributed to passed and future issues of The Mill Newsletter.

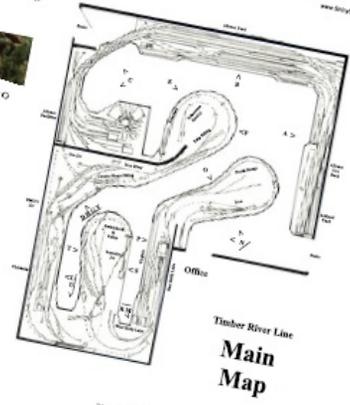
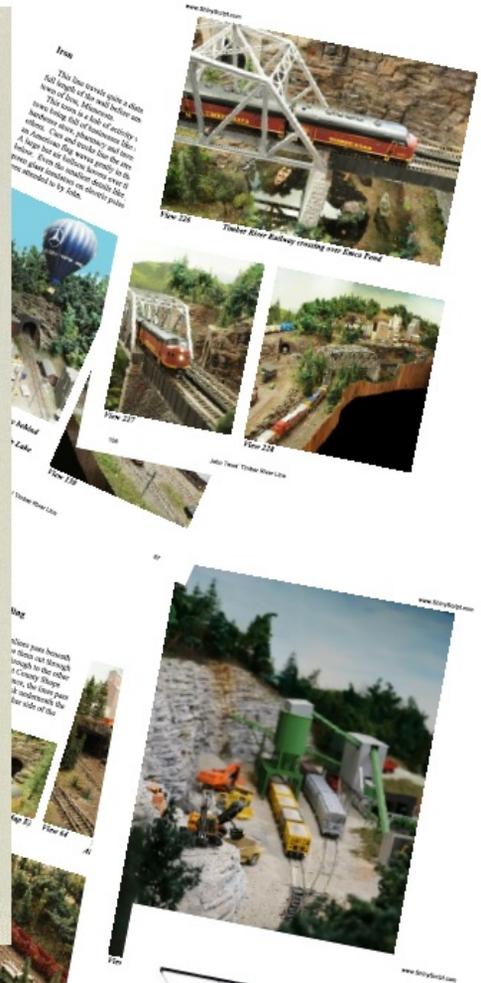
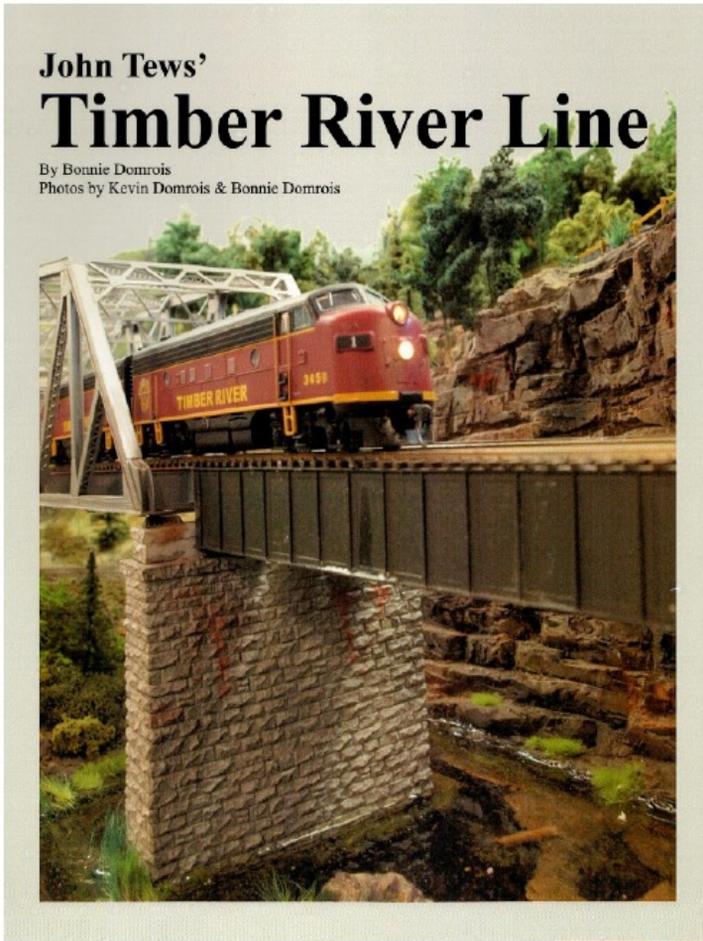
As Always Take Care, Stay Safe, Happy Modeling and May God Bless you all.

Editor, Don Dunn  
Assistant Editor, Brady McClelland

# All Scale Rails

## John Tews' Timber River Line

By Bonnie Domrois  
Photos by Kevin Domrois & Bonnie Domrois



Take a trip on the Timber River Line and experience a visual tour of legendary Master Modeler John Tews' Timber River Line. 245 color photos show multiple industries including mines and logging and interchanges as the railroad moves the products back and forth. This being a fully operational railroad, every detail and movement is taken into account, mimicking full size railroads, along with innovations like John Tews' automatic model train hopper car unloader. This book also includes a biography on John Tews himself; both personal and his achievements within the industry, including Trainfest and how he grew it to one of the largest model railroad shows in the country. This book is destined to be a favorite and hold a permanent place in your collection.

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Parts can be printed in HO, N and S scales

## Cover

Scratch built Pristine ladles build and weather by Floris Dilz. Photo by Floris Dilz

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## Submission information

Anyone who would like to submit pictures, articles, club news, upcoming shows or evens to be placed in future issues of The Mill, please send an email to [don\\_csx@hotmail.com](mailto:don_csx@hotmail.com). Pictures used have be of your own collection or used with permission. When submitting pictures the bigger the better for detail purposes.

All pictures in The Mill are used with permission. If there are any questions concerning pictures or articles used please send them to [d\\_on\\_csx@hotmail.com](mailto:d_on_csx@hotmail.com) and the question will be forwarded to the contributor of the photo or article.

# Welcome to the Union Railroad



How did all this start? A question I have asked myself many times and the answer stays the same, I love trains! Ever since I was about 2 (so I am told), trains had a place in my life. Over the years it went from a fascination to a hobby, to a career. I can proudly say I have been an engineer for 26 years now.

I have had many layouts over the years and all of them still hold a place in my heart, I remember them all. I have learned much over the years building layouts; construction techniques, electrical wiring, scenery building, etc. and all those lessons have brought me here. Many variations and themes have been toyed with and I always knew I loved switching. Steel Mills seemed like the perfect solution; lots of switching, a wide variety of commodities, and as many cars as you can switch into them since they are always hungry. I chose to model the Union Railroad (URR) outside of Pittsburgh because I had family in Duquesne, PA (Du'kane) where the Union's main classification yard is. After researching the URR, I discovered it to be a really unique railroad incorporating switchers for it's motive power both in the mills and on the mainline. Most of their engines are EMD MP15DC's with some SW1500's. Perfect power for the tight curves and confines of a mill.



Brothers Martin and David even enjoy the opportunity to run the layout

After a 10 year hiatus from the hobby, the bug bit me again and I started building in December of 2018. My house has a strangely designed basement which only allowed me a space of 10'x19' to work with and I knew steel mills were monstrous, so I had to decide how to compress quite

a bit. I opted for light bench work consisting of 1x3 frames with 2" extruded foam as a base. The roadbed and track is glued to the foam using Liquid Nails and all but one switch is hand throw. I really didn't have a track plan in my head nor did I reference any published designs, I just read about the URR and looked at photos online, and then sat in the basement until I started getting ideas. The original plan was to be a single track main line with passing sidings and one large steel mill running up the peninsula in the middle. That idea quickly changed as I realized I could split the peninsula lengthwise and put in two shallow mills and have a two track mainline like the prototype. This is how the Irvin Rolling Mill and Clairton Coke Mill were born.

The main classification yard at Duquesne would serve well for feeding the mills so



Union 09 Crew passes and abandoned boxcar at Butler Refractories



P&LE 1590 heading back to Clairton Mill with interchange traffic

Western Maryland and others of the past. This allowed quite a bit of traffic and West Mifflin holds about 80 cars when full.

Operations are done using Ship It! from Albion Software. Ship It generates switch lists for all my industries and yards and allows me to run 7 trains per Operating Session. Most trains run between 15-20 cars and on average move about 100 cars per session. I incorporated as many non-mill industries as space permitted

the decision was made that I would model from Duquesne south to Irvin and Clairton. Anyone familiar with the area or the URR knows that the Edgar Thompson Works is the large fully integrated mill across the Mon River from Duquesne, and as much as that would be fantastic to model, I would have had to use the entire basement to get a good representation of it. I opted for the “feel” of the smaller mills using modelers license to increase the variety of cars and commodities to each mill, thereby making switching the main focus.

The URR is and was much more than just a steel mill railroad which was part of the appeal for me. Most who know of it only relate it to steel, but the Union had plenty of other industries they have served over the years. Coal, coke, lumber, scrap, TOFC, chemicals, as well as lots of interchange traffic have fed the URR for a very long time. Currently only a shadow of itself, I chose to model an earlier time (1980-1999) so I can have more than just mills. I decided to add as many online industries as I could reasonably fit to keep the



Buffalo 618 and RS-2 607 handling the days switching assignments in Duquesne Yard

operations interesting. With limited space, a 90 car coal or coke train was not an option and could only entertain for so long. More industries, more fun! Learning more about the URR and how much interchange traffic they actually had made building a staging yard a must. I built a staging yard under Duquesne Yard to represent West Mifflin Yard where the N&W interchanged as part of the western end of the Alphabet Route from the days of the

which includes 84 Lumber, GM Fisher Body Plant, Butler Refractories, Grant Steel, Kopper Chemicals, PPG, Atlas Universal Cement and McKeesport Transfer. Most jobs visit one or both mills during their run and I also have P&LE traffic from Clairton Mill to Duquesne and back, and the Montour RR for coal traffic. Irvin Mill has its own job which switches the mill, runs to Duquesne and drops off, then picks up

another train and returns to the mill.

For 3 skilled operators to run a full session, it takes about 6 hours, and can have 2-3 trains running at the same time. I use NCE DCC with corded throttles right now but there is a plan to go wireless this year. I really enjoy the ease of NCE and was originally hesitant to use DCC until I saw the potential with the control and sound. DCC is worth every penny as far as I am concerned having grown up during the “dark ages” of Athearn blue box engines and just DC control. I cannot thank all of those who have been a part of this journey, to include



Irvin Mill generates quite a bit of work each day for the Union



20 Crew working Irvin Mill

family, friends, my local hobby shop (Mainline Hobby Supply in PA) and my co-workers who respect me enough to support me and show a genuine interest in my layout. I have a growing list of operators (repeat offenders I call them)

and have more showing interest every month. I am also a member of many online groups on Facebook as well as being an NMRA and OpSIG member. I have learned much from all those I have interacted with and have reveled in the

joy of teaching some as well.

The journey is not over by a long shot, I have more to build, more details to add, and enough trains to keep me busy and happy well into my retirement in a little over 4 years. I look forward to the time when I can wake up, brew some coffee and spend my day in the basement. I consider myself fortunate to be an engineer and working for Amtrak in Washington, DC allows me the opportunity to run some former steel mill working engines (P&LE, PC, and Montour RR) that are currently on the Amtrak roster. I chased a dream from childhood and I caught it; this really is the Greatest Hobby in the World!



Montour Railroad interchanges coal traffic at Miffin Jct.

P&LE working Clairton Mill



Some readers may remember The Lineside Newsletter. This quarterly newsletter focused on many different industries not just steel mills. The articles that were about steel mills helped many modelers and help people to understand how the steel making process worked.

After receiving permission from Stan Knotts and John Teichmoeller, a few of these steel mill related article will be featured in issues of The Mill. Some of these articles maybe obsolete from the technology that we have today but there are great article none the less. These articles are photo copied from past issues. Thanks John and Stan for allowing these to be shared. Original article by John Teichmoeller.

## Lineside

### THE URBAN AND INDUSTRIAL LAYOUT FOR ARMCHAIR MODELERS OR HOW TO GET UP FROM THE ARMCHAIR EASILY

By John Teichmoeller  
Ellicott City, MD

This article is a transcript of a clinic presented at the NMRA Pittsburgh Limited 1990 Convention.

#### INTRODUCTION

We will first discuss a way for you to look at the real world in terms of a shelf layout. You concentrate on industrial and urban scenes which feature a horizontal plane (the shelf layout with your track) and a vertical plane (the backdrop, where you can use shortcuts to save a lot of modeling time).

Our goals are to minimize the amount of space and time we take up. This will also permit us to have a layout that can be moved more easily. This way we can get some trains moving and still have plenty of armchair time.

The article will be run in several parts. The first part will concentrate on some basic concepts of applying the industry to shelf layouts. This part will include a view of my layout as it has evolved to where it is now (ready to be substantially changed.) I have also put together a selected bibliography of industrial shelf layout track plans that have appeared in the modeling press over the last thirty years.

The subsequent parts of the article will concentrate on and show some examples of how to apply this shelf layout concept to the heavy iron and steel industry. We will present ideas for representing the gargantuan structures and mammoth scale operation within the confines of our shelf. We will then add ideas for equipment. We will conclude with some easily available references. Let us recommend one starter reference at the beginning, however:

"The Steel Industry--An Annotated Bibliography for Modelers," by John Teichmoeller, 1990. 33pp. Available for copying fees from Kalmbach Memorial Library, Chattanooga; updated and revised annually.

The original program given at NMRA conventions assumed some basic familiarity on the part of the audience with the iron and steel industry, and audience reaction at least in Pittsburgh suggested that those who came were fairly knowledgeable about the subject. Keeping in mind that many members of this SIG come from varied backgrounds, I will try to add some more explanatory material in this article. If you are in the dark about a particular topic, however, be sure to let your editor know as that will guide us in future articles which go into more detail in the areas of greatest membership interest. Meanwhile, the reader who finds some of the terminology inscrutable should order the Bibliography at once and in turn refer to some of the references cited therein.

#### BACKGROUND

Let's define an armchair modeler as one who has no operating layout. Now there are numerous reasons or excuses for this status; they include lack of space (or perceived lack of space), time-consuming household projects, frequent residential moves due to job demands, competing hobbies or sports activities or lack of funds. Some of these may indeed be quite real and limiting. There are a couple other reasons that may be more subtle but which are limiting nonetheless: fear of modeling failure or intimidation by the fine work done by others, getting great enjoyment out of reading and taking notes as opposed to getting ones hands dirty with the actual modeling, and last, buying and collecting kits or ready to run equipment as opposed to building and running. Even if any or all of these reasons prevent you from getting a layout started you shouldn't feel bad. After all, if these things produce enjoyment of your hobby, there is nothing wrong with them, and its a shame when other articles demean the armchair modeler. Nevertheless, often the most ardent armchair modeler harbors a latent desire to have some form of layout, and that is what where we begin.

### PART ONE--THE CONCEPT - SHELF LAYOUT

One of the easiest ways I can think of to get out of the armchair is to get started building a shelf layout from either a commercial track plan book or from one of the cookbook articles that appear from time to time in the modeling press which cover as much as possible--benchwork, trackwork, wiring, scenery, etc. I started with just such a layout in HO, Railroad C for Atlas' Six HO Railroads You Can Build by John Armstrong, the Southside Connecting.

Even though I had build my last layout about fifteen years before and wasn't quite a novice at layout building, I tried to stick close to the cookbook. I did make a few initial compromises. I eliminated the Atlas turntable from the scheme because I felt it didn't fit in. Otherwise, though, I followed the recipe including the plastic frog non-selective route control "Snap" switches. This gave me practice at basic layout building. I quickly found out a couple things that you should remember:

1) **AVOID PLASTIC FROGS** The plastic frogs caused stalling on a slow-speed, short-wheelbase locomotive switching layout, so I replaced them with metal frog Lambert turnouts. I have also used in places with equally good results the metal frog Atlas Custom Line turnouts. I have heard good reports also on Peco's metal frog turnouts with the built-in snap-action point mechanism but have not tried them. This would save installing ground throws.

#### 2) **USE ELECTRIC SWITCH MACHINES WITH CONTACT POINTS**

I also quickly found that in cramped industrial settings with my shelf layout close under the eaves in an attic that it was hard to get to ground throw switches. Thus I used conventional double coil electric switch machines mounted on plywood pads below the table and linked with GHP turnout links. I also made use of the contacts on the switch machines to wire the points and frog to give more reliable electrical contact. You could use alternative front fascia-mounted products or other electrical switch

machines--just avoid ground throws in places other than right along the front of the shelf.

3) **PROMOTE ELECTRICAL CONTACT.** Another suggestion is that you install Tomar or Taurus brass rail contact wipers on your locomotives. Also, buy some of those Relco electronic stall protectors--they do work. Consider augmenting power pickup from as many wheels as possible. E.g., I semi-permanently coupled (with connector-equipped jumper wires) a polling car to my 0-4-0 Docksider. This way I have five contacts per rail (including the track wiper.)

4) **AVOID PLASTIC-FROG CROSSINGS IF POSSIBLE** This is another source of stalling. If you must have them, and I do, make sure you follow (3).

5) **AVOID DESIGNED OPERATIONAL PROBLEMS.** This is a strong matter of personal preference developed after about 15 years and deviates from the "experts." What I mean here is that many of the public track plans brag about how they have purposely left off runaround tracks, provided very short leads, built-in a 4% grade up to a particular industry, etc., in order to create challenges. This may be so, but I found a lot more pleasure from a comfortable switching session. I got bored with the interminable moves required by lack of runarounds and short leads. Steep grades cause false uncoupling and derailments at the transition points. So be advised.

#### 6) **DON'T BE AFRAID TO USE ELECTROMAGNETIC UNCOUPLING RAMPS.**

The permanent magnet Kadee ramps often end up being at the wrong place. The stronger electromagnetic ramp will eliminate problems with unwanted uncoupling and promote more reliable uncoupling if a ramp has to be in a place where it is hard to give a manual assist. Yes, they are expensive, but if used judiciously they can greatly improve your enjoyment.

**CURRENT LAYOUT**--This layout evolved through three housing sites to its present one. The track plan, shown in Figure 1, has been modified to the point where it does not resemble the original one. The shelf has grown from an original fifteen inches wide by twelve feet long to a total of twenty eight feet lineal feet. Various layout support methods have been used. Various

## Lineside

lighting arrangements have been tried. While I still view the whole thing as an interim, temporary measure, at least it has gotten me up and out of the armchair. I have a layout that is simply the world in two planes--horizontal and vertical. It doesn't occupy much space to scenic. It is easy to move when needed, and it took a minimum of time to build.

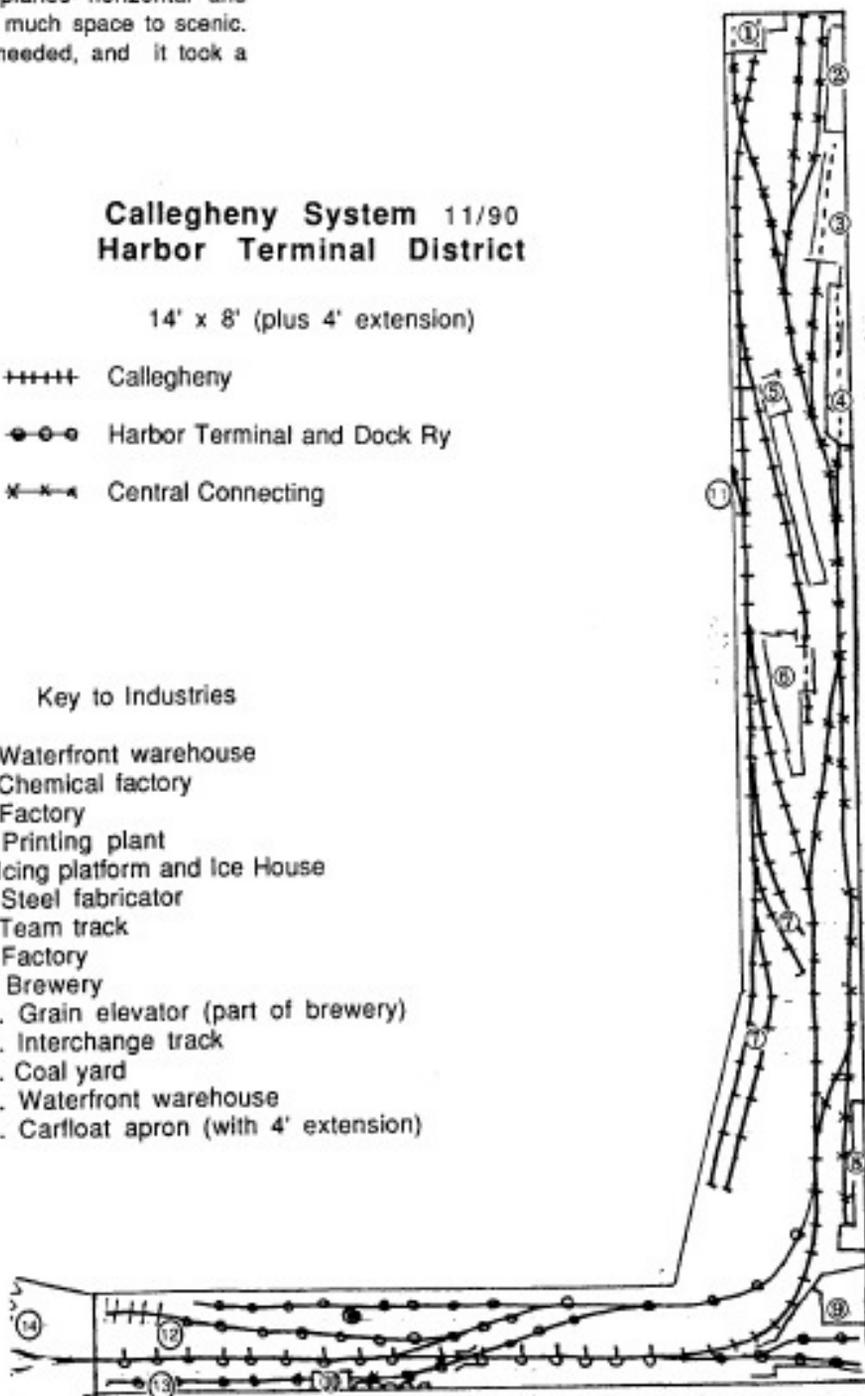
### Callegheny System 11/90 Harbor Terminal District

14' x 8' (plus 4' extension)

Key to trackage: +++++ Callegheny  
●-●-● Harbor Terminal and Dock Ry  
\*-\*-\* Central Connecting

#### Key to Industries

1. Waterfront warehouse
2. Chemical factory
3. Factory
4. Printing plant
5. Icing platform and Ice House
6. Steel fabricator
7. Team track
8. Factory
9. Brewery
10. Grain elevator (part of brewery)
11. Interchange track
12. Coal yard
13. Waterfront warehouse
14. Carfloat apron (with 4' extension)



## Lineside

**WHAT'S WRONG WITH A COOKBOOK?** Some of the dissatisfaction in this layout, however, came from the fact that the original track plan was from a cookbook. To improve your enjoyment, why not adopt the theme of the Pittsburgh Limited 1990 Convention and try "LEARNING FROM THE PROTOTYPE"--namely, look around you and use your shelf layout to model specific scenes.

**LOOK AROUND YOU**--Now almost everywhere you go you can find such scenes. These would be actual scenes with minimal backgrounds. I showed a waterfront yard in my clinic for starters. Scenes with more complicated backgrounds can be handled by taking a photograph of the scene and using the relatively inexpensive photomurals you can have made from the slide (or a color negative) as your backdrop. You can get a 16" x 20" for under \$20 in many places.

**LOW-ANXIETY STRUCTURES**--As for foreground scenery and structures, again, look around you. Rather than using stock commercial structures, consider kitbashing them to resemble actual ones in scenes you are familiar with. But wait a minute! Here is where that fear of activity that keeps us in the armchair arises. We may have apprehension about cutting up those nice plastic structure kits and running the risk of ending up with something that falls short of Art Curren. The solution: Use the plastic kit parts as patterns for cardboard mockups which we paint with cheap acrylics. That way we can build up the real thing some day from the plastic if we like the result. Otherwise we modify it if the track plan changes or if we don't like it. In either case, we have not risked a lot of time and a valuable kit yet. Result: low anxiety and, once we add a little color with the quick paint job, a suggestion of reality. Some final comments and notes on the urban shelf layout:

**ROW HOUSES**--With some of your scenes based on street trackage, there are now plenty of plastic row house type structures readily available to line your streets and give a prototype mix of monotony and variety.

**PIPES**--If you look around, you will even see scenes where the prototype has converted

pipes in the basement to smokestacks--or at least that is what your imagination can suggest.

**LOOK FOR THE ELEMENTS OF STRUCTURE**--Simplifying the complex: Analyze apparently complex scenes into their structural elements--cones, cylinders, rectangular solids. Then make the cardboard mockup based on this simplified analysis.

**IN-PLANT TRACKAGE**--Do you have a seemingly useless corner of the room to deal with? Consider filling the space with a factory which has an in-plant railroad with small yard and sharp curves. You probably won't even operate it. It will be more like a scenery element. But this gives you an excuse to park substandard cars and small switchers you can't think of anything else to do with in the background.

**LOCOMOTIVE FACILITIES**--No room for a roundhouse and turntable? Often, urban and industrial railroad operations just park and fuel their engines on a dirty and greasy siding.

## BIBLIOGRAPHY

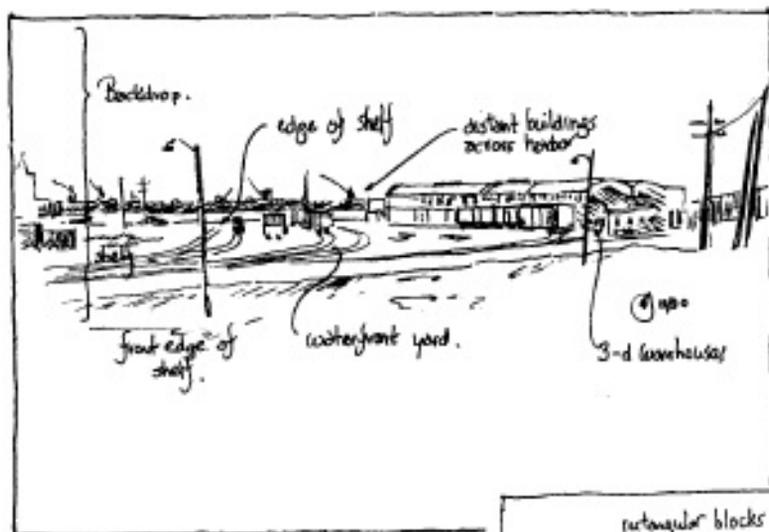
### SOME SHELF LAYOUTS THAT HAVE APPEARED IN THE MODELING PRESS

Here is a selected list of track plans I surveyed when looking to revise my present layout. There were many I came across that had a certain appeal to them on paper. However, I have listed those which avoid my perception of potential operating drawbacks as well as those that lack a good prototypical flavor.

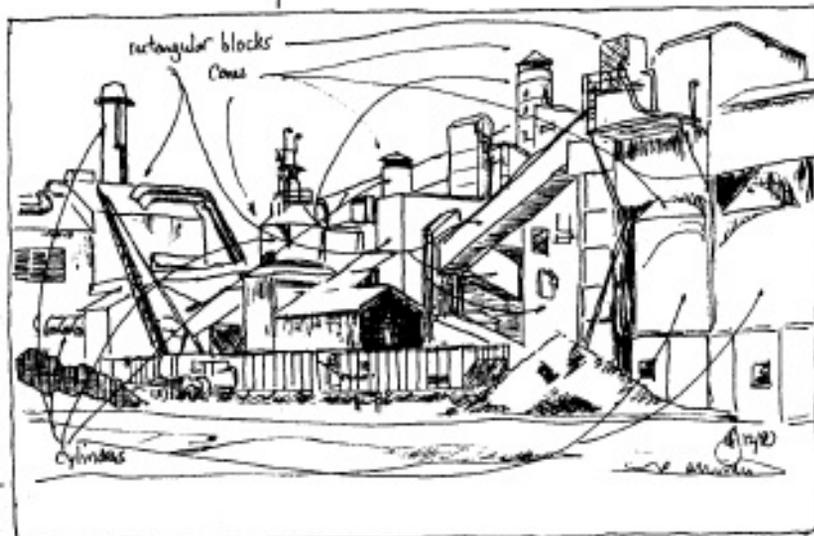
"Gum Stump and Snowshoe", by Chuck Yungkurth. 9/63 Model Railroader, pp. 51-57. 1' x 6'. The GS&S deserves special notice. This article is the original article which shows the GS&S as a progenitor of the Bellefonte and Snowshoe. A subsequent article, "Operation on the Gum Stump and Snowshoe" appeared in 4/66 MR, pp. 32-33.

# Lineside

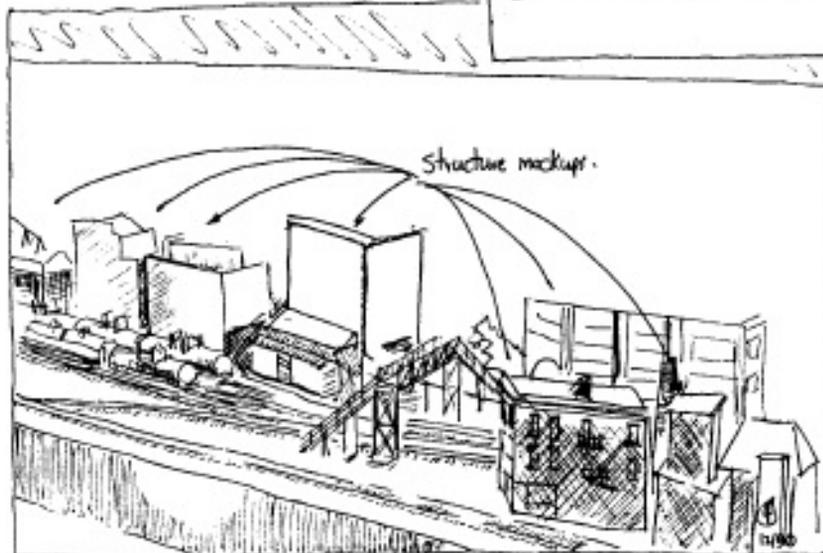
Blending with the backdrop.



The complexity has simple elements



Structure Mockups



## Lineside

A number of subsequent plans have been published based on this little module which is visually appealing but which has some serious operational limitations. Thus the reason I mention it is to discourage you from trying it. If you find it appealing, however, consider at least the following derivatives:

"The Cornet Lines" by Don Mitchell, 2/89 Railroad Model Craftsman, pp 81-83. 8' x 18." Urban as opposed to Chuck's original rustic scenery, and larger to offset some of the operational problems.

Robert Smaus' layout, Model Railroader, 10/89, pp. 70-74. 2' 11" x 11". Exquisite urban scenery effects (plus some rustic also) and substantially expanded size.

"The Third Street Industrial District," by Bill Bauman, 11/85 Model Railroader, p. 116. 2' x 10' A viable, multi-level plan, I think more practical than the original GS&S.

"Railroading for City Lovers," by Larry Fogard, 3/86 Model Railroader, pp. 100-101. Another multi-level scene more viable than the GS&S.

Here are some other shelf layouts or ideas not necessarily based on the GS&S:

"Industrial Park Railroads" by the "Layout Doctor" Railroad Model Craftsman, 10/63 pp. 22-23. These are two layouts that illustrate what might be the outer limits of elaborate trackage (crossings, etc.)

"Pratt Street Manufacturers Railway" , by John Armstrong, 5/54 Model Railroader. This is a nice, crowded shelf.

"South Manchester Terminal RR" by John Armstrong, 10/52 Model Railroader. A nice, packed series of track clusters winding around the walls of a 9 1/2' x 11' bedroom.

"Track Plan No. 13." by John Armstrong, Atlas Custom Line Track Plan Book No. 1, p. 31. Takes up two walls, designed to be built using snap-track and has lots of nice, flat industries. I have seen this effectively incorporated into a larger layout.

"Milwaukee Road's Kingsbury Branch," by Randall M. Willis, 4/75 Model Railroader, pp. 52-57. 4' x 24' The layout as designed is quite sizable and I'm not sure that anyone short of a club would want to take up so much space with a warehouse district. However, it is nicely prototype-based and illustrates the thought of plenty of run-around tracks. Sections of it could be used as ideas.

"Belt Line Railroad," by John Armstrong, 1/55 Model Railroader, pp. 56-60. The S-scale track plan fills the walls of a basement rec-room, but individual scenes are worthy of replication, and some of his conceptual material is very useful background reading.

"By the Beautiful Sea," by Russell Schoof, 10/90 Model Railroader, pp. 108-111. Around a 10' x 11' room. Not prototypically based but with a heavy prototype flavor.

"Port of Los Angeles Railroad," by Robert Smaus, 12/90 MR (Part 1), pp. 104-110. Very nice prototypical flavor, good step-by-step techniques. 3' x 6'.

"The Wanatah, Wellsboro & Walkerton RR. " by Ed Vondrak, 11/82 Railroad Model Craftsman, pp. 92-93. 14' x 15" with a 6' 6" x 15" wing. This layout has a simple, restrained elegance in its scenery effects--this is the opposite of some of the above "packed" track effects.

"Stacked Main Lines for Mileage" by David Maguire, Model Railroader, 11/66, pp. 36-37. He shows how to couple shelf modules together with main lines to give long runs. Since this article was written, a number of other published plans have used this concept. coming next: Adapting the iron and steel industry to your shelf layout--Structures and Rolling Stock

[Continued next issue]



Train of ladles.

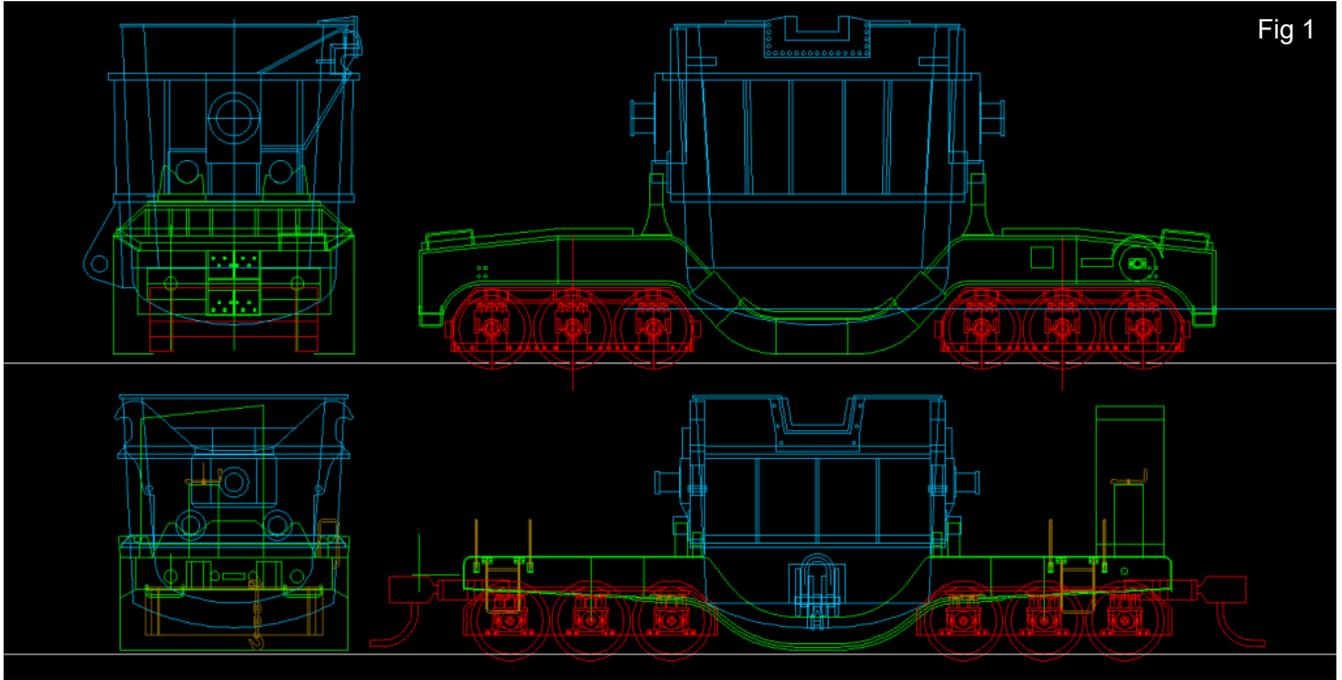


Fig 1

"These cars were built in the 1950's by Junkerath for Cockerill-Ougree as part of a big modernization going on in that era. At this point all operations around Seraing were still fairly compact and local so there was no need for torpedo ladles to prevent heat loss during longer travels as the distances were all fairly short. After steel production was moved to Chertal and the steel plants closer to the blast furnace were closed in 1984 this meant the end for these ladle cars. For some reason 3 of these cars managed to survive since then, sitting on a siding in Ougree, together with 3 heavier Paul Wurth ladles of Esperance-Longdoz origin."

So, good old eyeballing again, resulting in a 2D cad drawing (Fig 1). I did also draw the fat Espérance-ladle because, well, I don't need it and it takes quite a lot of time.

In an unprecedented rush of modernity I actually managed to draw some more complicated bits like the actual ladle and the wheel bearings in 3D so they could be printed at work.

The rest of the cars would be just old fashioned cnc-milled styrene sheet and some etched

bits. As this wasn't particularly interesting to design I managed to put it off for a couple of months, got bored with the lack of progress while still not wanting to properly design it so made it a late night sketchy rush job, milled the parts at work the next day and the whole thing went together reasonably well so

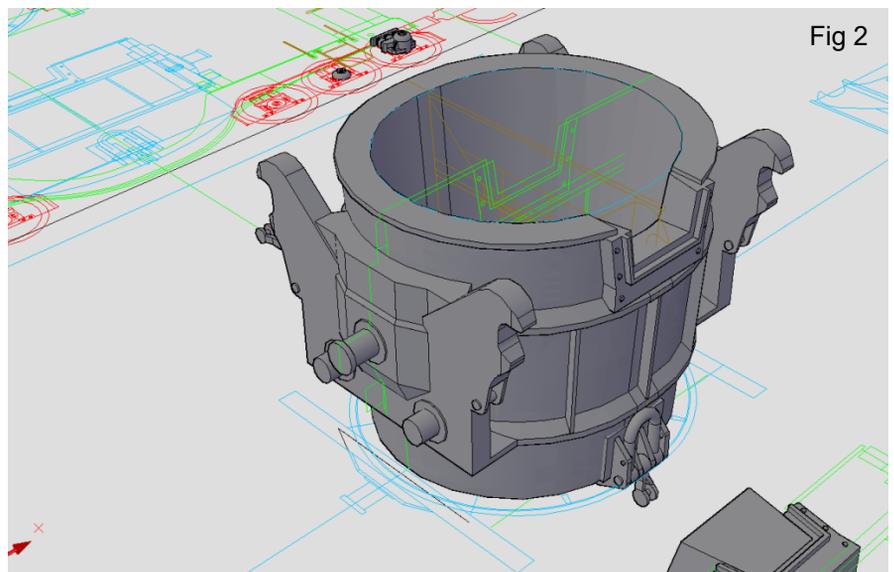


Fig 2

everything went better than expected. As I wanted more than 1 car I made some castings of the styrene and 3D print-parts, smuggled the etchings in between some Artitec test orders and waited a bit.

As castings and etchings came in it seemed keeping the rather thin frame straight could be a bit of a challenge, but so far my models seem ok. So, I quickly assembled 1 car to check if everything worked out as planned, well, it pretty much did, then I lost interest again, reworked the car as a flat car



load of a disassembled ladle car for Artitec, finally assembled two more (Fig 3, 4, 5).

I finally got around to paint and weather them. I'll go into a bit more detail here: First the cars got their pre-paint-weathering. In this case this mean putting some sand / pva-glue muddy mixture on pretty much all horizontal surfaces, then sprinkle some very fine sand/dust over the top of it (Fig 6).

The first layer of paint, Humbrol Black Matt (33), on top of that slightly transparent rust Humbrol Red Brick Matt (70) and Leather Matt (62), about 2:1 ratio (Fig 7).

After this had dried overnight I painted the dirt with a mix of Humbrol Black Matt (33) and Dark Earth Matt (29), about 1:1 ratio, and painted on some white numbers. After this the whole car got a wash using Humbrol Black Matt (33). (Fig 8).

Next I got out the oil paints. Just added some small bits of

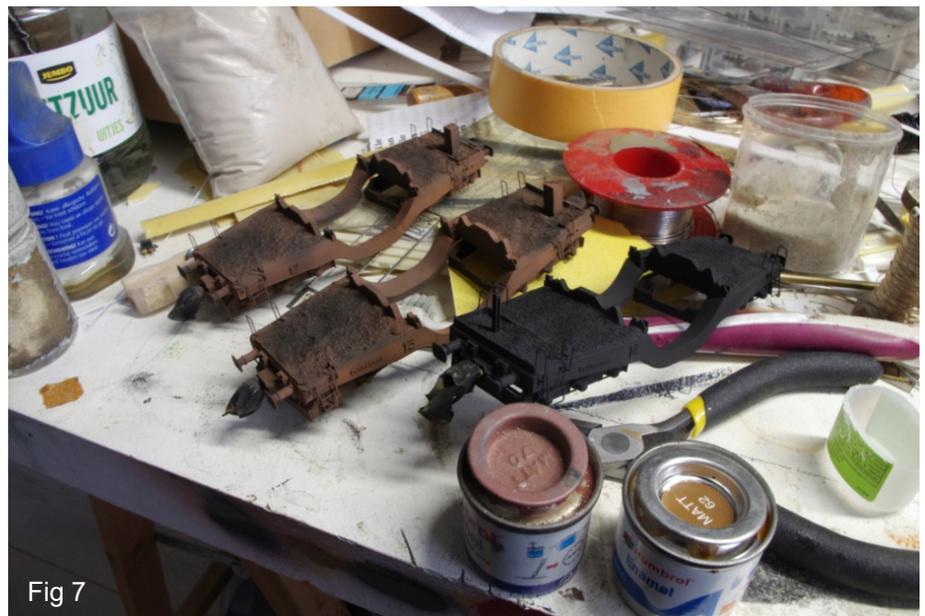


Fig 7



Fig 8



Fig 9

burnt and raw sienna, Vandyke brown and zinc white (Fig 9).

Then wiped them away into streaks with a wet brush. This

also damaged the numbers on the ladles a bit as they hadn't really dried yet (Fig 10, 11). I rather liked that actually.

Numbers on cars like this are repainted very often and not very carefully.



Fig 10



Fig 11



Fig 12



Fig 13

I felt some green algae was missing so I mixed up a nice tone of green using chromium oxide green and raw sienna and applied green streaks using the same method (Fig 12, 13).

Then some new numbers were slapped on (Fig 14).

A bit of drybrush using Humbrol 72 Khaki Drill Matt and the paint looks good enough for now. In the background some scenery stuff for the next step (Fig 15).



Fig 14



Fig 15



Fig 16

The real cars in Ougree had a proper jungle growing on the dirt on the frame. As I am modelling an earlier era I won't make a proper jungle but some bits of grass would be nice of course. For this I used some scenery products by Martin Walberg.

Just cut some tiny bits and glue it on, basically (Fig 16).

Well, time to put these things on the layout and take some pictures (Fig 17– Fig 24)!



Fig 17



Fig 18



Fig 19



Fig 20



Fig 21



Fig 22



Fig 23



Fig 24



Fig 25

These cars must have looked fairly spectacular passing the level crossings in downtown Ougree. Strangely I never saw a picture of it, though this must have been a daily sight for almost 30 years.

For those who like Pristine ladles better, you're in luck, Artitec 487.801.84 might just be what you're looking for to put some flatcars to work (Fig 26, Fig 27).



Fig 26



Fig 27

So, that's the ladle car story for now. Maybe I'll build those Espérance things at some point, I do already have castings of the ladle and bogie sides... And a little gem had managed to survive inside the Cockerill works until 1988, buried in between a pile of old rollers, wouldn't be surprised if that thing would make it to a model and hence into this blog at some point. we'll see.

Cheers!

Floris

### Double Pot Slag Car by Richard Middlekauff



Once again I convinced myself that I could do a two evening project for a couple of dollars and plop it on the layout. And once again I was wrong. Years ago at a EuroTrains show I picked up 4 ho scale slag pots for a buck a piece. They were nice but had no pivot points or crane rings on them and they sat upside down beside the ladle shop for a long time. I never really had a use for slag cars so I never researched them very much. While perusing this new-fangled internet thing I came across a photo of a flatcar with a pot at either end and the entire thing covered in release slurry. It was odd, hideous and of course I felt I should have one... or two on the layout.

Using the ever-ubiquitous Tyco flatcar (Photo2) that I bought for a dollar at a local flea market I set out to build this

simple quick build. Yeah, right! It could happen.

Using the photo as reference and some eyeball engineering I made some support stands for the pots. I needed some thick plastic sheet and trying to keep

this as cheap as possible I dug around my plastic catch all box and found a sheet of .060 Plastruct gray plastic. I cut 4 squares 30 mm by 25 mm to use as the upright supports. On one of the 25mm end of each sheet I measured in 7 mm and then



Photo 2

down 20 mm. I did this on both sides of the sheet (Figure 1). I quickly realized why I despised this plastic when I started modelling as it is difficult to cut, difficult to sand and file and difficult to glue together unless you use the glue made specifically for this type of plastic. If you are going to try this get Evergreen .060 sheet plastic. Much easier to work with.

Now cut the fillets of plastic from each sheet. Save them as they will become part of the support stand. Now sand all the cut edges fairly smooth and somewhat square....this is steel mill modeling so close is good. I found some Evergreen wide C channel and cut 4 pieces of that 30 mm long to use as outside bracing on the support stands. I also had to nibble off the bottom corners of the sheets to get them to sit flush on the deck of the car because there is a slight slope on the edges. I glued the sheets to the deck of the car but I only glued the end at the end of the car. I glued the C channel on the outside of the sheet and the fillets on the inside of the sheet. I placed the fillets at the edge of the trough that runs through the center of the car. I made trunnion pins out of thick Evergreen tubing and glued them to the top of the pot. I used the pot to figure out the location of the inner support sheet and glued it in place. I also added a stiffener to the outside of the inner sheet to help keep in somewhat square using the .060 sheet plastic. Photo 2.

I repeated the process for the other end. Photo 3

Fig 1

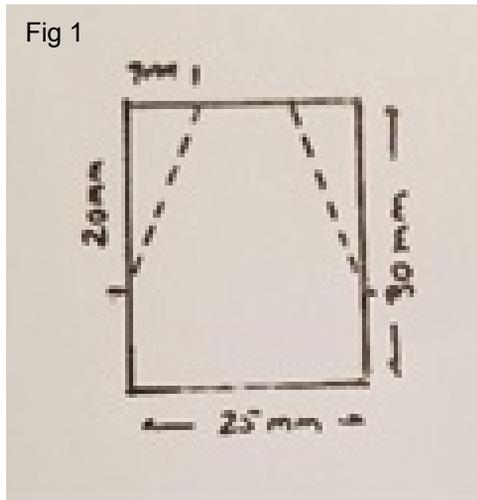


Photo 2



Photo 3



Photo 4

Once the assemblies dried I used a Dremel Tool with a barrel grinder bit and ground out the tops of the stands for the trunnion pins. I placed the pots on the car and was very pleased with the look of it. Photos 4 & 5



Photo 5



Photo 6

I added lift rings to the bottom of the pots and was very happy with the car. Two evenings, no bleeding or stitches and I was nearly done. Then I tipped one of the pots and realized my design would dump pretty much all the slag on the deck of the car. So I popped off the trunnion pins, made new mounting plates for the pins out of .030 styrene and moved them down under the middle ring of the pot. I fired up the Dremel Tool with a cutting disc and cut off 10 mm from the top of each stand. I used the barrel cutter and cut new notches for the trunnions. Photo 6 & 7.



Photo 7



Photo 8

I added Kadee couplers and metal wheelsets to the car. I glued cinders and ballast to the deck for texture. I found some Rustoleum Bare Metal Primer that is a very light grey in color and when it dries it looks like the slurry that is sprayed on these cars. I gave the car and pots a couple of light coats and did not worry about bare spots as the real cars have a very uneven coating on it. I guess now I need make one or two more cars similar to this. Definitely not a two evening project but a lot of fun anyway!

Like the real mills its homebuilt, robust and cheaply made.

Rich Middlekauff

Ahl Iron

Carlisle, Pa.



Photo 9



## Scaletrains.com Rivet Counter HO Scale Thrall-Trinity 42' Coil Steel Car

**Prototype:** In the mid-1990's, Thrall Car Manufacturing introduced their 42' coil car. This car shared many traits common to other Thrall built coil steel cars including the basic body construction and jack pad design. The two major differences were the shorter car length and use of a single hood instead of two.

In 2001, Trinity purchased Thrall Car Manufacturing and continued building the 42' Coil Car until 2012. Trinity relocated the end handrails from the ends of the hood to the ends of the car.

These cars are often seen in

singles or small groups roaming North America.

**Model:** Included details to be applied by the buyer are four hood guides, load dividers, and five coil loads that are weighted, and a sticker sheets for the coils.

The hood guides are tricky to apply. There are left and right guides and I recommend looking at the instruction when applying these and a small dab of CA will hold them in place. These are left off do fragile during shipping

**Comments:** I'm overall impressed with these cars. Like all ScaleTrains.com models, the

### Facts & Features

**Price:** \$58.99

**Manufacture:**

ScaleTrains.com  
7598 Highway 411  
Benton, TN 37307

[www.scaletrains.com](http://www.scaletrains.com)

**Era:** 1990 to current

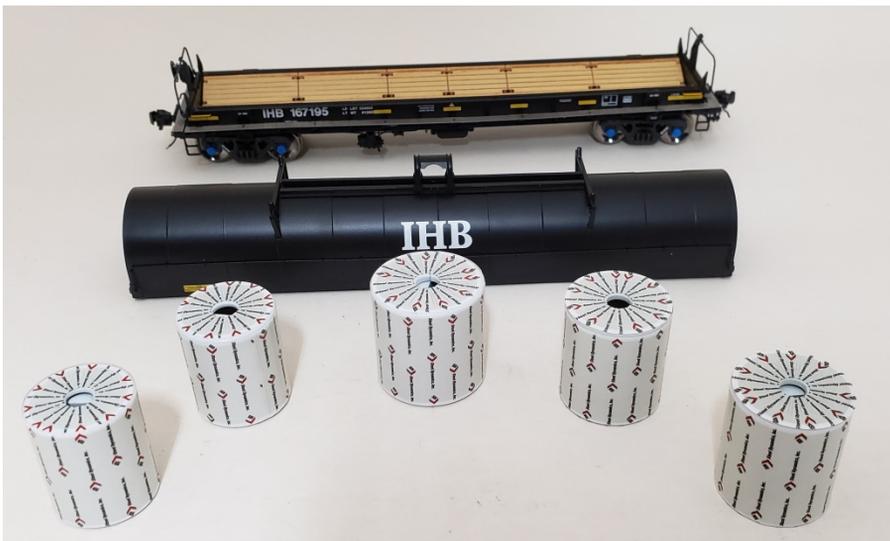
**Road names:** Conrail; Canadian Pacific; Norfolk Southern; Indiana Harbor Belt; Chicago Heights Terminal Transfer

**Features:**

- Factory-applied metal grab irons, coupler cut levers, and trainline hoses
- Weighted to Industry standards for reliable operation
- There are three different body types, but each railroad doesn't necessarily have all three types
- Six different removable hood types with up to 47 individual parts per hood

details are amazing and operate flawlessly on the layout. Some details are difficult to apply, but this car is a welcome model on any layout running modern day equipment.

For more information and videos of these cars in operation, visit [www.scaletrains.com](http://www.scaletrains.com) and their [YouTube Channel](#).



# Modern Steel Mini-Mills Details For the Modeler

By Phillip H. Burnside

I had a chance to read "*Modern Steel Mini-Mill Details for the Modeler*" by Phillip H. Burnside. This book focuses on the operations of a mini-mill as well as how to model one. If anyone wants to model a steel mill but doesn't have much room to work with, then this 14 chapter book has a wealth of information on how to do so in a limited space. This book provides information from the raw materials used in mini-mills, to the process that these materials go through to produce steel. Also included are ideas on modeling and operating one.

Chapter 1 takes a look at the history of the electric arc furnace (EAF), what I would consider the heart of a mini-mill as well as short history of the Nucor Corporation, which is one of the largest steel producers in the United States. This chapter also covers the 10 steps most mini-mills generally follow in the steel making process.

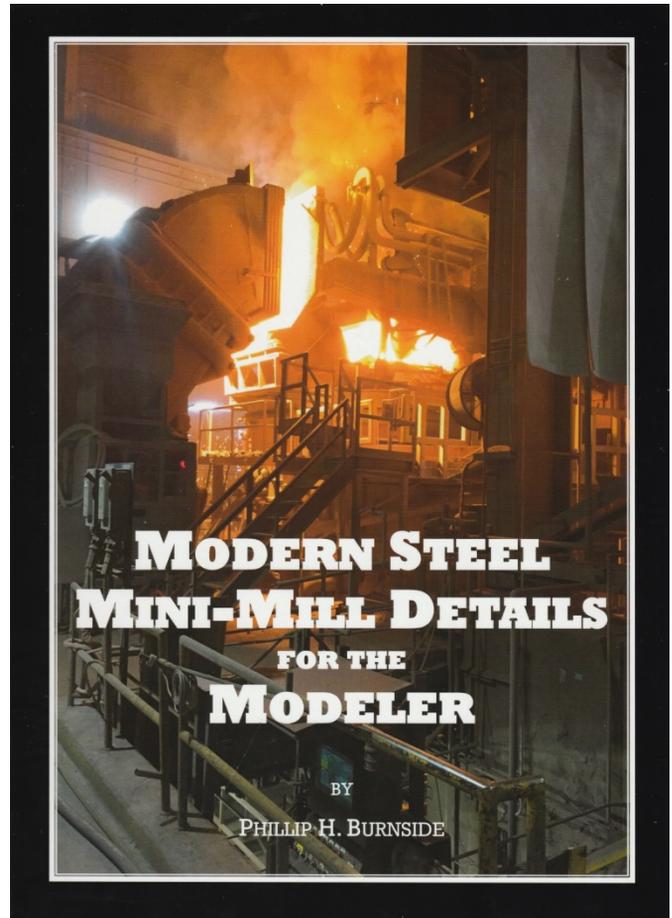
Chapter 2 is an in-depth look at the materials that are used including scrap and raw materials. An interesting part in this chapter is scrap classification, which covers how it is handled, how it is transported to a mill, and where it goes once inside the mill.

Chapter 3 focuses on the EAF. Starting this chapter is a look at the scrap charging bucket. These specially designed buckets are loaded with scrap and then moved to the EAF, where the scrap can be loaded into the furnace. This also gives an in-depth look of an EAF operation and the general parts that make up an EAF.

Chapter 4 is on handling slag. This chapter describes how slags is transported inside the mill, an interesting section on a Kress Slag pot carrier, and the products that can be made from slag.

Chapter 5 gives information on the ladles used for moving molten steel, an in-depth look at the ladle cranes that move these massive buckets of molten steel inside the plant and the cleaning and preparation process that these ladles go through between usage.

Chapter 6 introduces a Ladle Metallurgy Furnace (LMF). This is where the steel is further refined and



heated to the appropriate temperature before being sent to the continuous caster. There is also a look at a refractory lining facility and ideas on modeling a LMF.

Chapter 7 describes the first steps in making steel coils including how the ladles are handled on a ladle transfer trolley to the continuous casters where molten steel is solidified so it can be cut into slabs.

Chapter 8 explains how the tunnel furnace is used to regulate the reheating of the slabs before being sent through the rolling mill.

Chapter 9 shows the equipment that is used in the rolling process. It depicts how slabs of steel are pressed and rolled into thin sheets of steel

Chapter 10 coil rolling is described further in this chapter. This chapter covers the equipment used in the handling and transporting of these coils.

Chapter 11 explains the cold roll mill. This includes the pickling line, the process where the steel's surface is cleaned. Also described in this

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Figure 3-48: Model of the slag pot under the EAF



Figure 3-49: Model of an EAF in the melt shop

chapter is the galvanizing and plating process.

Chapter 12 covers additional detail of the EAF and LMF building. This chapter includes information and modeling tips for roof top details and support structures as well as how these are used in a mini-mill.

Chapter 13 has information on the modeling techniques for mini-mills. These techniques include using drawings and transferring them to CAD software so that the drawing can be printed using a 3D printer. This chapter also adds suggestions on using 3D printers, LED for lighting effects and how to model the sounds of a mill.

Chapter 14 explains the railroad operations within a mini-mill from a modeler's point of view. This includes how to plan switching operations as well as staging and inter-plant switching.

This book has a wealth of information covering the steel making process using an EAF/mini-mill. There are many ideas on modeling one of these mills given in this book, but most of them are using a 3D printer. Altogether, Phillip has done an excellent job on this book.

**Lifblood  
of a Mini-Mill**

**Electric Arc  
Furnace**

**Handling  
the Slag**

**Molten Steel  
Ladle**

**Ladle Metallurgy  
Furnace**

**Conversion from  
Molten to  
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**Tunnel  
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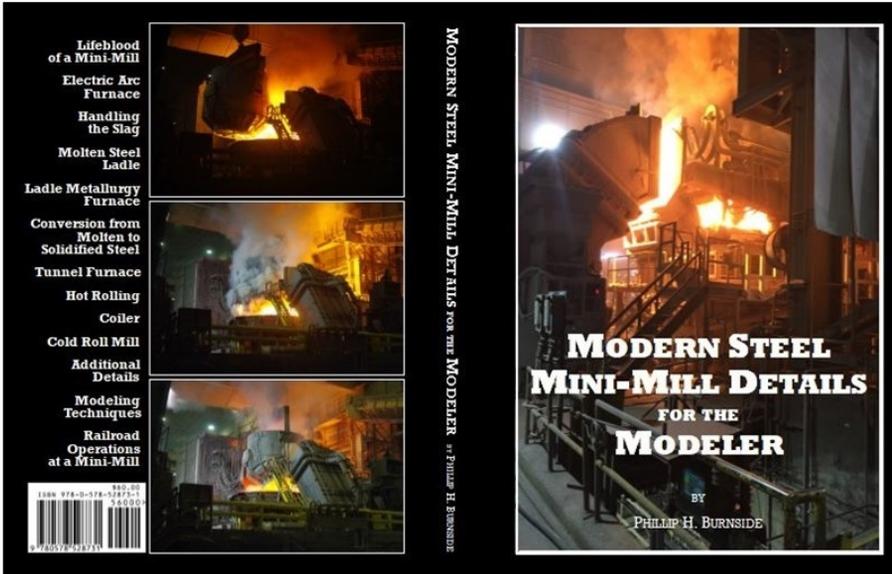
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# Modern Steel Mini-Mill Details for the Modeler

by  
**Phillip H. Burnside**  
phillipsfoundry@yahoo.com

What started as a chance encounter with a Nucor company executive led to an incredible opportunity for private tours to photograph the interior of a modern steel mill. Knowing that most visitors are not allowed to take photographs inside these mills, and with the assistance of Nucor, the author is sharing his experiences and newly-found knowledge by writing this book. With over 300 photographs, drawings and diagrams, this book explains the various steps and describes the equipment used in a modern steel mini-mill. It also illustrates the techniques used to build a model of the Nucor facility in Crawfordsville, Indiana.

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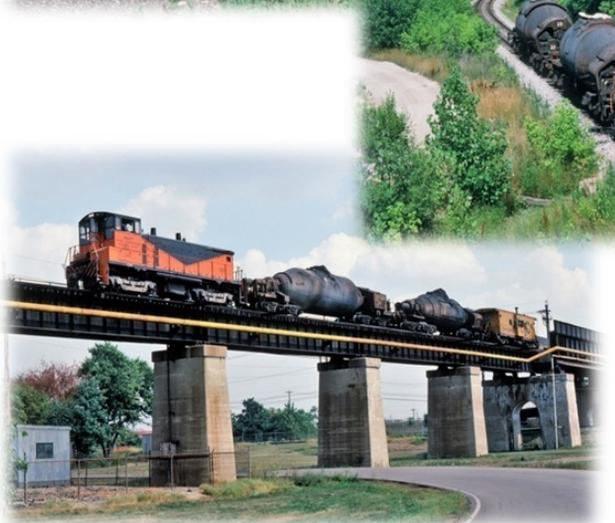
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Frank Sabo is currently writing a book on Armco Steel -AK Steel. He is looking for images of Armco locomotives both roster and action, rolling stock, and also photos of any of Armco's structures. These photos can be from any year or any plant. If you would like to make a photo contribution, please contact Frank by email. The book will be published by Morning Sun Books with a release date sometime in 2020. Frank Sabo can be contacted through his email [SP\\_Lives@rocketmail.com](mailto:SP_Lives@rocketmail.com) or Facebook page. <https://www.facebook.com/frankie.sabo>



**Youngstown and Austintown Railroad**

The Erie Railroad Leadville Branch

1871-1886

**5 Miles Gone and Running**

The Ohio Central 1986-2019

Wayne A. Cole



A heavy loaded Y&A train moves off the old Erie Leadville Branch preparing to cross CSX tracks at YANDA. A Bud Puskarich photo

**NEW in Sept 2019:** 60 page booklet on the “perhaps” the oldest operating short line in Ohio. 60 pages 31 bw/ 29 color, very nice coil bound copy. (very similar to my Y&S Special Edition last November 2018, a few left) Originally I was going to include the Y&A in future Ghost Rails XVII Y&N RR and USS Ohio Works but 60 additional pages increased size and cost. But the Y&A was a nearby railroad very old, half abandoned, and sections still operated today by Ohio Central. I could not let it go; thus, this very genealogical complex early line 1871 preceded Volume 17. The booklet goes mile by mile from Erie RR Brier Hill yard, across the Mahoning River to a connection with P&Y narrow gauge, later B&O YANDA, then mile by mile past mines and industries to the end at Tippecanoe. Early photos were tough to come by, but 100 plus photos and maps and a super timeline make this an easy and informative read. Some good stories. Great maps to study. Essential to history of Eastern Ohio! For steel mill folks, ouches on USS Upper Union Mill and Youngstown Steel Door. Hopefully, the Y&A along with Ghost Rails 16-18 (?) and Y&S will fill in the very complex pieces of Youngstown.

*Future Ghost Rails XVII Y&N and USS Ohio Works, P&Y and OML B&O is near completed on the PC. Perhaps spring 2020*

Abundant 1980s Ohio Lakes area view of Republic Steel "L" bridge from completion from the old Center Street bridge. This Mahoning River party reflects the past. Below: 1980s view of Republic Steel Youngstown open hearth. Right: Blast furnace at 1980s Republic Steel, KCM collection.

**GHOST RAILS XVI**  
**REPUBLIC STEEL YOUNGSTOWN**  
**CENTER STREET, POLAND AVENUE**  
**CRAB CREEK BASIN RAILROAD COMPLEX**  
 Wayne A. Cole

A RR scene view from the old Center Street bridge, August 8, 2018. The view is from the north looking south. The Republic Steel Youngstown facility is visible in the background. The narrow gauge tracks are visible in the foreground. The view is from the north looking south. The Republic Steel Youngstown facility is visible in the background. The narrow gauge tracks are visible in the foreground.

**5 months old, not new. Be careful you may have this volume.** Ghost Rails XVI Republic Steel, detailed history of the Republic Steel in Youngstown and the surrounding railroads on Center Street, Poland Avenue. The author notes the narrow gauge “submarine” engine on the front cover is a photo of the late Bill Nixon, railroad photographer. Lot of B&O, Erie, Y&S as well as maps.

*Check out my **ghost rails** Facebook page for more info, photos, Ghost Rail books.*

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- Annual Steel Mill Modelers Meet – The annual meet is held some time from mid-August through Labor Day weekend from Thursday evening through Sunday morning and features steel mill modeling clinics, layout tours and where possible prototype tours.
- Quarterly “Steel Mill Modelers Journal” – The journal serves as the official newsletter to members and contains articles and data that pertains’ to steel mill design, operations and modeling. Also featured are product releases and how to find information.
- Clinic Slides and Presentation Material – Presentations from the annual meet are available.
- Plant Directory – Have your layout listed in the steel mill plant directory. Use this directory to contact other modelers who have steel mill operations on their layout.
- Reference Exchange – Share blue prints, photos, reference materials, member designed and constructed unique steel mill features and details.
- Dean Freytag award – Be judged by your peers and earn this prestigious award at the annual meet for excellence in steel mill modeling.

## DUES

- \$60.00 per year for US members
- \$75.00 per year for International members (the additional dues for international members barely covers the cost of postage to send out the Journal).

For more information on dues, member benefits, membership, and the annual meet please contact the SMMSIG

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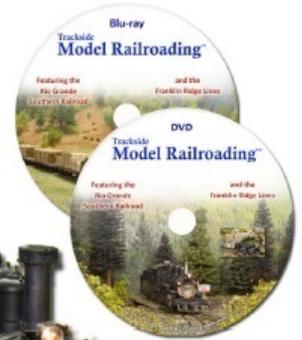
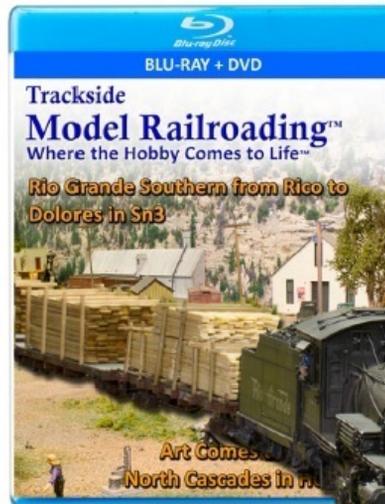
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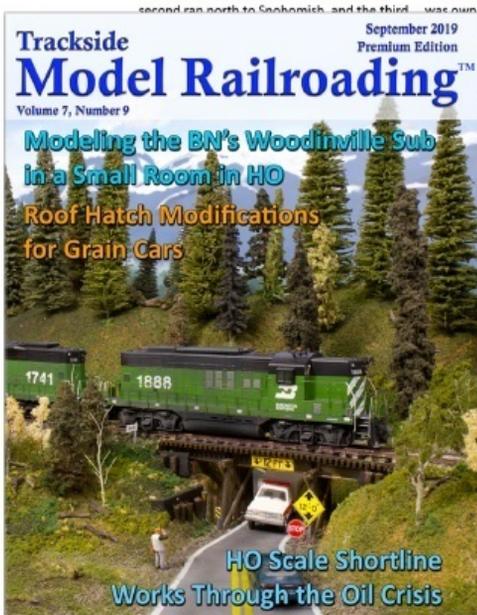
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From Woodinville, one leg of the wye headed west to Bothell, Kenmore, and Seattle, the second ran north to Snohomish, and the third... CB&Q formed the Burlington Northern, the route known locally as the "Eastside Beltline" was owned by the BN. As a concession of the Milwaukee Road was granted rights over the former Northern route and used it to access its remote Ellingham, and Sumas operations to

the north. Unlike the BN, which operated mostly shorter locals on the line, Milwaukee ran long trains with six-axle GEs on a line that was never intended for such heavy service. Brian shared, "There are many reports that BN operators were shocked when they first

learned that Milwaukee was running 80-plus car trains over the line. After Milwaukee abandoned its "Lines West" in 1980, the line reverted to its branch line status." The Woodinville Subdivision passed to the BNSF after the BN/AT&SF merger in 1996.



The Kirkland Turn travels through Redmond. The city is the southern terminus of Brian's Woodinville Sub layout. It sits east of Seattle on the other side of Lake Washington and at the north end of Lake Sammamish. It began as a logging town, first incorporating in 1912. It grew significantly in the 60s and 70s, partially thanks to a number of high-tech industries that made the town their home.

## Steel Mill Related Videos

Green Frog Productions

\*Styrene The Ideals, Tips and Techniques of Dean Freytag.

PCN Tours

\*Joy Mining Machinery

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\*Super detailing a Walther's Blast Furnace Part 1

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Model Railroader's Dream - Plan - Build

\* Railroads and Steel

Videotrain

\*The Union Railroad

### \*Morning Sun Books

By Stephen Timko

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Steel Mill Railroads in Color Vol #2

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Steel Mill Railroads in Color Vol #4

Steel Mill Railroads in Color Vol #5

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Steel Mill Railroads in Color Vol #7

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10 RR local histories Ellwood City, New Castle, Leetonia, Sharon, Erie Niles Lisbon RR, E&P RR

### **Ghost Rails II Western Allegheny RR,**

Rt 422 Lake Arthur to Bradys Bend popular bk Lots of West Pittsburgh, Cascade Park, Kaylor, Queen Junction, Route 422 to East Brady

### **Ghost Rails III Electrics**

East Liverpool, Calcutta, Beaver, Salem, Rock Springs Park Chester, Steubenville, Leetonia

### **Ghost Rails IV Industrial Short Lines**

5 local rr histories, Wampum, Koppel, Beaver Falls, New Castle, Sandy Lake Note This book has the Beaver Valley RR from steel mill perspective quite different from the other Beaver Valley RR book listed above. Covers early German Koppel Car Company.

### **Ghost Rails V PRR Butler,**

Allegheny River to Butler USS Sintering Plant and steel mill sintering process

### **Ghost Rails VI Harmony Route**

(Beaver Valley Traction included) Tons of very local history, popular bk Lots of Ellwood, New Castle, Koppel, Beaver Falls, Butler, Pittsburgh

### **Ghost Rails VII Short Line**

Pittsburgh to Butler, other half of Harmony line history.

### **Ghost Rails VIII B&O Northern Sub**

Butler, Foxburg, Marienville , Mt Jewett, K&K RR, Kinzua Bridge, a little Tionesta Valley, Kane

### **Ghost Rails IX State Line Legend**

New Castle dynamite. Bessemer, P&LE Gateway yards, Sharon Steel Lowellville plant, critters, Narrow gauge, industrial limestone operations, Mt Jackson, Lowellville,

### **Ghost Rails X Iron Phantoms**

Aliquippa and Southern J&L Very popular steel mill book. Just had a very limited reprint March 2018

### **Ghost Rails XI Shenango Valley Steel**

New Castle to Sharon Sharon— tons of New Castle, history of Sharon Steel, Youngstown, Center Street, NS to Hubbard and Sharon. Good complex history!!

### **Ghost Rails XII Seamless B&W History**

Beaver Falls, Ambridge, Koppel touch of National Electric, Armco, AM Byers, PRR Economy Branch. Good steel mill history Beaver Valley

### **Ghost Rails XIII Hilliards Branch**

Butler County, and North Bessemer, Unity RR, Pa. Turnpike, PRR Plum Creek in Verona

### **Ghost Rails XIV Hallowed Ground**

Conneaut Lake, Linesville, Meadville, Mercer, Cheswick and Harmar RR, B&LE history, Harwick Coal Mine and Pa. greatest coal mining disaster

### **Ghost Rails XV Monongahela**

Connection RR, Pittsburgh J&L, extensive Pittsburgh history, Allegheny and South Side, PRR Whitehall Branch, B&O in Glenwood, sister book of Volume 10

### **Ghost Rails XVI Republic Steel Youngstown**

Detailed history of Republics Steel Youngstown from 1850 to its demise in 1980s and the aftermath.

### **Keystone Driller history**

industry in Beaver Falls, early well drilling, steam, diesel, electric

### **Youngstown and Southern / Pittsburgh Lisbon and Western**

Special Edition to Dick Mumma last Y&S Superintendent, Coil bound, 75 pages / 26 color, new photo collection covers Ohio Central Y&S operation and Y&SE to 2018

## **Steel Mill Related Websites**

### **Groups**

\*Steel Mill Modelers Special Interest Group

<http://www.smmsig.org/>

### **Facebook:**

\*Bessemer Subdivision

<https://www.facebook.com/groups/787429424621662/?fref=nf>

\*Bessemer and Lake Erie Railroad Sightings Page

<https://www.facebook.com/groups/1029716723816394/>

\*Birmingham Southern-Fairfield Southern

<https://www.facebook.com/groups/337021349697833/>

\*BSRR/FSRR

<https://www.facebook.com/groups/471524686212350/>

\*Coal Critter of Kentucky

<https://www.facebook.com/groups/446906699000395/>

\*Harrisburg Terminal Railroad

<https://www.facebook.com/Harrisburg-Terminal-Railroad-271356453384157/>

\*Chicago Area Steel Mills

<https://www.facebook.com/groups/1679894998965838/>

\*Hot Metal Trains

<https://www.facebook.com/groups/1143908999010704/>

\*Iron Ore Modeling

<https://www.facebook.com/groups/559496990829520/>

\*J&L Narrow Gauge Railroad

<https://www.facebook.com/groups/rolling.ingot/>

\*Munhall, Bessemer and Port Perry

<https://www.facebook.com/munhallbessemerandportperry/>

\*New Boston Steel Mill and Coke Plant

<https://www.facebook.com/groups/349284928484151/>

\*Timber River Railway

<https://www.facebook.com/groups/1591376621172524/>

\*The Splitrock Mining Company layout

<https://www.facebook.com/The-Splitrock-Mining-Company-layout-326394957565987/>

\*Steel Mill Modelers

<https://www.facebook.com/SteelMillModelers/>

\*Steel Mill Modeling

<https://www.facebook.com/groups/708840849171343/>

## Facebook: Continued

\*Steel Mill Pictorial

<https://www.facebook.com/groups/1561038727264008/>

\*U.S. Steel Duluth Works

<https://www.facebook.com/groups/101591233225098/>

\*Youngstown Steel Heritage

<https://www.facebook.com/SteelHeritage/>

## Photographs

\*2007 Steel Mill Modelers meet

[http://www.pbase.com/jtunnel/2007\\_steel\\_modelers\\_meet&page=1](http://www.pbase.com/jtunnel/2007_steel_modelers_meet&page=1)

\*Arthur's Albums and Images

<http://www.rmweb.co.uk/community/index.php?/gallery/member/6861-arthur/>

\*Birmingham Rails

<http://www.bhamrails.info/>

\*Rick Rowlands

<https://www.flickr.com/photos/33523379@N03/sets/>

\*The Rust Jungle

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

## Layouts:

\*Acme Steel Riverdale BOF & Chicago BF Modeled in HO scale(1/87)

<http://www.trainweb.org/chicagosteel/index.htm>

\*Bethlehem Steel Layout

<http://www.brokenbushandroundtop.com/bethlehemsteel/>

\*Columbia River Steel Corporation

<http://www.prairie-works.com/crsc.html>

\*Dave Scale Modeling

<http://daveayers.com/Modeling/Steel.htm>

\*DK Recycling

<http://www.frankshuette.de/>

\*Forsten Online

<http://www.stahlbahn.de/index.php>

\*Harrisburg Terminal Railroad

<https://www.facebook.com/Harrisburg-Terminal-Railroad-271356453384157/>

\*Pittsburgh and Western Railroad - Paul Lapointe

[http://www.coaldivision.org/pittsburgh\\_and\\_western.html](http://www.coaldivision.org/pittsburgh_and_western.html)

\*Pittsburgh, Youngstown & Ashtabula RR

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

\*Stahlbahn

<http://www.stahlbahn.de/index.php>

\*Republic of Train World

<http://trainworldcity.webs.com/apps/blog/show/43914314-the-trainworld-city-steel-works-and-duluth-works->

## Blogs

\*KV&O and D&D Mining & Steel

<http://doncsx.blogspot.com/>

\*Musser Steel Mill

<http://mussersteelmill.blogspot.com/>

\*The Mill

<https://steelindustray.blogspot.com/>

## **Hobby Shops**

\*Industrial Model Shop

<http://industrialmodelshop.com/>

\*Joswood

<http://lasercut-shop.de/Joswood-Ltd>

\*KenRay Models

<https://kenraymodels.com/>

\*State Tool & Die

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

## **Yahoo Groups**

\*Harrisburg Terminal Railroad

<https://groups.yahoo.com/neo/groups/htrrco/info>

\*Steel

<https://groups.yahoo.com/neo/groups/steel/info>

## **Podcast**

\*A Modelers Life

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

\*Model Railroad Hobbyist podcast

<http://model-railroad-hobbyist.com/podcast/episodes>

\*The Roundhouse

<http://theroundhousepodcast.com/>

## **Manufactures**

\*Adair Shops

<http://adairshops.net/index.php>

\*FireCat Designs

<http://www.firecatdesigns.com/home.html>

\*Plastruct

<https://plastruct.com/>

\*State Tool & Die

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

\*Steel Mill Modelers Supply

<https://www.facebook.com/steelmodelerssupply/>

## **Museums**

\*Youngstown Steel Heritage

<http://www.todengine.org/>

## **Steel Mill Related Picture CDs**

Prairie Works

\* Minnesota Iron & Steel

\* Heavy Industry Postcards

\* Coper & Nickel

\* Tod Engine Project



Slag / HKM Duisburg  
Picture by Giovanni Pinna

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Hot metal car at Sloss Furnaces in Birmingham , Alabama.  
Taken April 6. 2018 by Don Dunn