

YouTube Model Builders eMag

A Free YouTube Model Builders e-Magazine
Produced by YouTube Model Builders.

BE PART OF THE
COMMUNITY

YTMB LIVE! SHOWS
YTMB HANGOUT SHOWS

VOLUME 3

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MARCH 2017

ARTICLES

YOUTUBE CHANNELS

COMMUNITY

TIPS & TRICKS

Fine-Scale Modeling

INSIDE THIS ISSUE:

- A Weathering How-To:
- Wall Signs
- Fine-Scale Modeling:
- Tips from the Pros
- Can I Do This?

Be Sure To Check Out Columns From
Jack Hykaway, Geno Sharp, The Track
Planner, Harry M. Haythorn,
and Andy Crawford

BE SURE TO CHECK OUT

YouTube Model Builders LIVE!
Join Us LIVE Every Month

Cover Photo: Ralph Renzetti



Welcome YouTube Model Builders!

We are excited to present the March, 2017 issue of the **YouTube Model Builders eMag** to the community. The YouTube Model Builders “Team” is committed to putting the “eMag” together with the assistance from the model railroading community at large.

We deliver a useful and informative publication for model railroaders who travel this vast net of information. In this publication, we include many informative, tutorial-based articles, information on happenings in the community, listings of up-and-coming YouTube channels, information about the **YouTube Model Builders LIVE!** show, **Hangout Presentations**, along with general information that is inspirational in building of our model railroads.

Our Vision:

To establish free, online resources as a primary source for model railroad techniques and inspiration in an ad-free, selfless service environment.

Our Mission:

The mission of YouTube Model Builders is to inspire individuals for sharing model railroad building techniques through the use of YouTube and other free online resources. Our goal is not only to share knowledge in a community but also assist individuals who are learning or looking for inspiration through the online model railroading community.

— The YouTube Model Builders Team

Editor's *Note...*

Winter seems to be hanging on tight. But that's alright; we get to work on our layouts or play with our model railroads just a little longer before we are lured outdoors by the warm weather.

This issue is the third part of the trilogy of issues that started with the [November 2016](#) issue which explored the topic of craftsmanship. The prior issue ([January 2016](#)) explored the topics of rust, dirt, and grime. In this issue, we focus on fine-scale modeling. The definition of fine-scale modeling varies depending on who you ask. Fine-scale modeling, according to Miles Hale, is not necessarily about the level of weathering or how long it took you to finish your model. It really comes down to not only the level of skills and techniques that are above and beyond the basic set of skills necessary for modeling, but down to the meticulous attention to details, your ability to be prototypically accurate, your knowledge of and willingness to research the prototypes, and your understanding of the era and the history of what you are modeling.

Ralph Renzetti, a master modeler who specializes in weathering engines and rolling stock, teaches us a unique technique for creating and applying wall posters and signs to our structures so they have that old weathered look. Jack Hykaway documents our interviews with Ralph Renzetti and Miles Hale and their thoughts on fine-scale modeling and tips from these pros you can apply to your modeling efforts. Bill Graham explores overcoming our fears and the limitations of our preset comfort zone when building a fine-scale model in his whimsical article entitled "*You Can Do It!*"

The Track Planner asks that we be honest with ourselves so we can formulate a detailed plan that addresses what we are trying to accomplish with our layout, how much space will be required, what era will work best, what standards we need to follow, and whether we are a freelance modeler, a prototype modeler, or a combination of both.

Harry M. Haythorn writes about the history and the features of Union Pacific's Bailey Yard - the world's largest classification yard. Geno Sharp, in his column *Geno's Corner*, explores the challenges of being prototypically correct and a workaround he employed when full-length passenger cars just wouldn't look prototypical on his new layout. Jack Hykaway gives a brief history of the San Francisco cable cars in this issue of *Jack's Junction*.

If you enjoy reading in-depth philosophical explorations, then you will not only be challenged but will also relish reading the *Food for Thought...* column in which Andy Crawford contemplates the evolution of terms and definitions we use in our modeling language.

Happy Model Railroading!

– **Loggin' Locos**
Editor-In-Chief



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An old 23-window VW Deluxe Bus from the early 1960s rusts away in a corner of a junk yard. Perhaps it will get its turn at being fully restored to its days of glory? This model is an example of some amazing fine-scale weathering by Ralph Renzetti.

Cover Photo: Ralph Renzetti

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YouTube Model Builders HANGOUTS

We have different types of Hangout Shows each month!

For the latest schedule updates please go to www.YouTubeModelBuilders.com.



Hangout Shows are topic-driven and are hosted by Johnny of Southeast Rails and Barry Rosier. The shows include various topics and interesting guests such as Miles Hale and Bill Beranek (The Track Planner).



The MRR Tech Show is hosted by Barry Rosier and Mike Dettinger.

The MRR Tech show is all about the technology of model railroading. Covered topics include DCC, JMRI, animations, 3D-printing, and much more.

Calling all geeks!



During this Thursday night show, open presentations are topic driven and fellow YouTube modelers join in to discuss various model railroading topics.

WEATHERING HOW-TO: Wall Signs

GETTING THAT OLD WEATHERED LOOK FOR YOUR POSTERS AND WALL SIGNS



By Ralph Renzetti

So you want to put some posters on a wall or, even better yet, you want to simulate an old painted sign on a wall. Are you satisfied with using pre-manufactured signs or even some that you may have printed out with your printer? Are you satisfied to just cut-and-paste onto the wall, giving your signs or posters a scale thickness of about 2.5 to 3 inches? (That's in HO scale; imagine how out-of-scale it would be in N scale!)

If you answered "yes" to either of these questions, then you don't need to read any further. But, if you want to get better looking signs and posters, read on.

In the following pages, I'm going to show you how simple it is to plaster thin signs on the side of a building and how realistic the results will be. And I've got news for you, it's easy. I think once you try this you may not go back to your old way.

I realize that a lot of the building kits we get nowadays have signs included. If you're like me you have been saving those signs and posters for a while, so you should have a nice selection of signs to choose from. Most of us have printers with built-in scanners and, if not, we probably

know someone who has one. You can scan the kit signs to create digital copies of them. You also can find a lot of signs available for download from the Internet. Figure 1 depicts the signs I have chosen for this tutorial.

OK, Let's Get Started

This modeling hobby is supposed to be fun, so let's get started and have some fun!

The process I'm about to explain is not written in stone; it's a process I stumbled upon and it works for me. If you feel you can improve on it, please feel free to do so.

Step 1: Identify the areas on a wall where you want the signs, as shown in Figure 2. You will want to put mortar between the bricks before you begin adding signs. I'm not going to go into great detail regarding this. Plain and simple, I use artist's oil paints and mineral spirits to make a light wash and let it flow into the joints. You may have a different method and that's fine, but it should be done and allowed to dry thoroughly before you go any further.

Step 2: Measure the areas to be filled by the signs so that you can

Tools and Supplies Needed:

- Colour inkjet or colour laser printer
- Hobby knife with a new blade
- Straight edge for cutting
- 3M mending tape (the one that looks frosted)
- Tape measure or ruler
- Regular printer paper
- White glue or Matte Medium (either one mixed 50/50 with "wet" water)
- Lint-free cloth (say, an old T-shirt) for general clean-up and dust removal
- Airbrush
- 50/50 mix of Testors Dullcote and lacquer thinner
- Artists Tracing Paper, Architectural Tracing Paper, or tissue paper (the type used for gift wrap or to fill a gift bag)

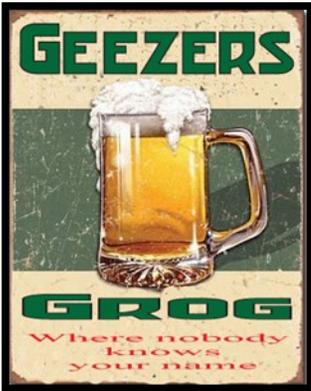


Figure 1. Here are the signs that we will “paint” onto our wall.

To resize the image, create an empty document in a word processor on your computer (Microsoft Word on a Windows PC, in my case), and then do the following:

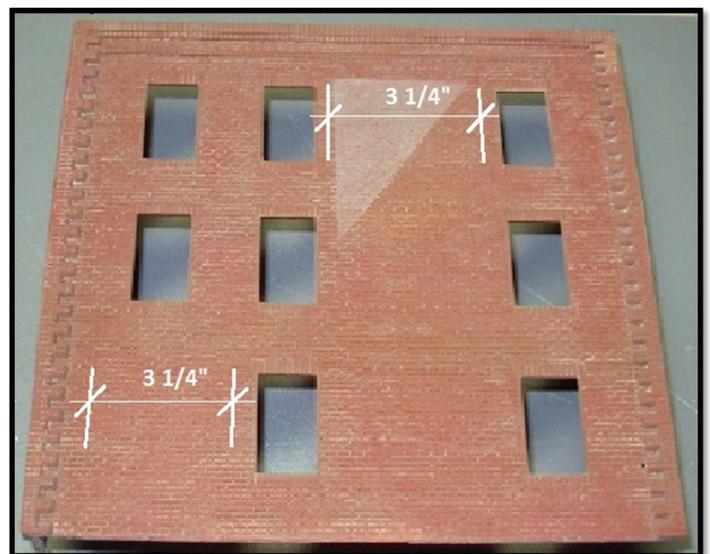
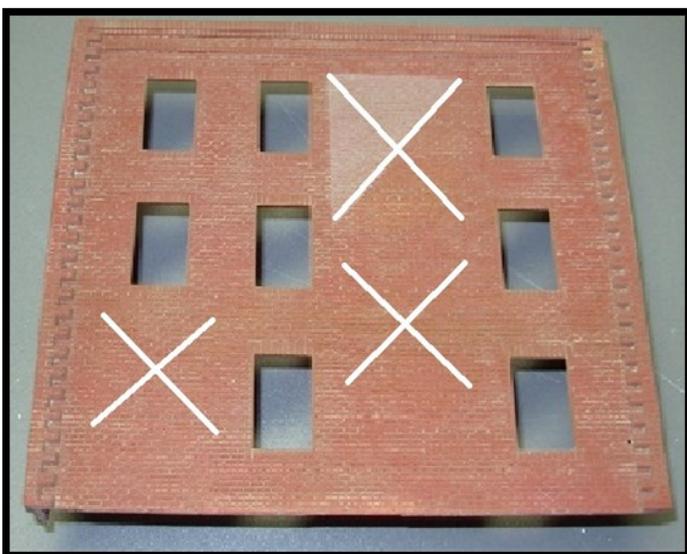
1. Make sure the page ruler is turned on to help you calculate the image size accurately.
2. Insert the image into the empty document.
3. In the paragraph formatting section of the word processor, center the image on the page horizontally.
4. Select (left click) on the image, and a thin-lined box will appear around the image. On each side of the box, you will see little circles or buttons (known as “handles”), as shown in Figure 4.
5. Left click and drag the bottom-right button towards the center of the image; this will force the image to get smaller. Keep an eye on the image and the ruler above to make sure you know

and height, though height is not such an issue for this particular wall.

Step 3: Choose a digital image from the internet or your personal files and open it in some computer program in which it can be resized. The first image I chose to work on is the “Geezers Grog” sign from Figure 1. In general, the original digital images should be as large as or larger than their final size on the side of the building; we can shrink images with better results than if we make them larger.

resize the digital image appropriately. The areas marked in Figure 3 are the maximum size that I want the sign to be, leaving adequate space between the sign and the windows or corners. It’s usually a good idea to measure both the maximum width

Figure 2 (below left). “X” marks the spot for the signs I chose.
 Figure 3 (below right). Know your limits (for the size of your signs - that is).



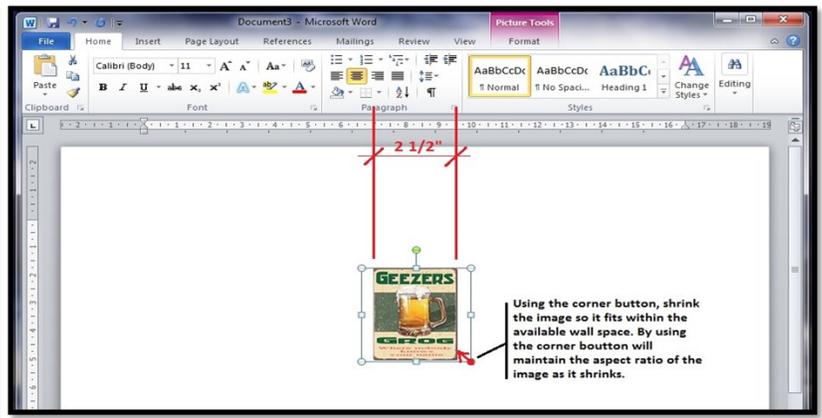
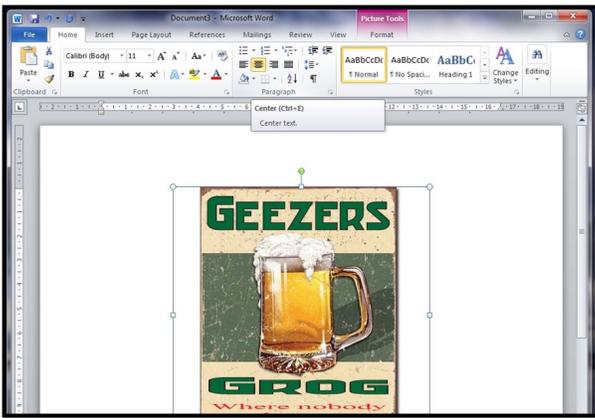


Figure 4 (above left). The “Geezers Grog” sign has been opened in the word processor, and is ready for resizing. Figure 5 (above right). As you resize the image, keep an eye on the ruler.

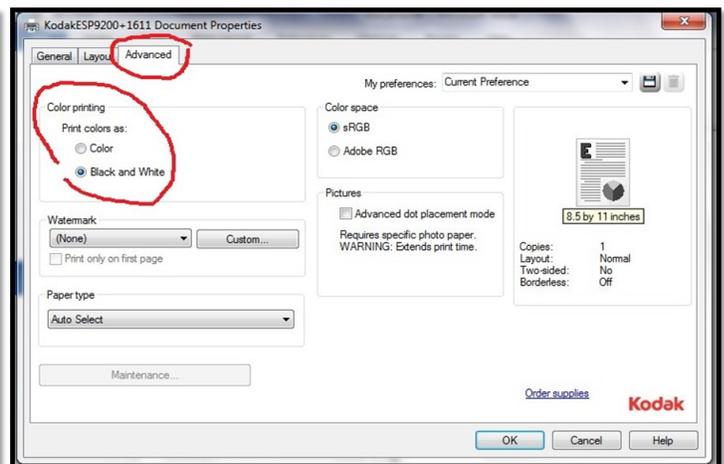
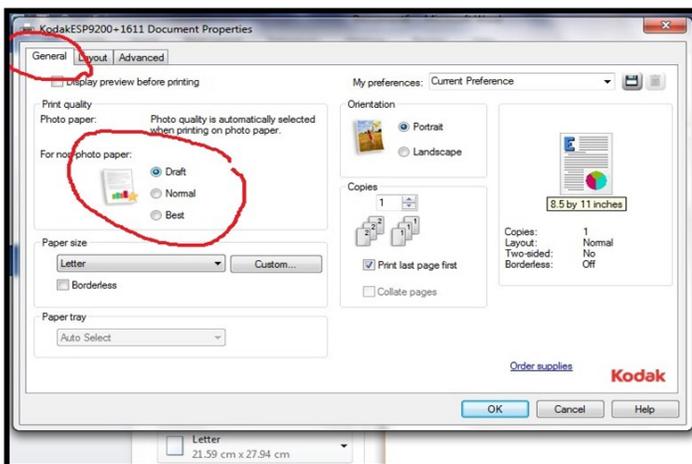
- 6. Once you have the size you need, make a print of your work ... but not just any print.
- 7. Left click on “File” and select “Print.”
- 8. When the print window opens, select the print “Properties.” The properties window opens up, and there should be three tabs, “General,” “Layout,” and “Advanced.”
- 9. In the “General” tab, change the “Print Quality” to “Draft,” as shown in Figure 6. As for the “Page Orientation,” it really doesn’t matter if the printed page is “Portrait” or “Landscape.”
- 10. There is no point in wasting your coloured ink, so in the “Advanced” tab, change from “Colour” to “Black and White,” as shown in Figure 7. Once you’ve made the changes, go ahead and make a print; you’ll need it for the next step.

Step 4: Once you have your black and white print, draw a line all the way around the image keeping about a one-inch margin from the image on all four sides, as shown in Figure 8.

The next thing is to take a straight edge and your hobby knife (with a new blade) and cut along the line you drew around the image, leaving a hole in the page.

Now comes the Tracing Paper; there are two types or maybe more, but the two that I have used are Artists Tracing Paper and Architectural Tracing Paper. The Artists paper is

Figure 6 (below left). Draft mode will make the page print faster and use less ink. Figure 7 (below right). Choosing Black and White for your first draft will save even more ink!



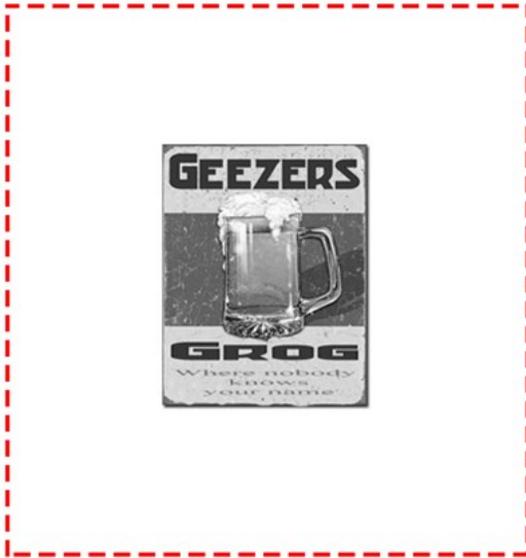


Figure 8. Mark a 1" margin around your draft print for cutting.

more on the opaque side and the Architectural paper is super transparent. You also can use tissue paper that is meant for wrapping gifts or filling out gift bags. All are very thin and delicate. So here you will have to make a decision: How transparent or opaque do you want your sign to be? Do you want the sign just to look old and weathered or do you want it to look like it's fading away?

Step 5: Whichever thin paper you choose, you need to cut a piece to replace the area that you cut out of the page. To hold it in place, use the 3M Tape on the back side of the page, and then put the page back into the paper supply tray and print the image again, but this time in **colour** and draft mode, as shown in Figure 9.

Now the issue comes up, so I should point out that our printers **DO NOT PRINT WHITE**; instead, they count on the white paper to fill in the white areas of the image.

So here is another choice you have to make based on the age and condition you want your sign to be in.

If you want to be able to read your sign completely and it not look old and hard to read, you will have to make a mask in order to spray a whitish background the exact size of your sign. I used the cut-out from my black and white print, cutting along the edge of the sign leaving a hole

where the sign used to be. Take this cut-out with the hole in it and tape it so the hole is in the position you want your sign to be.

Using an airbrush spray a mixture of thinned acrylic paint (white or beige)

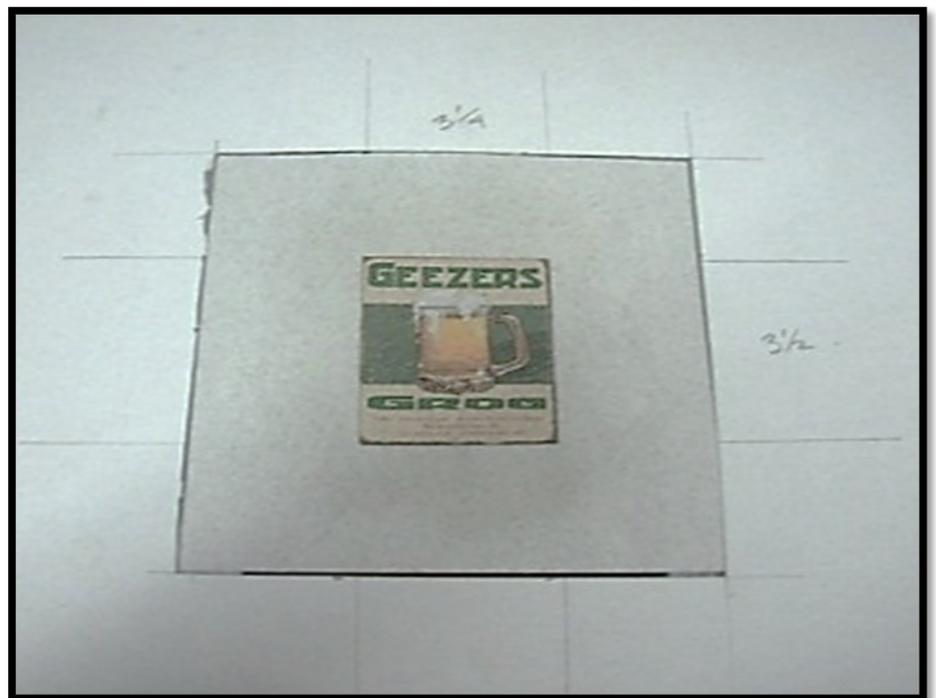
through the opening in the cut-out. This mixture is 10% acrylic paint to 90% acrylic thinner. You will have to spray multiple coats depending on how bright you want your sign. Allow this to dry overnight before proceeding.

If, on the other hand, you want the sign to be old and fading away, skip the previous step or, at the very most, apply one coat of the above mixture.

Figure 10 shows the cut-out from my black and white print after I cut away half of the image diagonally, and the cut-out I used as a mask to spray a beige background. In hindsight, I should have sprayed more than one coat.

Step 6: Now comes the true test of whether you've done everything else right. It's time to add your sign to the wall.

Figure 9. Print the page again, so that the colour image is printed on the thin paper.



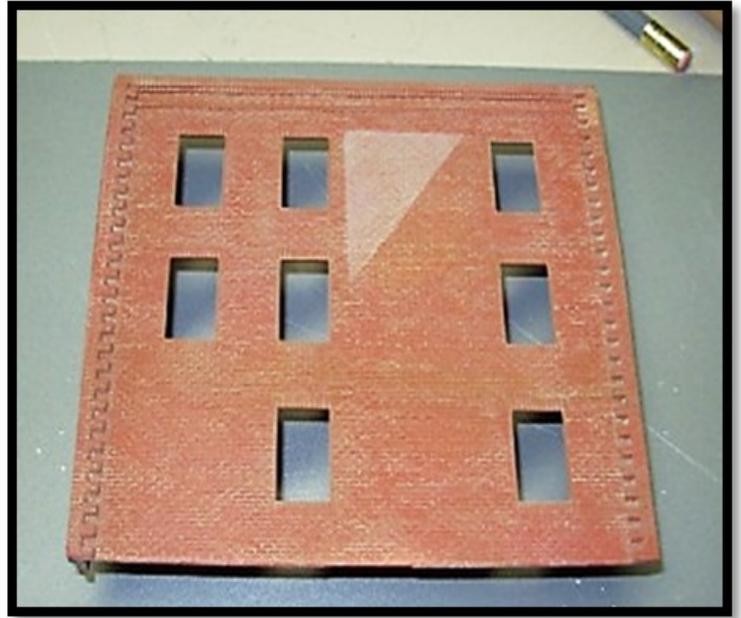
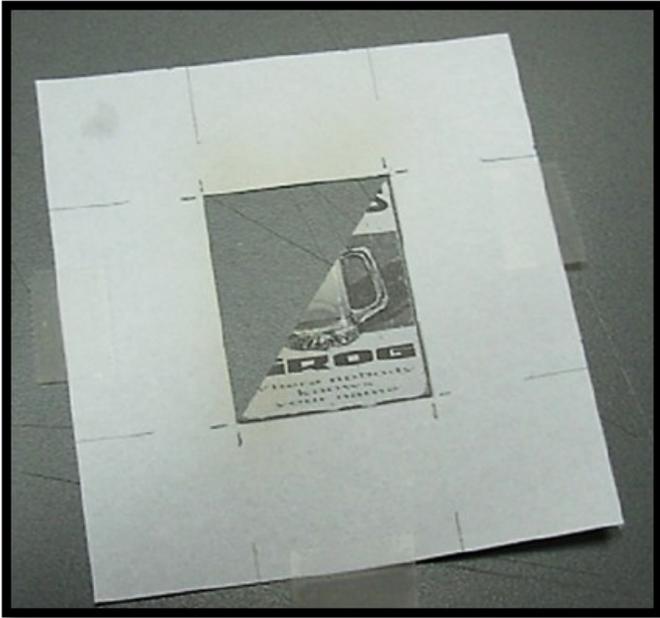
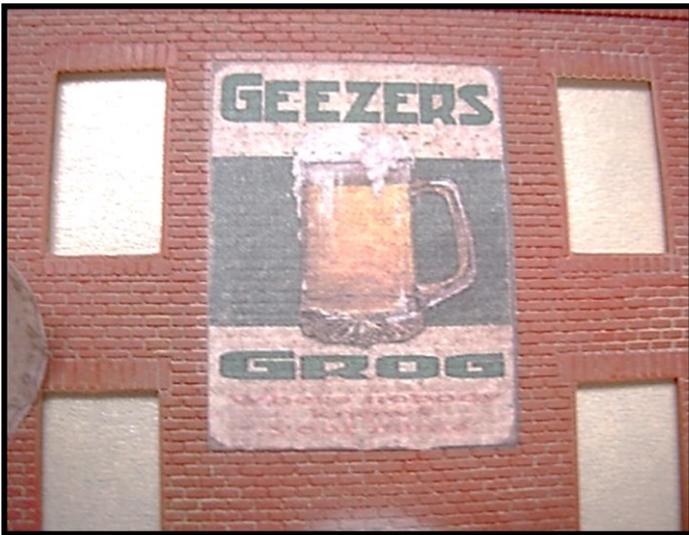


Figure 10 (above). Trim away part of the black & white cut-out to make a mask (left), and use the mask to lightly paint the wall where the sign will be (right).

Figure 11 (below left). The wall now sports an aged, yet legible sign.
 Figure 12 (below right). The Dutchman Ale sign on our wall.



The sign pictured in Figure 11 was done with Artists Tracing Paper. The sign was fixed with a spray of 50/50 mix of Testors Dullcote and lacquer thinner to both sides to stop the ink from running when you apply the water based glue to attach it to the wall.

I did the Dutchman (Figure 12) and Pepsi (Figure 13) signs on Architec-

tural Tracing Paper. They both got a very light coat of beige background colour on the wall before the signs were applied. Again, before the application of the signs, a coat of Dullcote was applied front and back of the signs to seal the ink. Once the signs were applied, they were allowed to dry overnight. The next morning, I took a piece of emery

paper and sanded all the signs lightly to affect some of the detail.

One final coat of Dullcote and then the only thing left to do is to weather the wall (Figure 14). (I'll bet every one of you has your own way of weathering masonry walls, so I won't go into that here).

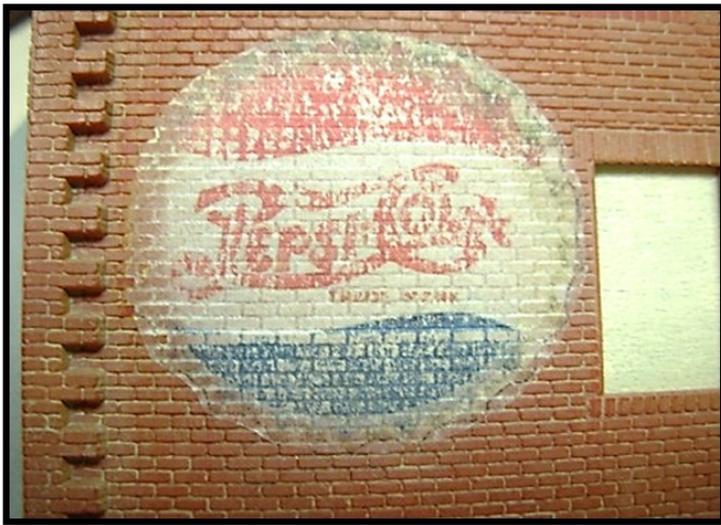


Figure 13 (left). The Pepsi sign is looking a little worn.
Figure 14 (right). The finished wall is ready for weathering.

You be the judge: If you like how it looks or you feel you can use this process, feel free to use it or improve it. (But, if you do improve on it, you have to tell me what you did so I can use it, too!)

I hope you've found this article to be both informative and FUN! Give it a try, and I think you'll be pleased with the results, which will give your layout a more authentic look-and-feel!



About the Author

Ralph Renzetti retired from Bell Canada after 42 years of service; 10 of those years were spent installing Standby Diesel Power for Bell. That dovetailed well with his love of trains, which had taken root when he was 8 years old.

When his eldest son was 20 years old, he asked Ralph, "Dad, when are you going to set up the trains perma-

nently, instead of just at Christmas, around the tree?" So, Ralph told him, "You find me a spot, and you and I will do it." So, they set up a layout in the crawl space. Ralph now is on his second layout (in a proper room).

Now that Ralph has started doing his weathering for customers, it has taken away from his efforts at completing his layout. Examples of Ralph's work can be found on his Facebook Page, <https://www.facebook.com/WeatheringbyRalph> and on his YouTube channel, <https://www.youtube.com/channel/UCjt37b04U20FfqjA7RwwzdA>. On his YouTube Channel, you will find a two-part interview of Ralph done by Chris Lyon (CNLVN).

Ralph's current thrust is to share his techniques with anyone who is interested. He says he wants to 'pay it forward' and share all his knowledge.

His pet peeve is that model railroading magazines like MR and early MRC would always have buildings

and scenery that are nicely weathered but the Locos and Railcars look like they have come right out of the box - hence the beginning of his "Weathering a Touch of Yesterday" Facebook site.

YouTube Model Builders LIVE! Want to see live shows discussing modeling techniques, YouTube resources, and Web resources?

Check out the LIVE show that airs monthly. — Free to you!

YouTube Model Builders Presents



Next Show — April 5th, 2017
8 PM Central / 9 PM Eastern

All Newbies Welcome!

Please join YouTube Model Builders along with Chris Heili and guest panelists, who will build live, various projects using the Arduino platform. * Projects include lighting, sensors, servo control, and animation. Each project is quite easily accomplishable by any beginner hobbyist.

Let's explore and learn together some of the coolest projects in model railroading. We encourage you to ask questions directly to the presenters and chat live with them during the workshops. Share videos, pictures, and comments of your accomplishments on our [YouTube Model Railroaders Google+](#) community page.

* Participation in workshops requires an [Arduino based project kit and breadboards](#). For more information, please see the [YouTube Model Railroaders Google+](#) community page and posts announcing the workshops.

YouTube Model Builders Proudly Presents The FineScale Live Build Show!

Next Show Is March 28th, 2017

Have you been reluctant to approach wood and craftsman structure kit construction? Are you fascinated with highly-detailed weathered structures and dioramas you see within model railroading publications? Then this is the show for you!

Join Miles Hale and Barry Rosier, along with your hosts Andy Crawford and Johnny of Southeast Rails, as they take you from beginning to end of constructing highly-detailed wood structures and scenery - from box opening to complete dioramas.

In this show you will:

- Learn from a live, “camera-down”, clinic-style approach to construction.
- Obtain practical fine-scale modeling tips and techniques.
- Understand multiple methods for each step of the construction process.
- Develop your modeling skills and overcome the fear of fine-scale modeling.
- Build confidence in your own abilities as a modeler.

Please join us, build along, and learn as you go. We encourage you to ask questions directly to the presenters and chat live with them during the show. Then share videos, pictures, and comments of your progress on our [YouTube Model Railroaders Google+](#) community page.

FINE-SCALE MODELING: TIPS FROM THE PROS



By Jack Hykaway



Interviews conducted by JD (Loggin' Locos) and Jack Hykaway.

Cover Photo Courtesy of Ralph Renzetti.

The talented fine-scale modelers in our model-building community are admired by all, and for good reason: their work is phenomenal – no detail is spared, and they match the prototype nearly bolt-by-bolt. Their talented hands spend days building, painting, weathering, and perfecting models right down to the last detail. The results are staggering; they are results the majority of modelers – me included – could only dream of achieving. This got me thinking: **How** do they achieve such realistic results? **What** does it take to become a fine-scale modeler?

I have a hunch that fine-scale modelers must have truckloads of determination, a willingness to learn, a huge amount of patience and a lot of natural talent to become so skilled. But is that all it takes? I'm not convinced. To confirm my theory, we scoured online modeling groups in search of experienced fine-scale modelers who were willing to tell us what "secret ingredient" they use to consistently achieve such incredible results, and how they became master model builders. It turned out that we did not have to look very far! We found within the YouTube Model Builders community, two modelers who were generous enough to donate their time and answer our questions about fine-scale modeling.

Ralph Renzetti, first introduced to model building when he was 12 years of age, has refined his skills over his 50-year modeling career to become the master modeler he is today. Ralph is a weathering whiz; he weathers model locomotives, structures, and rolling stock for his clients.

Ralph is a very experienced modeler who wants to share his knowledge with others. His ultimate goal is to "pay it forward" by sharing the techniques he has mastered and any other helpful bit of information with anyone who wants to learn. Ralph contributes to the community and shares his knowledge on *TrainMasters.TV*, his YouTube channel, and his Facebook page.

The YouTube Model Builders eMag team also reached out to Miles Hale, who is another recognized modeler in our community. Although Miles doesn't consider himself to be a fine-scale modeler, his work is very impressive and comfortably fits in the fine-scale category. Miles is the host of the *TrainMasters.TV* show "Modeling with the Masters," a show demonstrating various modeling techniques.

Ralph and Miles both graciously agreed to answer questions so that eMag readers can get a better sense of what it takes to become a fine-scale modeler.

Ralph Renzetti:

1) How do you define fine-scale modeling?

"Everybody can put a model kit together; to me it's the finishing touches made to the build that determines whether or not you're a fine-scale modeler. Some finish the basic kit; they 'complete' it, while the fine-scale modelers go the extra mile to add prototypically-correct details to a kit to make their build as accurate to the prototype as possible. They REALLY complete it. The line between complete and incomplete is defined by every modeler individually, and a modeler's experience will dictate how

the line shifts throughout their modeling career."

2) How did you get involved in fine-scale modeling? What attracted you initially?

"I have been involved in one sort of modeling or another for over 50 years. I've been building model cars since I was about 12 years old. I have modeled competitively for 25 years. The reason I got hooked on modeling is that I found – and still find – that it relieves stress and relaxes me. The initial attraction to fine-scale for me was being able to create with my hands, whether it's a kit or scratch-built.

I also get tremendous satisfaction from working with my hands, creating something that is different and the best quality I can offer. I love adding small details to my builds that people don't always see at first glance."

3) What aspect(s) of fine-scale modeling do you enjoy the most? Why?

"I love the ability to change and redesign the model. The fact that I am the one in control of the outcome is what I have always liked about modeling from a young age."

4) Your weathering is very impressive. How do you achieve such realistic results? Are there any specific techniques or materials you like to use?

"About eight years ago, I joined a group called 'Model Trains Weathered.' This group folded about five years ago, but some of the existing members formed another group called 'The Rust Bucket' of which I am a member. I learned my skills from the members of these groups and I have gone on to develop some of

my own techniques as a result of environmental concern. I was originally using paint pigment powders, not pastels. I'm currently using mineral-based products and techniques influenced by military modelers. I started these techniques using AK Interactive washes and filters, though I have now moved on to MIG AMMO products because they were more easily obtained. I have to tell you that my first attempts at weathering were a total disaster, but persistence and PRACTICE, PRACTICE, PRACTICE has given me the experience and confidence that I use today."

5) What tips do you have for modelers who are just beginning to experiment with weathering?

"There are three:

First, if you do not weather your fleet, cars, and locos, at least give them a fine coat of Dullcote to get rid of the toy-like shine.

Second, if you decide to take the plunge, go out and buy a bunch of cheap flea-market cars for practice before working on your expensive models! Practice, is the key, and there are lots of videos on YouTube which demonstrate a variety of weathering techniques. I have five videos on TrainMasters.TV; they cover grime and rust on railcars to the more detailed weathering on locomotives.

Third, ALWAYS, ALWAYS, ALWAYS try to work from a prototype photo. If you don't use a photograph as a reference, you will most likely over-weather your project and ruin it."

6) How important is experience when it comes to fine-scale modeling? What should begin-

ners be prepared for on their way to becoming an experienced fine-scale modeler?

"PRACTICE, PRACTICE, PRACTICE! I can't say that enough, but I will follow that up by saying 'the more you practice the better you get, the better you get the more confidence you will develop.' As you journey along the weathering road expect some failures. It's all part of the learning process."

7) What do you think has contributed the most to your success in fine-scale modeling?

"I always asked for opinions and I was never afraid of constructive criticism. All feedback helps you learn how and where you can improve or refine your skills. Ask your friends to be brutally honest, join groups with similar interests, and ask for advice. I've also found that seeing a more experienced modeler's work on display has always inspired me to work harder towards improving my skillset.

If you have the opportunity to ask the modeler questions about a specific technique they used in their build, do so. When I was first getting started in modeling I was able to ask more experienced modelers for their advice and what techniques they used on their projects. Now I like to 'pay it forward,' and share what I've learned from them with the new generation of up-and-coming modelers.

Working one day per week at my local hobby shop has given me a great opportunity to share my knowledge with the younger generation of modelers. Kids will come in to pick up supplies, and I try to pass on as much of my knowledge as I can to them. You can see their eyes light up as they soak up

the new ideas; that's always the best 'sale' of the day to me. Online communities such as YouTube Model Builders and other social media platforms, such as Facebook, The AML Network, and Model Rail Radio podcasts, have also provided an excellent opportunity for me to pass on my knowledge on to others who are enthusiastic about the hobby and are willing to learn."

8) If there was one essential tip you could convey to a less-experienced modeler who is just starting out in fine-scale modeling, what would it be?

"Practice, ask for help, and DON'T BE AFRAID TO FAIL. We all fail to some degree at first; it is part of the learning experience. Another useful tip is to use free assets such as the Internet. Perform YouTube and Google searches regarding modeling; there is a lot of information, photos, and articles out there if you look for it."

Miles Hale:

1) How would you, from your perspective and vast experience, define fine-scale modeling? Is the definition limited by certain criteria or is it much more encompassing than what the typical model railroader perceives and understands it to be?

"I've been asked about 'Fine-Scale modeling.' I don't know why, because I don't see myself as a fine-scale modeler. I do try to make my model scenes look as much like the real world as possible, only smaller. I also think that some degree of art is involved in the creation of miniature scenes on our railroads."

If you have seen the quality and de-

tail of Miles' model work, then you will agree when I say that Miles is being modest when he says he does not consider himself to be a fine-scale modeler.

Miles believes you have to model what you know, find out what you don't know by researching the prototypes of what you are building, and learn about the era and the history of what you are modeling. These are encompassing parts of the fine-scale definition.

2) What aspect(s) of fine-scale modeling do you enjoy the most? Why?

"Structures. A lot of model railroaders are frustrated: frustrated architects, frustrated engineers who are interested in the design and mechanics of the trains, and making the engines look good, etc. I like structures; I am a frustrated architect. I have a good time with structures. I have an affinity for structures and I like to collect structure model kits."

Define frustrated; what does that mean to you?

"Well, I am not one [architect], I am a P.E. teacher. I was never trained as an architect; I have never considered myself mathematically savvy. Some of the things required to becoming a structural engineer or an architect is not my daily thing. I think there are a lot of model railroaders that are truck drivers, butchers, or P.E. teachers; there are a ton of us who are doctors, dentists, or lawyers, and we all want to do something else; and I think we all look for an escape from our daily work. I think those of us who want to be architects or who want to be engineers, modeling gives us an outlet for that creative juice that we

would not have an outlet for in our regular workday world."

3) How important is research when it comes to fine-scale modeling?

"I think research is key to being able to build a realistic scene. Some aspects we are already aware of but others need to be researched online or in the library. The internet is a vast resource for pictures and information, especially for old scenes or those that are not in close proximity to us. The local library still offers a service to bring books to us for those subjects that we need to learn about."

I think you need to have plans or drawings; something to go by in modeling. Having pictures to look at can be invaluable in making the models look correct. It can be a photograph with no dimensions, but you can use logical calculations using say a standard door size or a window size. You can then make calculations based off of that. I can use ratios and my calipers to figure out the proportional relationships, and from that figure out the percentages, up or down. Modelers have to realize that everything is built to proportional relationships, built to standard sizes – things are just not arbitrarily built. That has to transcend into your modeling because if things don't look right to your eye, they probably aren't. And especially in fine-scale modeling sometimes if the plans call for modeling a 2' x 4' railing, it may not look right in your scale. Somethings just don't transcend scale, and sizes of detailed pieces many times just don't work. So, you might want to try a 1' x 2' railing instead, and 9 out 10 times it will work better whereas a true-scale model might look clunky."

4) How do you achieve such realistic results?

"So what do I use to try to make a scene that looks like it has gone under the 'Shrink-ray?' I think the only thing that is critical to aid in building models is knowledge. Knowledge and experience with the techniques needed to create the model, and the actual knowledge of the elements in the scene. My favorite saying, which I borrowed from the title of a clinic that I went to several years ago, is 'model what you know.'"

"A fine-scale modeler must not only model what they know but also has to research the history, the era, and the particular prototype that they are modeling. For example, if they are modeling the C&O house in the 70s, on a modern-day layout, as many prototype modelers do, then the structure has to be modeled as a dilapidated structure with peeling paint, peeling tar paper on the roof, and shingles laying all over the place with dirt all over and old rusted tools leaning against it. However, if they are modeling the same building in the 40s or the 50s, when it was built, then the structure has to be modeled as a well-maintained building, with properly painted railroad colors because it was maintained by the railroad. Fine-scale doesn't always mean a lot of detail and it doesn't necessarily mean that there

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railroading layouts and videos!**

has to be a lot of weathering. You have to model the prototype as it existed in the era you are modeling.”

5) What level of skills or experience is necessary to be successful with fine-scale work?

“Developing skills in our model building can best be accomplished by building and creating. The more we build the more experience we gain and the more prototypical we can be in our model building. Along with working skills it is also good to read articles about the various methods that you can use to make your creations more realistic and believable.”

Miles further stated that people have pride in their work and that pride is an important aspect that should be reflected in our modeling. A fine-scale modeler has to be the craftsman in their hobby, just like the “craftsmen who built the actual structures – they had pride building the structure, pride in their work laying bricks, doing the flooring, or doing the plumbing.”

“Fine-scale modelers have to train their brain to think in the scale in which they are modeling – a structure that is few inches in one scale would end up a couple of feet tall in a larger scale... You have to put your mind into that world; you have to put your mindset into that scale. When I look at something, I have to say to myself, ‘what is that texture in-scale, what size is it within the scale, and how can I use it in my modeling?’ Scale matters. Many modelers limit themselves to the scale they are building in. They limit themselves to what the manufacturer of an item says it’s for. My prime example of this is an N-scale bridge side that could also be a roof truss in an O-scale engine house.

Just because the manufacturer put ‘N-scale Bridge’ on the side of the box doesn’t mean it can’t be used for something else. Modelers who go into a hobby shop and only look at their section, be it HO- or G-scale, can be short-sited and that so narrows their experience and their ability to use materials available to them. Go discover materials available from other hobbies, or even supplies available at fabric stores, the hobbies and crafts section of Walmart, Jo-Ann Fabric and Craft, Michaels, or other similar stores.”

6) What do you think has contributed the most to your success in fine-scale modeling?

“I guess for me the trail to building the models of my current layout leads along the very path that I described above. I started trying to build models that were in the NMRA magazine in the early 70s. Paul Moon of Little Rock, Arkansas did many prototype drawings of railroad buildings for the magazine and I built several of them. Later I entered these in the first of the NMRA convention contests I attended.

As a hobby, the art of model building tends to be solitary. However, I think it is imperative that we interact with other modelers. Interacting with others and learning from each other helps develop one’s modeling skillset. To me, friendship is the best way to learn and progress in the hobby and it is fun to make friends that share your interests!”

7) If there was one essential tip you could convey to a less-experienced modeler who is just starting out in fine-scale modeling, what would it be?

“The feedback from fellow modelers (most of which were more experienced

than I was), helped me get a little better at making my own models look more like they had gone through the ‘Shrink-ray.’ I owe a great deal to the modelers who took the time to guide me in my modeling.”

8) You are currently doing a new series with YouTube Model Builders (Hangout show) on fine-scale modeling. Can you tell us a little bit more about the show?

“Currently a new series is on YouTube Model Builders that deals with ‘fine-scale model building.’ I hope to contribute to this show in the future, and make some new friends along the way. I’m also hoping to learn a little from the show as well, so I can make my own models better. I hope readers of this eMag will watch and contribute to the show; we all have something to learn and to give to the hobby of model railroading.”

Ralph and Miles have made it clear that to become a skilled modeler, it takes determination, a willingness to learn, and a lot of practice. Ralph and Miles have both proved that practice is the key to success in modeling. They both also believe that knowledge-sharing and interacting with other modelers allows one to grow their own knowledge of model building. Ralph and Miles each have years of experience, which has contributed to their impressive talents.

The eMag team and I can’t thank Ralph and Miles enough for agreeing to answer these questions; their answers will no doubt help modelers who want to get to that next level, whichever level that may be. 🚂

A Perspective On Track Planning



By William (Bill) J. Beranek —The Track Planner

Do You Have A Plan?

While watching YouTube videos, I'm amazed at the number of modelers who do not have a firm plan or process in place when building their model railroad. They seem to use the shotgun approach, jumping from one project to another, and never completing the first. Do they become bored when the first project takes longer than they expected? I don't know.

I hear the same phrases used over and over: "hopefully it will work," "I think it will work," and "it should work out." My personal favorite phrase is, "at least that's my plan." When I hear that I instantly know, they don't have a "plan." They may have an idea, but not a plan. When I say "a plan," I'm not talking about paying for a track plan. A plan is a detailed overview of what you want to accomplish with your model railroad.

In this installment, I would like to outline just a few of the things you need to consider before cutting the first piece of lumber. No one would

build a house without a floor plan; why do so many model railroaders start building a layout without having a detailed, "workable" plan? I find that many modelers don't plan to fail, but simply fail to plan!

Evaluate Yourself

First, be honest with yourself. Ask yourself, "Why did I get into the hobby?" The simple answer is, "I like trains," but I doubt that is the sole reason. Lots of individuals like trains and never build a layout. What was it that first peaked your interest enough to take the next step?

Was it a childhood experience with trains? This is probably the most popular response. Was it the latest and greatest locomotive or a new piece of rolling stock? Maybe it was watching a long freight train streaking past a crossing gate where you were waiting. Maybe passenger trains are your thing. Maybe it was a specific era, like the ever-popular transition era. Maybe it was a specific type of railroading: coal hauling,

container trains, mountain railroading, narrow gauge, or steam era. Very seldom is it just one thing.

Maybe it's not about the trains. Maybe it's scratch building structures or creating detailed dioramas. Or, maybe it's a combination of all of the above.

Ask yourself, "What exactly do I want from this great hobby?" Evaluate yourself. Be honest with yourself and you're on your way to designing and building your dream layout.

Knowing your limitation is being honest with yourself. What are your strengths? What are your weaknesses? If this is your first layout, build one that you can complete in a reasonable amount of time and at a reasonable cost.

Clients pay me to design custom track plans. In many situations, I recommend newbies start with a published track plan. Building a published track plan removes the stress of having to come up with a plan on your own. With the stress re-



Google+ Hangouts! If you like real time video chat with other model railroaders, watch for these LIVE Hangouts to join. Ask questions, help others with their modeling videos, or just join in live chat and simply "Hangout!"

moved, you can concentrate on building the layout, gaining skills that can be used later – when you have the room and the skills to build your dream layout.

Evaluating Space

The mistake I see repeated most often is modelers not being honest (again, with themselves) about how to best utilize the space they have. They often contact me, thinking I have the magic answer to their space dilemma. No matter how hard you try, you can't fit a 200-sq. foot layout in a 100-sq. foot space.

Be honest with yourself. If you don't, your layout is doomed from the start. I'm continually asked to

design track plans using modern era equipment (six axle engines and 85' cars), in a space that would work better with transition

era equipment (4 axle motive power and 40' cars). It's been my experience that very few modelers; especially, the younger generation – are willing to make an era change to end up with a better layout.

If you are not willing to change eras, your only other option is to re-evaluate the type of layout you can build. If you want a Class I double mainline railroad, but only have

room for a short branch line railroad, be honest with yourself; bite the bullet and go with the branch line railroad. Branch line railroading is probably your best and only option.

If you have limited space, you cannot build a Class I double mainline railroad and make it believable. But, if you design and build a branch line railroad, it can totally be believable.

Setting Standards

This is another area where modelers need to be honest with themselves. Once you've picked the type of railroad you want to build, sit down and put together a standards list. The list should include things such as

minimum radii, maximum grades, minimum turnout numbers, minimum track spacing, maximum number axles on motive power (4-axle or 6-axle), maximum rolling stock car length,

maximum train lengths, etc. Once you've completed the minimum standards list, **do not** deviate from it!

Deviating from your standards is simply inviting problems. Once you deviate from one standard, it usually affects – in a negative way – other standards. One example: reduce your minimum radius and instantly, you've affected track spacing mini-

mums. Another example: change your maximum grade by one-half percent higher, and you've shortened train lengths by as much as 40% to 50%.

There will be times when you will have no choice but to deviate. Do so with extreme care and understand the consequences.

Freelance or Prototype

When developing a plan, you'll need to decide whether to build a freelance railroad, a prototype railroad, or maybe a combination of both. Each has its advantages and disadvantages.

Prototype advantages include:

- 1) Research is relatively easy, and the information is already available;
- 2) You don't have to reinvent the wheel. The prototype has already done it for you;
- 3) Prototype railroads keep you focused; and
- 4) Most equipment is readily available.

Prototype disadvantage include:

- 1) Sometimes having too much information can cause overload;
- 2) It can be hard to decide what to include from the prototype;
- 3) Not having enough space can be a big disadvantage;
- 4) Making the layout "believable"; don't try to model the Union Pacific RR from Omaha to Cheyenne.

"A plan is a detailed overview of what you want to accomplish with your model railroad. Many modelers don't plan to fail, but simply fail to plan!"

Freelance advantages include:

- 1) You can use your imagination;
- 2) You have the freedom to build whatever you like;
- 3) You can personalize the layout;
- 4) You can run any type or era of equipment you want.

Freelance disadvantages include:

- 1) Staying focused be can a problem;
- 2) Finding ready-to-run equipment can be challenging;
- 3) It is tempting to try to include too much; and
- 4) Not adhering to your minimum standards.

Freelance and Prototype (The Best of Both Worlds)

Building a combination of freelance and prototype railroad can give you the best of both worlds. The prototype keeps you focused, and freelancing allows you to deviate from the prototype in positive ways.

The prototype allows you to use real town names, as well as actual industries and locations. You “can run” consists similar to consists that ran/ run on the prototype, albeit in shorter trains lengths.

While freelancing allows you to include real names and locations, you are not required to locate those names and locations as they are/ were on the prototype. You can include things the prototype never did or had.

In Summary

As you can tell, having a “plan” is extremely important to building a successful model railroad. Being honest with yourself is the first step. Setting minimum standards keeps you from deviating too far, which could cause major headaches when those brand new \$300 locomotives, or those \$50 eighty-five-foot freight cars, won’t negotiate your curves.

No one can put together a plan that foresees every situation or problem. But, having a plan will significantly reduce those situations from becoming insurmountable problems.

If model railroaders would develop a plan first, I would not hear phrases like, “I think it will work” or “it should work.” By sticking to a plan, you will know ahead of time, if it will really work! 

About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, travelling, and of course designing “prototypical operations” focused track plans. He has been a member of a local 135+ member model railroad club since 2003 and has served twice as the club’s president, twice as a board member, and is currently serving as the club’s treasurer.

Bill is currently working on his latest triple-deck HO scale layout depicting the SP&S (Spokane, Portland & Seattle Railway) in southern Washington and the OTL (Oregon Trunk Line) on the upper level in northern Oregon in the mid-50s.

You can find more about Bill—The Track Planner at:

www.thetrackplanner.com.

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Union Pacific's Bailey Yard

Welcome one and all to this installment of the UP Hub! This time we're going to visit Bailey Yard in North Platte, Nebraska. I know what you're thinking, "who cares about some yard in the middle of nowhere?" But, Bailey isn't just any old classification yard; it is the beating heart of the Union Pacific system and holds the world record as the largest rail yard in the world.

History and Size

Bailey Yard was named for Edd H. Bailey, who was UP's president from 1965-1971 and also a North Platte native. The yard was built in the 1870s as UP's transcontinental mainline and built across the plains. North Platte was established as the location of the "Hell on Wheels" camp, and has grown from 6 tracks to 300+ tracks covering a space of over 2,850 acres. Bailey Yard is ten

miles long and two miles wide and contains 345 miles of track and 749 turnouts (track switches) that feed in between two humps for taking apart inbound trains, and building out-bound trains.

Bailey Yard sits at the mouth of a busy funnel on UP's network - at the crossroads of the Overland route and the mainline which leads in from the coal fields in the Powder River Basin. Reflecting the yard's immense size, the daily and monthly statistics are just as staggering. On average, there are anywhere from 120 to 140 trains passing through the yard each day. These trains help keep the yard filled with an average of 15,000 carloads, 2,100 of which are classified and humped every day. The UP uses approximately 20 million gallons of diesel fuel each month to quench the thirst of the 350-or-so locomotives that visit the yard each day.

The two humps were installed in 1948 and in 1950 respectively, with the modern replacements going into service in 1968 (eastbound hump) and in 1980 (westbound hump). The extensive diesel shop was built in

Figure 1. A view of Union Pacific's Bailey Yard (the world's largest classification yard), from the Golden Spike observation tower. Photo via MS Clipart.





Figure 2. Looking west from the Buffalo Bill overpass in the 1970s (Photo courtesy of Jack Rickett).

1971, and has never been closed, since the year it was opened. It services, at any given time, anywhere from 75 to 100 locomotives. The North Platte Service Unit employs approximately 2,600 people (1,250 are engineers or conductors), who are directly involved.

Features of Bailey Yard

Bailey yard encompasses many things that make it unique. Besides its size and the two automated humps with pneumatic retarders that weigh and slow each car for a perfect coupling in the bowl tracks, there are separate fuel and service facilities for east and westbound trains, repair in place (RIP) tracks for quick maintenance on freight cars. An ultrasonic wheel detector can find cracks and damage in the wheels as a train rolls by. The yard also features a “Sheep Jump”, which is an overpass used to get locomotives to and from the diesel shop on the south side of the yard, to the westbound tracks on the north side without causing any service delays for trains on the mainlines. There are also six remote-

controlled locomotive zones, where crews on the ground control locomotive with belt packs, (much like how one controls trains on a DCC layout). There is also a dedicated intermodal “van” yard for quick loading and unloading of intermodal containers and trailers on flat cars, as well as a dedicated coal train yard on the north side of the complex that services all trains out of Powder River Basin.

My uncle Cliff was the first shift yardmaster for over 30 years at Bailey. I, therefore, had the opportunity to see the internal workings of the yard many times. I witnessed how UP uses technology to ensure the smooth movement of cars through their yard with computerized car sorting systems. I also learned about the PFE (*Pacific Fruit Express*) clean-out area and the caboose storage area, which is now the location of the snow taxis. These snow taxis are former cabooses, which are now used to shuttle crews to and from trains on mainlines when the highways are closed due to inclement weather.

A few things have changed over the years. The industry has evolved, but the yard itself continues to move forward and be improved. The roundhouse and turntable were torn down in 1975. The Pacific Fruit Express icehouse and dock (also the world’s largest) were removed in 1972, and of course the Depot, (despite an opportunity to save the

Figure 3. Looking west from the Buffalo Bill overpass in May of 2008. Photograph by Zeroxysm; used under public domain access.





Figure 4. A Google Earth view of Bailey Yard. Image © Google 2017.

structure for only one dollar), was torn down in 1973.

You can read more about the \$1 North Platte Depot in my UP-HUB column published in the November 2016 issue of the YouTube Model Builders eMag here: <http://www.youtubemodelbuilders.com/emag/download/YTMBemagR12.pdf>

The Golden Spike Tower

Bailey Yard has a large observation tower (named the Golden Spike Tower), that has been built for train buffs and tourists who just have to see this massive yard for themselves. You can come and view the yard in comfort at the tower either from the seventh floor's open-air balcony, or the eighth floor's fully enclosed observation deck.

The tower opened in 2007 and has seen visitors from all over the United States and from all corners of the world. The tower replaced the old observation deck that used to be situated about 100 yards from the eastbound hump. I have spent many nights watching crews shove cars up the hump, pull the pins and let the cars roll down to their assigned track, all to the sound of a pair of

SD40-2s and squealing flanges as the retarders slowed the cars just enough for a perfect coupling.

Bailey Yard in North Platte should be on the top every train enthusiast's list of places to visit. The large scale of the yard will blow you away. If you can't make it, there's no need to fret. The Golden Spike Tower offers a live webcam so you can watch the action around-the-clock from the comfort of your home. Click here to watch: [http://](http://goldenspiketower.com/bailey-yard/live-cam/)

goldenspiketower.com/bailey-yard/live-cam/. 

About the Author

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre, 1500-head of mother cow, ranch. Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930's to the 1960's, in central and western Nebraska. Harry is a Sustaining Member of the Union Pacific Historical Society and a member of the UPHS Streamliner 100 club. He is a National Model Railroad Association member currently working on his Master Model Railroader Certificate. Harry regularly posts videos on his YouTube page. You can follow Harry as he works on his 7th layout at <https://www.youtube.com/channel/UC6-MPHmYU3Cc2uEVfjZDIcQ>.

Figure 5. The Golden Spike observation tower in North Platte, NE. Photograph by Ammodramus; used under Creative Commons 1.0U license.



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Space is limited so make sure you don't miss these popular Hangouts!



By William Graham

You Can Do It!

If you have been following the recent YouTube Model Builders Hangouts, you know that Miles Hale, Andy Crawford, and Barry Rosier are in the midst of building a fine-scale house.

“Fine-Scale” ... now that is a term that is not in my vocabulary. If it ain’t plastic, it ain’t happening on my work bench!! Truth be told, I was (and to some extent, still am), a little nervous of these types of builds. It takes me out of my comfort zone and tests my abilities for critical thinking; and if you ask my wife about my critical thinking skills, she will tell you that it is she who balances our checkbook!

Enough about my math prowess ... where was I? Oh yes: fine-scale building and why it scares me so much. As I stated earlier, it takes me out of my comfort zone. But, that could be a good thing; it pushes me to a level where I ask myself, “Can I do this?”

When building kits out of a box (plastic), it is rather straightforward: you have the instructions, exploded diagrams, and numbers that match the precise place where A intersects with B, and bada-bing, you’ve got a model. Now you’re da Man! You got it built and put it on the layout, and everyone who sees it thinks, “Hey, he’s good!!!”

Then you think bigger; you let your ego dictate to you that nothing can

stand in your way, and you purchase a fine-scale kit. Oh, yeah, I’m cooking with gasoline now!!! You open the box, and the only plastic you see is the bag that everything is packed in, and nothing – and I mean nothing – looks familiar to you. You then come to that realization that maybe, just maybe, you are above your pay grade here. Upon further inspection, you notice that there are no exploded diagrams of the model, but there is a finely written, 30-page instruction manual; the last time you read something that in-depth, you were in high school, and you had the nerdy kid read it for you and then give you the cliff notes.

You realize this is not going the way you thought it would, but not all is lost. You’re a pretty smart guy; you can think on your feet, and you did not get this far in life by backing away from a challenge. It’s just a kit; a wooden kit you tell yourself. How bad can it be? If I mess it up, no loss, except for the \$85 + shipping and handling that I spent on it. (But, hey, I drop more than that on the kid’s braces ... not the same thing, but worth a try).

So, you attempt it. You read all 30 pages; okay, maybe you first look them over, and then realize you must read them; and you do! After four hours, you get through the instructions and get ready to tackle this project. The idea dawns on you that you are having fun and there is a

sense that you might not finish this build in one night, but rather in few days ... okay a month ... oh, all right, six months!! Nonetheless, you forge on and, after a while, you realize, “I can do this!!”

The comfort zone we set is of our own doing, and sometimes we must break through that glass ceiling of our own limitations. We got into this hobby to have fun and, along the way, to challenge ourselves. What better way than to take on a fine-scale build; it may not be your thing, but you won’t know until you have taken it around the block for a test run and realize that **YOU CAN DO IT!**

- Bill Graham 

About the Author

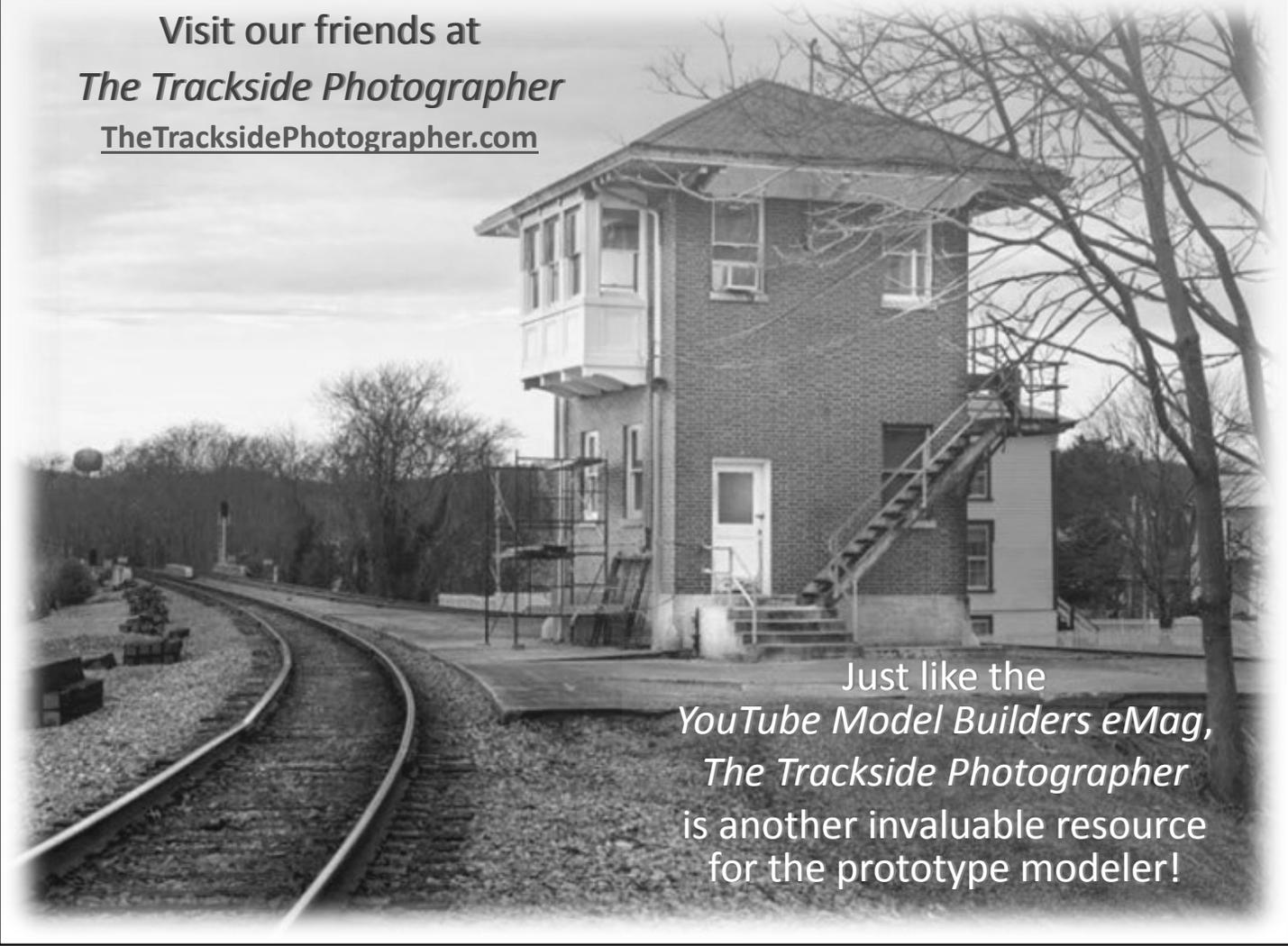
William “Big Bill” Graham is a retired motorman for the New York City Transit Authority (NYCTA) where he pushed the Iron Horse for over 30 years. He spends his time with his beautiful wife Georgean of 38 years and working towards world peace. In his spare time he works on his South Brooklyn Railroad. Follow “Big Bill’s” progress on his YouTube Channel at <https://www.youtube.com/channel/UCqM-v6qryZa702BwAEaCENQ>.

The Trackside Photographer

If you are looking for a wealth of interesting railroad lore along the tracks: depots, freight houses, signals, interlocking towers, bridges, trestles, shops, turntables and other trackside structures and equipment, then look no further than *The Trackside Photographer*.

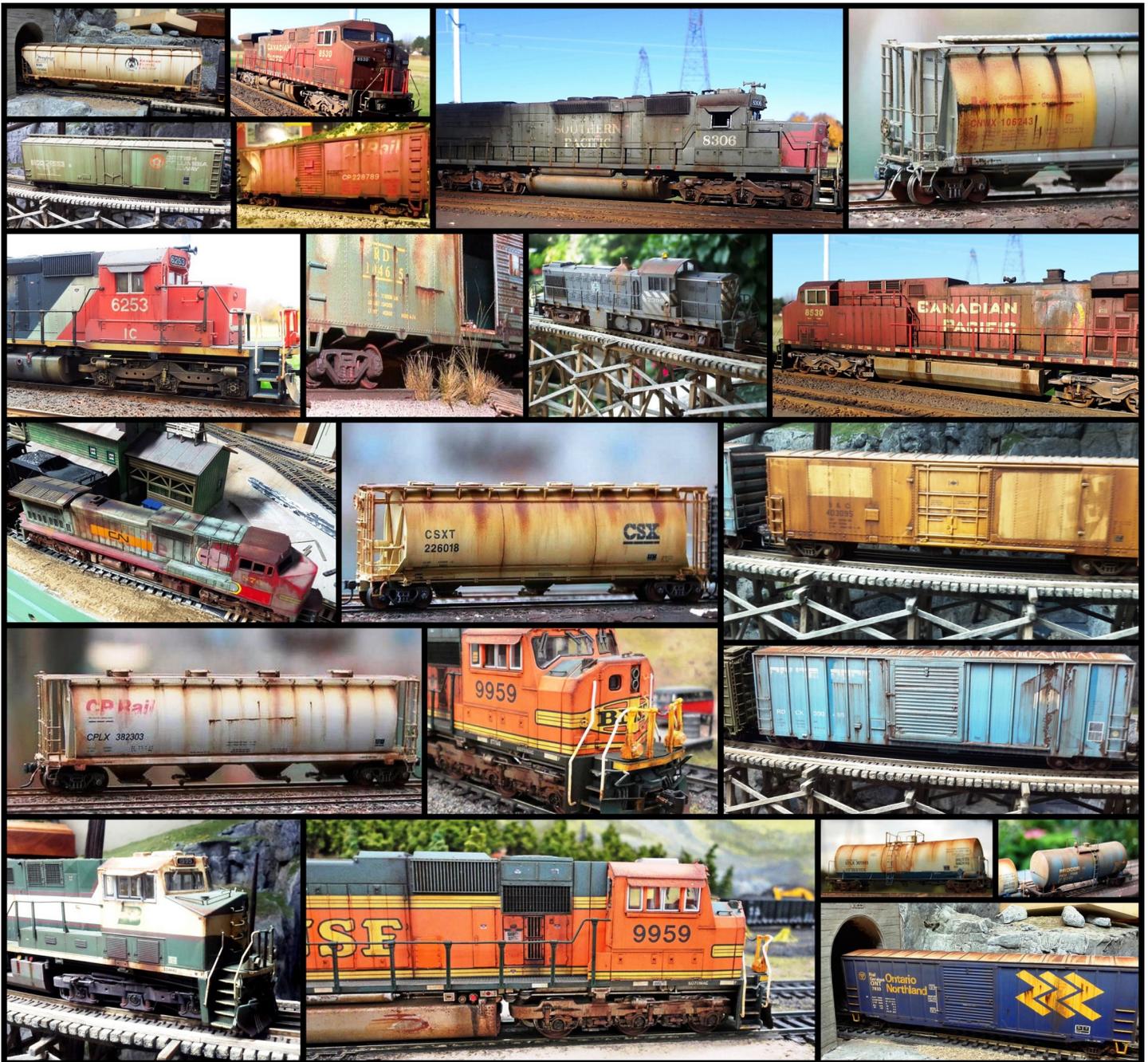
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Just like the
YouTube Model Builders eMag,
The Trackside Photographer
is another invaluable resource
for the prototype modeler!

COMMUNITY COLLAGE



In this issue we present the work of master modeler Ralph Renzetti. Ralph is a weathering whiz and has a keen eye for detail. You can check out Ralph's amazing work on his Facebook Page, <https://www.facebook.com/WeatheringbyRalph> and on his YouTube channel, <https://www.youtube.com/channel/UCjt37b04U20FfjqA7RwwzDA>.

If you would like to share pictures of your layout in the Community Collage, please contact us at YTMBemag@gmail.com.



PICK 3

In each issue we share with you three YouTube Model Builders' channels that provide the community interesting ideas, tips, tricks, and resources. Here are three channels that will help you be more creative in your modeling efforts.



Muskoka Steve

<https://www.youtube.com/user/MuskokaCentral/feed>

Steve enjoys scenery construction and weathering, and his Muskoka Central HO layout reflects that. His channel contains some very helpful videos in which he walks through the construction and weathering of craftsman models.



Ron Klaiss

<https://www.youtube.com/channel/UCsZME9t1BPnKiTIM2M6zbHw>

On Ron's YouTube channel, you can follow the progress on his two layouts: one he is building with his Dad in HO, and the other (HO/HOn3) occupies a significant portion of his basement and features majestic mountain scenery. Many of his videos feature benchwork, electrical/DCC, scenery, and model building.



The Trackside Modeler

<https://www.youtube.com/channel/UC2Jk5gGHJNjH4RjW92kP9ag>

Dave Frary has been an active professional model builder, model railroad builder, photographer, and instructor for more than 40 years. His photos, plans, and stories have appeared in many publications. His YouTube channel will provide you with many ideas and techniques that you can apply to your own layout.



Into Facebook?

Check out the YouTube Model Railroaders Facebook page!

Geno's Corner

Being Prototypically Correct



By Geno Sharp

All Photos by Geno Sharp

Hey, folks! Welcome back to “The Corner!” First, I will issue a disclaimer for this piece. It is more of an editorial than my normal modeling “on the cheap” (that I normally stick to). I had planned a piece on passenger trains in the south, and will talk about passenger train modeling in just a bit. But, I’m battling the “flu-

monia bug,” for several days, and well, I want to jump on the ole’ soapbox for a minute and *git’n* my gripe on.

Now, it might be just me, but it seems the gap between prototype modelers and those who attempt to model prototypically has been growing as of late. There are those who

will beat you to death with a piece of cork roadbed if you’re missing a row of rivets. And then there are those who believe that if the trains are sitting on the rails, it is prototypical. Where is the happy spot in the middle, so we can pour the gravy on the taters? I am the first to say that we need to strive to get the most out of modeling and improve our skills as





Figure 1. A blue-box passenger car looks alright with accessories and weathering.

we travel down the modeling roads in our community. But, there were times when (as in my case), if I actually modeled prototypically, it would have taken away from the prototype look.

Please allow me to explain my thoughts. When I was planning the rework and back-dating of my Belt-line layout, I wanted to include passenger operations on the layout. But, I ran into a problem: my layout was smaller compared to other layouts. When it came time to lay the track (to get the most bang for my buck), I used smaller radius curves for the track plan I wanted. And then I started to add passenger trains to the max; full-length passenger cars did not look great on those small radius curves. So, I made the executive decision to go with the small, “less prototypical” Athearn

blue box passenger cars for my passenger fleet.

Yes, I realize this is not the first choice for prototype modeling, but with minor body work and upgrades, you too can make these non-prototypical cars look prototypical.

For the heavyweight cars, I added a few details: window shades, operating diaphragms, metal wheels, and a little weathering (see Figure 1).

Once the upgrades were completed and the cars were assembled on the train, I achieved the look I wanted

Figure 2. Shorter passenger cars work better on tight corners.





Figure 3 (left). I modified the streamline cars more heavily.

Figure 4 (below). Here you can see the modifications I made to the underside of the streamlined cars.

on the smaller radius curves (see Figure 2).

For the streamlined cars, the changes I wanted to do were a little more in-depth, but still easy to do. The biggest change I did to these cars was to remove the skirting. It was an easy task. I used a Dremel tool to cut the skirt off from the bottom of the car and used a file to smooth out the cut. For the center box, under the frame of these cars, I filed the sides smooth. Through executive order, I deemed these to be A/C units. I added a few underbody boxes and details to achieve this added effect. The result was a prototypical-looking-but-not-prototypical car (see Figures 3 and 4).

There will always be a great divide when it comes to what is or is not prototypical. It all boils down to finding a spot in the crowd; you can stand on your tip-toes and you'll shine through the clouds of rivet counters. 🚂



About the Author

Geno Sharp is a retired law enforcement officer with 21 years of service.

Geno has been involved in model railroading for over 30 years and is now a YouTube channel owner.

He produces a monthly layout blog video for his YouTube channel, [Gknos Custom Models](#), as well as various "how-to" and structure build videos.

Geno is currently working on his

HO-scale South Dixie Railroad which is home to the Central City Belt Line. The layout is set in the late 1940s to early 1950s. It features steam and first generation diesels from many of the deep south railroads. His layout features many highly detailed and weathered scenes, and hand-laid track.

You can learn more about Geno's weathering techniques and about his Central City Belt Line on his YouTube channel [Gknos Custom Models](#).

YouTube Model Builders eMag

A Free e-Magazine Produced by YouTube Model Builders.

Welcome to All New Subscribers!

Here are some themes we are developing for our upcoming issues:

- **Electronics and Control Systems for Model Railroading**
- **Model Railroad Photography**
- **Modeling Passenger Trains**
- **Using 3D Printing and 3D Modeling in Model Railroading**
- **Prototypical Operations**
- **Modeling Narrow Gauge**

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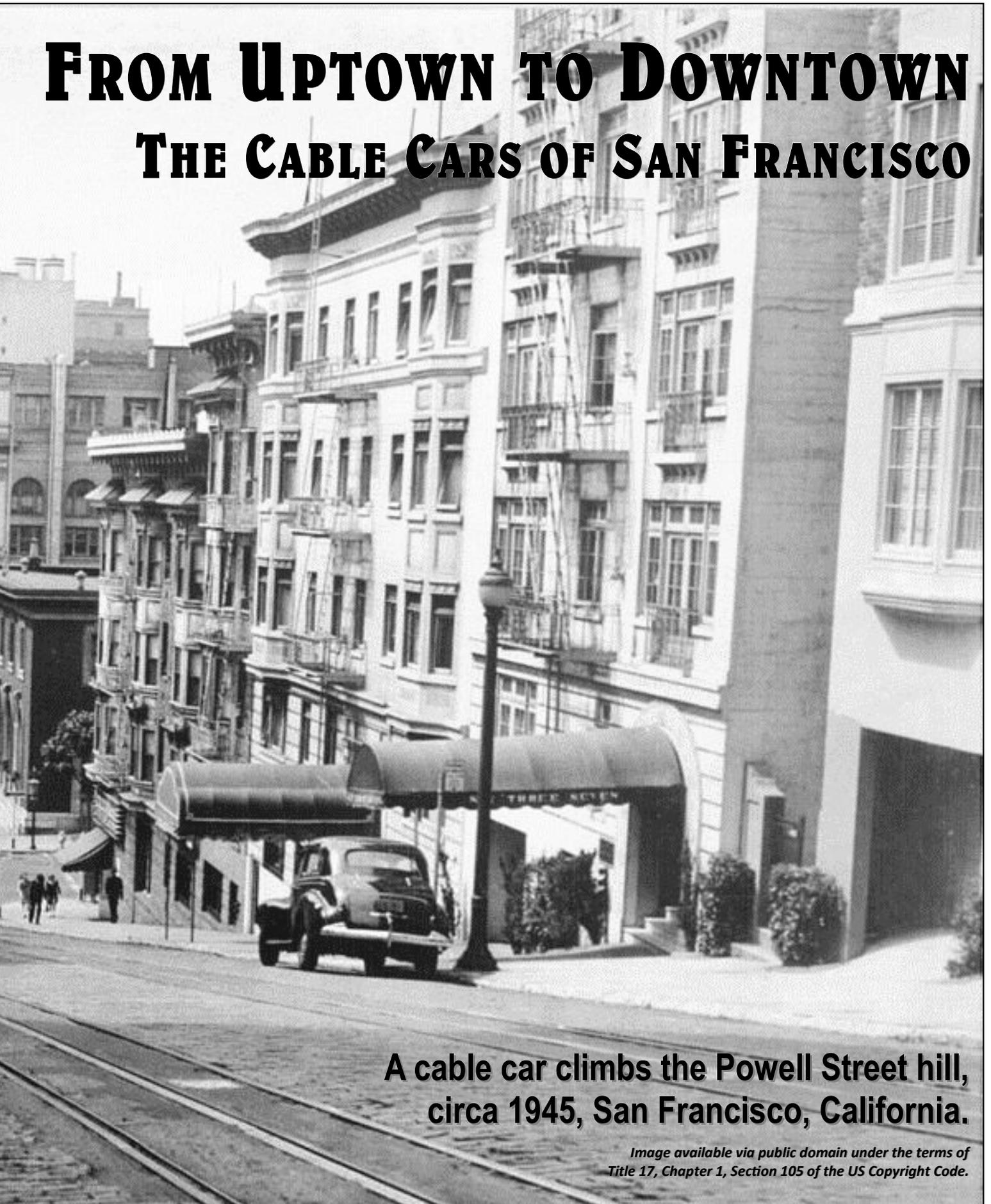
We look forward to hearing from you soon!





By Jack Hykaway

FROM UPTOWN TO DOWNTOWN THE CABLE CARS OF SAN FRANCISCO



**A cable car climbs the Powell Street hill,
circa 1945, San Francisco, California.**

*Image available via public domain under the terms of
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The modern 21st-century city is an efficient machine. Freeways carve elegant lines through neighborhoods, different modes of public transport are coordinated down to the minute to make a journey from uptown to downtown as seamless as possible and traffic signals are efficiently-timed to keep the journey on surface streets moving along quickly.

These modern metropolises are always evolving, moving, and improving, and the noise is fantastic. Stand on any busy street corner and take a listen to car engines revving, sirens blaring, jackhammers pecking, people talking and ... cable car bells ringing?

Hold on a minute, that can't be right. 21st-century city with cable cars? Welcome to San Francisco, California. A fleet of historic cable cars still ply the streets of the "city by the bay" every day, transporting residents and tourists over the steep topography of Nob Hill with ease. The San Franciscan cable car system has played an incredibly important role in establishing the "city by the bay" and in making it the economic powerhouse it is today.

Horse-drawn carriages on rails were the main method of public transport in San Francisco before the creation of the cable car network. Sets of multiple horses were used to pull heavy streetcars over the intimidating terrain on which San Francisco is built. The system offered riders a fast, convenient service around the city – until it rained, that is. Horses would struggle to get a grip on San Francisco's cobblestone streets when they became wet, and operators would cruelly whip the animals

so they would not stall on the slippery, steep hills.

Andrew Smith Hallidie witnessed a horrible sight one rainy summer day in 1869 when a horse-drawn street-car careened backwards down a hill after the set of horses lost grip on the slippery road. The five horses were dragged behind the car to their deaths. Hallidie, an engineer, was shocked at what he had just witnessed, so he decided to do something to make sure something so horrific would never happen again.

What he came up with was genius: a railway car pulled along by a steel cable buried beneath the city streets. The cable, powered by a steam engine at a central powerhouse, ensured that the cable car could tackle the steepest of gradients without risk of rolling down the hill uncontrolled.

Hallidie entered a partnership to create San Francisco's first cable car company, the Clay Street Hill Railroad. Construction of the Clay Street line – San Francisco's first cable car line – began in May of 1873 and was opened to the public in September of the same year.

The Clay Street Hill Railroad was the only cable car operator in San Francisco for four years, until the Stutter

Street Railroad, a former horsecar company began operating a cable car service in 1877. They used a similar system to that of Hallidie's patented design.

Several other cable car companies followed suit and began building routes crisscrossing the city. Following the Stutter Street Railroad, the California Street Cable Railroad began operation in 1878. The Geary Street Cable Railroad (1880), the Presidio & Ferries Railroad (1882), and the Market Street Cable Railway (1883), opened for business in quick

Figure 1. Cable car No. 10 assaults one of San Francisco's many steep hills as passengers enjoy the view. Photo by John O'Neill; used under GNU Free Documentation License, Version 1.2





Figure 2. A view from behind the gripman in a cable car. Passengers are enjoying the gorgeous summer weather. Photo by Listgod; used under Creative Commons Attribution-Share Alike 3.0U.

The cable cars continued to operate reliably for nearly forty years before they were again threatened with extinction. This time it was the lower operational costs of buses that jeopardized the few remaining routes of the cable car network. Unlike streetcars, buses would have no trouble operating on the steep hills of San Francisco. Once again, the future was uncertain for the city's famed cable car system.

Thankfully, concerned citizen Friedel Klussmann founded the Citizens' Committee to Save the Cable Cars and she began a public campaign demonstrating the value of cable cars to the city of San Francisco. Public and corporate support grew quickly after local newspapers published

succession. There was a five-year gap until the next series of new lines began public operations. The Ferries & Cliff House Railway opened in 1888, followed by San Francisco's final cable car company; the Omnibus Railroad & Cable Company, which opened to the public in 1889.

By 1889, 53 miles of track was laid by San Francisco's eight cable car companies. Routes stretched from the Ferry Building to Golden Gate Park and from the Castro to the Mission Districts, and everywhere in-between. The cable car network offered fast, safe, and affordable trips to nearly every corner of San Francisco. Thousands used the system every day to get from points A to B, the network had become indispensable to the city.

Then disaster struck. The Great Earthquake and widespread fire of 1906 reduced swaths of the city to rubble. This terrible event destroyed much of the cable car net-

work as well. As the network would be very expensive to rebuild, the city decided to invest in cheaper, faster electric streetcars, and abandon as many of the damaged cable car routes as they could.

However, cable cars were still the best choice for areas where the hills were too steep for conventional streetcars to tackle. Although some of the steeper routes were rebuilt following the devastating earthquake and fire, the system would never be as large as its former self.

Figure 3. The position of the grip beneath a cable car. The grip is operated by the gripman from inside of the car. Photo by HaeB; used under Creative Commons Attribution-Share Alike 3.0U.





Figure 4 (left). A section of cable from the San Francisco Cable Car System. Photo by HaeB; used under Creative Commons Attribution-Share Alike 4.0I.

cable. The grip works very similarly to a clutch in a vehicle with a standard transmission. The gripman (the operator) opens the grip and applies the car's brakes to stop at traffic lights and at stations; then upon departure, he/she will slowly tighten the grip on the cable so the car accelerates smoothly. The cable is always in motion (see Figures 2, 3, 4, and 5).

Figure 5 (below). A cable car grip, shown here in the closed position without a cable. Photo by HaeB; used under Creative Commons Attribution-Share Alike 3.0U.

On top of an accelerating force, the cable acts as the primary braking system for the cars as well. Cable car brakes do not need to be applied while the cars are descending the steep hills in San Francisco. The cable car's grip holds on tight to the cable – up to 30,000 pounds per square inch – when descending a hill. The constant 10 MPH speed of the



Klussmann's story. The committee succeeded in placing an amendment on the November Ballot, which passed with near unanimous support.

Today, three lines remain in service. The Powell/Hyde Street and Powell/Mason Street lines travel north to south while the California Street line is orientated east to west through the city, connecting Fisherman's Wharf, Union Square, and the financial district. The Powell/Hyde and Powell/Mason routes use shorter single-ended cars whereas the California Line uses double-ended cars, eliminating the need to turn the cars around when they reach their terminals.

The historic cable cars have no engine, therefore they cannot move

independently of each-other. The cars can only move when they're gripping onto the steel cable beneath the streets. The cable is tucked away in a slot between the running rails, and is always moving at a constant speed of approximately 10 MPH. Each cable car has a grip that is extended through this skinny slot, and can grip the moving

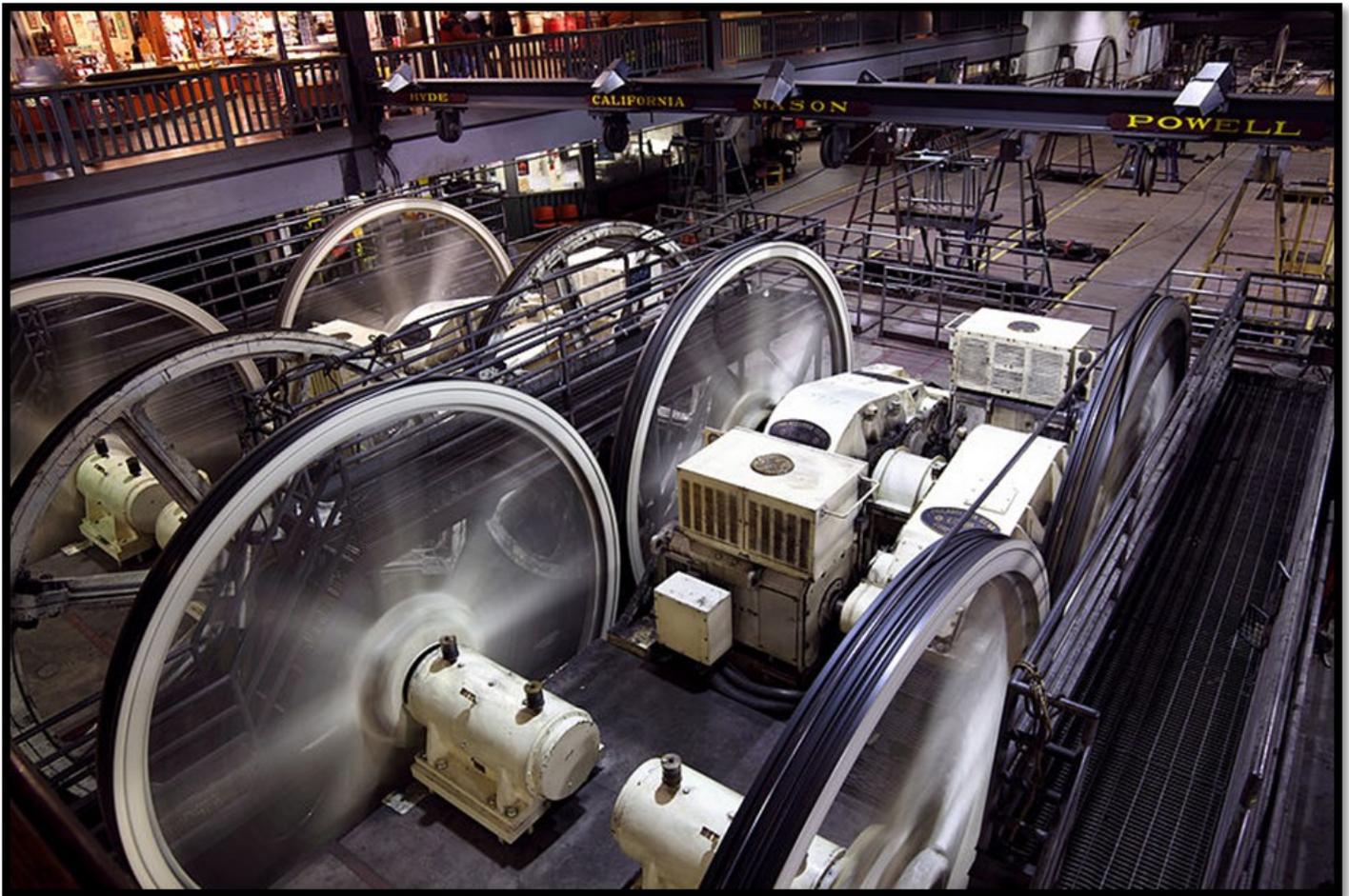


Figure 6. A panoramic view of the powerhouse. The 14-foot sheaves are seen spinning cable around the network. Photo by Caroline Culler; used under Creative Commons Attribution-Share Alike 3.0U.

cable keeps the car from careening down hills at uncontrollable speeds.

The beating heart of the entire cable car network sits in the middle of the system. The big cogs of the cable car powerhouse spin the cable around the system circulating each line's cable around the route (see Figure 6). In the early days of the system, coal-fired steam engines were used as a power source to circulate the cable. Today, four 510-horsepower electric motors drive the 14-foot sheaves which, in turn, propel the cable around the network. A set of tension sheaves keep the cable at a constant tension, as it can become loose from wear-and-tear and car load on the line.

The future is bright for the San Francisco cable cars: the vintage network still sees an average daily ridership of approximately 20,100 people or nearly 7,500,000 over the course of a year. These impressive numbers will surely guarantee the preservation of the system for generations to come! 🚃

About the Author

Jack Hykaway is 17 years old and lives in Winnipeg, Canada. Model railroading and rail-fanning are his favorite hobbies. He spends his free

time working on his HO scale layout, or trackside waiting for the next train to roar past. Jack has been in the model railroading hobby since he was seven years old.

Like most people, Jack started with an oval of track, and a rugged train set. He built his present layout when he was 11 years old, and he is constantly upgrading it. However, there is still a long ways to go. Climb aboard and follow Jack's progress on the Silver Lake Junction layout on his YouTube channel at <https://www.youtube.com/user/WinnipegRailfanner1>.

San Francisco Cable Car Statistics (Courtesy of of the sources listed below)

Owner	San Francisco Municipal Transportation Agency
Areas Served	Chinatown, Financial District, Fisherman's Wharf, Union Square, Nob Hill, Russian Hill
Line Number	59 – Powell/Mason Streets 60 – Powell/Hyde Streets 61 – California Street
System Length	5.1 Miles
Track Gauge	3' 6"
Cars in Fleet	40 (12 double-ended, 28 single-ended)
Number of Stations	62
Average Daily Ridership	Approx. 20,100

Sources:

- San Francisco Cable Car Museum: <http://www.cablecarmuseum.org/index.html>
- San Francisco Cable Car website: <https://www.sfcablecar.com/index.html>
- Market Street Railway: <http://www.streetcar.org/>
- SF To Do: <http://www.sftodo.com/cable-car-san-francisco.html>

Google Hangouts And Etiquette



By YouTube Model Builders

YouTube Model Builders works very hard to bring YouTube model railroaders together in what is called Google Hangouts. Google has many free resources for us to use and we look forward to taking full advantage of these resources.

What is Google Hangouts? It's an application that runs through a web browser that allows up to 10 people to connect with webcams. Using this forum for model railroading discussions is great! It builds friendships, inspiration for model railroad building, and most of all, a great place to air your designs, models, and share in your building adventures with others in real-time. Many of the YouTube video producers you know "Hangout" in these Google Hangouts.

Many builders simply place their webcam on their project they are working on

and show others what they are doing; it may be they are building a model, laying track, or working on anything model railroad related. Many look for feedback from the group, get questions answered, and elaboration on the many projects on which they are working. It's simply a great place to interact in real-time with other YouTube model railroaders.

These Google Hangouts are posted most every day on the [Google+ YouTube Model Railroaders Community](#) page. You are not required to use a webcam or even a microphone; you may only use the provided chat box if desired.

With the utilization of Google Hangouts by many model railroaders, YouTube Model Builders has scheduled specific types of events for the community members. Here are the Google Hangouts that we have arranged to

help bring more model railroaders together.

Topic Driven, Hangout Shows:

YouTube Model Builders invites specific guests to explain techniques in model building, and many times these individuals are invited to our topic driven hangouts based on videos they have produced.

Showing progress real-time, the topic driven hangouts are moderated by YouTube Model Builders staff, which keeps these hangouts on subject and informative. These Hangout shows are much like clinics as they are more so for instruction and techniques shared by the presenters.

We have several topic-driven Hangout shows. One of the shows is the FineScale show, which is hosted by [Andy Crawford](#)

and Johnny of [Southeast Rails](#). In this show, Miles Hale, along with [Andy Crawford](#) and [Barry Rosier](#) are going to take you from beginning to end of constructing highly-detailed wood structures and scenery.

One of the monthly Tuesday night shows includes guests such as Miles Hale and [Bill Beranek \(The Track Planner\)](#), while the Barry and Mike MRR Tech Show, which is moderated by [Barry Rosier](#) and Mike Dettinger, focuses on the more technical aspects of model railroading such as DCC controls and JMRI. There are plenty of opportunities to learn from many experts in model railroading through these Hangout shows. So come and join in!

General Moderated Hangouts: Thursday Nights

Where many hangouts (posted through the Google+ YouTube Model Railroaders community page), encompass many subjects and often have many people showcasing their layouts, YouTube Model Builders has a weekly scheduled, Thursday night, general moderated hangout, to specifically keep on the subject of model railroading. The Thursday night hangout is moderated by Johnny of [Southeast Rails](#) and the topic selection is really driven by community feedback.

YouTube Model Builders as a team helps drive these Hangouts, to spread the word, and get the YouTube Model Railroaders involved. Many people participate and as these numbers have grown, a simple etiquette is followed for the hangouts posted on YouTube Model Railroad resources.

Below is a simple guideline for participating in any YouTube Model Builders hangout event:

- Always keep the conversation G Rated.
- Refrain from political/religion based conversations.
- When not speaking, mute your microphone.
- Keep the hangout fun and on model railroading subjects.
- Remember, you're in a room with others, try not to monopolize speaking time. Allow others to get in their input.
- If you have your camera on, please be presentable – remember others can see you!

Following these simple etiquettes will make hangouts fun, and most of all, suitable for anyone who might want to join! We hope to meet you in a hangout in the near future if you don't already participate! If you have any questions on this subject, feel free to ask any one of the involved YouTube Model Railroaders to help get you into the fun sharing in the Google Hangouts. 

Food For Thought...

Evolution of Modeling Language



By Andy Crawford

Language: Our Greatest Accomplishment

Language, in my humble opinion, is the single greatest accomplishment of the human experiment. It's the single greatest inflection point. I say this with zero trepidation, despite the fact that I'm an avid technologist, professionally and personally. It's my job, but also my entire adult life's pursuit; it's not just my profession, but as much my personality. I might say I'm a futurist, and I truly enjoy living on the bleeding-edge of the technology revolution. With that said, you may think the Internet (or at least the human view of the Internet), would register as an inflection point for human civilization, and of course it does, but it's hinged on language. There are many things that have brought us to the civilization we enjoy today and have taken us away from scratching a living off a rock. It started with the opposable thumb, and of course that's important. I challenge you to build anything with a thumb taped down. (And you should try to YouTube your efforts; we need more quantity of comedy to dilute the deluge of cat

videos.) However, language took us somewhere else entirely. Some may argue that this topic doesn't relate to our modeling, but I do have a point.

The Point of Inflection

We must add language to our hobby. I am not talking about the language spoken late at night when things are not going well with bus wires under the layout, but the language we use when we socially engage with other modelers. The social aspect of modeling is often touted by modelers as one of their favorite aspects, and for one of the large niches of modeling interest – operations – usually is assumed as a requirement. But language has an additive property, and the knowledge shared has improved and will continue to improve my modeling more than any other single investment of our most valuable resource: time. Prerecorded YouTube and other video sources are great, and sometimes they are the right medium. Books and magazines are perfect for me when approaching lengthy subject material or where much theory comes into play; take DCC, for example. But the knowledge shared with me through

our community's hangouts is my go-to source for information.

Language doesn't exist in a vacuum. There's a lot of history and legacy in all languages. Our hobby has had 100+ years to develop the requisite language; much of that development has been much more recent, but there's still a legacy. Classically, the term *craftsman* was all the language required to define a modeler of advanced skills/techniques, products, or materials that met the qualifications. Only in the past few decades have the combination of mechanical ability, market stability, newer technology, and lower-cost production aligned to bring to fruition the products qualified by the term *fine-scale*. This has allowed us to beat physics into submission to do such things as scale-accurate track work with the appropriate level of detail, or miniaturize electronics to permit advanced circuits for DCC so we can prototypically operate multiple locomotives in concert. Advancements in the hobby will not stop happening, and to take advantage of this, we adapt, we learn DCC, and we get zapped several times as we get accustomed to static grass. Most importantly we invent and modify our

language and terminology to keep up with these advancements so we may more effectively communicate with other modelers. I hope Webster's can keep up with the evolution of model railroading terminology.

We easily realize the benefits of newer modeling techniques. But if the language we use doesn't adapt in due time, then we're not always as well-understood in our modeling communities as we hope to be. As a result, we are not able to distill our own vision for our own understanding. If I can't explain my vision to myself, then how can I possibly explain it to other modelers? The point is, advancements continue to arrive, and they are not simple to define or realize. In fact, these advancements collectively are a category of modeling, style, and vision, if you will. For the widest adoption and knowledge-sharing potential, our language must adjust for this point of inflection, and we must adapt our hobby and ourselves to the use of this language.

The Value of Terminology

An important way I can justify the value I place on language for our hobby is terminology. *Fine-scale* is just a term, no different from *craftsman* or *premier*. How that is interpreted, or what it means to you, may be debated or even malleable. I've written in a previous *Food for Thought* column my debate regarding the use of the terms *craftsman*, *fine-scale*, and *high-fidelity* modeling. In brief, my argument has been that *craftsman* is more of a way of modeling, of a choice of materials and techniques that lean towards hand-crafted and scratch-built. *Fine-scale* is

defined more as an attention to detail; to proper scaling of components and details. And *high-fidelity*, a description I prefer, is an attention to the accurate reproduction of something from the real world (the prototype) into a miniature version. We chose the term *fine-scale* for the new YouTube Model Builders live show series due to our desire to showcase techniques for accurate, highly-detailed modeling, with the desire to focus on "prototype-like," but without the necessity to target exacting replication of a particular prototype structure. There are reasons for this, but suffice to say, those reasons are the meat of the discrepancy between the uses of these terms.

For clarification purposes, here is an argument I'd like to present. *Craftsman* as a word has a lot of use and value within the language fabric of our hobby. But it is my opinion that the term *craftsman* has been over-used. All high-quality modeling, techniques, and/or products have fallen under this term for some time, and that generalization is unfortunate; not every highly-skilled modeler or every high-quality model built is *craftsman*. And for this reason, its value has diminished. A model built from off-the-shelf styrene kits, bashed into a faithful replication of your hometown station should qualify as a high-quality faithful replication achieved from a photograph or personal experience. But for some, it may not qualify as such within the context of their language due to the lack of proper terminology to correctly articulate that particular construct. On the other hand, the finest *craftsman* structure may be built with the most labor-intensive techniques

and yield beautiful results, yet be as whimsical as to not be appropriately described as prototypical or prototype-like. It may indeed be something that never would – or never could – be built in real life, and that's just fine. You just might refer to this prototype as *high-fidelity* in that case, but the word *craftsman* also is a perfect adjective for such quality work.

If there is a cross-reference matrix between *craftsman* and *high-fidelity*, with the axes being skills/techniques vs. faithful replication, *craftsman* would lean towards skill, but could be anywhere along the replication metric. Likewise, *high-fidelity* would meter high on the replication axis, but could exist anywhere along the skill factor.

This brings us to my love of the term *fine-scale* and the resulting modeling that I believe more aptly falls under this adjective. To me, *fine-scale* conjures an image of a high-quality, "prototype-like" project, layout, boxcar, or whatever, and implies that some skill is assumed necessary. (I use that expression "prototype-like" to imply that it **could** exist, but doesn't **necessarily** have to exist in the real world.) As with any term, there are overlaps in interpretation and many grey areas. The term *fine-scale* doesn't completely clarify the grey areas, nor does it insure that we're all talking about grey dye #45, but it's closer. The term *fine-scale*, for me, covers modelers doing fine work, and gives credit for quality results, regardless of the particular processes, techniques, materials, or the time required. It also doesn't clearly identify you as a wood material modeler, or as a die-hard rivet counter of the prototype variety. It



This model by Miles Hale shows the meticulous attention to detail that is appropriate to the real-world colorations, weathering, and setting. It is an apt example of fine-scale modeling.

Image courtesy of Miles and Fran Hale.

just clearly qualifies the vision you have for the quality you are targeting. Also the term *fine-scale* is more inclusive of particular subsets of persnickety modelers of various persuasions. My wife calls my condition OCD, but since it's not a clinical OCD, I think persnickety does it much more justice :) Generally speaking persnickety is a pickiness that many prototype modelers experience: that pursuit to get really close to exactly-right.

Refinement of Terminology

There's a growing subset of modelers reaching for evermore exacting scale standards for all parts of their modeling efforts. This contingent of prototype modelers has defined standards in several popular scales, as I've mentioned in a previous edition of this column. However, those modelers fit naturally within the adjective *fine-scale* as much as they do to their *proto:scale* designation. Those adhering to appropriate gauge

and scale for all components – including track and wheelsets – have further refined the NMRA specifications and have developed standards such as the *Proto:87 (HO)*, *Proto:64 (S)*, and *Proto:48 (2-rail O scale)*. The *Proto:48* standard has seen a more prolific growth in popularity and there's a number of reasons I see for this. I would like to pursue some of those reasons possibly in a future column. But suffice to say, these modelers may, but do not necessarily, qualify their work as *craftsman*. And while it's often the case that they are prototype modelers with a vision of *high-fidelity* and faithful replication of a prototype, that vision does not necessarily fit within the qualifier of *fine-scale*. Someone could just as likely desire proper wheel flanges, tread, and track-work, appropriately scaled, if they are a freelance modeler, and it's likely just a coincidence of interest alignment. So *high-fidelity* may suit these *proto:scale* modelers, and then again, it may not.

Many fine craftsmen modelers use code 100 rails (grossly oversized when compared to any prototype), and NMRA over-scale wheelsets. There is nothing at all wrong with that if it meets your expectation and your vision, but clarification via the correct usage of terminology will help better set your expectation. Distinction makes it easier to communicate with others. For example, I am a *Proto:87* modeler and I could simply say "*Proto:87*" if I were asked about my vision or something particular about my modeling. However – and this comes from personal experience – it may take longer to explain *Proto:87* to someone who knows nothing of *Proto:87* or hasn't seen layouts built to those exacting standards. It might, in this case, be easier to explain my vision and modeling by saying *fine-scale*. Using the right language and terminology will ultimately help you discuss your vision with fellow modelers with much greater success.

Vision and Terminology

As I've mentioned in every edition of this column I've written, vision is key; and in this case, choosing the appropriate term to describe your modeling should be dictated by your vision. Vision is quite important when determining the correct language to use in order to engage with fellow modelers, be it in a hangout, on social media posts, in various forums, or in person. If you expect people to get onboard with your vision – at least for the conversation at hand – appropriate usage of language helps. I personally drive everything from vision and give it the attention and respect it deserves. That is how I ensure my vision reaches fruition.

As a modeler, clarifying your vision with proper terminology doesn't negate your work; instead, it enhances what you derive from your vision and helps you focus that vision toward the areas for which you have the greatest concerns; in turn, this points you toward the areas where you aptly wish to apply your attention. However, it also helps if we have the appropriate language and terminology to provide some clarification within our social language; i.e., to appropriately convey to fellow modelers that all-important vision of ours.

No matter how many variants of terminology evolve within our hobby, some grey areas will persist. If we have or use fewer words, less-refined definitions, less clarification, less language, etc., then we have allowed language to fail at doing its job. More is lost than just that language. The consequences can be

lost potential, lost productivity, lack of collaboration, and diminishing of community. It's not as simple as losing quality of communication. You may never find products and techniques that fit your vision, all because the language let you down. And, it is not a failure of imagination, but rather a failure to describe that vision with the correct language. When this occurs, you just don't know the questions you should ask, and you don't know what exactly you should type into Google search – all because you don't have the language to give Google. Donald Rumsfeld was often ridiculed for defining knowledge categories such as known-knowns, known-unknowns, and unknown-unknowns: I personally think this descriptive language Rumsfeld used is quite adequate at defining the potential of not knowing that you don't know something. Going back to my example from above, I just can't tell you how much my vision coalesced once I found out about *Proto:87* several years ago. It was, and continues to be, the seed for change in the direction my vision took; it answered many of my questions and gave me the questions I needed to ask.

There may be a temptation to allow the clarification of your adjectives to judge your own work, or to think others will, but it's my belief that the vision is the ultimate measuring stick you can use to self-judge rather than words alone. 

About the Author

Andy Crawford, 38 years old, is a technology provider to mid-sized businesses and financial institutions, and a lifetime model railroader.

Starting young in the hobby with a train set, like many others, and after spending a decade as an armchair modeler, he returned to the hobby a few years ago, in full force. He models a very exacting replica of a 15 mile section of the Clinch Valley District of the famous Pocahontas Division of the Norfolk & Western Railway in 1952.

His interest in exacting replication of the prototype, fine scale craftsmanship, weathering, and prototypical operation can all be seen in his work. For him, recreating the experience of being a railroad professional, 1/87th the size, in the 50's is all the focus that is needed. You can check out Andy's YouTube channel here: <https://www.youtube.com/channel/UC8I2bTYfzVY37328sGPD9Bw>.



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