The Modeler's Journal

A Free Journal for Today's Modeler

Wargaming

Featuring
Jordan Ciccarelli's
Foray Into
Wargaming!

Be Sure To Check
Out Columns From
Harry M. Haythorn,
Jack Hykaway,
Dazzy Jay, and
The Track Planner

Read Part II of
The Anatomy of a
Model Railroad
A new article series
by Bill Beranek

Cover Photograph Courtesy of Jordan Ciccarelli

TMJ

Editor's Note...

In this issue of *The Modeler's Journal*, we explore wargaming and feature the modeling work of the very talented Jordan Ciccarelli. Jordan is a graphic designer who dabbles in tabletop wargaming such as Warhammer 40K. He enjoys the model-making, painting, and weathering of gaming figures and terrain more than the gaming itself – a true modeler. In his article "Wargaming - It All Comes Down to Weathering," Jordan writes about how he got involved with modeling and his experience with and passion for weathering his game pieces. For him, weathering is a tool that allows him to tell a story and portray a scene frozen in time. Be sure to read this delightful story by Jordan Ciccarelli.

In his article "Measure Your Layout Room – Twice!" Bill Beranek walks us through some common mistakes modelers make when measuring a room or space for their layouts. He reminds us that precision is important when it comes to measurements and provides guidance on taking more accurate measurements, including with the use of a laser measuring tool.

With this issue, Darren Johns (aka Dazzy Jay) begins a two-part essay on computer and remote-assisted model railroading operations. In part one he discusses the use of the TrainController™ software to accomplish the computer-aided control and automation of a model railroad. Find out how you too can automate your train operations.

Harry M. Haythorn, in his article "Modeling UP 844's First Excursion Build," tells us how the first excursion of the UP 844 started and how you can model the cars of this train on your layout.

Follow Bill Beranek as he takes you on a journey, from start to finish, of a unique N-scale point-to-point operations-based layout that is being built by his client Jim Kalenowski. In part two of this multi-part series entitled "The Anatomy of a Model Railroad," Bill describes, through pictures and commentary, the techniques Jim used to construct his benchwork and lay down the tracks.

And finally, read about how the Canadian Pacific railroad is celebrating its past by reviving its former identity banners and the famous beaver crest by proudly displaying them on its fleet of engines in Jack Hykaway's article "The Past, Moving Along In The Future." It's always fun to see the nostalgia of the past revived.

We hope you enjoy this issue.

Happy modeling!

– **JD (Loggin' Locos)**
Editor-In-Chief

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An Amiger Knight combat walker is ready for enemy-ripping action in Wharhammer 40K gaming.

This and much more within this issue of The Modeler's Journal.

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Wargaming

It All Comes Down to Weathering

By Jordan Ciccarelli

I have the honor of being one of the first wargamers featured in *The Modeler's Journal*. To not scare away dear readers, I wanted to begin by saying that I am not here to talk about game mechanics. My favorite part of miniatures and wargaming is by far the modeling aspect rather than the game part. I spend more time looking up conversion ideas and paint schemes rather than finding out this year's meta-pick to run in a space marine army. I have placed near the bottom of every tournament I've had the pleasure of taking part in. Just because the fate of my models is decided by dice rolls, doesn't mean that the lessons I've learned to get where I am today can't be shared between our hobbies. I'm a graphic designer by trade and so I've had to study art, with the pleasure of being able to apply it to my hobbies as well, and hopefully, I can have some lessons to share with my fellow hobbyists. So if I've held your attention

to this point, please consider this my olive branch to the model train enthusiasts, the diorama experts, and the model car lovers. This is my promise to keep this article to something that all of us modelers can use to hone our craft.

My Story

Growing up, I was the kid that made everyone nervous in the hobby shop. Before I even knew what a wargame was, my father had a model train setup in the garage that didn't get past the plywood mockup, but I loved it nonetheless. Even to this day hobby shops have a sort of magic to me, and six-year-old Jordan could never quite contain his excitement when in one. I was the typical hobby store kid that could move down package-stuffed isles with near-endless energy in a wonderland of model trains, cars, and tanks. The endless enthusiasm ensured I was enamored with the works on display. To put it simply, I wanted to do what they did, and I wanted to do it myself. But my scatterbrained ideas were always much too ambitious for my grade-school self. Allowances, Christmases, and birthdays couldn't quite meet the budget of these grandiose ideas for my very own model railroad. As a result, my model trains rarely got further than the bedroom floor, and model cars usually ended up as a mess of plastic, glue, and roughly-clipped sprues. But the passion never faded as I grew up. To this very day trips to the hobby store always possess that special magic that gets my creative juices flowing.

When a neighbor introduced me to *Warhammer 40k*, my love of video games and the desire for a model train set violently collided with this hobby. It was love at first sight. From there on, I was hooked. Of course, there was a lot to learn - from how to properly assemble a

The Caustic Corvids Escher Gang.

The Tempest's Eye Trench Riders.

model to my dad finding out the near-permanent stains that resulted from giving enamel paints to an eight-year-old boy. I barely even read the rules of the games themselves. I was too focused on my slowly-growing model collection, the background stories, and the fully colored hobby sections showing off the professionally painted example armies. Just like the model trains at the hobby shops, I wanted to do what they did with *Warhammer*. It wasn't until I was thirteen years old when I rediscovered the *Warhammer* setting with a novel, and I actually made an effort to put it all together with a real army for the game, and to learn the rules. Twenty years later, I'm still here painting away, even despite defeat after defeat on the tabletop. My armies lose, but they look good doing it.

My family always had a question that has stuck with me to this day. What makes gaming with miniatures different from video games? My best answer has always been that the forces I command are uniquely mine. Even if I paint a character from an established setting or model a vehicle from a historical era, there is nothing quite the same as the one into which I, Jordan Gabriel Ciccarelli have poured effort. To me, the magic of miniatures wargaming is that even before the model hits the table to roll off into mock combat it can possess a story and a personality of its own. Even when working in established settings, I take a piece of that setting and tell my own story within it via modeling. I've come to realize this goes back to my ill-fated aspirations with model trains. I'm not just making a railroad, I'm making **my** railroad. I'm not just modeling a town, or a tank, or a soldier, rather I'm modeling my unique vision of this subject and telling its story in this one moment portrayed by its pose, its paint job, and all of the unique details, conversions, and flourishes that come from my work. It's this sort of storytelling that I've become addicted

Weathering is a valuable tool that allows the modeler to tell a story and portray a scene frozen in time. Why would the Ogre that is shown here take care of his weapons when he can simply use brute force to smash aside his opponents? Thus the use of the weathering and rust on his weapons.

to, and one that can't properly be expressed in other mediums. Maybe that's why I've never won a tournament; maybe I'm too focused on the story told in a work of plastic rather than the events that unfold in the actual game.

Why Weathering?

So what does my evolution in modeling have to do with my armies being covered in rust, mud, gore, and grime? As the above progression may show, I've always had a desire to get my models dirty. When it comes to the forces I portray on the tabletop, I tend to favor ones that have been through the dirt and grime of their war zones to achieve a lived-in feel. I rarely favor the clean look of something fresh off of the assembly line and instead want to feature something that's been in the thick of a conflict for weeks on end. That's something I can communicate to a viewer, without even saying a word, through weathering.

Weathering is a valuable tool to let a model project tell its story, just like the actual sculpt or base. It all goes into the storytelling that your piece can communicate to a viewer without having to directly tell it to the viewer. A model features its subject frozen in a specific time and place, but some events that led up to that time. That is what I believe weathering can portray in a modeling project. For example, the ogre shown on the previous page can communicate a more brutish nature despite his foppish dress code because of the weathering used on his metal weapons. Why would he need the sharpest blade when he can simply use brute force to smash aside his opponents? So why would he care that salt water has corroded his favorite anchor? He may be well dressed, but clearly, he must be

a dangerous and scary fighter if his weapons are covered in fresh gore. This isn't his first fight today, so beware!

Just because my examples are from wargaming's more brutal settings, this doesn't give me a monopoly on weathering. These just happen to be the dramatic examples I favor in my work. These aren't even exclusive to the brutal war-torn settings often clashing on the tabletop. To put it simply, what stories are your projects trying to tell? Just because your model railroad may be as peaceful as can be doesn't mean that coal isn't a messy fuel source. Nor does it mean that your pickup truck hasn't been used before. Not every single piece needs to be fresh off of the showroom floor. Weathering can be a way for even a static figure to tell its unique history which in turn works to give a lot of personality to a model. It can be that extra little element that adds a new layer of realism to our work by giving it a

From left to right, progression of my paintings
skills and an evolution of techniques.

past as well as a present. The extra visual spark that hammers home what our subject has been through before the time and place in which we have frozen it. Now, the question is what personality do you want to give to a model, and how do you give it?

Learn to Paint Clean, Then Paint Dirty

Pictured on the previous page, you can see how my painting has progressed over the years - the literal evolution from the painter I described above to the one writing this article today. Beginning with *Uruk Hai Berserker*, to an old member of my first space marine army, to starting to grow confident in my painting with a *Ork Shoota Boy*, and finally to my latest complete miniature for a new *Dungeons and Dragons* campaign, you can see the progression. Seeing this progression as a painter, it became clear to me that I always had a desire to paint models dirty, grimy, war-torn, and weathered. Now, whether or not I was successful with past projects is entirely another matter.

Based on my experiences, I can offer one piece of advice when getting into weathering: learn to paint clean, and then paint dirty. This is one of the most difficult challenges to overcome when it comes to weathering. How do you make a model look dirty, but make it look dirty with purpose? How do you ensure that your work comes off as purposeful rather than lazy? What makes the difference between mud slopped onto a tank's tread as it would be in real life, versus a painter who just wanted to save himself some time? There is no magical technique, product, or process that can provide a catch-all answer to these questions. We're all modeling different things, and so our subjects would all be weathered in different ways.

The Dark Mechanicus fighters are ready for battle!

I firmly believe that the key to successful weathering comes from knowing how your subject got that weathering in the first place. The same acrylic mud product can be used to portray a pair of boots that have seen some use today, but it can also be used to make a tank look like it's been in the thick of fighting for days, if not weeks on end. The difference in the application comes from knowing just how much of a good thing to apply. For example, my work tends to be from more exaggerated settings. Therefore, I tend to portray my models with the rust, gore, and grime cranked up to hammer home their war-torn settings or give them an unsettling nature. So that means using these techniques may be a bit much for someone who's looking to add that lived-in feel to the old Chevy they're putting next to their model railway. But just because my implementation may be different than yours, doesn't mean I can't share the lessons I have learned on my road to being the painter I am today. The key here is experimentation.

There Are No Old Models, Just Test Figures

Many of the images featured in this article involve rust. My friends often joke that I'm either addicted to the stuff or my miniature armies simply forgot how to maintain their equipment. When I found a product that worked for me, I fell in love with the more sinister feel it added to my particular project. I started to apply everything I got my hands on in my rust filled force. But to my horror I realized, textured paint can destroy texture on a model! Suddenly all of that lovely detail on my favorite *Adeptus Mechanicus* fighters had become a slightly bumpy and brown mush. Thankfully, you can strip the paint from models; however, it involves a pretty laborious process and results in a lot of time wasted scrubbing with a toothbrush.

Many weathering products that are meant to add texture to a model can also change the detail of the sculpt itself. While this can be a great addition to certain techniques, it can fundamentally change the level of detail present on a miniature. That said don't be afraid of watching online tutorials, reading articles, and in general trying something new. But in my experience, even when using the highest quality materials recommended by our favorite painters, make sure to test them out in your own hands. Everyone's going to apply weathering pigments, washes, and textures differently. So the only way to know what the final result is going to be is to test it and experiment to find what is right for you.

With that said, older models can make great test beds for weathering products. I've run into the habit of never throwing anything away. If it's too damaged to make a good model, it can always be spare parts, if not spare parts, then it can be terrain, and if not terrain,

The Ogre Captain and his crew are pillaging a camp.

then it can be a test model. Many weathering products for things such as dust, dirt, or oil, tend to be very thin. Besides, many techniques for applying them require some sort of clear spirit to further thin them down. This means that they are meant to seep into cracks and textures to give them a more realistic finish. This is why I prefer to use test models rather than simply paint over test surfaces. Simply base-coating some old cardboard to try it out (like one might do to test some paint), just never cut it for me. That said, don't be afraid to dive into your bins of older models and use them to test out your newly-discovered secret techniques. Soon enough you'll find the look that's just right for the environment in which you want to portray your model.

Layers, Layers, Layers

Weathering is often the final layer added to your project. When it comes to edge highlighting and other finishing techniques, applying them beneath a coat of weathering can often be counter-productive, and end up damaging the effect. A rule of weathering I've come to find is that less is more. Even with the heavily weathered projects being shown in this article, applying two light layers will always be more effective than applying one heavy layer. Coming back to why I prefer a test model, one heavy layer is more likely to cover up or destroy the details. It's also less likely to allow the thinner washes and oils to seep into the cracks and textures

An Enforcer in action!

in your model. This means that it's more likely to look like a thick layer of paint rather than the pieces of your project that the user forgot to clean.

Ultimately, remember that weathering is a final layer, a flourish. The techniques you learn as you explore weathering can be your little extra signature, that extra layer of environmental storytelling that can give your miniature a whole new dimension of personality. But just like there isn't a single technique, product, or method that can solve all of your weathering needs, nor is there a distinct answer to how you should explore weathering. But hopefully, my journey with weathering, and my hobby as a whole, can inspire you to take on a new method for your next project. Hopefully in the end it will lead to something truly special to add to your collection.

As always, keep painting away.

About The Author

Jordan Ciccarelli is a career graphics designer and passionate hobbyist. His years of experience in model making encases decades of tabletop gaming, from RPGs to wargames and skirmish games. He can never quite leave a model in stock condition and has just as much fun building as he does painting. His golden rule is, "as long as the hobby is fun, keep going," and believes that everyone can improve with persistence and time. Be sure to check out more of Jordan's modeling work on his website jordangciccarelli.myportfolio.com.

A Perspective On Track Planning

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

Measure Your Layout Room - Twice!

When I was a youngster, my father had a small woodworking shop in our basement. He liked to build things. One of his favorite projects was building custom storage boxes to hold his numerous handheld power tools. Some boxes were simple cubes with a hinged top while others were more elaborate containing specialized compartments for accessories. Each box was unique to the power tool it would contain.

While watching, I noticed my father would measure each piece of wood twice, sometimes three times before cutting. So I asked, "Dad, why measure twice? It seems like a lot of extra work and a waste of time." He gave two responses, "People who measure wrong the first time seem

to always find time to measure right the second time" and "measuring twice and cutting once, saves time and wood."

These quotes are relevant to this installment of "A Perspective on Track Planning" because I am going to discuss what has become an ongoing problem: getting the accurate room and obstruction dimensions and locations from clients.

The Floor Plan

Before starting any track plan design, I need a floor plan of the client's available space. The floor plan needs to show space dimensions and any obstructions that would interfere with the design. The measurements need to be within a half- to a quarter

-inch of actual locations. Obtaining dimensions and locating obstructions should be a straightforward process. For some clients, it is anything but straightforward.

In school, I took classes in architectural drawing. The classes taught what needs to be included on a floor plan. The types of drawings I create are not nearly as detailed as typical architectural drawings or blueprints. However, that does not mean the measurements are any less important.

Figure 1

Here you have a fairly standard small 10-feet-by-11-feet bedroom. There are two doors and a small closet that stick out into the room. Even
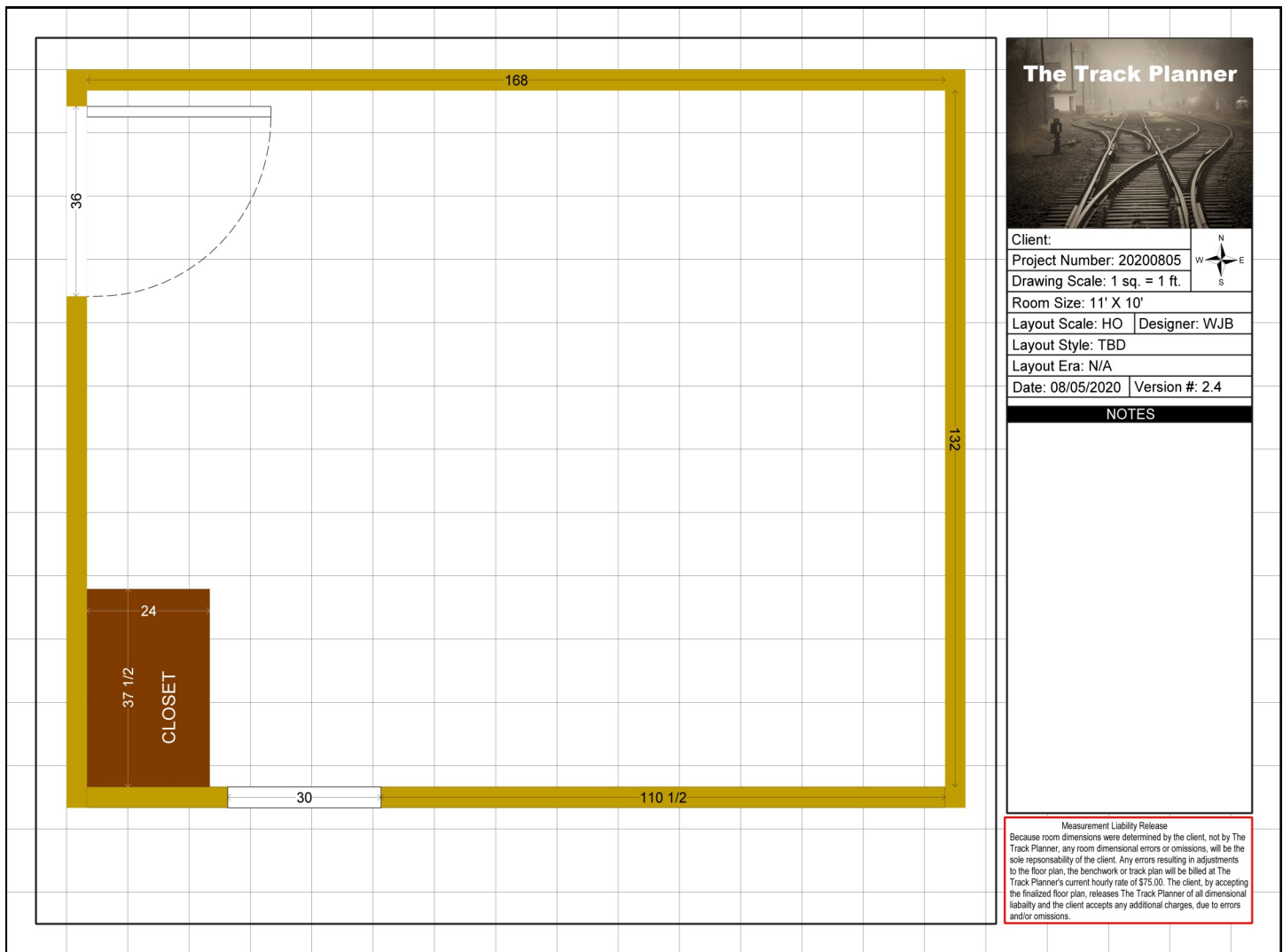
Figure 1. A diagram of a fairly standard small bedroom measuring 10-feet-by-11-feet. Image by Bill Beranek.

for a simple room configuration like this, there are measurements that the client will miss or assume are not important enough to include.

In the northwest corner, the entry door is 36 inches wide but there is a measurement many clients miss: how far off the north wall is from the hinged side of the door. This may seem like a small detail but in this space, it is an important measurement.

For example, let us assume the client wants to include a small switching shelf layout on the west wall. Knowing the distance between the south side of the door trim and the north side of the closet is not possible without knowing the distance between the hinged side of the entry door and the north wall. A measurement many clients miss!

Let us look at the south wall. We know that the south wall is 110-1/2 inches long from the southeast corner to the right edge door trim. But what if there is a light switch on that wall? How far up from the floor and how far in from the door trim is the light switch, are important measurements. As you can see, even the simplest looking space can have important hidden measurements.

Figure 2

Here we have the opposite situation; we have a larger room measuring approximately 36-feet-by-36-feet. If the almost 1300-square-foot room were a simple box, getting measurements would be fairly simple.

What makes this space exceedingly difficult to measure are the numerous jut-ins and jut-outs along three walls. Two things compound the problem: 1) the client wants to use all of the space including the jut-in areas, and 2) the client has decided not to drywall the three outside
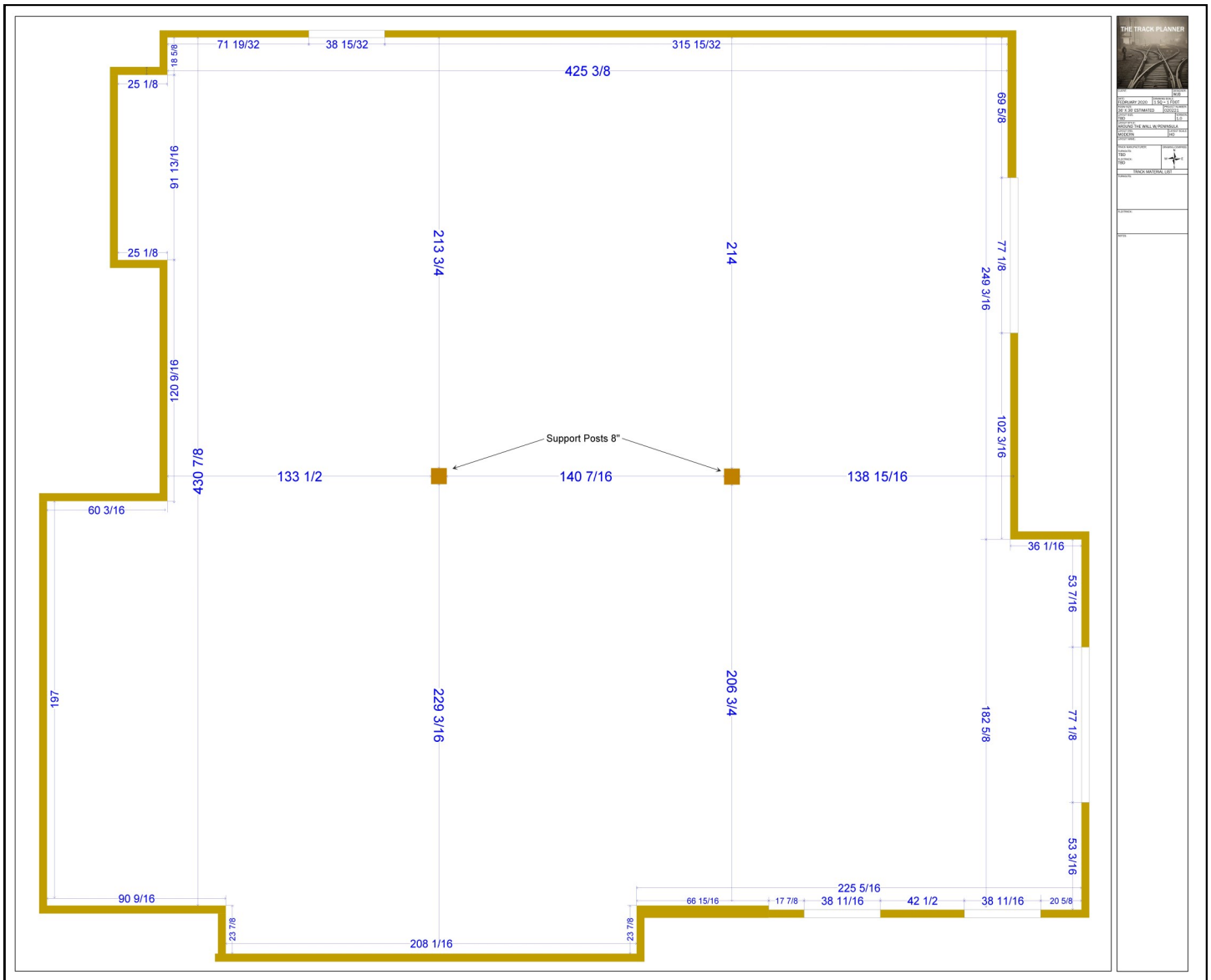
Figure 2. A diagram of a large room measuring approximately 36-feet-by-36-feet. Image by Bill Beranek.

walls. Instead, he is going to use the layout backdrops as the drywall.

This room required numerous re-measures - so many that I finally suggested the client either bring in a professional carpenter or invest in a laser tape measure. The client opted for the second choice. Using the laser tape measure, it only took a few more re-measures to get the wall measurements to line up.

The room also contains two 8-inch support posts. Since the track plan is going to include multiple peninsulas, knowing support post locations is critical to the design. When planning, I need to determine if the posts end up being placed inside a peninsula or out in an aisle. Determining the **exact** location of the two support posts is critical. As you can see, we took measurements from four directions for each post.

While most clients will never have a space this large, it is a good example of the issues a professional track planner encounters.

Drawing the Floor Plan

I receive many hand-drawn floor plans where the client is estimating or guessing at the room measurements. This is a seriously bad idea. Many clients send me initial information stating the room is **about** "X" feet by "Y" feet. Giving me estimated information in an initial email is fine but it only serves as an idea of the space the client has.

For whatever reasons, most clients do not understand the importance of

having accurate measurements. If the floor plan drawing is not accurate, it is a good bet that the track plan design will be compromised. On average, it takes two to four emails before I'm confident that I've received accurate measurements from the client.

Track plans designed for free-standing tabletop layouts do not require the same exactness. That said, room dimensions still need to be accurate assuming the client wants to have enough aisle space around the table.

For reasons I do not fully understand, getting inaccurate room dimensions from clients is on the increase. It has become such a problem that I have been forced to add a Measurement Liability Release Disclaimer to every track plan. This disclaimer advises the client that since I did not measure the space I cannot be held responsible for any dimensional inaccuracies which could affect the track plan design. I thought long and hard before including this disclaimer, but since things have gotten worse, I was forced to include it.

Today, less than 20% of the initial room dimensions are correct the first time I receive them and I have to spend additional time and money getting the accurate dimensions. This means that 80% of the time I am drafting an initial floor plan where walls are not lining up. When clients measure a second time, a common response is, "Boy am I glad you had me re-measure. I was way off." Did the client rush the process or did they not measure at all and assume that close enough would be good enough?

The Client's Responsibility

It is important for the client to understand that it is their responsibility to provide accurate dimensions. Simply stating that "my space measures **about** 12 feet by 24 feet," is not good enough. The track planner needs to deal in absolutes and not "abouts".

As the designer and having never seen the space or room, I cannot possibly understand all the issues and complexities of the area. Since the client lives in the room or space every day, it is human nature for the client to overlook important elements that a first-time observer would notice.

Even though I state in my initial directions that I need dimensions to be within half an inch to a quarter of an inch, the client will still send me dimensions rounded to the nearest inch. I do not think I have ever seen a room where the dimensions come out exactly to the inch. For that matter, very seldom do they come out to the half-inch mark. Most room dimensions end up as smaller fractions of inches.

The Room and Obstructions

If we are dealing with a simple square or rectangular room, such as a small bedroom, there probably aren't as many obstructions to complicate the measurements. There will be a door, windows, a closet, and once in a while some jut-ins or jut-outs.

On the other hand, if we are using part of or all of the basement space, we are going to have a whole new set of obstructions to take into ac-
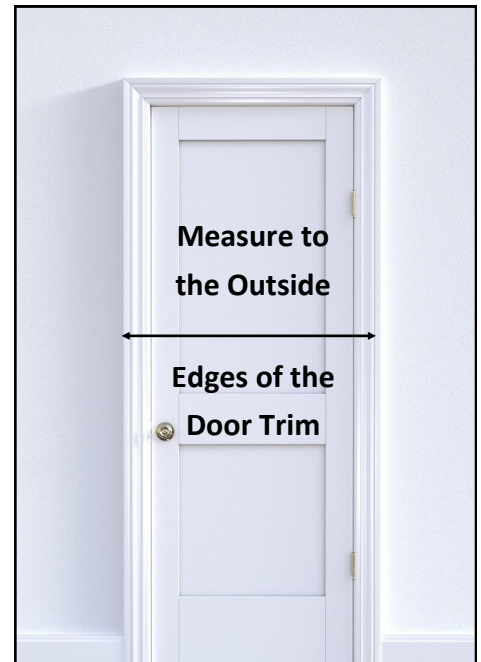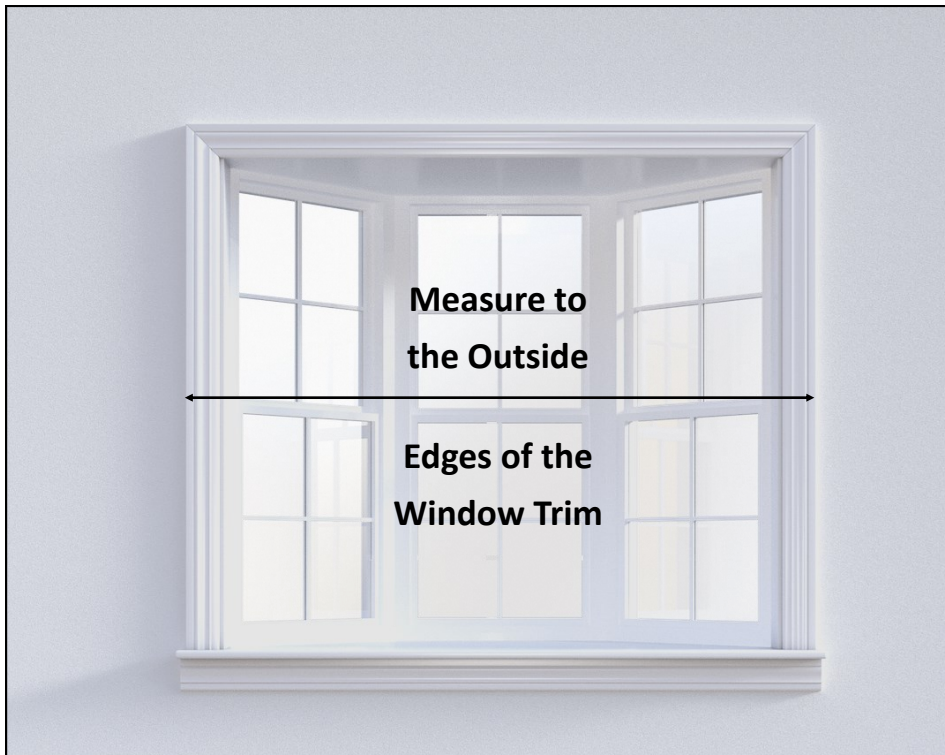

Figure 3. Measure to the outside edges of the door trim.

Public domain image by Pete Linforth from Pixabay.

count. Things such as stairs, support posts, sump pumps, electrical panels, sewer pipes, water lines, ceiling heights, access to crawl spaces, furnaces, water heaters, water softeners, washers, dryers, freezers, and the list can go on and on. Below, I will discuss some of the more obvious obstructions.

Doors (Figure 3)

Knowing the location, the width, which side the door is hinged, and whether the door swings in or out are all critical bits of information. For the floor plan drawing, I like to know the width of the door from the outside of the left edge to the outside of the right edge of the trim around the door. This assures that I will not place the benchwork too close to the door's trim. Knowing the height of the door is not important. However, if there is a light switch next to the door, knowing its

Figure 4. Measure to the outside edges of the Window trim.

Public domain image by Pete Linforth from Pixabay.

location relative to the door trim is also important.

Windows (Figure 4)

Unlike doors, knowing the locations and dimensions of windows is not as important, especially if the windows are going to be covered by backdrops. In isolated cases, knowing how far off of the floor the window starts can be useful information.

What happens in the case of a fire? Does the window become an escape route? This is something every model railroader should think about and consider when building a layout. This is especially important if there is only one normal exit from the room. If the windows need to remain accessible, this is information the professional track planner needs to know.

Closets (Figure 5)

Closets are like doors; the location and dimensions are critical. Does the closet have sliding doors, bi-fold doors, or doors that open out-

wards? If the doors open outwards or are bi-fold doors, then how far into the room do they stick out? Does the closet require access? If the closet is not going to be used, then can I include the inside of the closet in the track plan?

Support Posts

The location, shape, and dimensions of support posts are extremely important. On many track plans, I have to make design decisions on whether to have a support post inside the benchwork or in an aisle. The locations of support posts can negatively impact the overall design of a track plan. Their exact location within the room is of prime importance.

Electrical Panels

Besides measuring the location and size of an electrical panel, it is important to know the local zoning codes and rules when it comes to having access to it. The zoning ordinances can range from not being able to place anything in front of an electrical panel to placing anything no

Figure 5. Determine how closet doors open. Do they slide open or do they open outwards like these bi-fold closet doors?

Public domain image by Curtis Adams from Pexels.

Figure 6. Water and sewer pipes can run against basement walls or come down somewhere in the middle of the basement.

Public domain image by LEEROY Agency from Pixabay .

less than "X" number of inches or feet away from it. If the benchwork or track plan is going to run in front of an electrical panel, then you need to check your city or state zoning codes before starting any design work.

Pipes (water, sewer, etc.) (Figure 6)

Pipes present their own special issues. Today, most sewer pipes run next to or along basement walls. In some older homes, the sewer pipes come down somewhere in the middle of the basement. Again, I need to know the exact location and diameter of any pipes.

Furnaces, Hot Water Tanks, Water Softeners, Etc...

Knowing the exact locations of these objects is extremely important if the benchwork is going to run anywhere close to them. Objects such as water heaters or water softeners can

be moved. Furnaces would be considered permanent fixtures.

Using the Right Tools

Using the right tool for the job cannot be overstated. Most of the mis-

measurements I see are because the client used the wrong tool. Even if you have a relatively small area to measure, the wrong tool makes it difficult.

The Old Trusty Spring-Loaded Measuring Tape (Figure 7)

Up until a few years ago, the average homeowner had limited choices when it came to tools used to measure a room. Most homeowners at the time could not afford a fancy laser measuring tool. Most had some type of a metal spring-loaded tape measure.

If you try to use a standard 12-foot tape to measure a space of 20 feet or more, you are asking for problems. If you only need a general idea of the room's size, you could get by with it. But if you need the space measured to be within a quarter-inch, the old metal 12-foot tape measure is not the tool for the job, especially if you try to measure the

Figure 7. A traditional spring-loaded measuring tape is great for measuring doors and windows but is not the best tool for the job if you need accurate measurements of a room down to a quarter-inch.

Public domain image by idobicollection from Pixabay.

*Figure 8. Using a laser measure takes the guesswork of measuring a room.
They are accurate, easy to use, and cost-effective.*

Public domain image by Bruno /Germany from Pixabay.

room by yourself. If you are in a space longer than 12 feet, a 25-foot tape measure would at least be a better choice.

Laser Tape Measure (Figure 8)

Today, technology has given us the perfect tool for measuring a room: the laser tape measure. Just a few years ago, only professionals could afford it. Recently, the cost has come down to where the average homeowner can easily afford the technology.

Using a laser tape measure takes all of the guesswork out of measuring.

Plus, most lasers will measure to 1/16 of an inch. They are simple to use and cost-effective. Measuring obstructions such as support posts becomes a simple process. The same is true for other immovable objects such as furnaces and water heaters.

I strongly recommend clients purchase a laser tape measure. From experience, those who have used it according to the manufacturer's instructions have gotten the room measurements almost 100% correct on the first try. Today, you can purchase a laser tape measure for under $50.

With all of the upsides to a laser tape measure, there are still areas where the trusty old metal tape measure serves a purpose. Measuring door widths from outside trim to outside trim is still easier to do with the metal tape. The same can be said for windows, closet doors, and access hatches.

Final Thoughts

As I said earlier, measuring a room seems like a fairly straightforward process. So why has it become such a problem for some people? Besides people using the wrong tool, I have another theory: the average model

Before starting any track plan design, I need a floor plan of the client's available space. The floor plan needs to show space dimensions and any obstructions that would interfere with the design. The measurements need to be within a half- to a quarter-inch of actual locations.

However, many clients send me initial information stating the room is **about** "X" feet by "Y" feet. Giving me estimated information in an initial email is fine but it only serves as an idea of the space the client has.

The track planner needs to deal in absolutes and not "**abouts**".

railroader does not think about the space in the same way a professional track planner does.

Since the vast majority of model railroaders do not hire a professional, there is no reason for them to become overly concerned about the details a professional track planner would consider. The modeler will simply design around any obstructions, again not being overly concerned about their exact locations.

In the excitement of getting trains running as soon as possible, the average modeler starts by building the benchwork first, fitting the benchwork to the area, and not giving a lot of forethought to the overall track plan. After the benchwork is completed, only then does the modeler start to seriously consider how he is

going to fit a track plan onto the benchwork. As many modelers have found out, this is when serious problems start. Conceptualizing a track plan becomes much harder when constrained by the benchwork.

Many of my prospective clients start an email with, "I've got the benchwork finished but now I'm having a very hard time coming up with a track plan to fit the benchwork." The emails prove my point that building the benchwork first and designing the track plan second is the wrong approach.

If a professional track planner is given a blank slate and accurate measurements, with the only restrictions being the obstructions, a track planner can conceptualize how to best utilize the space. Once the track planner has determined the best use of the space, he will then conceptualize the mainline configuration. Only after those two boxes are checked will the professional start to deal with the benchwork. In other words, the track plan drives the benchwork configuration, instead of the benchwork driving the track plan.

With a multitude of reasonably-priced track planning software available today, it is a fact that very few modelers will take the time to learn one of these packages. Learning the software will not turn the client into an instant professional. You need a solid background in understanding how real railroads operate.

A designer friend of mine stated it best, "The average modeler can afford the software. If they will take the time, they can learn the software. But what separates the pro-

fessional from the average modeler is the professional **knows how to use** the software." In my opinion, this is a very valid assessment.

I hope this column has given you some insight into why getting accurate room dimensions is so critical to the success of a professionally designed model railroad.

Have fun building your model railroad empire and remember my father's words, "People who measure wrong the first time seem to always find time to measure right the second time."

Bill – The Track Planner

About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, traveling, and of course designing "prototypical operations" focused track plans.

He has previously served twice as the president and twice as a board member of a local 135+ member model railroad club.

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 out more about Bill—The Track Planner at
www.thetrackplanner.com.

The Anatomy of a Model Railroad

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

Follow along as Bill Beranek takes you from start to finish of a point-to-point N-scale layout he designed for prototypical operations. The series will be presented in a pictorial essay format with photographs of the progress and commentary covering:

- ✓ Layout Design Process
- ✓ Benchwork and Trackwork
- ✓ Control Panel and Wiring
- ✓ Facia and Backdrops
- ✓ Scenery

Read Part II in this issue of *The Modeler's Journal*.

The Jim Kalenowski N-Scale Track Plan.
Image courtesy of Bill Beranek.

The Modeler's Workshop
with Dazzy Jay

Computer and Remote-Assisted Model Railroad Operations

Is it the way of the future?

Part I: Computer-Assisted Control

By
Darren
Johns

Like most modelers, I have many interests in this great hobby of model railroading. One of my interests is computer-assisted control of my railroad. This came about several years ago when I was thumbing through an Eisenbahn Journal about my favorite landscape modeler, Josef Brandl. He was building a layout that was being controlled by the German software TrainController™ (TC). This sounded interesting to me, so I researched the software and joined the website's forum, and started to ask questions about its functionality. I was impressed with what this software could do. Over the next five years, I built a friendship through the forum with a fellow user of the software who lives in Germany. He helped me with the computer coding and set up of the software.

When COVID hit in early 2020, the world suddenly transitioned to being online. I don't wish to dwell on the negatives of these world events; however, there are certainly several positive aspects that came out of this situation. I became friends with Gordy Robinson of NMRA-X and we spoke about remote operations of a model railroad. In short, remote operations is the use of Wi-Fi and Bluetooth technologies to control layouts over the internet. The operations are aided by CCTV cameras on the layout and/or retrofitted rolling stock. Trains can then be operated from anywhere in the world. TC offers an option called SmartHand™ which runs on an IP server that can be accessed over a Wi-Fi connection to control trains and operate virtual control panels. In Part 2 of this remote operations series, I will discuss my research in

more detail and how I plan on achieving full control of my layout from an outside IP domain. First thing's first, though, let's discuss how TrainController™ is set up and how it works in its basic form.

Imagine This…

You want to host an operations session on your miniature transportation system, but due to a lack of operators in your area, you are unable to get enough operators to run prototypical operations on your railroad. Luckily, this is no longer an issue when you have your layout set up for Digital Command Control (DCC) and you want to be flexible by using off-the-shelf software. With a click of a few buttons, you can send pre-staged trains to any location on your transportation system, ready for shunting using the TrainController™ software.

DCC is prevalent on many railroads today, running several trains at a time on the same piece of track. From experience, a solo operator can only physically monitor a maximum of two to three trains (or one train if you are anything like me). Switching turnouts, changing signals, and uncoupling trains are no easier in the digital world than in the analog world, not to mention setting complex routes for many trains during an operating session.

Here enters the computer-aided control of your model railroad. The software can take over full automation of your layout, monitoring all trains by detecting them in various electrically isolated blocks on the railroad, thus preventing collisions between trains.

If the modeler would still like to fully control their trains, this can be achieved in TrainController™ (TC) with varying levels of control measures that can be adopted. These different scenarios allow for varying degrees of manual control while providing automated features that can protect trains from collisions and provide an extra set of eyes for the railroad. There are five different "Driving Modes" and they are as follows:

- Trains are fully controlled by the computer.

- The computer only takes control of a train when it is approaching a restricted-speed scenario, thus reducing its speed.

- The computer intervenes when a train is approaching a signal showing a red aspect.

- Trains are manually controlled, but if a train is approaching a red signal and the operator fails to stop the train, the computer will conduct an emergency stop.

- Trains are manually controlled.

Getting Started

For any computerization to function properly on your layout, you will need to have accessory decoders controlling all switches and occupancy-detection must be installed on your layout's blocks to track train movements and positions across the layout. I have recorded a video on this topic as well:

https://youtu.be/Do_UaLwGbmA

Next, you will need to download
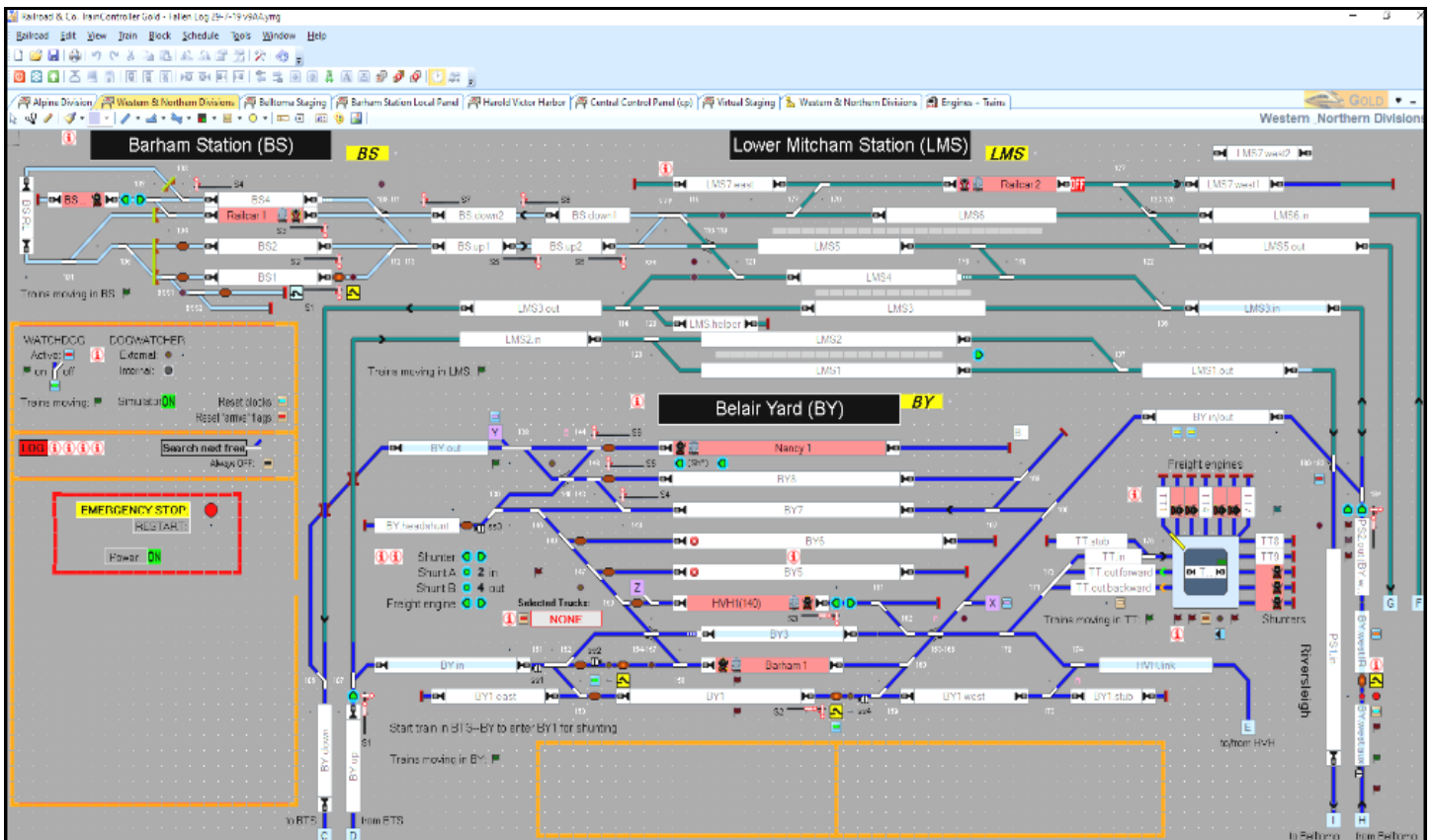
My Main Switchboard in TrainController™.

and install the software on a PC. I have recorded a YouTube video on how to do this on my YouTube channel, Model Railroad Techniques:

https://youtu.be/KFLmbeJhWr8

Once your layout is wired up with accessory decoders, and you have downloaded the TC software, you must draw your track plan in the software. Drawing a track plan is relatively easy using the edit tool within TC. Even a large layout like mine was drawn within a short amount of time.

Every block on the switchboard within TC needs a DCC address from its occupancy detection unit. Every turnout needs its DCC stationary decoder address to be defined for the software to be fully utilized as well. These tasks are very

simple and fully explained in my how-to videos.

Each locomotive is added to the software program by assigning a DCC address under the locomotive set up option. All locomotive functions that can be controlled by the 'soft' controller with TC, such as bells and horns, are added at this point. Further, a picture of the locomotive can be added to the system for your reference. This creates a unique icon for TC to move around within the software program as the real locomotive traverses the physical railroad. I have recorded a YouTube video available on my channel on how to add your photographs to TC.

The video is entitled *TrainController Gold 9 Animator: How to use your own & Engine/Car images* and can be

found here: https://youtu.be/U3zQpQk4Erk.

The beauty of this software is that once the track plan is defined and all the electrically-isolated blocks are added to the switchboard in the TC software, the user can now look at how they want to run trains on their railroad. Within TC, routes are defined as sections of track between the blocks, which include turnouts. This is where TC is very clever as it calculates the route between given blocks and applies collision avoidance measures, such as locking turnouts so other trains cannot switch the turnouts underneath a routed train, and prevents trains from entering occupied blocks. This is a form of route locking. This allows operators to get trains running on their layout within a short amount of time.
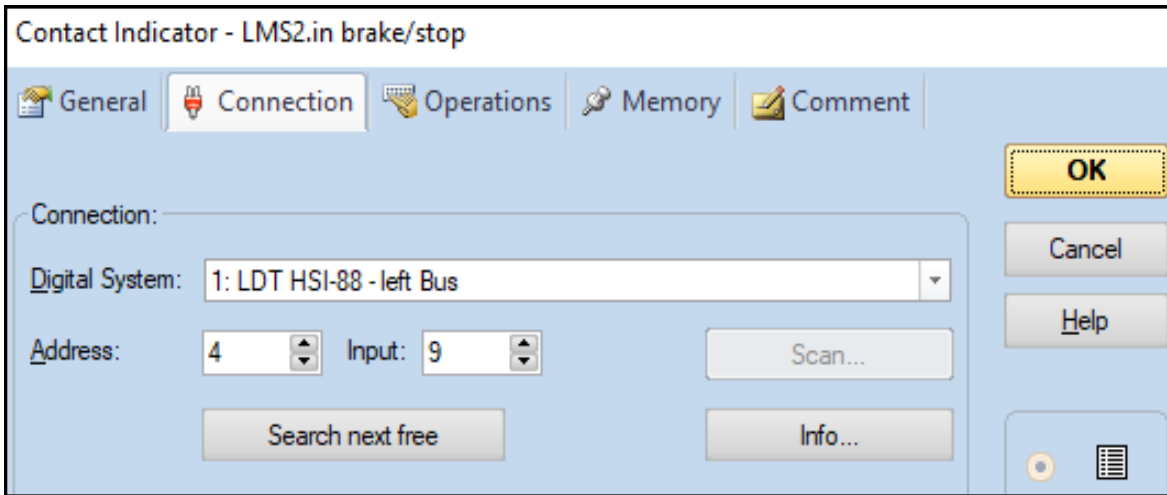
The block occupancy addressing interface in TrainController™.

Train Operations

There are several ways to get trains running with full collision avoidance measures and route locking measures in a short amount of time. The examples below require, at a minimum, a defined track diagram with DCC addresses for turnouts and blocks entered into the TC software.

2. Spontaneous Runs

I have used this feature quite often. The TrainController™ website cites this as the "handiest" method to run trains under full collision avoidance protection. Once a train has been placed on a defined block within TC and is selected to "depart" while the spontaneous run function is activated, the train will begin to move as long as the tracks ahead are clear. The computer then takes over control of this train and randomly sends it to different portions of the railroad. A train will only stop once it reaches a dead-end track or is needed to stop for another reason such as a red signal or an occupied route or block. A set of rules can be defined within the settings for Spontaneous Runs. This includes the option to automatically select and acti-

vate all routes and blocks the train will traverse across the layout, therefore no other train can use these portions of the layout until this train has cleared those areas.

2. AutoTrain™

The AutoTrain™ drag and drop method is another quick and easy way to get trains running using TC.

This method still adopts full collision avoidance and route locking. This is one function that I use frequently when testing my layout. To get the train running, place the physical train on the track and move the train icon in the software's switchboard to the corresponding block that the train is occupying. Then, drag the train icon to your train's destination on the switchboard. Then, step back and watch! TC will take care of all collision avoidance measures, setting the turnouts/signals, and locking the routes to other traffic. When the train arrives at its destination, the train will automatically stop. In this mode, TC will dictate where the train will travel, but the user determines the start and end positions of the train.

The AutoTrain™ symbol bar method is a slightly more sophisticated way to operate trains on your railroad.

With this method, you use a system-determined button called the "AutoTrain™ Symbol". This method of setting up train operations allows much more flexibility and is the basis of setting up schedules (which I will explain later). With this mode, TC gives the user the ability to specify more than one start and/or finish block and to set waiting times at certain blocks such as on station platform tracks. Furthermore, the user can choose to exclude or include certain blocks to be used, and apply operations (such as bells, horns, lighting, etc.), and whether the train will be controlled manually, automatically, or a hybrid of both.

3. Schedules

The advantage of this method is that schedules can be saved for repeatable use. I define all my schedules using the AutoTrain™ symbol bar. I have set up numerous schedules that take my trains all over my layout. I have a defined naming convention
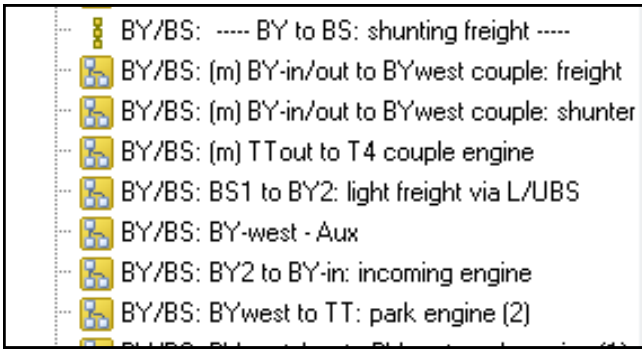
and I group my schedules for ease of use. I save two versions of each of my schedules: one as manually controlled and the second as automatically controlled. This is easily done in TC by a simple check box in the schedule set up process. I also set up a button on my TC switchboard which tells the system which of the schedules to run.

4. Manual Control Without Securing:

Manual control without securing is used when you want to run a train with a physical DCC controller and run the train across the railroad without taking any of the above measures. The system will track the train across the layout, but TC will not secure blocks and routes ahead of the train or stop it at a red signal. A train operated in such a fashion is protected from other trains under the control of TC. However, with this mode, the human operator must ensure they do not run their train into automatically controlled trains.

This is a very brief overview of this wonderful software. It is probably not for all modelers but from my experience, this software allows for so many possibilities. I have been using this software for approximately five years now on my Fallen Log Railway. One of the best features is that I can toggle between automatic and

manually controlled schedules at a click of a button. I can physically send a train to a town or an industry while shunting other trains in my Belair Yard. Once the train arrives at its location, I can shunt the wagons out per the switch lists and waybills, collect all the empties, and restage the track for the inbound journey back to the yard. At this point, I can select to control the train manually and drive this train back to Belair Yard, where I can hand it off to a waiting yard crew who will break down the train. The possibilities are endless.

In Part 2, I will be looking at virtual/remote operations using this software. This allows operators from all over the world to help me run my railroad remotely. I will take you through my research and investigations into this aspect of model railroading. My ultimate goal is to have remote operators access my switchboards and operate trains on my layout, with the help of small CCTV

The Alpine District control panel for the schedule.

cameras placed throughout the layout, or by providing a first-person perspective by using a camera car that is placed in front of the lead locomotive.

Please do not hesitate to email me at modelrailroadtechniques@gmail.com if you have further questions or would like to delve into TrainController™.
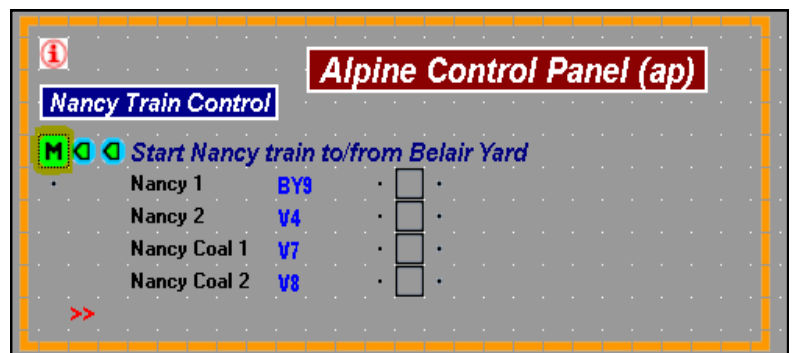
About the Author

Darren Johns grew up in South Australia (a state in the southern region of Australia), where he became a railfan with his grandfather from a young age, of the then SAR & AN-South Australian and the Australian National Railways.

Darren has been a model railroader for 30+ years. He is currently working on his third layout - The Fallen Log Railway, which is a proto-freelanced railroad predominately modeling Eras I - III European locomotives and rolling stock. Darren posts weekly how-to and product review videos on his YouTube channel, Model Railroad Techniques, and can also be found on Facebook @modelrailroadtechniques or his website: www.modelrailroadtechniques.com.

Gain A New Perspective
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- ✓ Designing for Operations
- ✓ Proper Benchwork Design
- ✓ Dissecting Track Plans

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Modeling UP 844's First Excursion

Photographs Courtesy of Harry M. Haythorn and Brasstrains.com (where indicated).

In the words of Bill Murray's *Groundhog Day* character Phil Connors, "Here we are in quarantine again," and this brings us to another great issue of *The Modelers Journal*, and another installment, of the **UP Hub**. In this installment, we will cover something that happened 60 years ago and started the world's greatest steam program.

How It All Started

Let us go back in time a few decades, to November 20, 1960. This is the day that UP No. 844 pulled its very first public excursion train, thanks to the tireless work of Mr. Ed Haley, the Rocky Mountain Railroad Club's Excursion Chairman. The Rocky Mountain Railroad Club was started in Denver in 1938 and was one of the most active independent railroad organizations in the United States. Their first excursion was on the Manitou & Pikes Peak Cog Railroad

in 1939. The club also organized some of the very last fan trips taken on trolleys and streetcars across the country.

Many trips were operated on the Union Pacific, including trips to see the locomotive service facilities in both Denver and Cheyenne. The first club-operated UP trip was on May 17, 1953, behind winged Challenger #3967 between Denver and Laramie. This was recreated with #3985 "dressed up" like #3967 in 1993 for the 40th anniversary and again in 2003 for the 50th anniversary.

As the end of the steam era drew near, railfans grew weary of the loss of the iron horses that they had known and loved for many years, and they started organizing "farewell" fan trips and excursions all over the country and around the world. This brings us to July 1959,

the end of steam operations on the Union Pacific.

In the three years leading up to 1959, there had been many trips over the UP and Mr. Haley had tried to get a final farewell trip on the Union Pacific. First, he tried to get the ball rolling with the help of an acquaintance in the Denver Passenger Traffic Department. He then wrote to Mr. A. E. Stoddard, the Chief Executive Officer in Omaha who refused the request as the road was now 100% dieselized. His final attempt was to the Chairman of the Union Pacific Board of Directors in New York City, Mr. E. Roland Harriman, who was a known supporter of steam locomotives. Sure enough, Mr. Harriman accepted Mr. Haley's request, and the trip was scheduled for the fall of 1960 between Denver and Rawlins.

The 844 was chosen for the trip, as

it was recently used as an experimental snow and ice melter at Council Bluffs. The experiment failed, but because the locomotive was known as a "good steaming" engine, it was selected for the trip.

In preparation for this trip, the 844 was serviced at the Omaha Shops and given a fresh coat of paint. The 844 left Omaha westbound on November 11th with an empty Pacific Fruit Express (PFE) reefer block bound for Cheyenne.

The special left Denver in the morning for Cheyenne behind diesel power. Upon arrival at Cheyenne, the diesels were cut off and the 844 took over. The trip from Cheyenne to Rawlins and back was 173 miles each way, at a cost of $20 per passenger, which included meals served in a lunch counter diner, on trays to be carried back to the coach seats.

There were multiple photo stops along the way, with many opportunities to see both freight and passenger trains. The excursion arrived late into Rawlins thus delaying its return departure. The slight delay required the crew to make up time on the road, which gave the 844 a chance to stretch her legs a little bit with speeds of up to 80 MPH, running back to Laramie. The trip then went back over Sherman Hill to Cheyenne, arriving around 10 PM where the 844 was cut off and the diesels took the passengers back to Denver for a midnight arrival. This "Farewell to Steam" trip started the 844's second lease on life piloting excursions across the country and igniting the UP's steam program as we know it.

Modeling The First Excursion

The excursion was made up of nine cars and the train consisted of all coaches except for a baggage car, the lunch counter diner, and an observation-lounge car. We will discuss the cars used and what cars are available to model the train.

The baggage car is the Harriman Baggage Express #1751. This car can be modeled with products from various manufacturers. The best option is a Coach Yard Harriman Baggage Express (TCY-2039). A good second option is to use the Walthers Arch-Roofed Baggage Express (P/N 920-17364). Another option is to use the SP baggage car from Golden Gate Depot or use the Harriman baggage cars available from MDC/

An Arch-Roofed Baggage Express car. Photograph Courtesy of BrassTrains.com.

Roundhouse (Now Athearn RTR). The Athearn cars are genuinely nice and they are also the lowest priced of the bunch.

Cars 3, 6, and 7 in the consist are 500-series rebuilt Harriman heavyweight coaches. These are available from Nickel Plate Products; they carry no part numbers but show up on the secondhand market from time to time. Another option is the Coach Yard 1300 - 1300.2. There are no plastic models available of these cars, but the Roundhouse coaches and Athearn Blue Box heavyweights make for a good stand-in.

Cars 2, 4, and 8 are 48-seat skirted coaches in the 5300 series. These cars are available in brass from The Coach Yard (P/N 0256.3). The brass cars fetch an extremely high premium, usually in excess of $600 when they show up. Luckily, there are many suitable stand-ins from many manufacturers including the Walthers skirted 56-seat coaches, as well as the older 44- and 48-seat skirted coaches.

The 5th car is a slab-sided (chuckwagon) lightweight diner No. 4000. Again, this car is only available in brass, from SOHO (P/N 0481). These cars can be found in the secondhand market, usually priced

for less than a Walthers car. Overland Models also produced this car in its modern version as No. 4003 *Pacific Limited*. Another option is to build it from car sides, as outlined in the previous article.

The 9th and final car in the consist is *Sun Valley*, a buffet lounge observation first used in the seventh *City of Los Angeles*. This car and its twin (*Nob Hill*) were produced by The Coach Yard. They usually command around $300 on the secondhand market. Suitable stand-ins are available from many sources, including Walthers, Bachmann, Rivarossi, and many others.

A Turtle (arch-roofed) Athearn blue box heavyweight.

The skirted 48-seat coach from The Coach Yard.

Photograph Courtesy of BrassTrains.com.

The slab-sided (chuckwagon) light-weight lunch counter lounge car No. 4000. This car is only available in brass and was produced by SO-HO.

Photograph Courtesy of BrassTrains.com.

An unpainted buffet lounge observation car from The Coach Yard.

Photograph Courtesy of BrassTrains.com.

If you are not in the brass market, or cannot find these cars, they can all be built using car sides from many sources, including Union Station Products, American Laser Products, among others. I have all of these cars in my collection, but most are not yet painted or fully finished. With that being said, I wanted to do this article around the time of the 60th anniversary of 844's first excursion.

I hope you all have enjoyed this article and look forward to reading many more non-steam excursion related articles soon.

About the Author

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre, 1,500-head of mother-cow, ranch.

Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930s to the 1960s, 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-MPHmYU3Cc2uEVfjZDlcQ.
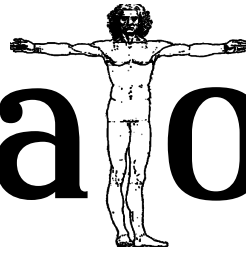
The Anatomy
of a Model Railroad
Part II

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

Benchwork and Trackwork

Welcome to part two of the "Anatomy of a Model Railroad" series. In part one, we discussed conceptualizing the track plan, determining the client's best options regarding the available space, what the client's goals and expectations are for the layout, and how to best reach those goals.

Part two is primarily picture-based, with minimal comments from me for clarity purposes. We will try to let the pictures tell the story.

We will concentrate on the benchwork and trackwork. I have divided this article into two sections - section one will concentrate on the benchwork, followed by the trackwork in section two.

Section One: Benchwork

Pictures 1 - 6

1. Jim used a modified version of the L-girder open grid design.

2. On the center peninsula (see Pictures 1 and 3), Jim designed the legs with narrow spacing as opposed to having the legs positioned just inside the outer edges of the fascia. The narrow spacing allows for extra room to work under the benchwork. Once the peninsula was attached to the benchwork along the wall, the peninsula became very stable.

3. For the wall benchwork, Jim custom-built the 45-degree bracing, eliminating the need for legs along the front fascia.

4. For the sub-roadbed, Jim used ½-inch, one-sided finished plywood.

5. Dimensional lumber included 1 x 3s and 1 x 4s for the L-girder benchwork.

6. Assembly was done using cabinet-grade screws, which are superior to wood or sheetrock screws.

Jim and I want to demonstrate to the community that a fully functioning prototypical transportation system in N scale can be designed and built - a model railroad that can be enjoyed for many years into the future.

Picture 1.

Picture 2.

Picture 3.

7. The open grid portion was set at 43 inches off of the floor.

8. The plywood sub-roadbed was set at 46 ½inches off of the floor. The sloping roofline along the back wall and the fact that Jim wanted to use backdrops, dictated the 46 ½-inch height.

9. Jim used a modified cookie-cutter approach where he needed to gain elevation. The elevation changes up to the mine scene which starts on one side of the peninsula and wraps around the view block. It's a simple but effective approach to gain elevation.

Pictures 6 and 7

Except for the peninsula, Jim raised the plywood sub-roadbed a few inches using risers which offer some advantages: Reaching under the sub-roadbed is easy and the wiring can be brought closer to the front edge of the benchwork, making soldering easier.

Picture 8

Jim used a unique approach to building the view block running through the center of the peninsula. He built a series of small picture frames and screwed them together, creating a simple yet effective view block.

Final Thoughts on the Benchwork

Jim's approach to benchwork construction is simple but effective.

Using higher grades of lumber conveys quality and care in workmanship.

Picture 4.

Picture 5.

Picture 6.

Picture 7.

Picture 8.

Picture 1.

Picture 2.

Picture 3.

Part Two: Trackwork

Pictures 1 - 11

1. Jim used a variety of products for the trackwork.

   a. Roadbed: Woodland Scenics black foam. Jim used it because it requires no sanding and is super easy to cut and install.

   b. Flex Track: Jim used a combination of Atlas and Peco code 80 tracks.

   c. Turnouts: Peco code 80 and code 55. The Peco Electro-Frog turnouts are powered by Tortoise switch machines. To transition from code 80 to code 55 and from the foam roadbed to bare plywood, Jim used door shims, which is another quick and simple solution.

2. Jim used Dap Alex Plus caulking to glue the foam to plywood and the track to foam.

Pictures 11-13

For the ballast, Jim used Scenic Express real rock. Real rock keeps the ballast from "floating" when gluing it down. Sanded grout was used (as ballast) on the secondary tracks, giving the sidings an "abused look".

A Note About Peco Turnouts

While Jim was laying track, Peco released a new code 55 isolated frog turnout. They were not available at the time the track plan was designed. Jim decided to use some of the new ones, not realizing that Peco had slightly changed the diverg-

Picture 4.
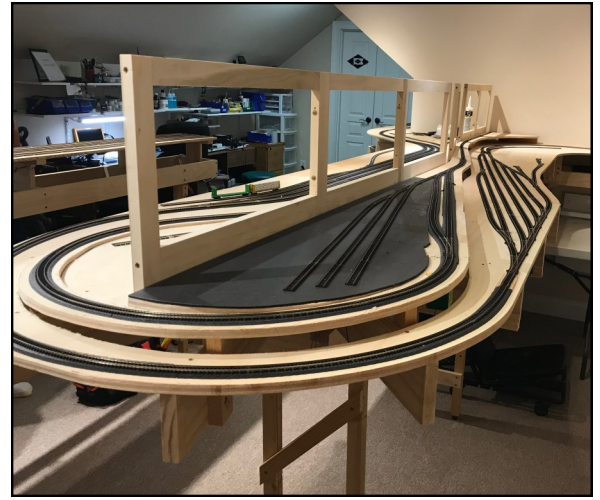
Picture 5.

Picture 6.

ing track angle. For a passing siding and stub-end industrial spurs, this would not be an issue. But, when combined with the older turnouts in freight yards, tracks suddenly did not line up parallel to each other.

Jim did not realize the change and he wondered if there was something wrong with the track plan. He was using the same frog number as the plan called for. It was not until Jim superimposed a new turnout on top of an older turnout, did he realize the differences in the diverging angles. This may seem like a small thing, but as a result, the freight yard had to be reduced by one track.

In addition, I have learned that Peco HO scale code 100 turnouts have a different diverging angle than their HO code 83 counterparts. If you have areas where you transition from code 83 to code 100, please be aware of this difference.

I hope you enjoyed this installment. In the next installment of "Anatomy of a Model Railroad", we will cover the electrical portion of the build and discuss which DCC system Jim chose and how he chose to wire the layout.

So, don't miss the next installment of "The Anatomy of a Model Railroad."
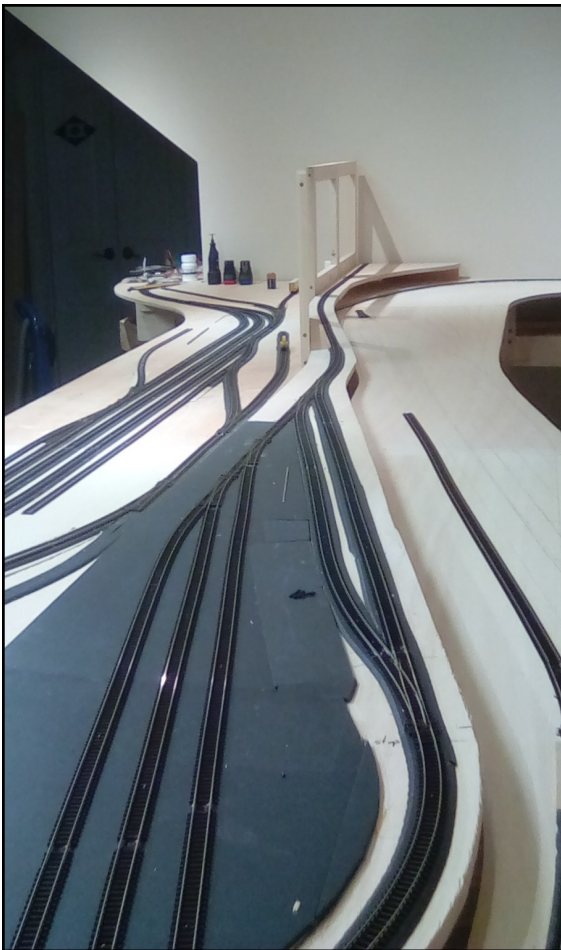
Picture 7.

Picture 8.

Picture 9.

Picture 10.

Picture 11.

Picture 12.

Picture 13.

About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, traveling, and of course designing "prototypical operations" focused track plans.

He has previously served twice as the president and twice as a board member of a local 135+ member model railroad club.

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 out more about Bill— The Track Planner at www.thetrackplanner.com.

CP 7022 is bracketed by two GE models. 7022 wears a scheme which is made up of the colors applied to modern American and Canadian warships, as a tribute to the navies of both countries.

The Past, *Moving Along* In The Future

All photographs by Jack Hykaway

JACK'S JUNCTION

By Jack Hykaway

*CP 7018 is in charge of train 299, as it pauses in the yard in Winnipeg, MB,
only a few hundred yards from where it sat dormant for years.*

Canadian Pacific (CP) has a history of rewriting the rules. Always innovating, the company has pushed the boundaries of technology – and it continues to do so today – for example, take their recently-unveiled broken rail detector for use in dark (non-signaled) territory. These new detectors will provide an extra layer of safety, giving analysts eyes on parts of the network where they previously could not see. Winding back the clock reveals more examples of innovation. For example, CP was the first to experiment with the use of ditch lights on locomotives – setting a trend that was later adopted by the AAR as a standard feature on locomotives across North America and Australia.

Whatever technology they were innovating, one thing was certain, their graphic designers were keeping pace. Thinking back through their corporate history, the railroad always had a prominent logo. Perhaps most impressively, their symbols were never flashy. They were simple and elegant. Many of CP's logos became symbols of successful branding and graphic design.

While the railroad has had several banners, there's one identity that has seen a recent revival. The beaver crest from the 1950s – then only applied to passenger and dual-service locomotives – has been brought back. This time, it is proudly being displayed on the noses of ten freight-service-only EMD SD70ACU locomotives, which have been painted to match CP's historic Tuscan and Gray livery.

The Fleet

While these locomotives are not the first to receive the vintage scheme in recent years – CP's executive fleet of 1950s-era F-units and one GP38-2 has also received the classic colors – the scheme was tailored specifically to fit their angular look. CP really did their homework, even going so far as to raise the locking mechanism on the front door of each unit so the lock would not obscure the beaver shield on the nose.

The ten SD70ACU locomotives were rebuilt in 2018-2019 from cores of mothballed SD9043MAC locomotives, which were first delivered to CP in 1998. An experiment in high horsepower, the massive locomotives were initially designed to house brand-new 6000HP prime movers in direct response to GE's recently released 6000HP AC6000CW models. As order deadlines approached, EMD fell behind on the development and testing of the beefy 16-265H prime mover. Instead of canceling orders, EMD offered a tried and true 4300HP prime mover with an option to upgrade later.

"Later" never came. After CP's fleet of 60 began service systemwide, it quickly became obvious that the locomotives really struggled to perform reliably – they were plagued by electrical issues during their short time in service. By 2012, the fleet had been sidelined. All 60 units were stored together with their exhaust stacks capped in Winnipeg for six years before a miracle set them up for a second lease on life.

CP had noticed Norfolk Southern's success in rebuilding ex-UP SD90MACs to the state of the art SD70ACU locomotives for use on their own system. Impressed with the modernization, CP hired Progress Rail to rebuild all 60 of their mothballed locomotives. The rebuilding process included a new cab and new electrical systems – eliminating the gremlins which lived freely among the wiring of the original locomotives. The locomotives would keep their original 4300HP prime movers under the hood. Slowly, but surely, SD90MACs were shipped south from their storage tracks to be rebuilt.

To accommodate a large prime mover, the SD90MACs were built as incredibly large locomotives. At just over 80 feet in length, and riding on huge 45-inch wheels, they had an aggressive and imposing posture on the rails. They have kept their long frames and high-riding stance through the rebuild, creating a monster that dwarfs most other locomotives on the rails. The locomotives' new angular noses (EMD's most recent cab design), contrast the smooth lines of locomotives from the 1950s. The heritage paint scheme was therefore adapted slightly to fit the car body of the new locomotives.

Welcome Back

In late 2019, the first two heritage SD70ACUs were unveiled. They were soon followed by eight more, for a total of ten specially-painted locomotives. Locomotives 7010 through 7014 feature CP's classic script (cursive) font on the long

*The CP 7016 – proudly displaying block lettering – sneaks
under an overpass while a passing pedestrian takes no notice.*

CP 7018 pulls across McPhillips Street in Winnipeg, MB proudly displaying CP's rich heritage.

hood, while 7015 through 7019 feature CP's block lettering on the long hood. This showcases both variants on the Tuscan and Gray livery and appeases both parties of railfans which remain staunchly divided on which font is best.

CP has received all 60 rebuilt SD70ACUs. Of the 50 that are not painted in CP's Tuscan and Gray scheme, 45 are painted in the railroad's current corporate livery (red with the beaver shield on the long hood), while five have been painted to commemorate the sacrifices of men and women who have served or who still serve in the Canadian and American militaries. Each locomotive serves as a tribute to separate divisions of the military:

CP 6644: D-Day Tribute Locomotive. It wears camouflage colors applied to the Spitfire fighter planes flown at the invasion of Normandy, France on June 6, 1944. Hence the locomotive's number 6-6-44.

- CP 7020: NATO Temperate Regions. Painted in the shade of deep green which is applied to NATO vehicles in service

CP 7023 proudly displays the two-tone gray which is worn by fighter jets in the Canadian and American militaries.
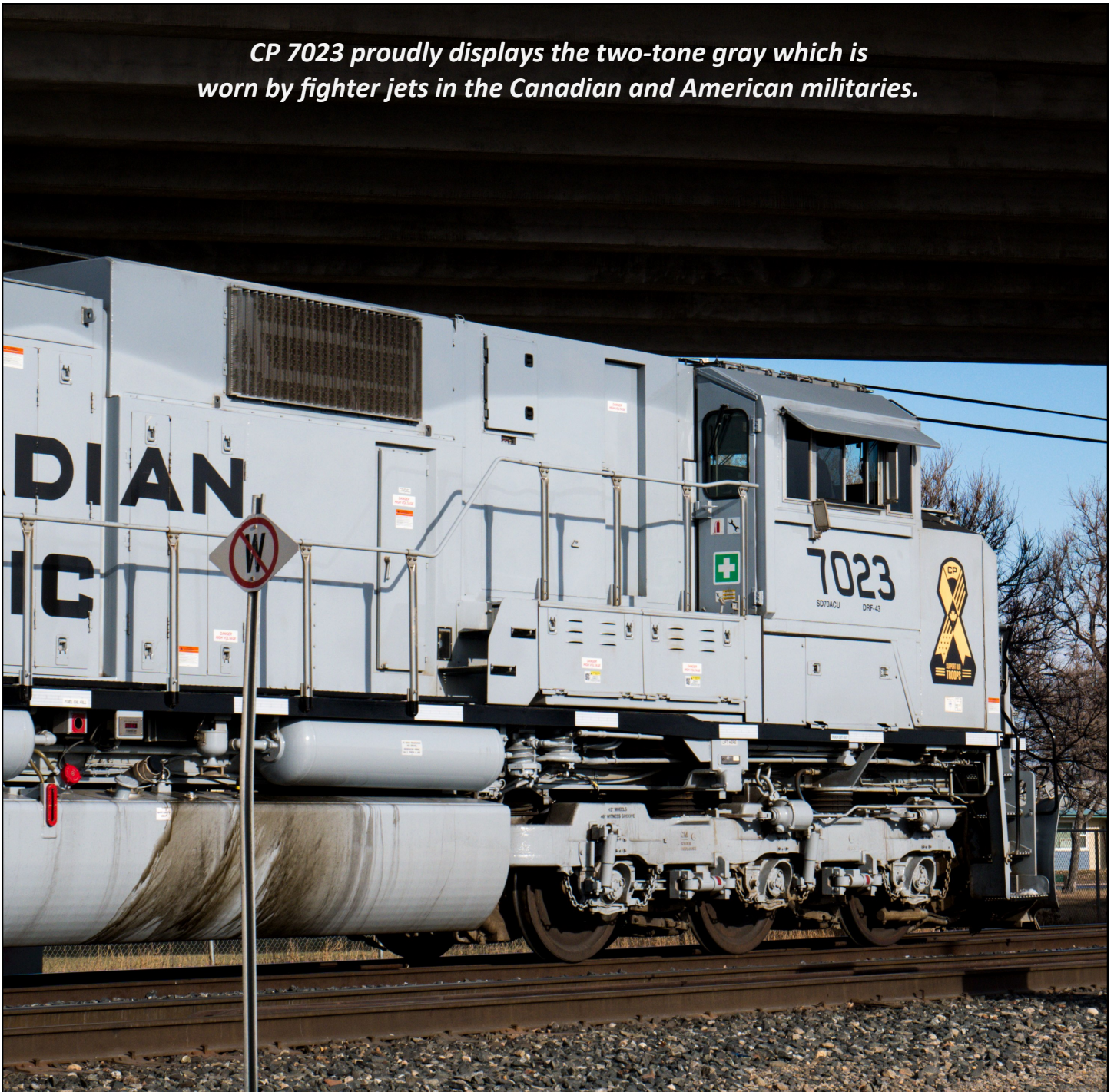
throughout tropical regions of the world.

- CP 7021: NATO Arid Regions. The locomotive's sand-colored paint is the same shade applied to NATO vehicles in service throughout arid regions of the world.

- CP 7022: Navy. Painted in a red, black, and gray scheme which is applied to modern Canadian and American warships.

- CP 7023: Airforce. Painted in two-tone gray which is worn by Canadian and American fighter jets.

Much like the fleet of Tuscan and Gray locomotives, no detail was left out in the production of the five military tribute locomotives. Their paintwork proudly represents the militaries of both countries and they remind those standing trackside of the incredible sacrifices made by our men and women in uniform.

After nearly a decade of GE rule over CP's road locomotive fleet, the EMDs are back – and they're looking better than ever. The fleet polishes rails from Canada to Mexico, hauling freight across the continent. Keep an eye out for these locomotives near you, they will surely impress.

About the Author

Jack Hykaway is a student, currently attending a post-secondary institution in his hometown of Winnipeg, Canada. He is an amateur videographer and writer and enjoys exploring and documenting nearby railroads and railroad operations in both written and visual formats of his work.

Jack's main focus of late has been producing his column *Jack's Junction* for ^The *Modeler's Journal.*

Follow along with Jack's videography on his YouTube channel at https://www.youtube.com/user/WinnipegRailfanner1.
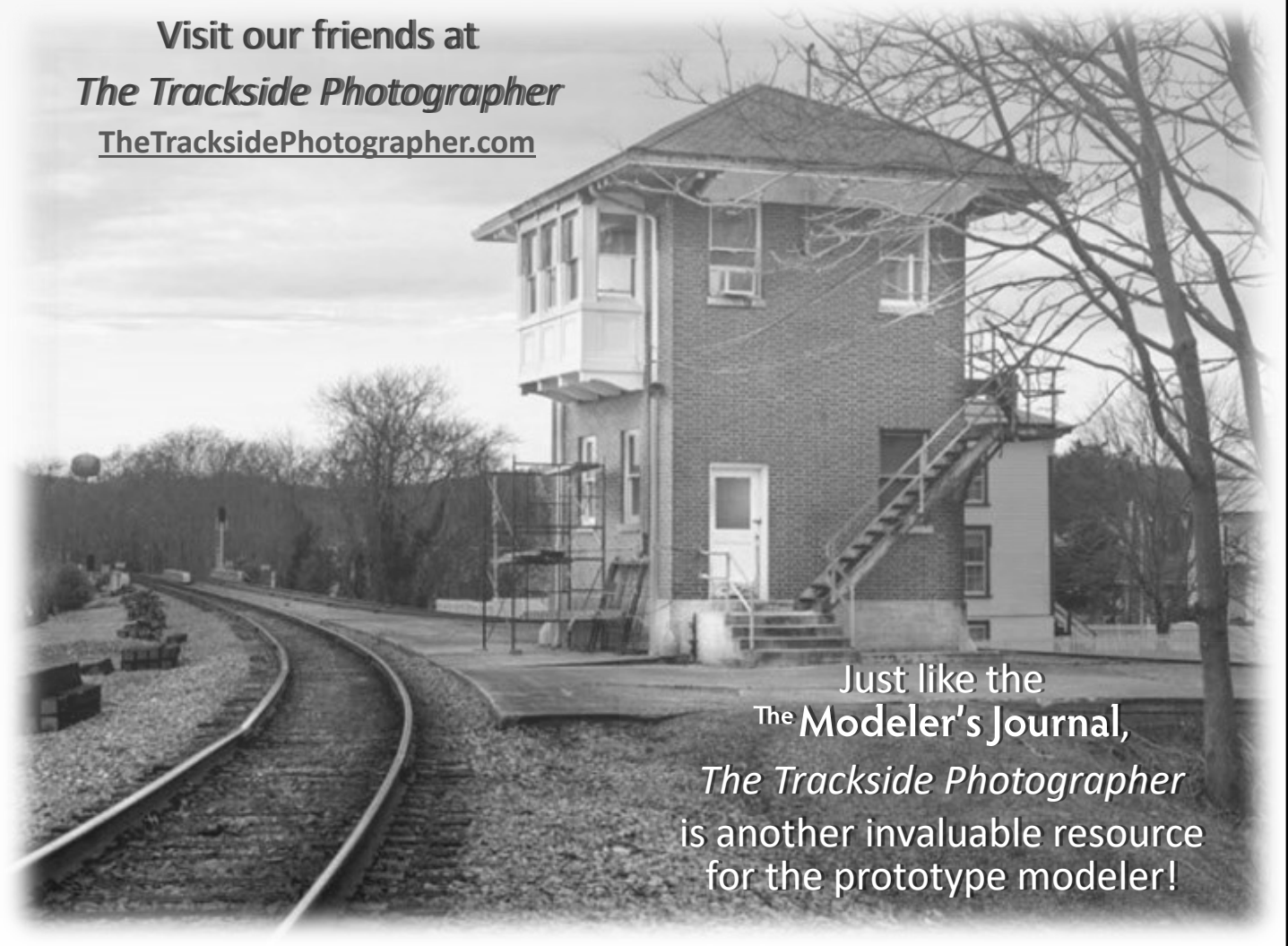
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Disclaimer:

A Space Wolves Leviathan Dreadnought.
Photograph Courtesy of Jordan Ciccarelli.