

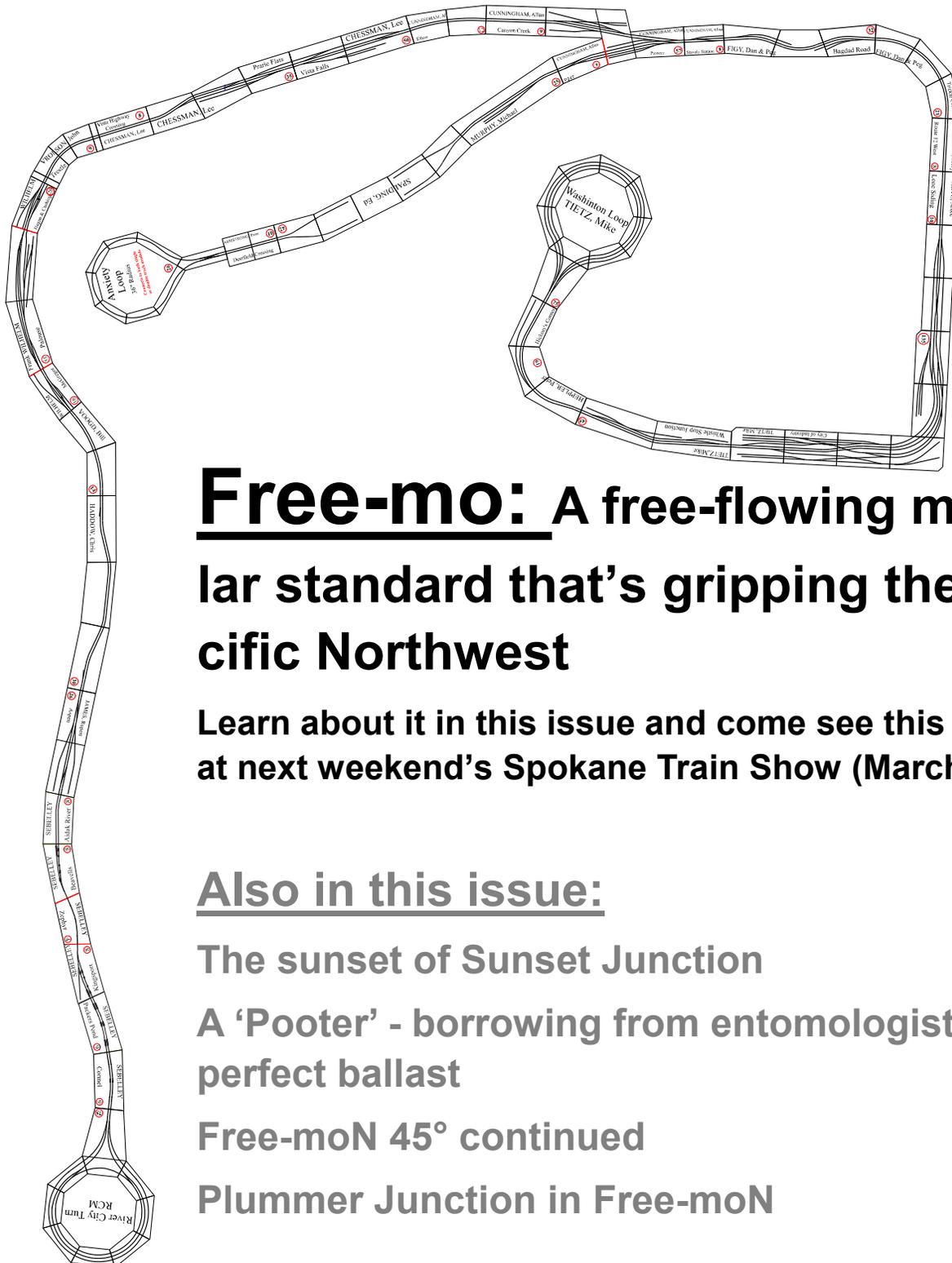


The Goat

Volume 22:1

Jan - Mar 2019

The official publication of the Pacific Northwest 5th Division of the NMRA – Also follow us at www.PNR5D.org



Free-mo: A free-flowing modular standard that's gripping the Pacific Northwest

Learn about it in this issue and come see this layout at next weekend's Spokane Train Show (March 10th)

Also in this issue:

The sunset of Sunset Junction

A 'Pooter' - borrowing from entomologists for perfect ballast

Free-moN 45° continued

Plummer Junction in Free-moN

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On the cover

The ‘planned’ Free-mo layout hosted by the Inland Washington Free-mo group as part of the Train Show in Spokane on March 10th, 2019.

THE GOAT is the official publication of the 5th Division of the Pacific Northwest Region, National Model Railroad Association. The Goat is attempted to be published quarterly. Deadlines for materials: December 15, March 15, June 15, and September 15. Target publication dates are the first week of January, April, July, and October. Publication is the date *The Goat* is available on the PNR website. You may refer to the PNR website on the publication date to view, download and print *The Goat*. Special events may alter this timing. **All material and correspondence related to *The Goat* should be forwarded to the Editor at fmwilhelm68@gmail.com**

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From the editor - Frank Wilhelm

I bet all of you are so busy working on your model railroads that you didn’t even notice the slightly longer hiatus of *The Goat* since the last issue? Well some of you noticed, because I received gentle queries and prods about when the next issue would arrive. Here it is! I won’t belabor the reason for the delay, send me an email and we can discuss. Also send those articles!

While this issue has an array of articles, you’ll notice a trend towards the modular end of things. I am in no way against a large home or club layout, and they definitely have their place. However, a modular approach is sensible for many reasons. Consider a beginner entering into the hobby – building a small module offers exposure to all facets of model railroading and allows one to explore the hobby to see if it is a ‘right fit’ without a total commitment. Then there’s the consideration of resources (\$ and space) necessary for an empire. Check out what folks build in boxfiles (Google: ‘boxfile micro layout’) – who says you can’t model in under one square foot? Another advantage of the modular approach is ease of movement – whether it’s to the workbench or a new house (more than one railroad empire has succumb to the chain saw because the owner had an unforeseen move). What could be simpler than popping a module onto a table next to your work bench to work on it from the comfort of your chair, rather than contorting to fit under or hunch over a fixed monolith? Over at Model Railroad Hobbyist they focus on a TOMA approach – **The One Module Approach** to building a layout (<https://model-railroad-hobbyist.com/node/27542>). An advantage is to finish one module before moving on to the next one. You have manageable trackwork (less chance to get something wrong), no endless ballasting, a need to focus on what you will present, and a chance to change things up if you don’t like them. So, how do you approach this? Do you do your own thing in terms of modules/TOMA or do you follow a standard? And what are the standards? There are plenty –

HO scale

NMRA (<https://www.nmra.org/introduction-overview>)
Free-mo (<http://www.free-mo.org/standard>)

N scale

Free-moN (<http://free-mon.wesleysteiner.com/>)
NTrak (<http://www.ntrak.org/>)
oNeTrak (http://www.ntrak.org/documents/oNeTRAK_Manual.pdf)
TTrak (<http://www.t-trak.org/>)

While you can do anything you like if you remain isolated at home, if you venture out to join others, adherence to a standard is a must to ensure interoperability and seamless operations when it's all together. Taking a module (or set) and heading out on the road to meet like-minded individuals and create a novel set-up that changes at each meeting is a facet of model railroading that especially appeals to me (I rummage in both Free-mo HO and N). Speaking of traveling and large set-ups, at next weekend's train show in Spokane, a large Free-mo layout is planned that will be worth the price of admission (see this issue's cover). Individuals from all over the US Pacific Northwest and western Canada are traveling to create a novel layout. Visit with them to see how to get involved. To my knowledge, Free-mo is a predominant standard throughout our local area (both HO and N), however, over in Bozeman, Montana is an active NTrak group, check them out at:

(http://mtntrak.org/?fbclid=IwAR3gk59wDoFcjDb9zATuA7wpXcCI73LovAWY3JLX3gDKpVBCN4Iby2-qN_c).

When the Inland Washington Free-mo group formed several years ago, Alan Ashton spearheaded a series of articles to generate interest, I will re-publish these in *The Goat* over the next little while to provide a local perspective on Free-mo and introduce readers to the standards.

Elsewhere in the issue we have reports from the president and paymaster – take note of the Division 5 annual meeting in the Tri-Cities this year. Many of you will already know that the sun has set on Sunset Junction – but see Bill's article in this issue, and Jim Smith will be at the train show this weekend, so visit with him there. I present an update on the little 45° N-scale module I have on my workbench, and Lee Calkins chimes in with a novel concept for an N-scale Junction module based on Plummer, Idaho that will be looking for participants – yes you should really consider building a module to join all this fun! Finally, I present a small article on re-purposing an entomologist's 'pooter' to help with ballasting. I hope you enjoy the issue. As usual, please send articles or communications of interest my way.



Frank Wilhelm, *The Goat* editor, - that duh looks says it all—why didn't I think of this before?

From the Superintendent - Bill Fassett

I'm looking forward to being on the road in the Division for our spring events. I hope you'll be able to join me for at least one of the following:

March 9 & 10 – Open House, River City Modelers, Spokane (1130 E Sprague)

Saturday – 4 to 8 pm

Sunday – Noon to 4 pm

March 10 – Spring 2019 Model Train Show, Spokane County Fairgrounds

9:30 am to 3:30 pm

March 24 – 8th Annual Lewis-Clark Train Club Model Train Show, Nez Perce County Fairgrounds, Lewiston, ID; 9:30 am to 4 pm

April 20 – 5TH DIVISION ANNUAL BUSINESS MEETING, Kennewick, location TBA (Watch your email)

9:30 am to 3:30 pm

April 27 – 29th Annual Depot Railroad Swap Meet, Livingston, MT

9 am to 2 pm

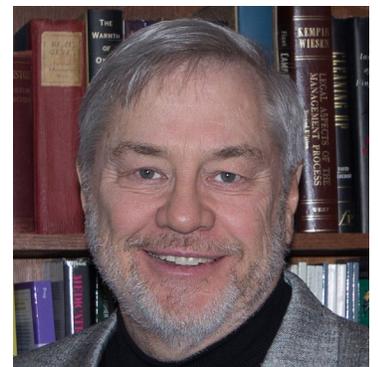
April 28 – 39th Annual Helena Railroad Fair, Helena, MT

9 am to 4 pm

The Annual Division Business Meeting will be in Kennewick, as noted above, hosted by the Tri-City Model Railroaders, who'll be showing off their brand new club layout in downtown Kennewick. They have been running operations for some time on this work in progress, and they have a lot of innovation to share with the rest of us. Look for more information coming to your e-mail in mid-March with details for the meeting.

Also, this year's Pacific Northwest Region Convention will be right next door, in Cranbrook, BC, Canada, from May 29 to June 2. If you haven't been to a convention recently, I strongly encourage you to attend. Our Canadian friends always put on a great show, and the Kootenay Express should be no different. For more information on any of these events with links, see the Upcoming Events page on the Division 5 website at:

www.pnr5d.org



Bill Fassett, Division 5 Superintendent

5th Division – Pacific NW Region – NMRA

2019 DIVISION 5 ANNUAL BUSINESS MEETING



WHO: ALL NMRA MEMBERS IN DIVISION 5 AND GUESTS

WHEN: SATURDAY, **APRIL 20, 2019** – 9:30 AM TO 3:30 PM

WHERE: Kennewick, WA – hosted by Tri-Cities Model Railroad Club, Banner Bank meeting room (basement)
203 W. First St., Kennewick

WHAT: Tentative schedule:

9:00 AM – 9:30 AM: SIGN-IN (\$10 REGISTRATION FEE AT DOOR)

9:30 AM – 10:15 AM: BUSINESS MEETING

10:15 AM – 11:30 AM: MINI-CLINIC SESSION 1

11:30 AM – 12:15 PM: LUNCH AND DOOR PRIZES

12:15 PM – 1:00 PM: MINI-CLINIC SESSION 2

1:00 PM – 1:15 PM: CLEAN UP

1:15 PM – 3:30 PM: LAYOUT TOURS (Tri-Cities Club layout & others)

HOW: Look in your e-mail or on the Division 5 website after March 15 for more information

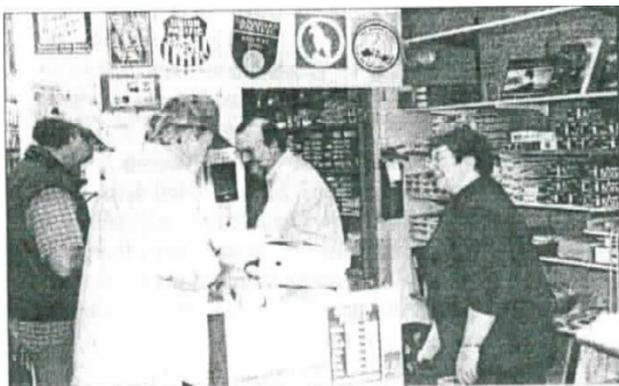
<http://www.pnr5d.org/>

Final sunset for Sunset Junction

By Bill Fassett

Jim Smith, the last and longest-tenured owner of Sunset Junction Model Trains in Spokane, retired on February 2, 2019 and the business has closed. The fate of the firm was sealed when the building was sold to Avista Corp., and slated for demolition presumably as part of the ongoing redevelopment of Spokane's "University District."

Sunset Junction was featured 20 years ago in the Jan-Feb-March edition of *The Goat* (vol. 4.1). The edition featured a picture of Jim being assisted by Shirley Sample, who along with Bob Sample had been the immediately prior owner.



Jim Smith and Shirley Sample, from the Goat in 1999.

That article recounted the history of Sunset Junction, which was named for the BNSF junction where the former NP line connects to the BNSF main line in west Spokane. The hobby shop was first opened by Jim Bradley in 1973, and was located on Spokane Falls Blvd.

According to information gained recently from Shirley Sample, Jim Bradley sold to Gary Saty, who owned the shop for about 4 months before he was

forced to relocate to the W. 200 block on Main St. A couple of years later, Bob McKay bought the store and, according to the 1999 *Goat* article, he moved to 213 W. Sprague, which was the location shown in the 1999 photo, above.

Bob and Shirley Sample purchased Sunset Junction from Bob McKay in 1989, and remained in that location when Jim and Gayle Smith purchased it in 1996. Jim later moved the store to its most recent location at 419 E. Sprague Ave.

In 1999, Jim explained to the editor of *The Goat* that he'd been "playing with trains" since his first American Flyer in 1959. In 1962 he moved to HO scale, and then "he took a very strange turn to On3 in 1995." Many visitors to Sunset Junction have seen pictures of the logging and mining layout Jim and his friends built in that scale.

I recently joked with Jim that his store's presence in the neighborhood was so significant that when they erected the nearby cell tower, they picked a design right out of his American Flyer memories.



A.C. Gilbert-inspired cell tower.



Jim Smith. Photo Alan Ashton



BNSF's Sunset Junction

According to the 1999 article, Jim was employed in merchandising by Sears and Montgomery Ward for about 20 years. He said in 1999 that "The opportunity to buy the store gave me the opportunity to combine both interests, merchandising and model railroading! I've always believed the product should be displayed so the customer can really check it out. ... We strive to have a good selection because in the hobby when you need paint, glue, etc., you need it NOW."

Jim spent the next 20 years doing exactly that, much to the benefit of NMRA members in Division 5. Thanks, Jim; we'll long be grateful for your service.

Paymaster's report

Summary:

Bank balance at start of fiscal year (9/1/2018)	\$4,334.75
Income	\$0.93
Expenses	\$95.00
Balance (as of 02/23/2019)	\$4,240.68

There has been relatively little fiscal activity since the start of the fiscal year in September 2018. Income has consisted of monthly interest on the checking count for 5 months totaling 0.93

Expenses consisted of payments for registration at three train shows in our division (Spokane fall '18, spring '19 and Lewis-Clark spring '19) totaling \$95.00.

Our Superintendent reminds me to mention that there are funds available and allocated for the partial underwriting of mini-meets/clinics. There have not yet been any requests for funding.

Please feel free to contact me with any questions, comments, suggestions, etc. concerning this report.

Tim Bristow, Paymaster

An Introduction to Free-mo, Part 1: Exploring this form of model railroading - Contributed by Alan Ashton

I have been a model railroader for many years and it didn't take too long for me to decide that I would like to build a Free-mo module. My reasons for doing so included: 1) Building and storing a module wouldn't take up much space, 2) Having a module would enable me to meet and interact with more people who share a common interest, 3) Construction costs wouldn't be prohibitive, 4) I would learn about new materials and techniques, and 5) I had the time and interest to learn about a new aspect of my favorite hobby.

As I began to explore Free-mo options, I had a lot of questions. In this article I will use a question and answer format that I hope will be useful to you if you have an interest in building a module. At one point or another, I asked these questions and I will now share what I have learned with you.

Q. What scales are represented in Free-mo designs?

A. Free-mo is primarily for HO scale modelers but the standards have been adopted for other scales including N and O. In our region there are several groups modeling in N scale. Unless specified otherwise, all of the references in the articles in this series are referencing HO scale.

Q. Where can I find a list of the standards?

A. The official Free-mo website is the place to start. It may be found on the internet at <http://www.free-mo.org/>. If you are reading this article on-line you may be able to click on references like this and go immediately to the page. Otherwise, type or copy the site address into your browser. Once you have opened the page, click on the tab titled "The Standard."

Q. How strictly must I follow the standards?

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A. To participate in Free-mo events your module must conform to the standards. However, many larger clubs or associations of Free-mo modelers may choose to embellish the overall standards to suit their purposes. For example, the standards state that the nominal height from the floor to the rail head must be 50-inches (S2.4). That works really well for operations but it makes it difficult for many children or individuals seated in a wheelchair to see the layout during shows. Therefore, some groups have elected to make adjustable legs that will allow the height to the railhead to be *either* 50-inches (operations height) *or* 42-inches (show height) from the floor.

Q. Where are Free-mo events held?

A. Free-mo events are held all over North America. But, before you pack you module and travel to Paris (France, not Texas) you may want to make sure that your module conforms to the European standards (FREMO—Freundeskreis Europäischer Modellbahner). More locally, Free-mo layouts are appearing at train shows, NMRA meetings and at specially organized Free-mo operator events (no public). There is no regular schedule or calendar of events so watch websites (primarily the Yahoo Free-mo group) and *Facebook* pages that are devoted to Free-mo groups.

Q. Is there a fee to join a Free-mo event?

A. Sometimes there is a nominal fee to cover space rental (electricity and liability insurance). Generally, the fee won't exceed \$50 and many events are held without cost to the participants, if at a public show.

Q. Can I attend a Free-mo event if I don't have a module?

A. If you want to gather more information before committing to build a module you should go to a Free-mo event and ask questions. The event organizers will determine if there is a fee or any restrictions on your participation.

Q. How much does a module cost?

A. Module costs will depend upon size and complexity. A *basic framework* (including electrical parts but without track and scenery) could run about \$50 to \$300—again complexity is a large factor. This estimate will vary upon how many of the parts you have on-hand and if you can pool resources with other modelers (for example, if you need to purchase sheets of plywood, etc.).

Q. Where do I find the materials to build my module(s)?

A. Many of the components may be sourced locally but others are best found on the internet. Future articles will list some of the sources that you may want to consider.

Q. What special tools do I need?

A. You probably have most of the tools that you will need to finish the modeling scene that you want. You will, however, need some good woodworking tools to cut the end plates, side rails, legs and leg pockets. Accuracy is very important to achieve good mating with adjacent modules. If you live in an apartment or don't have access to at least a good table saw, this could be an impediment for constructing a solid module base for scenery and compliance with standards. There are solutions and I will discuss a few of these in a follow-up article.

Q. Must I use Digitrax DCC equipment?

A. Yes and No. If you wish to supply a booster (command station, radio mast, repeater, etc.), then yes. This is a standard that allows uniformity of command and control across all of the modules at an event. At a minimum, you

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will need to provide two RJ12 jack compatible receptacles (e.g., UP5 LocoNet Universal Interconnect Panel) for each module that you build. If you want to run trains, you will need NMRA DCC compatible decoders in your trains and a Digitrax throttle of your choice so you can control your train. Command stations and boosters will be needed but not everyone will be required to bring these to an event.

Q. What is the best way to transport my module?

A. Getting a module to an event shouldn't be a problem unless you have constructed one that is too long to fit into your vehicle (the first rule of Free-mo is—do not build what you can not transport/move by yourself). More adventuresome Free-mo modelers may use a truck, motor home or trailer to move multiple modules. It is all a matter of personal preference and the availability of transportation. Equally important is how to get your module to events *without damage*. More will follow about this latter point.

Q. Can I use the same type of track that I have on my home layout?

A. In order to fit with adjacent modules, the mainline track must be code 83. Otherwise, there are no restrictions. Track planning will be discussed in a future article.

Q. Are there standards for scenery?

A. Yes, but they are very general and do not restrict the overall intent of your personal scenery choices. Clubs and loose-knit associations of modelers may decide to model an area of the country (northwest) or era (transition) but these are not specified in the Free-mo standards. This means, for example, that your module that features a north-west scene might be connected to modules that have desert scenery. That is perfectly acceptable and doesn't detract from the Free-mo experience.

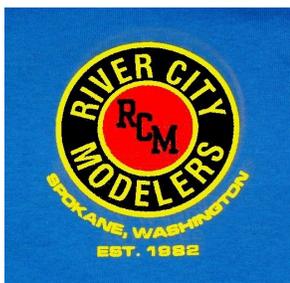
Q. Who decides how the modules will be set up for an event?

A. Generally, a coordinator will be assigned the task of designing the layout so that it conforms to space limitations and power requirements. The coordinator will create a diagram showing the position and orientation of all of the modules that are expected to be at the event. The set up may be done by a designated team or by the owners of the individual modelers.

Free-mo is an exciting phenomenon, as no layout is the same even though the same modules may be present at different set-ups. So this is an introduction to the Free-mo concept. Future articles will cover other aspects of Free-mo module design including a list of materials, a platform for track and scenery, leg designs, wiring the module, track options, scenery, and transportation of the module. Your comments are always welcome.



Alan Ashton is the previous editor of *The Goat*, and continues to contribute as co-editor. He's building a home model railroad depicting New England, and he also participates in the Inland Washington Free-mo group. He participates at meets by giving clinics and is a deep well of model railroad knowledge.



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Plummer Junction - a multi-participant module build by Inland Northwest Free-moN

By Lee Calkins and Frank Wilhelm

In this series we detail how “Plummer Junction” came to be for our group of modelers - from background reasons, our given and druthers, through our search for a prototype, to the design and construction. Follow along, we are sure you can find something of use for your modeling, even if not modular or N-scale. Then again, consider designing and building a small module to join us at future Free-moN set-ups (a 18” wide × 3 to 4’ in length module can be stored anywhere in your house or apartment and will accommodate a surprising array of track work); and we will have plenty of room for you to connect.

Large Free-moN set-ups like the one at the 2015 National Train Show in Portland (see <https://www.youtube.com/watch?v=vj9rY39084U> for flyover) require a number of “junctions” or wyes to ensure that all the space assigned is used optimally and can include all those with modules wishing to participate. This spurred the suggestion on the Free-moN Yahoo group that regional groups of Free-moN modelers should think about contributing a double track junction module for large multi-group setups. This would allow a passing siding, while providing a ‘branch’ for more modules. While Free-moN does not have a set double track standard, a large contingent of Free-moNites have agreed on a distance of 1-1/8” between track centers, centered on the end of the module.

A single track junction module was already on hand in the Inland Northwest Free-moN collective but it was not scenically finished in any way, meaning it could be repurposed for a double track junction. However, to double track it would limit its use to end of set-ups because we don’t currently have any other modules with double track. This led one of us (Lee) to consider other options, such as building a new junction module, building single to double track transition modules, etc. As part of this process, Lee looked at prototypes with double track interchanges in our region. With 5+ railroads present, so were a lot of interchanges, wyes etc. He decided to make a list of given and druthers for an interchange.

Givens:

- two double track end plates; at least one single track endplate; based on a regional prototype junction;
- code 55 #10 switches for smooth operation of large equipment (mainline standard in Free-moN is a #6 switch);
- mirror-image module sections to ease transport and storage; few, if any buildings

Druthers:

- willing to selective compress to fit reality to physical limits of module widths and lengths;
- adjust track plan to fit modules already on hand to reduce the amount (time and cost) of new construction;
- alter track arrangement slightly to produce usable junction module;



Figure 1. Present-day Plummer Junction just east of Plummer, Idaho. It was the former junction between the Milwaukee Road and Union Pacific and is still in use today for interchange between the St. Maries River Railroad and the Union Pacific.



Present day from Hwy 3 overpass looking west towards Stimson Lumber. Left two tracks are the former MILW mainline, branch in middle is to former MILW maintenance yard, and the far right is the UP line to Stimson Lumber in Plummer that used to connect to Tekoa, WA.

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With these in mind, Lee set about researching local junctions including: St. Maries, ID (St. Maries River Railroad - STMA); Hauser, ID (Burlington Northern Santa Fe - BNSF); Kaiser Aluminum Jct. (Union Pacific - UP); Plummer Jct. east of Plummer, ID (currently UP and STMA, formerly UP and Milwaukee Road - MILW); Spokane Jct. in Spokane, WA (UP and BNSF); and Sandpoint Jct. in Sandpoint, ID (UP, BNSF and Pend Oreille Valley - POVA). In addition, just about every little town on the Palouse in the Spokane, WA, - Coeur D'Alene, ID, - Moscow/Lewiston, ID triangle that was rail-served had a wye that could have served as a template for a junction.

After discussing these lists with the others that participate in the Inland Northwest Free-moN, and some internet research, it was decided we'd focus on Plummer Junction located just east of Plummer, ID (Figure 1).

It had what we desired:

Two tracks to the east (prior to 1995) (one UP to Wallace, and one STMA to St. Maries - former MILW from Avery, ID);

Two tracks to the south west (current STMA interchange at Plummer - former MILW mainline to Tekoa and Seattle, WA);

One track to the north (UP to Worley, ID and Spokane, WA); and as a bonus, one track to the west (UP to Plummer, currently used to switch Stimson Lumber in Plummer – the former UP mainline to Tekoa, WA).

Before any building commenced, two of us (Lee and Frank) took an on-the-ground reconnaissance trip in late summer 2017 to explore the area from publicly accessible points (Trail of the Coeur D'Alenes multi-use trail from Plummer to Mulan, the Highway #3 overpass just east of Plummer, and the public dirt road to the former MILW station on the southeast side of the wye. We tried to get as high in elevation as possible to get the lay of the land and the tracks. These pictures, along with ones we found on the internet will be used to model the track cuts and other scenery details.

With a little adjustment to the switches on the east side of the wye, this perfectly met our needs. Although we decided to model the period after the Milwaukee Road ceased operation and before the UP Wallace branch was abandoned (1980-1995), the Milwaukee Road had a unique station on the east leg of the wye that is enticing and may make an appearance. It appears to have been scrapped with a derailment sometime between 1974 and 1978 (We'd love to hear from anyone who has more knowledge or pictures of this).

The four-module design for the junction was based on existing modules - the two on the left (Figure 2) that had the single track wye and two more designed by Lee (right two, Figure 2) to be mirror images of the left. This required a little more artistic license. The track of the wye was removed and transferred to the right modules, a double mainline (representing the former MILW mainline, now STMA interchange with UP, and former UP to Wallace mainline) was designed across the bottom two legs; while the current UP to Plummer single line was placed on the top left module.

While we used some creative license to 'bend' the tracks a bit more than reality, this was necessary to produce what we think will be a highly functional junction that will serve well in a multi-group set up with double track, and as a keystone module for future Inland Northwest Free-moN setups. The single-track side of the junction can be used as a 90° corner, as can the double track side, while in a do-or-die situation, just the right two modules could be used as a single track 90° curve as well. Lee has two short 1' stub end modules that can be used on the double track ends to provide some legroom to turn locomotives on the wye at local shows until someone joins us with double track modules. All of the switches are designed to be hand-built #10's based on Fast Track templates/jigs.

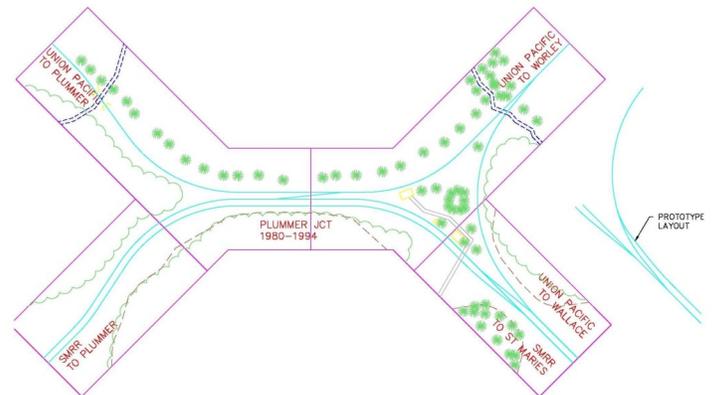


Figure 2. Lee's design of Plummer Junction for Free-moN. The four module design of Plummer Junction is based on the existing modules (two on left) which were stripped of track and joined by new mirror image modules on the right. A little artistic license was employed to 'bend' the tracks and arrange switches to produce what we believe will be a highly functional junction module for local shows and to join large multi-group setups elsewhere.

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Scenically, there are three small buildings at the junction presently; a small ‘new’ abandoned Milwaukee Road station built of brown brick with a flat roof; and two other small abandoned storage buildings on the inside of the wye. The rest of the area is rolling terrain with some cuts for the tracks. Landcover is primarily conifer trees with some deciduous trees, grasses and understory brush. Both single track lines cross a creek; the Plummer crossing is on a bridge, while the Worley crossing is on a large fill with two 10’ culverts.

Join us in the next installment as we detail the module construction, spline work for the roadbed, lay track, and start the scenery.



Abandoned former MILW station that replaced the old brick station in the center of wye (L. Calkins photo)



RRPictureArchives.NET Image Contributed by J Fischer

Former MILW station in wye Picture from RRPicturearchives by J Fischer.



RRPictureArchives.NET Image Contributed by J Fischer

Heyday at Plummer Junction—new station left, old demolished station at right (Picture from RRPicturearchives by J Fischer.



Lee Calkins is a CAD data manager in real life, and an enthusiastic N-scaler. He is a big fan of the Union Pacific and has had NTrak modules, but switched to Free-moN a number of years ago given the freedom of what you can do between the endplates. He’s the driving force behind the Inland Northwest Free-moN modelers and the layout planner for the Free-moN layout at the NMRA convention this summer in Salt Lake City.

Submit your modeling articles and news to fmwilhelm68@gmail.com.

An insect collecting tool applied to model railroading for perfect ballast and a couple of other tricks

By Frank Wilhelm

You've read it and heard it – track is a model too, so it should receive the same attention as the rest of your model railroad. What is one to do when working with ballast? Shaping can go on forever, and just when you think you're ready to lock it all down, there's a sneeze or a spastic jerk and you need to start over in that section - we've all been there. Or how about getting just a little too much or too little ballast into ties around switches? It can get frustrating. Here are a couple of tips that you might find useful.

First up is to parasitize and repurpose a handy tool from another profession – entomology – the study of bugs. Entomologists (people who study bugs) have a 'Pooter' or aspirator to suck up delicate insects from the environment – they are just like us – they need to collect at least one if not more of everything. It's simply a jar with two tubes out of the top, you suck on one end, and point the other end at the insect – presto, you can suck it into the collection jar unharmed. We can use the same device to have very controlled vacuuming of newly laid and still loose ballast.

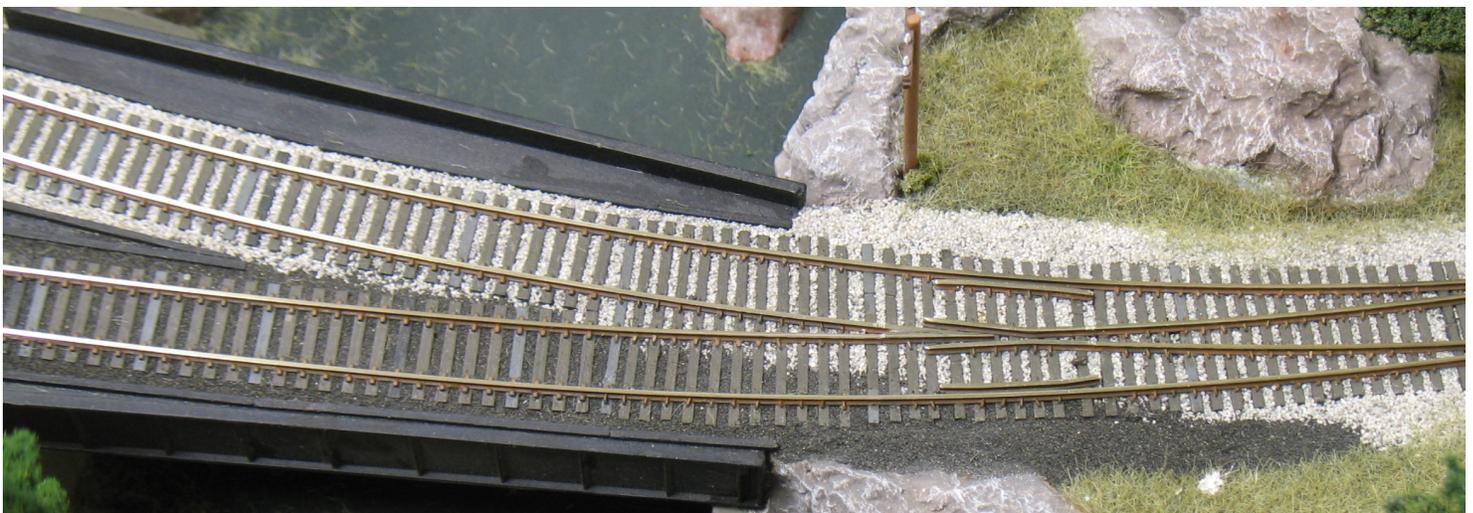
This works a charm around switches, or when you get a little too much of one color overlaying a different color, or just to tidy up before you come with the glue. On my Free-mo modules I use a base of very dark crushed basalt, which is overlain with fine white gray (the Free-mo standard to identify the mainline). This makes a highly visible white and black contrast and errant light gray ballast grains really stand out. Before gluing it all down, I quickly give it a vacuum to make it look neat and get rid of those errant grains. You can also vacuum out grains from scenery e.g.,



Ballasted mainline track.



A pooter - an entomologist's aspirator—point metal tube at bug—suck on hose and presto, bug ends up in jar.



N-scale fine light gray identifies the mainline, while the dark basalt identifies the branchline.

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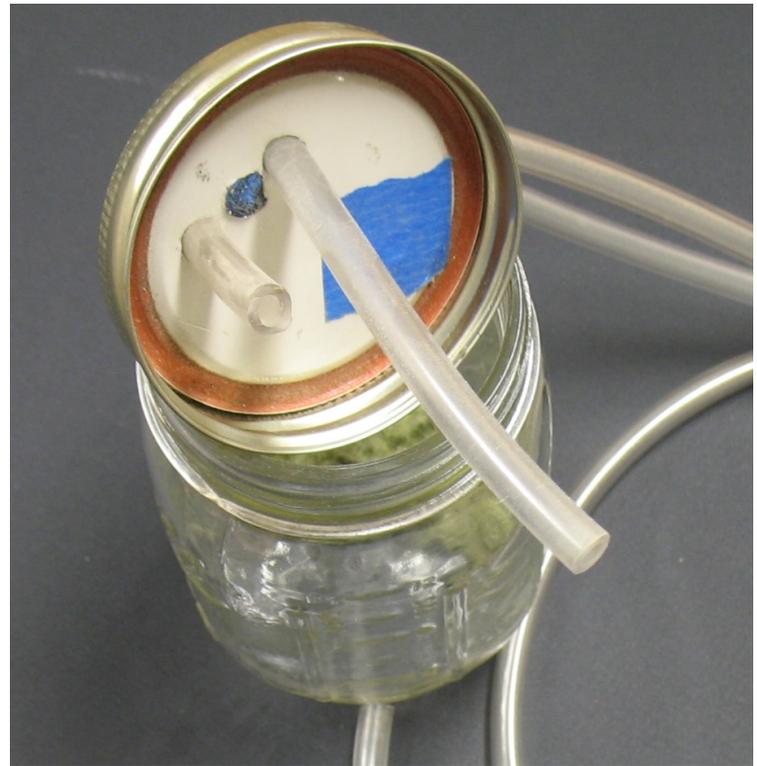
static grass, and foam bush material.

Construction of the device is a snap. I used some tubing for aquarium air stones from the local pet store (about 4 feet should do the trick), and I permanently borrowed a standard mason jar with lid from the pantry. I drilled two small holes into the lid to provide a snug fit for the tubing – the inlet tube is inserted to nearly the bottom of the jar, while the mouth tube is left high, ending just under the jar lid. This allows ballast to settle in the bottom of the jar and prevents you from inhaling it. The entomologists put some fine screen over the sucking end to prevent sucking up insects. I’ve found this unnecessary if the inlet and outlet tubes are at different heights. If you’re interested in the history of the ‘Pooter’, there’s a nice summary here: <https://simonleather.wordpress.com/2014/06/26/entomological-classics-the-pooter-or-insect-aspirator/>

Once the ballast is laid, generally the next step is wetting it before applying diluted white glue/matte medium/scenic cement. Wetting is generally done with either water mixed with a little dish soap or some alcohol to reduce the surface tension. The application, however, is of considerable debate – there are those that use spray bottles to ‘mist’, but spits and spats from the spray bottle cause clumping to occur (I have yet to find a spray bottle that produces a perfect mist). As well, I don’t like to completely soak switches. Some folks follow up with spraying the glue medium as well to cover everything. I’m not a fan of this approach and like precision placement of the glue to control where it goes. Sure, this approach takes longer, but this is a hobby not a race; and there’s something therapeutic about getting the ballast just right (for me anyway). I’ve opted for a standard 10 ml (10 cc) syringe with modified hypodermic needle as my choice applicator, for both water and glue. You can get general syringes at the pet store, the needles may be a little harder to come by – but a friendly chat with your vet should be able to turn up a couple. Watch out here, until modified these are sharp! I like a long 22 gauge needle (green tips) to form the right-sized drop. I use a rotary cut-off wheel to cut the piercing sharp end off the hypodermic needle to produce a dull straight end, then follow up with a file and awl to remove the outside and inside burs. You can deliver water and glue with pinpoint accuracy one drop at a time. I like to get three drops each of water and diluted white glue between ties (this is for HO). Remove the needle when filling the syringes with either water or glue, sucking up through the needle will have you waiting a long time. To avoid balling of the ballast, I place the syringe tip so that when a drop forms, it’s bottom end contacts the ballast immediately and does not have a chance to ‘fall’, as this will cause divots.



Simple ballast aspirator—mason jar with aquarium tubing.



The short hose is the suction end, while the long hose brings in material that is vacuumed off the layout. You could add a small screen to the suction end to prevent surprise inhalation of light materials. A small diameter tube brings high vacuum with little sucking.

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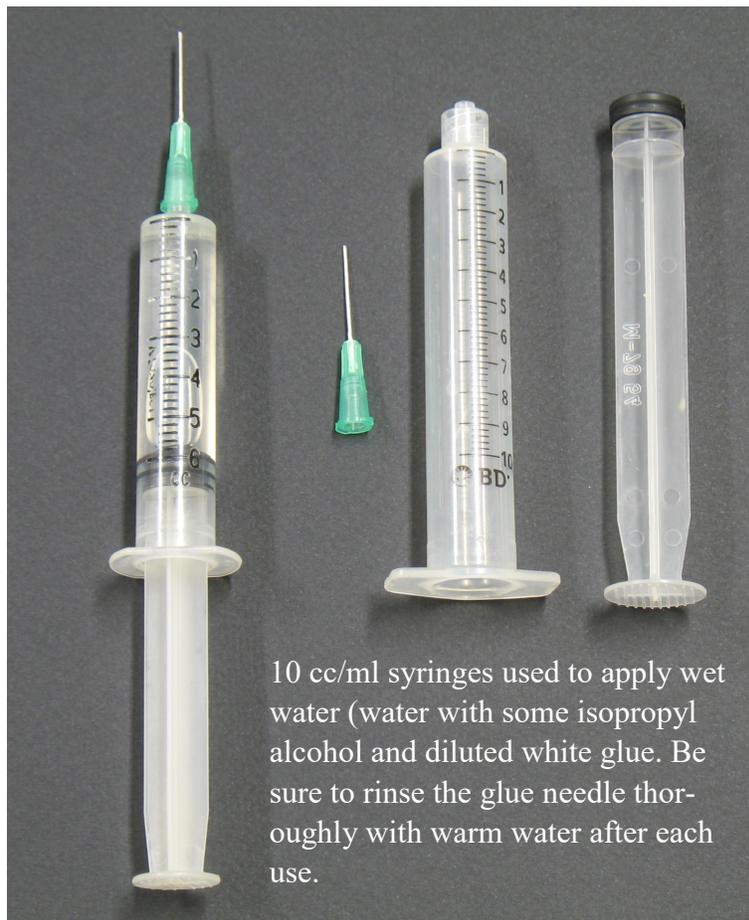
22 Ga. Needle with smoothed end to apply drops of water/glue.

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Once the glue is applied – everyone tells you to leave your paws off the ballast for fear of making it worse. Hogwash! Have you ever watched the pouring of a cement floor? It gets floated at least once or twice before the cement sets up completely. We can also apply this principle to railroad ballast. After applying glue – depending how wet you got the situation (I usually make good use of my drainage ditches during this step) you may need to wait for a different length of time before tackling this step. Once the glue sets to the medium firm yogurt stage, you can take a small spatula or flat dental tool and with a light (I said light) repeated padding can work the ballast into place. Two things will happen – as you lightly repeatedly pad the ballast, the remaining liquid glue will come to the surface, and the ballast will start to swim in it – at this point you can easily rearrange the ballast, and once you stop padding, it will quickly settle back down. I use this technique to drag ballast back up inclines and smooth out any issues in areas that are supposed to be flat. And did I mention you need to do this with a very light touch? Yes, you can definitely make things worse doing this – but experiment, you’ll be amazed at how well you can shape ballast at this stage of the game. If it gets out of control – add some more water/glue mixture to loosen the ballast into a more pliable form and make any major readjustments. Avoid heavy-handed and long streaking with the shaping tools, you’ll see these afterwards when everything is dry. Rather go for the light repeated padding motion. At this stage I also take a magnifying glass and carefully examine the inside web of all the rails to ensure all ballast is gone, especially from around the rail spikes (whether real or plastic molded) to ensure that wheel flanges will run unobstructed.

Give these ideas a try on your next installment of ballast. I hope you find them useful, and remember to adapt techniques used elsewhere in life – there’s no point in recreating the wheel.

Right: Dental probes and artist’s clay modeling tools used to shape ballast while still wet—remember, use a light touch.



10 cc/ml syringes used to apply wet water (water with some isopropyl alcohol and diluted white glue). Be sure to rinse the glue needle thoroughly with warm water after each use.



Building a Freeman 45° module Part 3: Rock painting, scenery, and buildings – Frank Wilhelm

In the last installment I ended with pointing the rocks along the canyon. Since then, the rocks have been painted (twice), base scenery has been added, torn up and added again, trees have sprouted and buildings have appeared....and then there was hindsight which resulted in a partial do-over. Let's get started for this time.

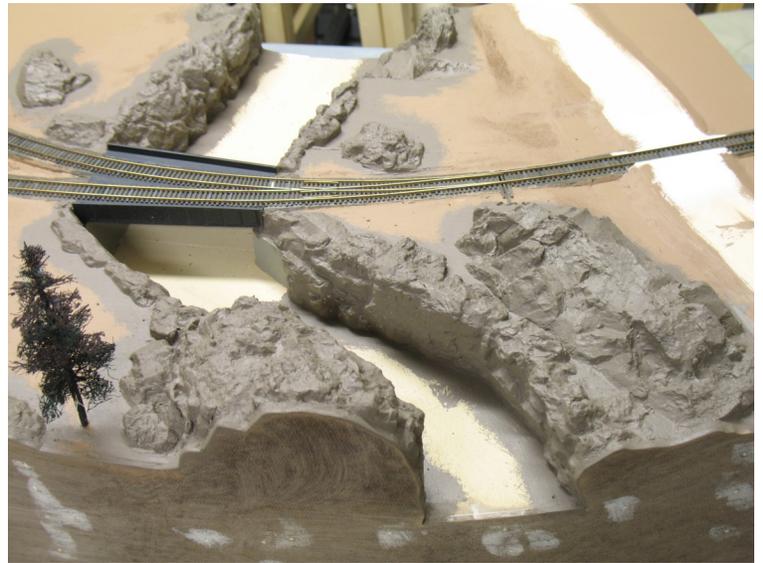
Painting rocks in the canyon

I've watched my share of videos on how to paint rocks, there are lots of good instructional pieces on the www. One that really resonated with me was "Making and painting rocks with Dave Frary" (see link 1 at end of article). I had used the approach successfully in the past on my HO modules. This time I wanted the rocks to be gray to try and emphasize a limestone geology. This was a mistake. While the end result looked fine by eye, all pictures had a washed-out appearance because the final white highlighting of the rocks lightened them enough that a digital camera's white balance was unable to discern the details. This is not what I wanted. Of course by this time the grass was glued in place and I had already started adding bushes as well as trees. After a long time of humming and hawing about it, I made the decision to re-paint the rocks. I pulled the trees and shrubs, and very carefully went back with stronger earth colors to paint the rocks, so much for the limestone geology. I'm happy with the end result. Basically, I followed the video cited above; don't be afraid to experiment with the colors and remember that the colors will change a bit as the paints dry and/or the plaster absorbs the pigments. My base was latex house paint (cheap mistints, in the range and proportions explained in Dave's video mentioned above). For the final colors, I used acrylic craft paints that can be had in the \$0.50 to \$1.50 range at stores such as Michael's. I added highlights using the dry-brushing technique with white paint.

Scenery base layer

I'm a proponent of adding real dirt for true color and texture under any sort of green stuff that gets added later. I add this in two steps to the module base that has been painted with a latex base coat of brown (again, get a brownish mistint can of latex house paint from the paint department

Right: repainted rocks with earthy colors and white highlighting prevents washout in pictures.



Base coat of 'dark' on all rocks to tie underlying base together.



Washed out rocks due to inability of camera white balance to pick up details of light gray and white.



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at your local store – cheap!). The dirt I add is fine local Palouse loess, straight out of my back yard (sun dried, baked in the oven to kill creepy crawlies, and sifted to different sizes). I load my applicator, a mason jar with fine holes poked into the lid, and sprinkle a light dusting over a very thin coat of undiluted white glue spread across the module. This results in a rough sandpaper-like first layer which provides some grab for the second layer. For the second layer, I add a wash of 50:50 diluted white glue brushed over the first layer into which I immediately sprinkle the loess. I then use an atomizer loaded with tap water and a bit of alcohol, to cut the surface tension, to wet the loess soil gently from the top. By the time I get to the water spray, many areas are already soaked through from the 50:50 glue mixture applied first. I only add water in areas where the glue has not soaked through all the way. I've arrived at this non-standard method of gluing the fine loess by trial and error. If the dirt is soaked unnecessarily, it will crack when it dries and shrinks. This dual approach of laying the final layer into the 50:50 mixture and then gently wetting any dry areas has worked well and not resulted in any cracking.

Static grass

I'm fond of the texture of static grass but not the cost of commercial applicators. Luckily, there are plenty of videos on YouTube showing how to hack an electronic fly swatter (\$3.00 at Harbor Freight) and a sippy cup (\$1.00 from the DollarTree) to make a perfectly serviceable applicator. The one I put together packs a wallop, so you'll want to be sure to discharge the screen and pin without you in between. I use a mixture of lengths and colors to give me a dull green, late spring early summer Pacific Inland Northwest look (before it goes all dried brown). I apply the grass right after the soil applied for the base scenery has had a little time to dry – so be ready to do the base layer fol-

lowed by grass. If you do this outside in blasting sunlight, expect areas to dry disproportionately where the grass may not stick. I use a piece of light cardboard as a mask to prevent grass from getting into areas where I do not want any – this is not always successful – so do a bit of practicing to figure out how to handle your applicator. Once the grass is down, it's time to put the module out of harms way and let it dry – completely. After it's dry, I remove any unattached grass by vacuuming it after putting a piece of fabric over the end of the vacuum cleaner nozzle so I can reuse any grass that is removed. On this module I managed to get grass into the elevator gravel area – and it stuck. How to remove that was a bit of a conundrum, that happily solved itself when I decided to scrape the entire area clean (see hindsight below). If you decide your grass is not tall enough, you can spritz what is already in place with some diluted glue and proceed to add another layer of grass with the applicator. If you decide the grass is too tall, you can take some hair clipper and give it a trim – do this in small increments.



Palouse loess and glue ready for base scenery.



Sippy cup / electronic flyswatter static grass applicator (\$5.00).

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Structures

The grain elevator along the siding was the planned industry, so it was an easy structure to select. Plans for the scratch build were downscaled from the paper grain elevator plans found here: <http://www.angelfire.com/empire/auction/Members-Paper-Models.html>. Instead of building it out of paper, I used styrene sheets – clapboard siding (#4031) for the sides, and metal siding (#4526) for the roofing. It was a “this looks about right” building process once the basic dimensions were in-hand. I used #291 angle material to finish off the corners and trim in white after painting the entire structure with Rustoleum red oxide primer. The base for it was constructed from plywood scraps firmly glued to the module, clad in 0.040 plain styrene painted concrete.

The idea for the steel grain bins came much later, but I’ll detail their origin here. I figured a Rix metal bin would be a nice addition to ‘fill’ out the elevator scene, however, after gluing one together, I was unhappy with the waviness of the sides probably showing my inexperience with this sort of kit at this scale, but it bothered me enough that I turned to my plumbing bits and pieces in the garage. I found a PVC union that I chucked into the lathe and turned down to the appropriate diameter and then spent a crazy amount of time adding the individual grooves followed by the vertical joints between the metal pieces. I liked this much better. I borrowed the top and door from the kit. Off course a second one was immediately procured. They received a coat of primer followed by tractor silver from our local Spence/True Value hardware store. Piping details came courtesy of leftover sprues from previous kits.

While the prairie sentinel in one quadrant of the module was a nice industry, it unbalanced it (spatially and by height). I figured I could re-balance the module with a forest of tall conifers on the other side of the tracks. After putting in some trees, the idea of a small cottage tucked amongst them emerged, but I didn’t want an overbearing ‘house’, or an ordinary cabin. After an inordinate amount of time on the world wide web, I found a simple plan for an A-frame cottage – bingo. The plans for it and many other buildings can be found here: <https://www.therailwire.net/forum/index.php?topic=30652.0> (Note: there is a treasure trove of plans here for the scratch builder- the main link is here: <https://www.therailwire.net/forum/?topic=31109.0>).

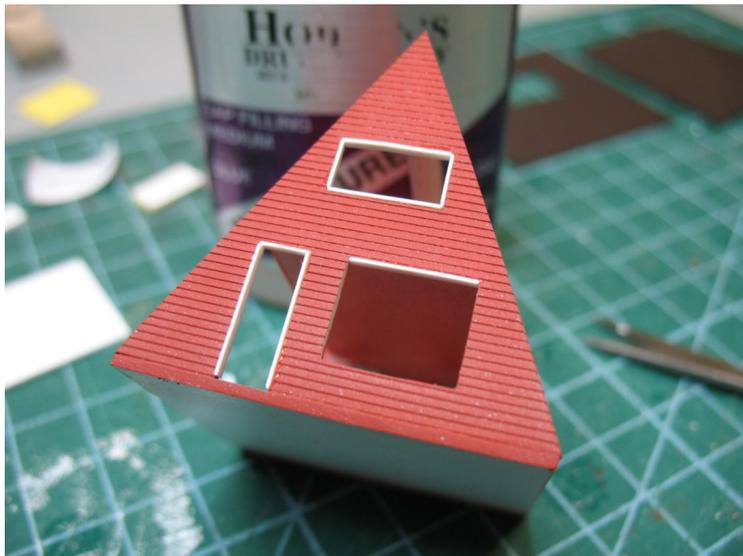


Grain elevator assembled with 1st coat of paint.



Metal grain bins turned on a lathe from PCV schedule 40 unions with Rix roofs and doors. The roof vents were turned from leftover sprues.

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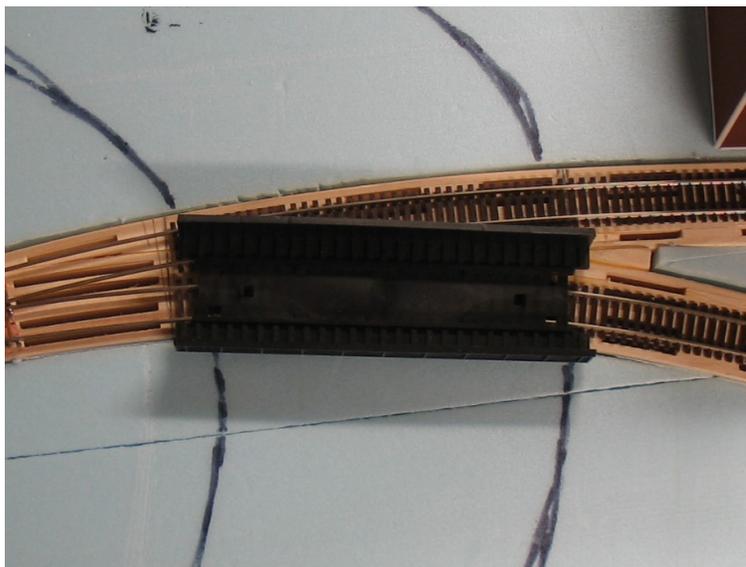
A-frame cottage in progress.



Completed A-Frame cottage.

To build the A-frame, I followed the plans mainly as presented, making small changes to the windows, relocating the chimney and adding steps at the other door. I also built a foundation for it that was glued to the module base to allow scenic material to come right up to it. This prevents the “floating in air look” that gives a model away immediately. I painted the A-frame with colors to complement the forest. It also received a warm LED light on the inside so it can be lit at night.

The bridge under the switch is a kitbashed standard Atlas 50’ plate girder bridge. I cut the sides off with a razor saw and inserted two pieces of 0.040 sheet styrene (doubled up) in place of the removed bridge deck. I made a paper template for the deck that looked about right to span the river and accommodate the trackwork. After all the glue had dried, it went to the paint shop for a shot of flat black and was then glued under the track. Bridge abutments were cut from ¼” birch ply from the scrap box under the table saw. I actually took height measurements, as they had to fit un-



Left: Standard N-scale Atlas plate girder bridge. **Below:** Modified bridge after cutting sides off deck and replacing with two thicknesses of 0.040 plain styrene.



der the bridge. Once cut and sanded, they were painted with a concrete color and glued in place.

Redesign of siding

During one of my work sessions it occurred to me that if the siding had a slight curve to it, it could flow nicely onto a module at right angles to it potentially creating an interchange or even a wye. This was about the time I was scratch-building a three-way turnout and contemplating a use for it. After some fiddling in RailCAD, I decided to curve the siding. Unfortunately, this meant some ‘open heart’ surgery of already finished scenery. Luckily dried dilute white

glue is easily softened with water and the scenery came off easily. What was not so straightforward was tearing up the roadbed. Once down to bare bones, reconstruction went quickly, and I'm glad I did it before the elevator scene was fully detailed. It also forced some realignment of the elevator entry and exit for vehicles which cured the errant static grass-on-gravel problem I had mentioned earlier. It was all scraped off and replaced.

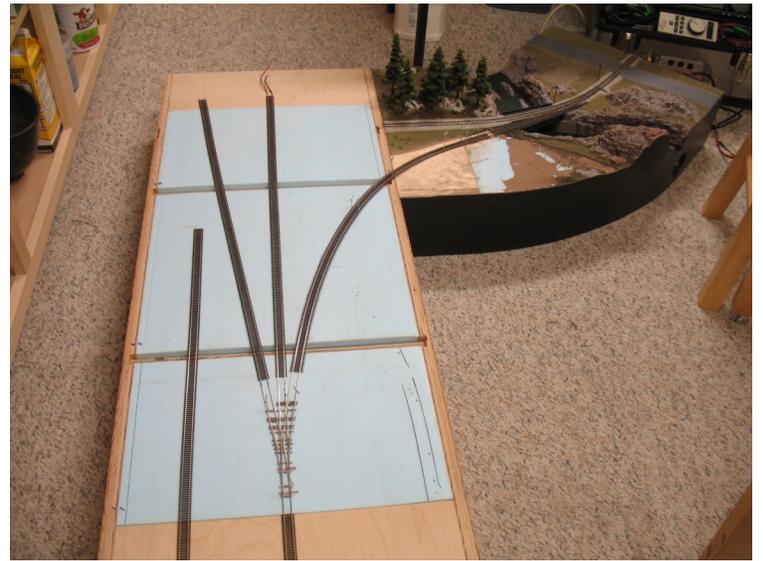
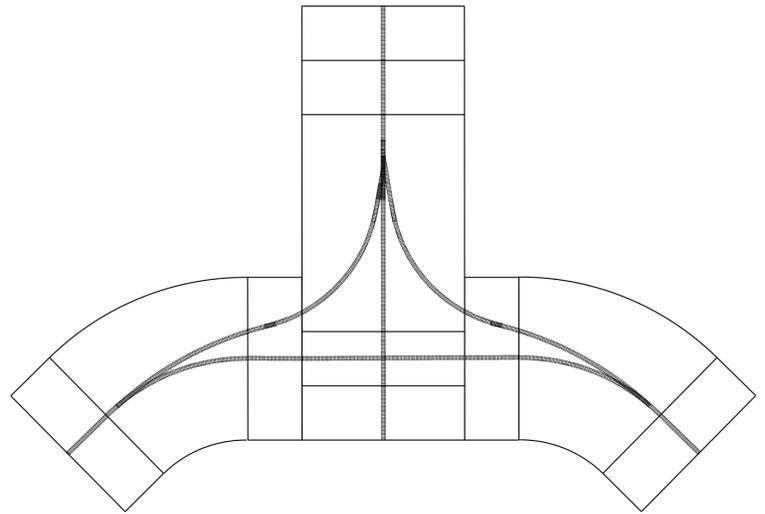
Details, details, details

What remains to complete the module is the addition of lots of details – people, vehicles, bushes, grime and dust, road markings, maybe flashers or gates at the road crossing, in-



Tearing up roadbed for track re-alignment.

stallation of LEDs around the elevator and a rectifier/voltage regulator for them, a cable for the accessory bus, and a loconet panel on each side of the module – and some water in the river. Stay tuned for a final installment in the future. The plan is for the module to make it's debut in the large Free-moN set up planned this summer in Salt Lake City at the NMRA convention/National Train Show.



Re-alignment envisioned for future module combination.



Current state of the module. It still needs lots of details but is basically operational.

Web links:

(https://www.youtube.com/watch?v=TsQ-LU2sFLs&list=PLTaFP0QYcboanuYVGMZ1_mLJHYQG7R8Wx&index=1)

Spring Model Train Show

Spokane County Fair and Expo Center | 9:30am-3:30pm



\$6 Adults
12 & Under FREE
Bldg A, B, & C



Sunday, March 10th • 991-2317



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5th Division Calendar of Events

Date/Time	Event
March 9 & 10, 2019 Saturday: 4 pm—8 pm Sunday: Noon—4 pm.	River City Modelers open house, 1130 E. Sprague Ave. Spokane, WA Free-mo Layout both days at Spokane County Fair & Expo Ctr. 404 N. Havana St.
March 10, 2019 09:30-3:30	Spokane Train Show, Spokane County Fair & Expo Ctr., Bldgs. A, B, & C 404 N Havana St., Spokane, WA Information: Shirley@busnws.com
March 24, 2019 9:30 am—4 pm	8th Annual Lewis-Clark Train Club Model Train Show and Free-mo layout Nez Perce County Fairgrounds, 1229 Burrell Ave, Lewiston, ID Information: Dan Wise, Train Show Chair, wrails@cableone.net (208) 816-0845
October 13, 2019 09:30 am—3:30 pm	Spokane Model Train show hosed by River City Modelers Contact Shirley Sample (shirley@busnws.com)
April 5 to December 15, 2019 10:00 am to 4:30 pm Fri, Sat, Sun	Reardan, WA: Inland Northwest Rail Museum The Museum will be open on Friday, Saturday & Sunday 10:00 am—4:30 pm throughout the summer. NMRA members receive a discounted admission. Information: http://www.inlandnwrailmuseum.org
April 20, 2019 09:30 am– 3:30 pm	5th Division business meeting Banner Bank meeting room (basement) 203 W. First St., Kennewick
April 27, 2019 9:00 am—2:00 pm	Livingston: 29th Annual Depot Railroad Swap Meet Livingston Depot Center, 200 W Park St, Livingston, MT Information: Livingston Depot Center, (406) 222-2300
April 28, 2019 9:00 am—4:00 pm	Helena: 39th Annual Helena Railroad Fair Helena Civic Center Auditorium, Helena, MT Information: email_rrfair@mt.net ; Facebook: Helena Railroad Fair
May 29 to June 2, 2019	2019 PNR Convention — Kootenay Express Prestige Rocky Mountain Resort Cranbrook Cranbrook, BC, Canada www.kootenayexpress2019.ca

