

# HUB Headlight

HUB Division Inc., Northeastern Region, National Model Railroad Association - www.hubdiv.org  
Volume 35, Number 4, March - April, 2019

## RAILFUN TIMETABLE

### Presentation: Steam Locomotive Detailing

By Mal Houck

8 PM Friday, March 22, 2019, Cambridge School of Weston

With slides and some exhibits, Mal will describe his efforts to re-detail, remove / replace details or add omitted details to steam locomotives. This will include non-destructive methods for removing parts held in place with ACC. He will provide examples of detailing plastic (superstructure) engines, not just brass imports. Finally, he will explain the process of detailing to a specific prototype including the sources and methods to do so. Mal will describe his use of equipment catalogs and Simmons Boardman Locomotive Cyclopedias. Mal's steam locomotive parts sources include:

- Cal-Scale
- Kemtron - Precision Scale
- PFM (Pacific Fast Mail)
- Cary Locomotive Works
- Wiseman Model Services
- Selley
- Marktis (U.K.)
- Overall / Selective cannibalization of "Basket case" superstructures.

### Presentation: Using Dry Transfers to Letter and Decorate a Model

By Geoffrey Graeber

8 PM Friday, April 12, 2019, Cambridge School of Weston

Dry transfers can be used to letter a model successfully if a few guidelines are observed. This presentation will explain the process and limitations of using dry transfers on models. The system and techniques will be demonstrated on S-Gauge models, the gauge in which Geoffrey has modeled for his entire life. Lettering one or two freight cars will be used to illustrate the techniques.

### Hands-On: Realistic Walls: Stone, Wood, and Metal Ideas for prototype realism

By Steve Erickson

8 PM Friday, May 17, 2019,  
Cambridge School of Weston

This clinic is primarily hands on. It will demonstrate advanced techniques for combining commercially available stains and weathering materials to achieve various effects in wood, stone and metal. It will also demonstrate a simple weathering system for rusted metal and show how to make a

*(Continued on Page 2)*

*The map to Cambridge School of Weston appears on Page 14.*

### Save the Date: Field Trip to Bar Mills Modelworks Saturday, June 15, 2019

We have a treat for our final RAILFUN of the season! Rather than sit in a classroom on a beautiful evening, we will be taking Amtrak's Downeaster to visit the Bar Mills Modelworks Shop in Buxton, Maine. The Bar Mills shop is set in a reproduction of the Strong, Maine depot. Activities will include tours of the factory, Art's N-scale and Sn3 layouts, several clinics, and much good fellowship. Lunch will be either a cookout at the site or at a nearby local restaurant meeting room. The complete

*(Continued on Page 12)*



### Assembly and Detailing a Fine Scale Miniatures Kit

By Mike Dolan

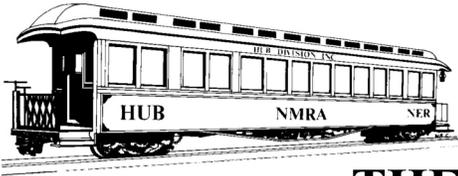
I decided to enter a Structure in the contest at the NER in Mahwah, New Jersey last September. Beginning after Christmas, I thought there was plenty of time to build Elijah Roth and Sons as a module to fit my layout and to enter in the contest. Wrong.

As August arrived and the building was further away from completion, I realized it was not going to happen. My goal was to build the kit, transport it to the contest and, when the contest was done, put it in place on my layout. This required a more elaborate base than is usually needed with these kits. The kit features a Water Wheel that had to be near a water source. An

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## THE PRESIDENT'S CAR

By James VanBokkelen

**H**ello, members of the HUB Division and readers outside our group. There's been plenty of good news since I last wrote you, above and beyond the sun starting its northward journey, so I'll start with that:

First, our Winter Wonderland layout at the Boston Museum of Science was a great success. Many HUB members volunteered to staff the exhibit. Takedown and removal demonstrated that many hands make light work. Both our organization and a significant attendance increase impressed the Museum's management. We'll get any changes to next year's exhibit worked out this spring and summer, and set to work again come fall.

Our effort has helped both the HUB and the model railroading hobby; attendees at our NEMTE show mentioned it, and we added several new members. I reiterate my thanks to David (Shack) Haralambou, our Vice President, Dick Ball and everyone who helped with construction, transportation and staffing.

Second, our Spring TRAINing show and Annual Meeting are lined up for Saturday, March 16, at Worcester State University. The clinics, including Joe Fugate's, look good and the Banquet speaker will be interesting. Hope to see you there, but if you can't attend, be sure to vote in the Board of Directors election. Four candidates have volunteered for the three BoD seats to be filled. You'll find biographies in the January-February Headlight and more Spring TRAINing details later in this issue. My thanks to all for stepping up.

Third, Gerry Covino changed his mind, and with the Board's consent, will continue as Treasurer. He's already shifted many non-Treasurer jobs to other HUB

volunteers, so we all hope he'll finally be able to make a good start on a home layout.

However, there is also bad news. Although our Module Group put on two events in January, drawing quite a crowd at West Springfield, no one has volunteered to replace Dick Ball as our Module Coordinator. The Module Group's charter doesn't allow the Coordinator to be a Board member. Board members and Module Group veterans will help out with chores like towing the trailer, making the layout plans, working on the modules, etc. The job doesn't have to be as big as it has been for some previous Coordinators.

If we don't get a new Coordinator in place by the end of April, I'm not sure what our 2019-2020 calendar will look like. At a minimum, we'd probably get a layout together for our NEMTE show, then probably the Springfield Show (because everyone wants to go) and finally Spring TRAINing. If that leaves out shows you care about, let me, Dick, Shack or Jeff Gerow know ASAP.

RAILFUN Coordinator Andy Reynolds continues to work with other HUB members towards special RAILFUNs on Cape Cod and in the Worcester area. If any members would like to try out a RAILFUN in their area, let Andy, Pete Higgins or me know. We can talk about location, time and topic for any time in 2019.

Near the HUB's territory, the Seacoast Division holds Derry Fun Night on the second Friday of the month (seacoastnmra.org). Their Spring Event will be in Newington, NH on April 6. Farther away, see the Central New York Division's site (cnynmra.org) for details of their "Ops Till You Drop" weekend April 27-28 and the 2019 Northeastern Region "Empire Junction" convention September 19-22, near Syracuse.

In the longer term, the Northeastern Region Board of Directors approved the HUB's proposal for the 2020 convention. It will be October 9-12 (Columbus Day weekend) in Westford, MA. Save the dates, as beyond just attending, we'll be looking for volunteers, layouts, operating sessions, etc. Also, I'm still open to designating someone to be the HUB's

NER Director (and make progress toward the 'Association Official' Achievement Program certificate). Let me know.

Personally, my hobby time continues to be more volunteering and less construction. Also, my household got larger just after the Holiday Party. There's been a lot of work organizing my house for three people and my life around a ten-year-old. Happily, both my bride-to-be and her son are already involved in the B&M Eastern Route.

If there's something on your mind about the HUB or its activities, email me at [president@hubdiv.org](mailto:president@hubdiv.org), call me at (603) 394-7832 or catch me at a HUB event.

Until next time, High Green!

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## RAILFUN: Hands-On: Realistic Walls: Stone, Wood, and Metal Ideas for prototype realism

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simple stone wall that is prototypically correct for New England. Participants will weather a small section of a wooden wall, construct a section of a New England country stone wall, and weather some corrugated metal siding.

The clinic will start with a brief overview of prototype weathering examples and some models that reflect those prototypes. Participants will work on three small projects: a strip of aluminum foil that will be used to construct a stone wall; some corrugated metal panels (that will have been preprimed) and a section of wall material large enough to experiment with three different techniques for applying stains and powders.

Participants should bring:

- Pan Pastels and Hunterline stains you may have.
- Scrap wood wall sections of any type (board and batten, clapboard, etc.)
- A piece of aluminum foil about equal to a letter-size sheet of paper.
- Brushes that can be used to apply pastels and stain. A small detail brush and a larger area brush would be useful. A stippling brush would be very helpful.
- Several sheets of paper towels.



## Shanty Talk: Changes are a Coming

By Rudy Slovacek

**A**t Springfield, I was reminded by Bill Barry that it was once again time to write my column. While I never officially signed a contract with the HUB it was instead something I started after I had written an article for MR on how to renumber some of your freight cars easily. You see, there weren't many in the HUB who actually wrote articles regularly back then. Consequently, editors like Glen Owens, Larry Madson, Lyle Sorenson and Rich Pitter had to rely on their own writing talents to get the news out. I think Bill Borelli was also editor in there somewhere before my time. It was usually a one-man show. As I became friends with Rich, I began writing contributions to help him out. I think one of the first was over 18 years ago for the January-February 2002 *Headlight* entitled "Changes Are Coming to The HUB." (Reproduced to the Right) This Editorial comment was penned when I became the RAILFUN Coordinator and Board member (a sort of historical time capsule if you will.)

What I wrote back then is still pretty much true today except that the changes have embraced new programs, and different people have come and gone. We have lost some elder statesmen like Bill Parker, Jack Alexander, Bill Borelli, Bill Powers, Don Howd, Harvey Humphrey (Mister Alco), George Thompson (of My Dads Trains) and other members that I've not mentioned here. Two notables who have both come and are now gone are Gerald Abbeg and Dick Johannes. Gerald took the HUB into our first two-day fall show that has become so successful. He also championed the Boy Scout involvement. Dick opened the way for our annual display at Children's Hospital and brought prototype signaling to the module group using a

combination of unique hardware and software. We'll miss them all as fellow model railroaders and especially as friends. We've also had some notables move from the region like Larry Madson, Doug MacDonald and Rich Pitter. However people like Dick Towle, Gerry Covino, Mark Harlow, Peter Watson, James VanBokkelen, Stan and Debbie Ames and Mike Tylick are still very active. Bill Barry has done a wonderful job as editor, and Dan Fretz continues to help the finances through our Donations program. Peter Higgins has done wonders in reaching out to new members and Andy Reynolds now runs the popular RAILFUN night program. Jeff Gerow, Dick Ball and Shack Haralambou continue to soldier on with the display of our showpiece model railroad, even landing us a multi-year paying gig at the Museum of Science! We get paid for doing what we love, running trains.

In the years since I first wrote that article, one of the biggest changes has been the shift to the DCC standard of powered operations, which also has facilitated the introduction of sound in our hobby. Also the contributions to the *Headlight* have certainly grown. I counted no less than six featured articles by different authors, excluding my own column, in just the last January-February *Headlight* alone. Erich Whitney has even agreed to support a regular Electronics column as that aspect of the Hobby increases in popularity.

When I visited the layout in Springfield on Sunday morning, I managed to say hello to Larry Madson and Bill Cramer (who brought their steel mill) as well as others. I also spent a few minutes discussing the hobby with two lovely women who had accompanied their sons so they could participate in the HUB display. James VanBokkelen was busy across the way helping one of the boys with his Budliner. Shack was running a long, long train that occupied half the main loop. It reminded me of the long intermodal trains of TOFC cars and well cars that Mark and I used to run, as well as the Coal trains Larry and I loved to operate. Barbara was discussing PR programs with Dick and I saw a lot of new faces I did not recognize. Yes, a lot has changed over the years and I hope it continues to make the HUB one of the better Divisions on the forefront of the

hobby. So please step forward and volunteer to help fill some of the positions that open up so you can be an active part of that change. Who knows, maybe in a few years you'll be writing a column too.

Well, I've got to go now and stock up some coal for my Shanty stove before the polar Vortex swoops down for that very deep freeze tonight.

## CHANGES ARE COMING TO THE HUB

(Editorial comment by Board  
Member Rudy Slovacek)

From the Jan.-Feb. 2002 *Headlight*

*It has often been stated that "only death and taxes are certain" and it would seem recent events are conspiring to bear this out. Change in HUB membership to an all NMRA base, and talk of an increase in the NMRA dues structure certainly speak to the issue of money, especially in our current economic downturn. And, of course, the tragedies played out in September have become a shocking reminder of our own fragility and vulnerability.*

*Lost in the above is another overlooked certainty that, for both good and bad reasons, "changes are inevitable". What differentiates between the changes becoming either good or bad is our ability to respond to them in a positive manner. In case you've been preoccupied by the foregoing events in our economy and those of this past fall you may not have noticed the changes which have been occurring around our HUB division as well. We lost a lively contributor when Doug MacDonald retired to Colorado this past summer. We'll miss his video set-up at shows and help with DCC installations but most of all we'll miss his willingness to explore new territory both in spirit and in deeds. Larry Madson has slowly but surely been divesting his multitude of responsibilities such as the *Headlight* Editor to Rich Pitter, the RAILFUN Coordinator to Rudy Slovacek and the Office Manager to George Thompson. Larry is retiring and will move back to Cleveland where he'll continue to pursue his love of electronics in the hobby. The HUB will lose an electronics guru, a great clinician, a progressive-thinking board member and an overall champion of the hobby. Don't worry if you haven't placed*

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## CHANGES ARE COMING TO THE HUB

(Continued from Page 3)

a module kit order in Larry's last lot because, I'm told, our current President Mark Harlow will inherit the templates and set up shop. This is in addition to Mark's doing the honors of pulling the HUB trailer. Don Howd "The Train Doctor" no longer mans the booth at our fall show and he will step down as the Division's representative to the NER board of Directors. Don's modeling talents and services will be missed as well. If you haven't heard yet you will learn that Board member Bill Goldthwait, who owns the longest tenure of successes in organizing the HUB Fall Show, has announced he too will retire from that position. He will work with a successor to keep the show on track next year but who will fill his shoes after that?

Most of you have probably noticed our clerk Peter Watson is just not around much anymore due to his becoming a full-fledged engineer for AMTRAK. Glen Owens has taken the preemptive step of disposing of his collection to an appreciative following so that his wife will not have to attend to this sad task later. We hope this does not signal the end of involvement for the former Headlight Editor and an early founder of the module group. And has anyone seen Bob Blick, another early Module Group member, lately? His shops in Bellingham and later in Plymouth were stocked with treasures as well as being gathering places for some of us modelers. Dick Towle, father of our great "Crawford Notch Unconvention" and lesser known among fresh newcomers for his "Lionel Lines" fame stepped down from the Board of Directors because of work commitments but was seen actively working the fall show. He has promised to arrange a Night Photo-Shoot of the Acela this coming spring. Meanwhile Jack Alexander (our treasurer) and Bill Parker continue to soldier on as senior statesmen on the Board of Directors. Probably the most continually surprising senior statesman is Art Ellis who made the leap to DCC with a decoder installation and who recently completed an hour stint at dispatching during operation of the HUB layout in Marlboro. He just seems to grow younger and more enthusiastic every year!

While some faces disappear, new ones are continually surfacing. Take Jeff Turner for instance. As well as becoming the Module Superintendent and shepherding in a record crop of new Module Group members, his photographic talents have been recognized and he will take over the NER photography contest chair from Brian Whiton. Gerry Covino is just a dynamo of energy on the Board of Directors doing everything from helping with module kit production, locating a new home for the RAILFUN nights, procuring more radios and working up the corner coal tipple complex with Larry. Bill Powers knows enough electronics to be dangerous but has the wisdom to restrain himself. I'm jesting of course but seriously, his eagerness to pioneer DCC sound installations and his willingness to help out others goes a long way toward insuring our source of electrical talent. Curtis Nutt, another new face, is just "nuts" or should I say full of enthusiasm for recruiting new members with some fresh promotional efforts.

Michael Tylick has long been a familiar name for his outstanding work in the pages of Model Railroader. We recently convinced him to take a more active role in teaching us through clinics (see January's RAILFUN Night) and to use his contacts for recruiting speakers to raise our overall modeling quality. Speaking of quality modeling, I saw a few raised eyebrows from pros like James VanBokkleen and Dick Johannes when new member Mike Clements unveiled his hand-laid track and the early scenic beginnings of a prototype Wire Company along the B&A. One can hardly wait to see it finished. Also I've heard rumblings that the "brew meister" and creator of that delightful "Batchawanna Brewery," Skip Farwell, is now building a home layout and may be open to taking a more active role in the HUB Division itself. Skip's willingness to share his modeling skills and his way with kids has done a lot to recruit new member interest from the public with a winning attitude.

Not only do the names and faces change but our activities also mature and evolve in different directions. The HUB Modular Group was one of the first organizations to go all DCC thanks in part to no small efforts from Stan and Debbie Ames. We raised the innovation bar even further by first introducing video cams and full sound to our operations. In the 2001-2002 season we will put

on a record 11 displays. Our last Spring Show format, where we switched from a members only convention to a public "hands on learning experience," was quite successful. We hope to improve upon this outreach program again this year. And if that isn't enough change I hear the Board of Directors is considering a vote to make it easier to cast your ballot in elections and on HUB issues much like the proxy system used by major public corporations.

Model railroading is not an armchair hobby; otherwise, it would be called "reading about modeling." In fact the hobby itself is based on an active and vibrant service-oriented transportation system which happens to utilize steel wheels riding on steel rails. It is just as much about modeling people serving other people. What changes will occur next? One cannot say for certain what the New Year will bring. One thing is clear though, as an organization we are made up of volunteers and the people in those different roles will continually change. If we do not encourage and plan for such turnover we do a disservice to future members. Failure on our part means relying on old standbys to shoulder the load until they are burned out or suddenly gone forever without developing successors. We cannot sustain our hobby with that selfish philosophy; it is the equivalent of running a railroad without renewing maintenance. It will eventually stop functioning and there are plenty of examples both in the prototype and in defunct model railroad clubs.

It's time for a new crop of members to step up and lend a hand while learning skills enabling them to replace some of the older contributors. Thus, as you reflect on the end of a vividly memorable year, I'd ask that you take a moment to determine how you might personally model or fulfill the "people serving people" aspect to our hobby. It may be as small as volunteering to man some function at the Spring and Fall shows, writing a Headlight article, it may be giving a talk or clinic in your field of interest, or it may involve a more substantial commitment to run for office. It is not as critical what you chose to do as it is important that you actually do it! You as members can help make the process of change become a positive one for the HUB Division by actively becoming a part of it.

# Assembly and Detailing a Fine Scale Miniatures Kit

*(Continued from Page 1)*

existing module in my layout had such a spot but would need to be modified to accept the structure. The building needed to work as intended or the effort was wasted. The module was a single track corner module with a deck girder bridge of 24" in length spanning a valley. A waterfall ran under the bridge and would serve as the water source I needed. I removed the back half of the module; leaving the bridge in place and added a second track that fit around the Roth and Sons structure. (Photo 1 and 2)



Photo 1



Photo 2

I built the base as defined in the Fine Scale plans and then built some blocks into the module to ensure it fit correctly. The block to locate the base fits a hole under the assembled rock on the base. This allowed me to remove the kit and ensure I was on the right track. (Photos 3, 4, 5 and 6).



Photo 3



Photo 4

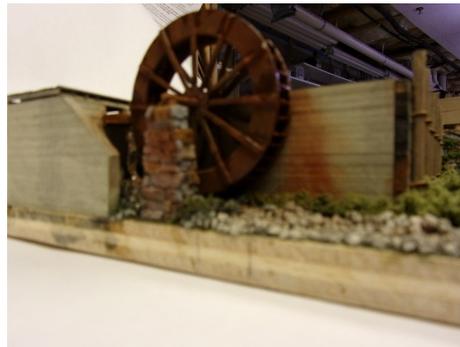


Photo 5



Photo 6

Once the base and locating features were defined, it was time to build the structure. Fine Scale Miniature kits have always been a joy to work with. George's directions and detailing notes have always been spot on. Having built a number of the kits I tend to jump around and on this kit I made a number of changes. The kit is designed without con-



Photo 7



Photo 8

sideration for an interior. I paneled the floor, applied studs to the walls, put lights inside as well as a couple of pieces of machinery. There are people inside operating the equipment; it got a little crowded in there. With doors open and lights on, they are visible. (Photos 7 and 8)

All signage and most details are included in these kits. The number of quality castings is tremendous. Of course, that means a lot of paint work. I like to use double sided tape on a piece of glass to hold all of the castings. (Photo 9) I clean them first with a Prep-Sol to ensure any grease or oil is removed and the paint will adhere. I place the castings on the tape in the position they will be on the model and prime then all with either Red Oxide or Gray primer. The Acrylic paints then have a good surface on which to adhere.



Photo 9

*(Continued on Page 6)*

## Assembly and Detailing a Fine Scale Miniatures Kit

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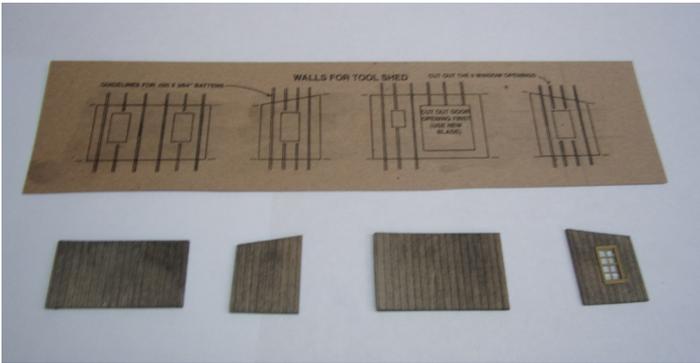


Photo 10

Sounds like a daunting task but it moves along as they are all painted if you plan the coloring. The same color can be used in different spots on a lot of the castings. Once the paint is dry, the application is easy.

One feature of this kit I changed was the back building. This building is supplied in the kit as a cardboard cutout that requires openings to be cut and details applied. I wasn't happy with the color of the cardboard after a stain and decided to construct this structure from Northeast Sheet stock. (Photo 10) I laid out the windows and door on the sheet stock. I carefully cut the openings to fit the supplied window frames. I then assembled the wall stiffeners inside to prevent any warpage. I painted the structure with some premixed water-based stain and detailed it with my alcohol/black ink wash. The roof was cut and braced before applying paper metal roof shingles. Once on the roof, they were dusted with some powders and alcohol/ink. It just made a big difference in the overall appearance of the structure versus the cardboard.



Photo 11

Detailing was the final step and the one that brought the structure to life. Scenery, roadwork, people and vehicles all make the structure work. I will admit the tedious task of running the power



Photo 12

lines required more than one attempt. There are a number of detail items that are not in the kit but I added to get the appearance I wanted. Truck, signs and people all made it more realistic. (Photos 11 thru 15)



Photo 13



Photo 14

To install the structure on the module, I scratch-built the retaining walls with individual bricks. I have used Dr. Ben's Granite Baby Blocks for this and other structures. They are a scale 12" thick and can be used for walls or tunnel portals to cover an odd-dimensioned track center. The river bed was laid out so that the flow worked to supply the water wheel and flowed into the waterfall. I took some photos to show the before and after area prior to water. Once installed permanently, the water will be added. (Photos 16 and 17)

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## Assembly and Detailing a Fine Scale Miniatures Kit

(Continued from Page 6)



Photo 15



Photo 16



Photo 17

Overall, I am happy with the final result. There is a lot to be learned by constructing a craftsman kit. With most of the kits I have worked with, the parts are done correctly and the quality

of the materials is excellent. Each builder usually has preferred methods of construction and weathering. By studying their methods; whether it's a Fine Scale Miniatures kit, a Sierra West model or a Foscale kit, you should be able to learn something new.

I have found that you can take these methods and apply them to the \$2 structure you found on a White Elephant table or a less expensive kit from another manufacturer. The detailing you apply and the touches you can add will make the structure less expensive than the craftsman kit but it will appear more valuable. Relax and make it the fun time it's supposed to be.

The attached photos were numbered as I was building the structure. They show the process from start to Finish and hopefully provide some motivation to get up and build something.

I have written this article as a start towards the Structures AP Certificate. I will write more as my building process continues.

## Achievements



James Kerkam (right) receives his AP Certificates in Electrical and Scenery from Peter Watson, MMR at the January 2019 RAILFUN.

Photo by Andy Reynolds



Malcolm Houck (right) receives his AP Certificates in Cars and Motive Power from Peter Watson, MMR at the January 2019 RAILFUN.

Photo by Andy Reynolds

# Erich's Electronics Notebook

## Introduction

By Erich Whitney

One of the things I love about the hobby of model railroading is the incredible diversity of skills, interests, and people involved. Each of us brings our own experiences to share and that's where the magic happens. I think the sharing of ideas, knowledge, techniques, and skills is the key to really enjoying this hobby. So, in the spirit of sharing the fun of model railroading, I thought it would be good to write a column where I could take my area of expertise, Electrical Engineering, and provide answers to questions you may have about any of the aspects of modeling that are electrical in nature.

I understand and appreciate that not everyone in model railroading wants to be an electrical engineer. But I do think there's information that you could find helpful as you work on your own model railroad or module. My day job is a group leader and principal hardware engineer at the MITRE Corporation. And while I am also an Adjunct Professor of Electrical and Computer Engineering at the University of New Hampshire, I'll save the lectures for the undergraduates. My approach to this column is to give you enough information to be useful to achieve success on your own and the key to this is for you to send me your questions so I can collect and answer them. The only stupid question is the one you don't ask. To start things off, I've got some things I've been working on to address some design challenges with HUB modules so I'll present that work. In the meantime, please gather up your questions and send them to me via email: erich@hbeng.com. The first project is a new HUB module accessory DC power supply that provides some handy features for running your signals and other accessories while giving you quick and easy feedback in case something goes wrong.

## HUB Module Group Module Accessory DC Power Supply, Part 1

By Erich Whitney

The HUB Module Group standard includes a low-voltage alternating current (AC) accessory bus that each module can use for various low-voltage accessories. A few years ago, the HUB Division's RAILFUN program included a clinic on building an inexpensive linear regulated DC power supply that could be used to provide power for modules and many other applications. This article builds on that idea and describes a DC accessory power supply design for modules with more extensive DC power needs.

When you start designing a module and add up all of your DC power needs, it's not difficult to come up with several voltages needed to run your signals, block detectors, cpNode/SMINIs, switch machines, building illumination, motors for automation, etc. Multiple devices that use the same voltage may use the same power supply—although I'll give you an example later where this may not be a good idea. Every different voltage requirement must be accounted for.

The HUB's AC accessory bus is designed to provide a significant amount of power to the layout but it's probably a good idea to try and minimize the amount of power your module requires by not burning power unnecessarily. One of the problems with using linear voltage regulators is that they burn power that's proportional to the difference between the input voltage and the output voltage. The lower the regulated voltage, the more power is wasted as heat in the regulator. One solution to this problem is to use a device called a switching regulator. These devices can easily operate at efficiencies well over 90%. Within the hobby market, there are many power supplies that incorporate switching regulators available at affordable prices.

Another issue to consider when you're designing the DC supply needs of your module is how you might want to be able to isolate accessories for debugging purposes. When you're at a show and you're faced with things not working as expected,

it would also be handy to have some kind of status display to let you know that everything is operating properly.

This article will take you through the design of a modular, flexible, efficient, and debug-friendly power supply for your next module project. In part 1, I'll walk through the design, and in part 2, I'll cover the printed circuit board and the power supply assembly.

### AC-DC Rectifier

As I mentioned above, the accessory bus that comes into each module provides low-voltage AC power. This power is in the range of 18-24 volts AC (approximately). The first thing you need to do is convert AC to DC with a rectifier. This will give you an unregulated DC power supply that you will need to regulate down to each of the voltages that you need for your module. If you need more than one DC regulator, then it makes sense to use a single rectifier ahead of the individual DC regulators. In this design, I incorporated a main power switch that's double pole, single throw (DPST) which opens both AC wires when the switch is open for complete isolation. There's no reason not to oversize the bridge rectifier and a nice large capacitor to provide a decent amount of filtered DC to the regulators. Figure 1 shows the diode bridge and capacitor that makes up the rectifier portion of the circuit. The dots labeled MH1-4 are the PC board mounting holes that are grounded.

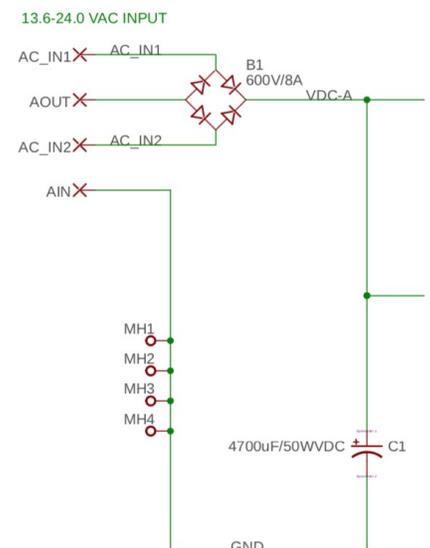


Figure 1: AC to DC voltage rectifier and filter  
(Continued on Page 9)

# HUB Module Group Module Accessory DC Power Supply, Part 1

(Continued from Page 8)

## DC Ammeter

Each DC regulator module provides a meter that measures the input voltage, output voltage, and output current. An external DC ammeter (Figure 2) provides a total amount of input current to the power modules. This should be used to monitor the total power currently being consumed by all the power supplies. A DC ammeter is inserted in series between the rectifier and rest of the ground to the board (AOUT and AIN in the circuit diagram below). The DC ammeter I chose also requires a small amount of 12VDC which is provided by a small linear regulator (IC1) shown in Figure 3.



Figure 2: DROK 100245 DC Ammeter

## Solid-State Circuit Breakers and Status LEDs

I incorporated solid-state circuit breakers (also known as PTC fuses) to cut the power if any of the DC regulators pull too much current. The circuit board is

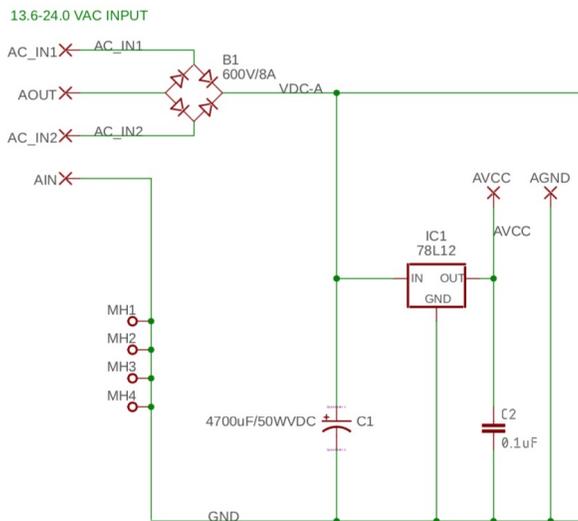


Figure 3 Ammeter power and series connection

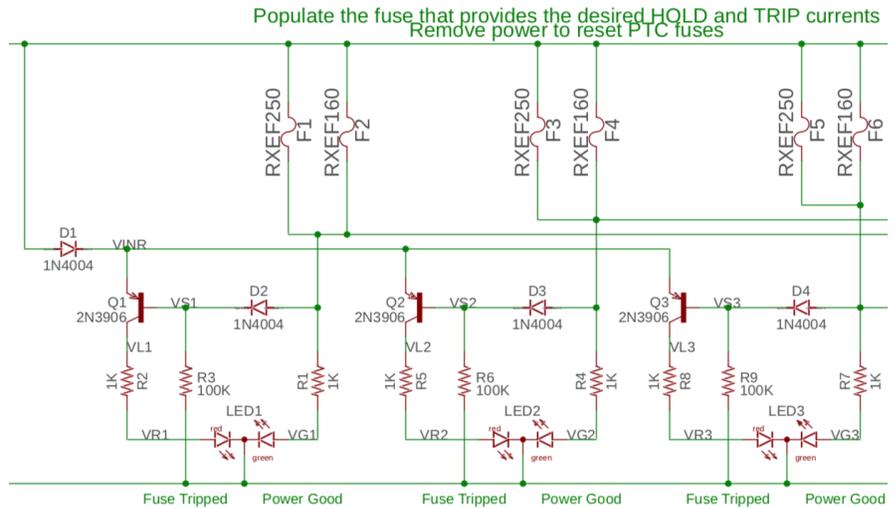


Figure 4: PTC fuses and status LED circuit

designed to accommodate a choice of either 1.6A or 2.5A circuit breakers. The nice thing about PTCs is they can be reset by simply removing the input power briefly (i.e. turn off the power switch).

One problem with these PTCs is they don't have any visible indication when they trip. So, I designed a small circuit that monitors the voltage at the output of the PTC and turns on a bi-color LED to let you know if that breaker has tripped (glows red) and when the DC output is ok (glows green). Each DC regulator module has its own PTC. See Figure 4.

## DC Switching Regulator

Figure 5 shows a DROK 180051US Numerical Control Voltage Regulator DC 5-32V to 0-30V 5A Buck Converter, which has an input voltage range of 5-32VDC and can output 5-32VDC. The regulator can supply up to 5 amps (limited to 2 amps without a head sink). I found these on Amazon.com, but they were much less expensive ordering them directly from the manufacturer. At the time of this writing these were priced at \$6.38.

This module has some really convenient features. The buttons allow you to accurately set the output voltage. The voltage digital display can show either the input voltage or output

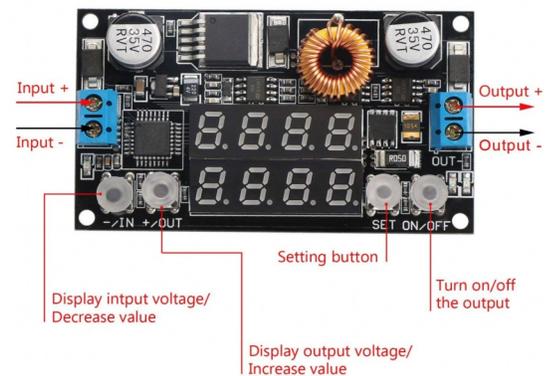


Figure 5: DROK 180051 DC Voltage Regulator

voltage and current by pressing the push-buttons as shown—the input and output voltage indicators tell you which voltage is being displayed. The buttons and LEDs are documented in Figure 6.

The rectifier circuit board provides screw terminal connections for each DC regulator and at the edge of the circuit board is a single modular screw terminal connector that makes a convenient quick-disconnect for all of the DC connections to the module. The complete circuit board schematic is shown in Figure 7.

## Selecting Voltages

Once you have determined how many different voltages you need, the next step is to figure out how many power modules you need. The first thing you need to check is how much current each supply needs to provide. If you have the documentation for your accessories, it should give you some idea of the power requirements. If you don't have any documentation you can try Google and if that doesn't

(Continued on Page 10)

# HUB Module Group Module Accessory DC Power Supply, Part 1

(Continued from Page 9)

help you could use an ammeter and measure the current.

The regulator specification states that the maximum switching current is 5 amps. What the specification doesn't tell you is how much power the module will provide. DC power is simply the product of the volts times the amps. So, if you have set the module for 12 volts and you need 2

amps that would be 24 watts (12 x 2 = 24). All that being said, it's highly unlikely that you'll need more than 2 amps to power your accessories. The one thing I can think of that would test this limit would be a long string of LEDs (i.e. strip lights). But the signals, switch machines, and cpNodes/SMINIs draw much less than that.

A consideration when designing your power supply is the type of device you are powering. It's generally not a good idea to run a motor off of the same regulator that's powering a computer. Motors can produce a fair amount of noise on the

power lines that can confuse the crap out of a computer. This isn't usually a problem because the motors tend to use a different voltage but it's something to keep in mind.

Another example of this separation would be for supplying power to the LEDs in your signals. We typically use either 12V or 5V to drive the LEDs, but you might find it handy to use a separate supply and slightly adjust this voltage up or down to control the brightness of the signals. Look for a future article on how to select the correct voltage and resistor values for LEDs as well as how to connect them.

State	Left LED	Display	Right LEDs		Output	Comment
	Indicates whether meters show input (red) or output (off)	State of the three leds indicate whether meters show input or output V & C	Turns blue if Output is on	Turns red if meters are indicating output voltage and current		Press Button 4 to turn output on and off Press Button 1 to show input V & C (left led turns red) Press Button 2 to show output V & C
A	Red	Input V & C	Off	Off	Off	Press Button 4 to turn on output (State D)
B	Off	Output V & C	Off	Red	Off	Press Button 4 to turn on output (State D)
C	Off	Output V & C	Blue	Red	On	Press Button 1 to show Input Voltage, State D
D	Red	Input V & C	Blue	Off	On	Press Button 2 to show Output Voltage, State C

To set Voltage or Current, Press Button 3 alternatively, Then Press Button 1 to decrement, Button 2 to increment, Press Button 4 when done. The output voltage and current can be set whether the output is on or off

Figure 6: DROK 180051 Switch and LED Descriptions

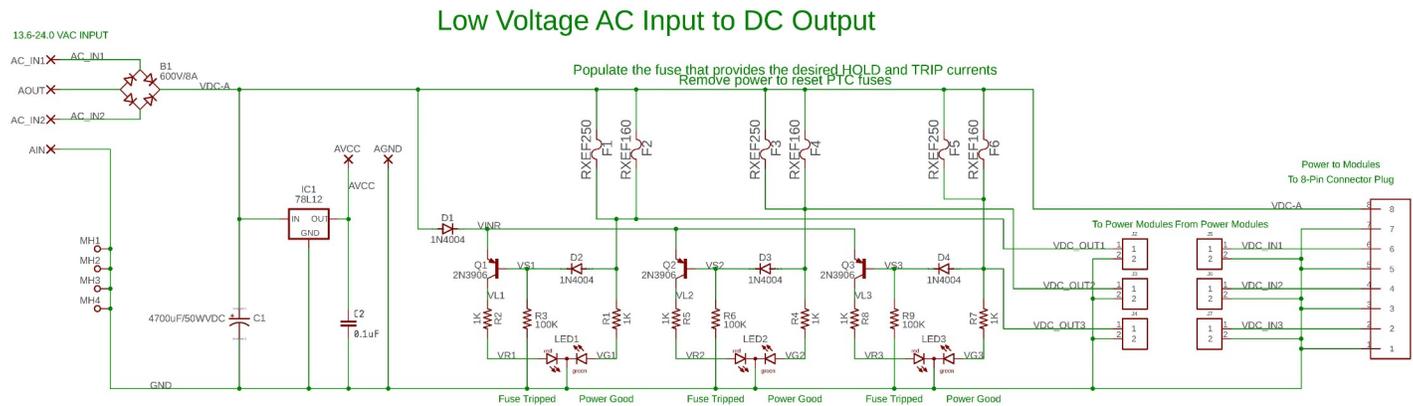


Figure 7: Complete circuit board schematic

## Layouts Needed for the 2020 NER Convention

By Dave Insley

As we announced in the last edition of the Headlight, the HUB Division will be hosting the 2020 NER Regional Convention on October 9-12, 2020 at the Westford Regency Hotel in Westford, Massachusetts. Two of the main attractions at any convention are Layout Tours and Operating Sessions. Do you have a layout that you want to show

off to members of the region? We are looking for layouts in all stages of construction, so it does not need to be complete. We also need layouts to host operating sessions, so if you are thinking about hosting operating sessions, or currently hosting operating sessions, please send an email to [info@hubdiv.org](mailto:info@hubdiv.org). You do not have to commit to specific dates and times, just indicate that you are interested in hosting an operating session or opening your layout for a tour. Thank you in advance for helping us make the 2020 NER Convention a success.

## New Members

The HUB Division welcomes the following new members

- Neil Powers - Northboro
- Emily Hock - Northboro
- Carl Gifford - Wellesley
- Robert Ruffin - Wellesley
- Jake Morrissey - Norfolk (Student)
- John Petrie - Haverhill (Student)

**HUB Division  
Spring TRAINING  
Saturday March 16, 2019  
Worcester State  
University  
486 Chandler St.**

**Worcester, MA 01602**

By Peter Watson, MMR

This year the HUB Division's Annual Spring TRAINING show is headed west. We will be taking our spring show to Worcester State University. The show will be located in the May Street Auditorium, which is located at the intersection of Chandler Street (Route 122) and May Street.

As usual, we will have a full schedule of clinics presented by some of the area's top modelers. The schedule and complete list of clinic descriptions is included below.

**SPRING TRAINING Banquet Reservation Form**

Worcester State University, March 16, 2019

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Indicate number of meals:

\_\_\_\_\_ Marinated Beef Tips

\_\_\_\_\_ Chicken Piccata

Includes Garden Salad, Rice Pilaf, Vegetable Du Jour, Rolls & Butter, Dessert, and Coffee or Tea.

Our featured clinician this year is Joe Fugate, Editor and Publisher of Model Railroad Hobbyist Magazine.

After the show and annual meeting, we will gather at the Blue Lounge on campus for a relaxing meal. Dave Swirk, the new President of the Conway

Make check for \$36.00 per person payable to the HUB Division, Inc.

Return this form with payment to the address below before March 7, 2019.

HUB Div. Spring TRAINING  
65 Branch Road  
E. Bridgewater, MA 02333

Scenic Railroad, will be our guest speaker.

This will be an entertaining show, followed by an evening of friends and railroading. We look forward to seeing you there on Saturday, March 16, 2019.

**Spring TRAINING Clinic Program**

**Operations On A Shoestring**

By: Rudy Slovacek

Lately we've seen in the model press a recent uptick in signaling articles, including a highly prototypical operating signal system on the HUB Division modular layout. While these and some nicely detailed modules make for more realistic operating conditions, let's not forget the purpose of a railroad – prototype or model. It's the movement of passengers and freight from point A to point B. This clinic will show how to create a number of train orders and car waybills from inexpensive available materials for use in modular layouts or stationary home layouts. The key here is something easy that can be used even when the layout design is constantly changing. These materials were first used on the HUB layout when I was the superintendent many years ago, and are currently used by the Coastal Mountain Railroad. If you're thinking of trying an operating session, or are frustrated with some of the more complicated systems at some home layouts you've visited, why don't you come and see a simple and fun way to increase your enjoyment of model railroading?

**LCC -- Another Option to Control a Layout**

By: Jeff Gerow

When Jerry McDonald asked me to help with wiring his layout, I considered the many options available for controlling Tortoises, signals, dispatcher control, and so on. This clinic will review that process and describe the alternatives, leading to my conclusion that Layout Command Control (LCC) is the best option available today.

How LCC works, what it can do and its advantages over alternatives will be discussed. I will show the programming that allows individual tracks in Jerry's staging yard to be connected to the main (with multiple turnouts). I'll end with a discussion of what's available now that already allows robust LCC capability, and share recent announcements from manufacturers creating exciting new directions for this technology.

**All Aboard! Behind the scenes at the Museum of Science Train Exhibit**

By: David Haralambou

Join me as I talk about the partnership between the Museum of Science (MoS) and HUB Division. You will learn how we went from contract signing to opening day in less than 60 days. Topics covered will include the novel construction method used, scenery tips and techniques, forced perspective, track maintenance, equipment maintenance and a unique time-lapse of the construction. There will even be a ride-along video!

**Choosing a Railroad, Era & Location to Model**

By: Dan Fretz

With hundreds of railroads over the past 150+ years, covering the entire country with hundreds of thousands of miles of track serving almost every industry imaginable, the choices of what to model are

*(Continued on Page 12)*

## Spring TRAINing Clinic Program

(Continued from Page 11)

### Choosing a Railroad, Era & Location to Model

(Continued from Page 11)

overwhelming. If you want to base your railroad on a prototype but don't know where to start, this clinic provides ideas on how you might narrow down those choices to a specific railroad, era and location to model. The author provides examples from his own experience, having started with only casual knowledge of prototype railroads.

### Planning and Building An Urban Layout

By: Ray Barry

With the completion of an additional to my house, I had a new 10' x 14' room with no windows that would house my new layout. After consulting numerous layout planning publications and gathering a bunch of design ideas, I decided to construct a layout that went around all four walls and had a double sided peninsula. Since I wanted to model the Boston and Maine railroad during the 1970s to the 1980s, with an emphasis on freight switching, I decided to go with a 100% urban layout.

In my presentation, I will review some of the key design elements and design considerations that went into this layout. With so many structures required, and not wanting to have my layout look like a Walther's catalog, a large amount of kit-bashing was required. The 18" to 24" layout depths also posed a challenge when trying to create an urban environment. While the layout was designed using 3rd PlanIt, I am still moving the buildings around to capture the correct look and feel. Aiding in this process is the use of an iPad to take track-level photos to provide an eye-level perspective. I will also review techniques used to create prototypical urban trackage and share tips on detailing structures.

### Pitfalls and Techniques in Modeling for Contests & the Achievement Program

By: Andy Reynolds

A contestant at several conventions, Andy Reynolds will demonstrate techniques in creating award-winning structures, as well as mistakes learned along the way. We'll see various structures that have received awards at conventions, ones that have come up short, and ones still waiting to be judged. While becoming a better modeler is the main goal of the seminar, we'll discuss going for the prize at a convention or simply scoring points outside of a convention towards the goal of getting one's AP Award on a trail to achieving the MMR - Master Modeler Railroader.

### Modeling Wood Passenger Cars

By: Malcolm Houck

Malcolm will be presenting a clinic on building wood passenger cars. In this clinic he will cover;

- Modeling using traditional Northeastern wood products;
- Scratchbuilding using historic methods and Northeastern milled "coach side" stock;
- Composite modeling with wood and styrene;
- Styrene masters for making RTV molds and resin-cast parts;
- Building wood cars using LaBelle Woodworking kits;
- "Kitbashing" LaBelle kits;
- Passenger car underbody detailing – Brake gear and equipment specific to passenger cars;
- Rooftop detailing – gas illumination, electric illumination and retro-fitted electric illumination;
- Wood passenger cars as brass imports;
- Interior detailing;

### Run Like a Dream

By: Joe Fugate

In this clinic Joe will discuss his experiences in getting his layout, the Siskiyou Lines, to run as flawlessly as possible. He will cover how to tweak the trackwork, rolling stock and locomotives to get the best operation possible

### Under Western Skies

By: Doug Scott

This presentation is a PowerPoint multimedia look at Trains, Scenery, and Structures to consider when creating a layout or module. Included will be images of railroading in Washington, Oregon, Idaho, Wyoming & Utah with an emphasis on the Columbia River Gorge and the Salt Lake Valley.

Please refer to the HUB website ([www.hubdiv.org/springshow/index.htm](http://www.hubdiv.org/springshow/index.htm)) for updates to the clinic program and schedule.

### Field Trip to Bar Mills Modelworks

(Continued from Page 1)

line of Bar Mills kits will be available for sale at MSRP. We expect to be there for five- or six-hours, so please plan on spending the whole day. Those of you who took this trip several years ago will remember it as a good time and this trip promises to be even better. More details will be provided via Guesswork and on the website. To help us with planning, please email [railfun.coordinator@hubdiv.org](mailto:railfun.coordinator@hubdiv.org) with the subject line "Interested In June Bar Mills."

Please note that this trip is in place of the usual Friday night RAILFUN at the Cambridge School.

The Clinic Schedule can be found on Page 13

## Worcester Clinic Schedule

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<b>10:30</b>	<b>Rudy Slovacek</b> Operations On A Shoestring	<b>Andy Reynolds</b> Pitfalls & Techniques in Modeling for Contests & the AP	<b>Dan Fretz</b> Choosing a Railroad, Era & Location to Model
<b>11:30</b>	<b>Jeff Gerow</b> LCC - Another Option to Control a Layout	<b>Malcolm Houck</b> Modeling Wood Passenger Cars	<b>Ray Barry</b> Planning and Building an Urban Layout
<b>12:30</b>	<b>Shack Haralambou</b> All Aboard! Behind the scenes at the MOS Train Exhibit	<b>Joe Fugate</b> Run Like a Dream	<b>Doug Scott</b> Under Western Skies
<b>2:00</b>	<b>Jeff Gerow</b> LCC - Another Option to Control a Layout	<b>Andy Reynolds</b> Pitfalls & Techniques in Modeling for Contests & the AP	<b>Dan Fretz</b> Choosing a Railroad, Era & Location to Model
<b>3:00</b>	<b>Shack Haralambou</b> All Aboard! Behind the scenes at the MOS Train Exhibit	<b>Malcolm Houck</b> Modeling Wood Passenger Cars	<b>Doug Scott</b> Under Western Skies
<b>4:00</b>	<b>Rudy Slovacek</b> Operations On A Shoestring	<b>Joe Fugate</b> Run Like a Dream	<b>Ray Barry</b> Planning and Building an Urban Layout

## Treasurer's Report

By Gerald Covino, Treasurer

**S**tated below is our financial position as of December 31, 2018, the mid-point in our financial fiscal year July 1, 2018 through June 30, 2019.

The New England Model Train EXPO (NEMTE) had yet another good year under the leadership of our new Director William Harley. The event did see a slight drop in dealer participation mainly due to health and life issues. The show did have a 3.7% increase in attendance over last year, due in part to our new program commitment to the Museum of Science.

Our donations table at the NEMTE experienced a robust season with the large number of train items donated from members and their families and friends of the Division. Many thanks Dan Fretz, Dave Insley, Rudy Slovacek and the many other volunteers who assisted.

The Division entered into a partnership with the Museum of Science directed by the efforts of our Vice President, David "Shack" Haralambou. With the outstanding commitment and support of our members, this project exceeded the expectations of the Museum and resulted in a huge exposure of the public to the model railroad world. Great job everyone.

### Mid-Year Account Balances

Checkbook	\$ 662.96
General Savings Account	3,038.08
Reserve-Life & Restricted Savings Accounts	50,862.19
Program Checking Account	956.98
PayPal Account	688.59
USPS Permit Account	3.00
<b>Total Funds Available</b>	<b>\$ 56,211.80</b>

## Fourth Annual Steaming Tender Restaurant Film Festival Night

April 16, 2019

Come visit the beautifully restored former Boston & Albany-Central Vermont Union Station, located at 28 Depot Street, Palmer, MA, for an entertaining evening. Doors open at 5 PM for an evening of never-before-seen videos and slides from the collection of Dick Towle and a photographic print display by Brian Solomon of many railroads including US, Canadian and fallen flag roads from the 1970's to the present. Dinner is at 7 PM with your choice of Baked Haddock or Roast Turkey, followed by the Steaming Tender's famous Whiskey Bread Pudding for

dessert. Ticket price of \$29.00 includes tax and gratuity. Alcoholic beverages are not included. Make your reservations early, as seating is limited, by calling the Steaming Tender at (413) 283-2744 or on the web at [www.steamingtender.com](http://www.steamingtender.com)



**Support  
Your  
Division!**

## HUB Headlight

Volume 35, Number 4  
March - April, 2019

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**Chief Grammarian** - Jay Stradal

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**Membership:** National Model Railroad Association members residing within the boundaries of The HUB Division: zip codes 01400 through 02699. (Barnstable, Dukes, Essex, Franklin, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties of Massachusetts.)

**Headlight Printers**

Versatile Printing Services, LLC, Burlington, MA

## Directions to RAILFUN Meetings

RAILFUN is usually held at the Cambridge School of Weston (CSW) in Classroom G6 on the second floor of the George Cohan Building. The school is located at 45 Georgian Road, Weston, MA 02493.

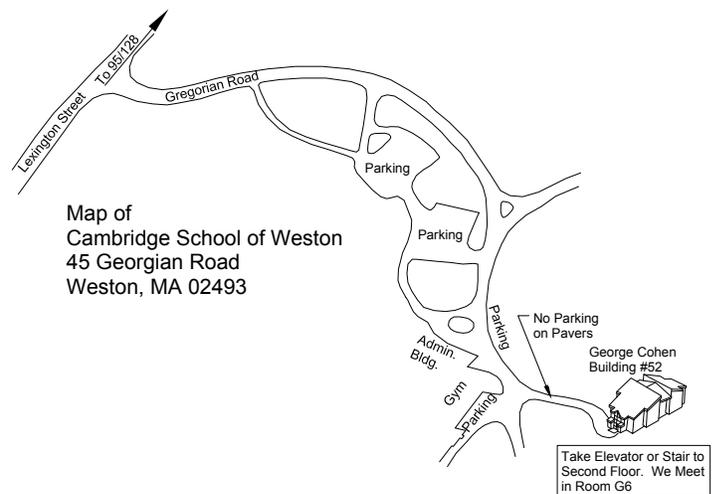
From Route 128 / Interstate 95:

From the North, take Exit 27B towards Winter Street.

From the South, take Exit 27A-B for Third Avenue toward Totten Pond Road/Waltham. Take Exit 27B towards "Winter Street" Bear right onto Wyman Street and continue to the traffic light. Take a right onto Winter Street at the light.

Continue on Winter Street to the second traffic light. Turn left on West Street, which becomes Lexington Street as you cross the Weston town line. At the crest of a small hill is Georgian Road and the CSW school sign; turn left on Georgian Road into the CSW campus.

Follow Georgian Road. There is a parking lot on your right, or you can park along the left side of the road and down the hill by the gymnasium. Please do not park on the stone pavers leading to the Cohen Building. See detail map below.



### RAILFUN Weather / School Closure Note:

**If the school is closed, we will NOT have RAILFUN that evening.** School closings are broadcast over the radio at **WRKO 680AM** and **WBZ 1030AM**, and on **TV Channels 4, 5 and 7**. The Cambridge School of Weston recording is at **781-642-8600**. Check the radio or TV stations early on **the morning of RAILFUN!** You can also check [www.hubdiv.org](http://www.hubdiv.org) and we plan to post notices on **Facebook** and **Twitter**.

### Submissions Wanted

The *Headlight* is always accepting photos and articles relating to model and prototype railroading. Articles about model building or home layouts would be much appreciated. Earn credit towards your Author AP certificate. Please email editor@hubdiv.org.



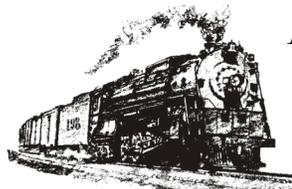
## HUB Division Calendar of Events (Subject to Change)

2019

- Mar 16 (Sat) The HUB-sponsored Spring TRAINing show, Worcester State University, Worcester, MA
- Mar 16 (Sat) The HUB Division Annual Meeting and Election – following SpringTRAINing
- Mar 22 (Fri) HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
- Mar 23-24 (Sat-Sun) HUB Modular Railroad display at the Greenberg’s Toy & Train Show, Shriner’s Auditorium, Wilmington, MA
- Apr 1 (Mon) Submissions deadline for the HUB Headlight May-Jun issue
- Apr 12 (Fri) HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
- Apr 28 (Sun) HUB Modular Railroad display at the Lions Club 24th Annual Model Train Show, Hooksett Cawley Middle School, 89 Whitehall Rd., Hooksett, NH
- May 17 (Fri) HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
- Jun 15 (Sat) HUB RAILFUN Meeting, 8 PM, Trip via Amtrak's Downeaster to visit the Bar Mills Modelworks in Buxton, Maine
- Jul 7-14 (Sun-Sun) 2019 NMRA National Convention, Salt Lake City, UT
- Jul 14 (Sun) HUB Summer Picnic, Waushakum Live Steamers, Holliston, MA

**Remember You do NOT need to have a module to participate in the Module Group activities**

### *RAILFUN.....*



*NO MOTIONS.....*

*NO SECONDS.....*

*NO BUSINESS.....*

*NO YAWNS.....*