The
Local
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A Simple "Hill Brake"

Rod Vance

I believe there's an old adage something about "the best-laid plans … go awry …"

I spent close to a year designing my model railroad layout. I meticulously drew plans. I even took brown craft paper and created a set of full-scale plans so I could lay them on the floor and check out track clearances, positions of turnouts, operator's reach, aisle spacing, and you name it. I simulated operations on my layout plan to ensure that my design incorporated the operational elements that I wanted. Everything looked great … at least on paper.

I built the layout and everything went as planned. No surprises. That is, until one day when I really got into operations on the new layout, I discovered a problem. At the flag-stop station at Upper Meadows, there's a turnout for a siding that services a local industry. My layout was designed to have a 2% grade on the mainline at Upper Meadows, so I was very careful at this industrial location to ensure that the siding track was level. It's tough to set-out freight cars on a siding that has a grade! What I missed in my planning is what happens to the remaining cars of the train sitting on the mainline while the local industry is being switched. Oops – the cars sitting on the mainline demonstrate Newton's Law of Gravity as related to a 2% grade, and they quickly disappear downhill. Not good!

I've seen layouts where individuals have employed push pins, erasers, and other foreign objects to hold cars in place when faced with the same problem that I now had. I tried that approach for a while but figured there had to be something more elegant to solve my problem, short of tearing up track and re-grading the mainline, of course.

I set to work on the "hill brake" idea and came up with a fairly simple solution. All of my turnouts use Tortoise by Circuitron switch machines. When I examined a Tortoise, I found that the output arm of the

Problem: The siding where the boxcar is located is level, but the mainline behind it is on a 2% grade, causing problems for switching cars.

switch machine (the plastic arm that the spring wire used to control the turnout points goes in; also called the "throw-arm") has a movement of about 3/4-inch. If I had a small, stiff wire – like the Tortoise spring wire – that would protrude about 3/4-inch from the roadbed of my track, it would be tall enough to hold the cars of a freight train on the mainline during switching maneuvers. I decided that by mounting the Tortoise switch machine horizontally (i.e., turned on its side as opposed to how you'd mount it under sub-roadbed if you were controlling a turnout) I could use the movement of the switch machine's throw-arm to raise and lower the spring wire through my roadbed.

I cut a couple of small wooden blocks from some scrap plywood and screwed them together to form a wooden L-bracket. The Tortoise switch machine would be screwed to one side of the bracket (this wooden block is 3 inches by 2 ½ inches, large enough for mounting the

Continued on Page 4

The Local

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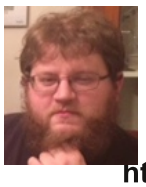

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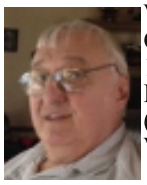

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From The Business Car

By P. J. Mattson, MMR, MER President

You may have noticed that the MER web site has migrated to

http://mer-nmra.com/index.html

and that it has also been totally re-vamped. This has taken well over a year and it will always be an ongoing process of changes, updates, new information, pages added and pages deleted. Unlike in the past, the MER web site is a living document that is continually evolving to our benefit. As such, we need to be cognizant of our web master who is roughly half the average age of our average member, holds down 1 full-time job, works a 2nd job part-time, and also attends college part-time. Luckily for the MER, he also finds some time to be our web master although he does like to find some time to sleep. He agreed to be our web master, migrate, recreate, and maintain our website because he wants to be helpful.

So, we as members have to be just a little thoughtful about the MER web site. First off, it is not the web master's job to create and/or chase after content. I'll repeat that because it bears repeating and because we have some members that don't seem to understand that the web master is not at their beck and call to do their job for them. It is not the web master's job to create, generate, and/or chase after content on the behalf of members. The web master maintains and updates the MER web site. That's it. Content, updates, and ideas originate from the members, and that is supplied to the web master along with a request for it to be added, to what page, and why, and that process is reviewed by the MER Board Member that oversees the web site along with whatever other Board member needs to be consulted on this matter. So, let's all try to work together on the use of our web site so that this part of the MER works for us all.

Keeping in Touch...

By Bob Price, MER Business Manager

During my time as MER Archivist, I would visit the various MER Division web sites to collect copies of their newsletters for our archives. I quickly realized that there were some interesting articles in those other MER division newsletters. This made me wonder about other Region and Division Newsletters. The NMRA Magazine has a column that deals with excerpts from division newsletters. Could I access those newsletters easily? It turns out the answer is yes. Many of the other Regions and Divisions in the NMRA also post their newsletters on the web and they are easy to get to. All one needs to do is go to the NMRA website (www.nmra.org) and click on the Menu bar entry "Regions". That opens a sub menu on which you click Regions and Divisions. That brings up a map of the NMRA. All you need to do is move your mouse over a region and click on it. It takes you to their web site. From there you simply look around on their home page for their newsletters. There is also a repository of the Divisional newsletters located in the Files section of the MERMailbag

https://groups.yahoo.com/neo/groups/MERMailbag/info

On some sites, the location is obvious while on others you have to do some hunting. These newsletters are a great additional source of modeling ideas and thoughts on hot topics in the NMRA. An additional benefit, they are free.

So how do these other Region and Division newsletters influence the Business Manager? Well, one of the past items that has been explored by the MER was electronic balloting. The Business Manager and MER BOD tested various vendors. We kicked around concepts and generated more emails than one could count. Ultimately, we could not find a solution that seemed to work for us. So while visiting the (SER) SouthEastern Region's web site, I learned that they are moving forward with Electronic Voting. They laid out their concept for the process and selected a vendor that we had looked at. This lead me to contact our Board Director responsible for the election process. It will be interesting to see how it works for them in the SER and if it increases participation in the election process. If it does, the MER may want to explore the topic again.

That's it for this issue…

As always Keep in Touch with any questions or changes in your subscriptions or addresses. A current address on file saves the MER some money.

Tortoise), and the other side would be screwed beneath the sub-roadbed to hold the bracket and the Tortoise in place.

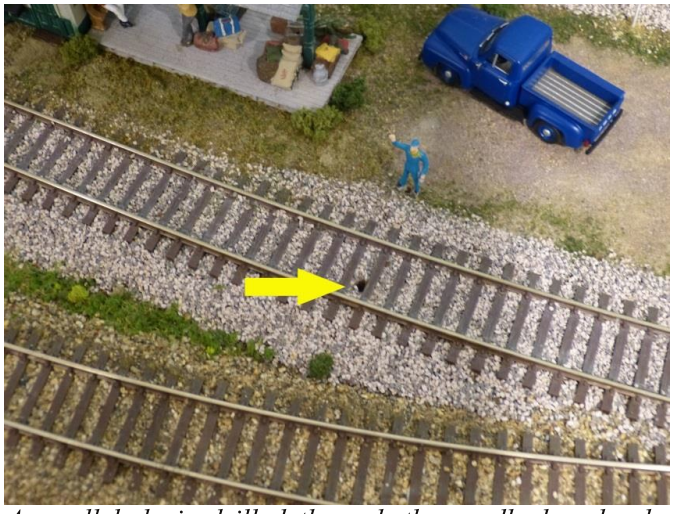
To prepare the Tortoise, I made the sharp 75-80 degree bend in one end of the spring wire according to the directions provided with the Tortoise switch machine but did not make the additional 15 degree bend that the directions indicate for when you're controlling a turnout. I inserted the bent end of the spring wire into the small hole in the Tortoise throw-arm and installed the Phillips retaining screw provided with the switch machine. I was careful to only tighten the screw enough to hold the wire in place yet leave the wire free to hang loosely from the Tortoise. Because I'm not controlling a turnout, I didn't need to install the plastic fulcrum that comes with the switch machine. Finally, I mounted the Tortoise to the wooden L-bracket using #4 wood screws.

.Tortoise is positioned beneath the sub-roadbed so the spring wire pushes up through the drilled hole (inside the highlighted circle). The wooden bracket is then screwed into the bottom of the sub-roadbed.

I drilled a 1/8-inch hole through the roadbed and sub-roadbed where I wanted the spring wire to emerge. I carefully positioned this hole off center of the track so that the spring wire did not hit the coupler of the freight car when it came up. If you don't do this, you'll have an unexpected car jack instead of a neat hill brake!

From beneath the layout, I positioned the Tortoise and the wooden bracket so that the spring wire slid up through the roadbed. I then screwed the wooden bracket to the underside of the sub-roadbed.

I wired the Tortoise according to the directions provided by Circuitron, and mounted a toggle switch on the layout's fascia to control the switch machine. I tested the new "hill brake" by turning the toggle switch "on" to ensure that the spring wire came up through the roadbed, and that it moved back down when the toggle switch was turned "off." I measured the vertical movement of the spring wire as I turned the hill brake



A small hole is drilled through the roadbed and sub-roadbed. The hole is off-center of the track to avoid hitting the coupler of a car when the brake is activated.

on and off, and then cut the wire so that it just disappeared into the ballast of the roadbed when the brake was turned off. Based on the movement of the Tortoise throw-arm, the wire came up about 3/4-inch above the roadbed as expected when the brake was turned on. Finally, I painted the end of the spring wire white so that operators could see it better when the brake was activated.

As you see in the pictures, I glued a brakeman on one side of the track next to the hill brake, and a small bush on the opposite side of the track. This makes it easy to position cars when operators want to use the hill brake. So a little creative re-purposing of a Tortoise switch machine has provided a nice solution to my operational problem. Cars can now be positioned on the mainline at Upper Meadows and uncoupled without rolling all the way down the 2% grade while the road engine switches the local industry. The hill brake has functioned without any problems and operators on my layout no longer have to worry about chasing run-away freight cars. I love it when best-laid plans really do work!

Notes from Board and Annual Members Meetings

Mount Laurel NJ, October 22-25, 2015

Ken Nesper, MER-NMRA Secretary

On Thursday evening, the first night of the convention, President P. J. Mattson MMR convened a regularly scheduled meeting of officers and directors of the MER-NMRA. On Sunday morning, President Mattson convened the annual membership meeting.

After analyzing the 2014 election process, Director Martin Brechbiel proposed changes to the board, many of which were adopted in January. The 2015 elections were successfully conducted using the stream-lined process. The official election results were as follows:

Martin Brechbiel – 250	Gary Brown – 180
Michelle Chance – 211	Steven Wood – 120
Ken Montero – 206	John Siegle – 115

Mattson thanked Gary Tyler and Jack Dziadul for their service and introduced the new directors: Martin Brechbiel, Michelle Chance, and Ken Montero. Brechbiel currently serves as a director. Brechbiel continues with contest, web site, and elections; Chance takes responsibility for Boy Scouts, budget, and MER merchandise; and Montero takes on The Local and the archives.

Minnis announced that the four officer positions would be up for election in 2016. Candidates for president must have previously served on the board or served as a division superintendent. Since Tom Buckingham is term-limited, a new treasurer must be elected.

Brechbiel and Business Manager Bob Price continue to discuss options for an electronic (online) voting system. They have sketched out the basic requirements for a web-form-based ballot system on the MER web site.

Executive Convention Chair Eric Dervinis reminded the members that Carolina Piedmont is sponsoring the 2016 convention in Durham NC, Susquehanna Division would sponsor the 2017 convention, and the Potomac Division would sponsor the 2018 convention.

Treasurer Tom Buckingham reported that funds were available for another region car kit if a suitable prototype was identified. The region continues to fund Rail Pass applications. Buckingham added that the region continues to provide financial support for the Boy Scouts of America Railroad Merit Badge program.

Budget Committee Chair Robert Reid, MMR, introduced the proposed 2016 budget which has a deficit of $771, an amount that is comparable to recent years. Revenue and expense projections for 2016 are very similar to last year with the exception of the elimination of a $350 budget for ads sold for The Local.

With regard to The Local, the editor and publisher positions were combined with Earl Hackett. Printing and mailing of The Local represents the single largest expense for the region. In January 2015, the board decided to move from 6 to 4 issues per year. Dziadul foresees the eventually adoption of an electronic newsletter because they are easier for volunteer staff to publish and significantly less expensive.

Mattson stated that he and Vice President Chuck Hladik want the board to test use of electronic audio-visual technology to conduct business meetings. A number of different technologies were proposed with Skype being the most well known. Mattson acknowledged that a by-law amendment authorizing electronic meetings would be advisable. He asked Brechbiel to review the MER By-laws and suggest appropriate language and location for the amendment. The membership will probably be asked to approve the proposed by-law amendment in 2016.

Financial Statement

Assets (excluding inventories)	
High Point Bank Checking Account	5,432.09
High Point Bank Money Market Account	3,633.53
High Point Bank General CD 1	12,055.94
High Point Bank Life CD	42,516.95
High Point Bank General CD 2	15,000.00
Convention Advance	1,000.00
Net Assets (excluding inventories)	79,638.51
Breakdown of Net Assets	
Restricted Assets	
Life Member Fund	39,171.77
Life Member Fund Interest (to Money Market)	132.91
Pre-Paid Subscriptions	5,232.00
Assets Restricted by Board of Directors	
Donation Fund	3,075.23
Kit Fund	6,013.90
Unrestricted Assets	26,012.70
Total Net Assets	79,638.51

The Life Member Fund consists of fees paid by Life Members and interest earned on that money. Pre-Paid Subscriptions are those collected in the current and prior years.

The Donation Fund collects the donations made by members and other donors. Since we are a 501 (c) (3) non-profit educational organization, these donations are tax deductible. The Board of Directors may direct the use of these funds for special projects.

The Kit Fund is a revolving fund for the car kits and building kits we sell. Proceeds from the kits sold are used to buy new kits. Surplus proceeds may be used for purposes designated by the Board of Directors.

Thomas R. Buckingham
MER Treasurer

Call for Candidates for Office

By the time you read this notice, there will be approximately one (1) month remaining before the April 15th deadline for you to submit your self-nomination for one of the four (4) principal offices of the MER (i.e. those being President, Vice President, Secretary and Treasurer).

The nominations committee is looking for additional candidates to run for these offices. The past year's election for the Director's positions gathered a total of six (6) excellent candidates for the three (3) positions. It would be highly desirable to have a minimum of two (2) candidates for each of these major offices. If you decide to run after the April 15th deadline, then you have until June 1st to submit your candidate statement and photo. In addition, you must also include a petition signed by twenty five (25) current members in good standing supporting your candidacy.

The requirements are;

- passport photo
- a 200 word statement of qualifications/reason to serve
- (optional) a 500 word statement (if needed) to give information for the web site

The members of the Nominating Committee are;

Bob Minnis - kahlualab@aol.com
Bruce Barrett - greenjeeps2@yahoo.com
John Janosko - johnajan@embaqmail. com

If you have any questions, please feel free to contact any one of us.

Tracks to the Triangle: The 2016 Mid-Eastern Region Convention is coming to Durham, North Carolina

Bob Bridges

. Vinny DeRobertis's Terrapin District Railway is a freelanced HO layout set along the Hudson River in New York state during the late 1950's. It features fully completed cityscapes and waterfront scenes. (photo by Bob Bridges)

Raleigh, Durham and Chapel Hill, the Research Triangle of North Carolina, boasts a rich rail history that began in the 1840s with the Raleigh and Gaston Railroad and continues today with CSX, Norfolk Southern and Amtrak service. At one time The Old North State was served by over 40 railroads running over 4,800 miles of track. This is why the Carolina Piedmont Division chose to name the 2016 Mid-Eastern Region Convention Tracks To The Triangle.

Gene Sing's Bangor and Aroostook layout features a number of scratch built passenger and freight cars. (photo by Bob Bridges)

As host for this convention, Carolina Piedmont's goal is to provide a convention that is as varied and exciting as the area's rail heritage. Running from Thursday October 20 thru Sunday October 23, 2016 Tracks to the Triangle will take place at the Marriott at Research Triangle Park in Durham, NC.

MER convention Co-Chairmen Jack Dziadul and Stephen Milley announced that the event will include layout tours, modeling and prototype clinics, ops sessions, contests, an RPM room, and prototype and non rail tours. Model rail author and historian Bernard Kempinski will be the featured speaker at the MER banquet Saturday night.

Convention layout tours will include over twenty-five home and club layouts in a variety of scales. Several of the layouts have been featured in the modeling press. Currently six of the layouts will be open for operating sessions. Layouts will be open at various times throughout the convention from Thursday evening through Sunday afternoon.

Jim Murphy, the Tracks to the Triangle Clinic Chairman, reports that 57 clinics are currently scheduled from Thursday evening through Sunday morning. A partial list of clinic topics include scenery, eastern logging, laser cutting technology, modeling military railroads, designing real world rail projects, model photography and model rail operations.

Clinicians include banquet speaker Bernard Kempinski; Lou Sassi, author of Kalmbach's "Basic Scenery for Model Railroaders" and other titles; Jeff Grove of Carolina Craftsman Kits; John Burchnall, eastern logging modeler; renowned Southern Railway modeler Fenton Wells; and noted Boston & Maine passenger car expert Tom E. Thompson.

Tracks to the Triangle includes a Railroad Prototype Modeler meet during the convention, a first for the Mid-Eastern Region.

For those interested in non-rail activities, local artist Nancy Murphy will lead a tour of the North Carolina Museum of Art, one of the leading art museums in the South.

Jim Murphy's Berkshire Short Line connector layout in HO scale, features Boston and Maine rolling stock. Model Railroader magazine featured an article on the lift gate design and construction on Jim's layout in the February 2016 issue. (photo courtesy of Jim Murphy)

One of the featured prototype tours will be to this 1911 Pullman currently undergoing restoration in downtown Raleigh, next door to the old Seaboard Coastline passenger station. photo by Bob Bridges

Prototype and manufacturing tours that are scheduled include a visit to a privately owned Pullman diner car undergoing restoration at the old Seaboard Coast Line yard in downtown Raleigh, a trip to the New Hope Valley Railroad which features operating diesel locomotives, a G scale garden layout, and rail history exhibits. For those who would like an opportunity to learn about model manufacturing, tours of the Tichy Train Group factory in nearby Burlington, NC will take place Friday and Saturday.

Other convention activities include scale model and rail photo contests, a silent auction and a white-elephant-buy it now room for bargain hunters. The Carolina Piedmont Division will be displaying the 2016 edition of their Raffle Layout to benefit the Holiday Trains for Kids charity program that the division sponsors annually.

For the most up-to-date information, including registration for this exciting convention, please see the convention's website at www.mer2016.org

The Old King Coal mining company on William Allen's transition era Norfolk & Western 3 rail O scale layout. (photo by Bob Bridges)

Visit an Archive

A December visit to the Railroad Museum of Pensylvania

Rick Uskert

December 22nd was a good day to visit the Railroad Museum of Pennsylvania. The archives were quiet, as the main museum was closed and only the basic staff was on hand. That Monday was spent looking through a few sets of negatives and various documents of the Bridgton & Saco River Railroad, one of the Maine two footers. If you haven't had the opportunity to visit the archives site, or you haven't done so in a while, I encourage you to do so.

Whether you are looking for a few more photos of your favorite road's motive power, revenue generating cars or the plant, as I was, they have a bit of everything. The current collection of photos is estimated to exceed 500,000 images. Add to that approximately 12,000 publications dating back to 1806, 3,000 cubic feet of documents, including timetables, correspondence, and operating records, around 100,000 mechanical drawings, and various railroad motion picture & audio recordings, one can spend days in there, and some have.

Interested in seeing the Charter for the Reading, a letter from President Nixon thanking the railroad for the dinner he had on the train or several letters from Carnegie? They can help with that. How about seven color photos of the CNJ Blue Comet? It is believed that there are only two other color photos in existence elsewhere. Having grown up near Chicago, I enjoyed seeing panographic photos of the changes to and around the city's Pennsylvania Station between 1915 and 1925. Of the items cataloged thus far, the Pittsburgh & Lake Erie, Lackawanna, the Ma & Pa and Reading railroads round out the top four largest subjects, with substantial Vulcan Locomotive Works and Westinghouse Air Brake Company items to suit one's scratchbuilding needs. Speaking of which, modelers and manufacturers are those who access the archives the most, followed by authors. If they're not your cup of tea, don't let the big railroads mentioned above keep you from taking a look. My favorite, rather obscure, 21 mile narrow gauge road generated 80 online search results.

The staff estimates 250,000 items have been cataloged and posted to the web site's search tool (http://www.rrmuseumpa.org/about/library/search.shtml), of which the library is nearly 100% complete, and updates typically occur in April and October. Aside from the library, the staff has focused on photos, with cataloging now transitioning to the documents. The museum also plans to move to a new database system in the next year due to capacity constraints of the current one.

Email, research@rrmuseumpa.org, is the best way to communicate with the staff. If you are interested in an on-site visit to the archives, give them at least two weeks advance notice. If you plan to bring along a friend, let them know that, as researcher space is limited and they make every effort to stagger visits so as not to diminish a visitor's access or assistance. They accommodate visits Mondays through Thursdays, sometimes on Friday. If you are interested in having research performed for you, they offer 30 minutes of their time poking around for free, but after that, research rates apply. Membership to the Friends of the Railroad Museum (FRM) helps offset this and other duplication rates. I nearly paid for my family membership through the discounts that day.

In either case, let them know what you are looking for, in as much detail as possible, so they may pull it in advance of your visit, confirm it exists or if there are collection restrictions. The more info going into it, the better. Use the online tool. If you don't see it there, ask about it anyhow. The archivists may be aware of related items that are not online that they can direct you to, such as in the three dimensional collection, which is cataloged separately from the archives. The 3D collection contains all of the physical, non-paper-oriented items. Think bells, wheels and tools.

They answer requests for visits rather quickly, but queries do take some time, as they are typically buried in research, item identification and cataloging. There is no best time of the year to visit or request a search, just drop them an email when the research bug strikes.

Other excellent archives visited by your editor:

Pennsylvania RR at
Hagley Musuem and Library
200 Hagley Creek Rd
Wilmington, DE 19807
http://www.hagley.org/

Chesapeake and Ohio Historical Society
312 E. Ridgeway St.
Clifton Forge, VA 14422
http://www.cohs.org/

Improving the Performance of a Bowser Locomotive

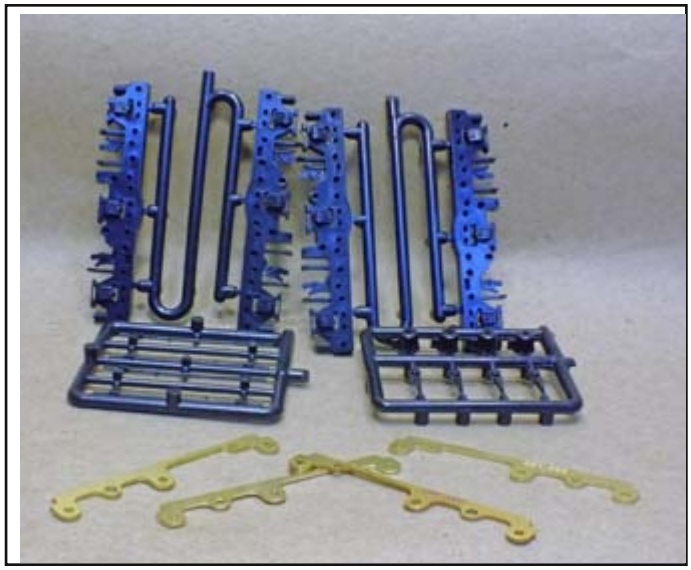
Mike Garber

My good friend Keith Pritchard recently purchased an HO scale Bowser/Stewart AS616 decorated for Chicago North Western to run on his Great Plains Railroad. Keith's Great Plains Railroad is a really fun railroad set in the mid-west where Keith grew up. What started out as a one man home layout has become a true operations oriented layout that can keep seven or eight operators quite busy and satisfied. It is a very nice railroad and one I am privileged to get to operate on.

The Bowser/Stewart model has been around a very long time in one form or another from the original Stewart model many years ago with its Athearn style drive to the Stewart/Kato style drive which has recently become the Bowser/Stewart drive. Each drive has improved as well as the level of detail, paint, finish and operation. The model Keith purchased came with a nice motor and drive train as well as factory Soundtraxx Tsunami sound decoder and speaker.

Keith's AS616 ran well and sounded great but it would occasionally spit and sputter on the occasional turnout or dead frog. This is not at all uncommon, but that doesn't make it any more acceptable. Talking with Keith one day about this loco he mentioned that while the model has six wheel trucks like the prototype, there is only electrical pickup on four wheels per truck. I found this quite surprising given the newness of the model.

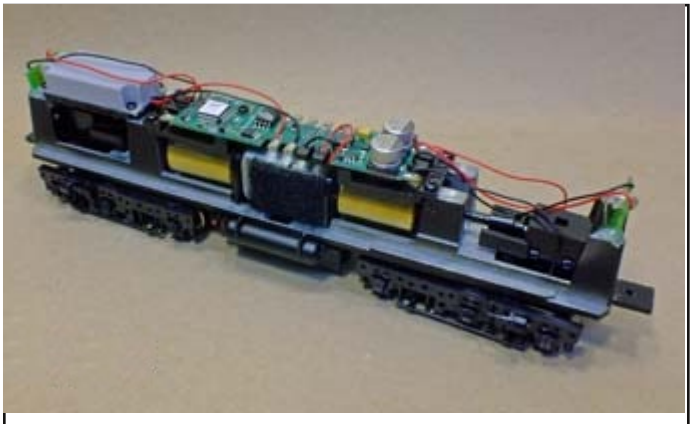
However, Bowser offers a truck upgrade kit for this locomotive which converts the truck to true six wheel pickup. That sounded like a must-have kit, and yes, Keith already had one of the conversion kits for this loco. I offered to help out by installing the conversion kit to see first hand the improvement this kit would make.



Getting the loco at home in the shop, I first opened up the Bowser truck conversion kit to see what was in there and why so many parts. The kit comes with new electrical pickups which will get power from each axle in the truck, but it also comes with new side frames, air cylinders and linkage which I thought was way more than necessary for the kit.

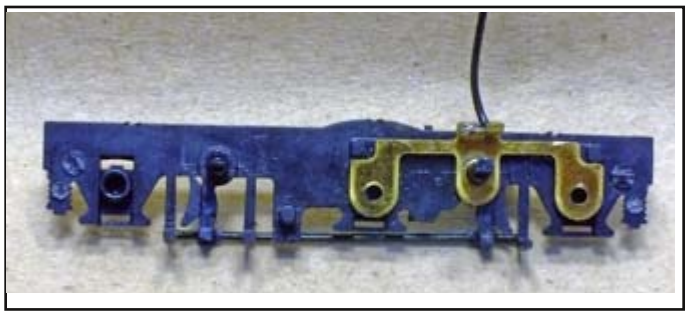
Still unsure why so many parts were included in the upgrade kit, I just had to pull down the chassis and examine the stock trucks to see what was different about them.

Removing the shell from the chassis revealed a very well designed mechanism with the speaker and enclosure located on the long hood end of the locomotive, LED's for forward and reverse headlights and of course the factory Soundtraxx Tsunami decoder.



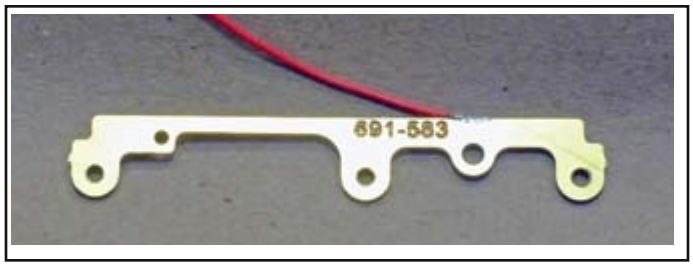
Next was removing the trucks to get a better lookat the stock pickups and connections. The rear (short hood) trucks were easily removed in the usual manner of snapping off the top gear retainer as in so many locos. The front (long hood) required removing the speaker and enclosure to allow getting the gear retainer removed. Removing the retainer and worm gear and drive shaft was a simple lift out maneuver as typical. Each gear-drive shaft unit was placed in individually marked containers marked front and rear truck so as to not get things confused during reassembly.

Each truck was disassembled to remove the existing side frames and electrical pickups. Each stock



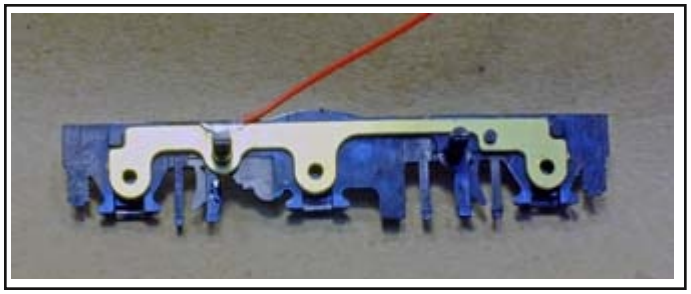
truck only has four wheel pickup. The existing pickups fit into a couple of small tabs on the inside of the side frames for a snug fit requiring a little bit of prying with a small screwdriver to release them from the side frames.

With both trucks removed and disassembled, each of the new six axle pickups needed to have a wire soldered on to transmit the electrical signals to the decoder. Unlike the stock pickups, the replacements do not have solder tabs, so new wires were soldered to the top edge of each new pickup.



This proved not as difficult as first imagined as the pickups are just thick enough to allow a wire to be soldered along the top edge.

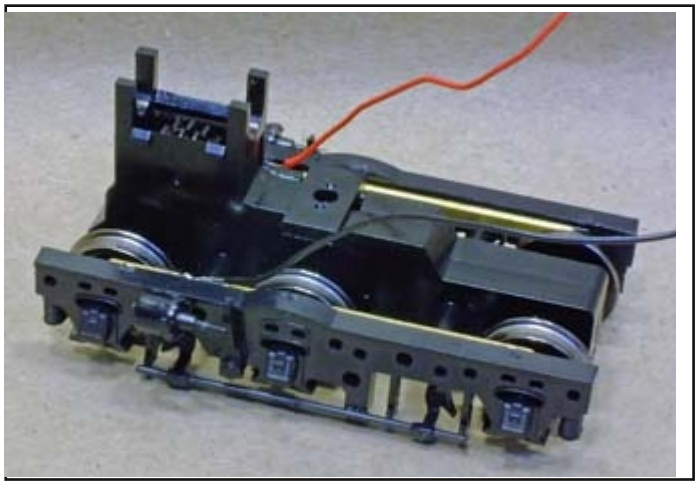
Each new pickup was test fit onto the new side frames which have tabs the pickup fits into. The new pickups will not properly fit into the existing side frames



as the tabs are in different locations resulting in a poor fit. The wisdom of Bowser now came to light as to why so many seemingly extra parts were included in the upgrade kit. Live and learn as they say.

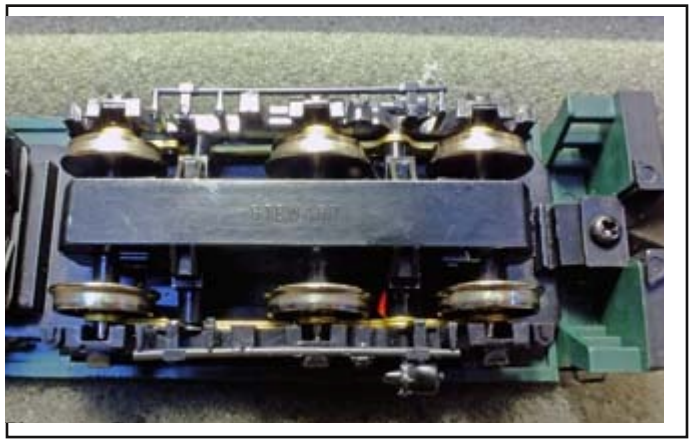
While the trucks were totally disassembled, all the gears were cleaned and checked for burrs and anything that might contribute to any binding or poor performance.

The trucks were then reassembled and lubed lightly. This photo shows an assembled truck ready to be placed back into the chassis.



Once the trucks were installed back into the chassis, all wire pickups run to the decoder, the speaker was installed completing reassembly.

As seen from the underside of one of the assembled trucks on the chassis, everything fit well with no unexpected issues.



Following reassembly, the chassis was placed on a set of test rollers for breaking in the lube and gears as well as listening for anything that might be out of the ordinary. All seemed well, and the next step was to place the locomotive on the layout for a test drive. The loco ran great and did not experience any spits or stutters anywhere. The Bowser kit is a great addition to their AS616 and is not difficult at all to assemble. If you have one of these locos and not satisfied with its performance, give this kit a try. You will be glad you did.

From the Editor

Earl T. Haxckett, Jr.

Submission Guidelines

Submitting photographs to the Local alone or in an article:

(1) Photographs can be in a generally accepted format, JPG or PNG or even better TIFF or RAW. The larger the photo file, the better quality I can obtain for publication purposes. Please use the largest file setting that your camera permits.

(2) When submitting an article containing photographs, drawings or other images, please send the text and images in separate files. Here's why:

The software used to produce publications such as the Local treat photographs, drawings or other images differently from text. If the image is submitted in a text file, it has to be extracted, as it will be treated separately for creating this publication.

The extraction process can result in two problems:
(a) First, extraction can create a badly degraded "defocused" image especially in a document created in a newer version of Microsoft Word, which is designed to defocus images extracted from a Word file. Sometimes, I may be able to save enough of such embedded image's quality for publication in the Local, but it is very time-consuming and not always successful. (b) Second, if the article was created in an older version of Word, instead of defocusing, the color resolution is greatly reduced, creating abrupt color shifts that do not exist in the original image.

When creating an article for other purposes that you later may be submitting for publication, especially if you use Microsoft Word to create an article with images in the article, please keep a backup file containing just the images when you create such an article and send the image file as well as the text file.

If you did not create a backup image file when initially creating the article, please create a separate image file to accompany the text file before submitting the article to the Local if at all possible.

I can always remove an image from a text file before setting it for composition without any problem, and then insert an image from a separate image file as part of the composition process.

Alternatively, if you are creating an article for other purposes with images in the article, you also may want to consider using the following open-source software for creating articles containing images, as extraction while maintaining quality from such software is easier:

Open Office – replacement for Microsoft Office
https://www.openoffice.org/

Please note, however, that it always is better for publication purposes that a separate image file be maintained or created for submission for publication along with the text file regardless of the software program used to create the text of the article.

(3) Embedded text, arrows, etc. in the photograph generally pose no problems – if embedding text, please use a large type font that will be readable if the photograph has to be reduced in size.
EXCEPTION: Please do not embed in the photographs things like "Figure 3", etc. If I am not able to use all of the pictures submitted, I then have to remove such language from the pictures so that gaps in numbering do not appear, by cropping out this text or overlaying compatible parts from the same image. All of this takes time, and may not be successful.

Following these steps will be greatly appreciated by this Editor. I would hate to lose the ability to publish a good article because the images could not be reproduced successfully. I realize that many articles that I receive were created for other purposes, such as sharing through an email, and subsequent submission to the Local for publication was not then contemplated. I will work with you to help make publication possible.

PS Here are some open-source (free) software for creating quality images in jpg or pdf format:

GIMP – replacement for Adobe Photoshop
https://www.gimp.org/

Combine ZP – Replacement for Helicon Focus
http://www.hadleyweb.pwp.blueyonder.co.uk/

Model Railroad Electronics

For 10 years I've been working on and off to establish a fully operational signal interlocking for my layout. There have been many hardware and software problems along the way. Last month I contacted Fred Miller, author of the counter gadget article in the January - February issue. He suggested looking into the Arduino boards. These are small boards that impliment a microprocessor. I've been looking at microprocessors for several years, but you can't just plug one in like an integrated circuit. You need a clock signal, power supply, IO lines, and an operating system. The Arduino Mega ($45) has the power of an old IBM AT and lots of IO lines. I will be putting a review of the Arduino Mega and its application at the end of the electronic Local.

New Membership Recruitment Program

As an aid to membership recruitment, NMRA instituted a six month "Rail Pass" trial membership program which costs the applicant $9.95. Building on this idea, the MER is instituting a program whereby it will pay the $9.95 Railpass fee for interested applicants in the MER. In other words, we are making available FREE six month Railpass trial memberships to encourage recruitment of regular members.

What's covered?
Same as Railpass—receive six issues of NMRA Magazine, three issues of The Local, eligibility to attend conventions and meets, eligibility to participate in contests.

What's not covered?
Same as Railpass—applicants cannot vote or hold office, and will not receive the New Member Pak from national (it's rather expensive).

Who can be recruited?
Anyone living within the MER who has not been a member of NMRA during the past two years or a prior Rail Pass member.

How will the recruitment process work?
(1) The prospective member fills out the MER trial membership application form which was sent to all division superintendents (not the standard NMRA Railpass form) (2) The "recruiter" should sign the form, and then forward it to: Bob Price, Business Manager, 801S. Newton Lake Drive, Collingswood, NJ 08108. (3) Bob will record the information he needs in his data base, and will forward the application to the MER Treasurer. (4) The Treasurer will add the necessary check and forward the application and check to the national headquarters in Soddy Daisy.

What happens after the member's six month trial period?
The Railpass trial member will receive a standard dues notice from national headquarters. We hope a substantial number of Railpass trial members will sign up to become regular members.

Are there limits on the program?
The MER initially allocated $2,000 for this program. When this funding is depleted Division Superintendents and mambers of the MER Board of Directors will be notified. At this time the program will be reevaluated by the MER Board of Directors. It has proven to be an excellent means to recruit new members. If successful, we will try to continue it.

For questions?
Contact Bob Price, Business Manager (mailing address is below, (856) 854-8585, MER-BusMgr@comcast.net), or P. J. Mattson, MER President (see contact information on page 2).

National Model Railroad Association (NMRA)
Mid-Eastern Region
Application for Free "Railpass" Trial Membership

YES, please sign me up for a free six month Railpass trial membership in the NMRA—which includes membership in the Mid-Eastern Region, and in my local Division. During this six month period, I understand that I may attend conventions and meets, and participate in contests. I will receive NMRA Magazine, the monthly national magazine, and The eLocal, the bi-monthly regional newsletter if an email address is provided. I will not be eligible to vote, hold office, or receive a New Member Pak.

I also understand that the $9.95 cost of this six month Railpass trial membership is being paid by the Mid-Eastern Region. (Regardlessof who pays, six month $9.95 memberships are available only once to each person.)

At the end of the six months, I may join NMRA, paying the regular active member dues.

☐ During the past two years, I have not been a member of NMRA, nor have I been a RailPass member.

==========

Name:_____

Street Address:_____

City/State/Zip:_____

Phone: (____) _____

Email:_____

Scale(s):_____

Signature of Sponsor: _____(Required)

Title of Sponsor: _____ (Required)

(A Regional or Divisional officer or board member)

==========

June 2015

When this form is completed mail it to:

Bob Price
MER Business Manager
801 S. Newton Lake Drive
Collingswood, NJ 08108

Do not mail it directly to NMRA headquarters in Soddy Daisy, TN.

Support Your NMRA Region and Purchase These Great Products from MER

MER Lapel Pin/Tie Tack

MER Cloth Patch

Only available to MER members.
Your NMRA or MER member number.
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MER Cloth Patch
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The Locals, all issues 1947 - 2012 on CD

Make checks payable to: Mid-Eastern Region

$3.00 ea. includes S&H $_____
$6.00 ea. includes S&H $_____
$5.00 ea. postpaid $_____
Donation $_____
Total Amount Enclosed $_____

Ship to:

NAME _____

ADDRESS 1 _____

ADDRESS 2 _____

CITY _____ STATE ____ ZIP _____

Mail to:

Roger Ossman
MER Merchandise Sales Agent
3307 Englewood Road
Wilmington, DE 19819-3323

CALLBOARD

Coming Events

Additional activities are posted on the MER Calendar Page:
http://www.mer-nmra.com/Calendar.html

South Mountian Division Mini Con
April 16, 2015, from 9 AM to 4 PM
Blue Ridge Fire Hall
13063 Monterey Ln.
Blue Ridge Summit, PA
South Mountian Division and Mainline Hobby Supply host the 4th annual Mini Con. Come enjoy this one day free event one block north of Main Line Hobby Supply, consisting of prototype and modeling presentations, formal and informal clinics, modular diaplays, and interaction with your fellow hobbiests. This free, education event is open to the public for the promotion of the hobby of Model Railroading.
Contact: Don Florwick
DJFlorwick@comcast.net
717-414-0660
http://www.smdnmra.org/ for updates

Potomac Division Mini-Convention
April 30, 2016, 9:00 a.m. to 5:00 p.m.
Saint Matthew's United Methodist Church
8617 Little River Turnpike, Annandale, VA 22003
$10 Registration Fee at the Door, spouses and children under 16 are free.
Clinics, Modular Layouts, Contests, White Elephant Tables, and Displays. Luncheon Speaker: Lance Mindheim on Placing and Weathering Structures. A business meeting will be held following the luncheon speaker to discuss plans for future events and to elect officers for next year.
Contact: Tom Brodrick
t.brodrick@verizon.net

Susquehanna Div Meet
May 14, 9:30 AM
14 Front Street (Train Station)
Quakertown, PA
Susquehanna Division clinics and layout visits. Our morning program begins at the Quakertown PA train station located at 15 Front St and starts with morning refreshments at 9:30. The afternoon will be devoted to area layout visits. Cost - $2 for NMRA members and their families and $5 for visitors. Visitors who complete a free Rail Pass membership application will pay the NMRA member rate.
Contact: Howard Oakes
717-632-5990
hoakes@susquehanna.org

Valley Forge Railroad Prototype Modelerss Meet
March 18 - 20
Desmond Great Valley Hotel and Conference Center
One Liberty Boulevard
Malvern, PA 19355
http://www.rpmvalleyforge.com/Index.php

Susquehanna Div Live Steam Live Steam Day
June 26, 11:00 AM
Pennsylvania Live Steamers
Rahn, PA
Mark your calendar now - Sunday, June 26, the Susquehanna Division will present a Live Steam Day event at the PA Live Steamers (PLS) located in Rahns, PA. The program begins at 1100 with an introduction covering the history, construction, and operation of the railroad that operates a variety of steam and diesel equipment in 1.5", 1", and 3/4" scale as well as 1 gauge. Train rides will be provided. For directions, detailed agenda, and registration information
Contact: Dan Horting
717-285-7320
k4sbuilder@comcast.net.

Achievement Program

Charles Flichman, MMR

Since the last report in The Local, the following Achievement Program certificates were earned and awarded:

Division 2 - Potomac
Robert B. Rodriguez - Model Railroad Engineer Civil
John Paganoni - Model Railroad Author

Division 3 - Philadelphia
Earl T. Hackett - Master Builder Structures
Earl T. Hackett - Master Builder Scenery

Division 13 - Carolina Piedmont
James P. Murphy - Master Builder Structures

Division 14 - Chesapeake
Jeroen Gerritsen - Model Railroad Engineer Civil
Jeroen Gerritsen - Model Railroad Engineer Electrical

In a perfect world, this information will appear soon in the NMRA magazine. This should not deter you from giving recognition locally. Normally you will be able to recognize AP accomplishments long before the names appear in the NMRA magazine.

The Mid-Eastern Region, Inc., NMRA
An IRS Tax Exempt Organization
Business Manager
801 S. Newton Lake Drive
Collingswood, NJ 08108

In This Issue

Subscriptions to **The Local**

Send Requests to MER Business Manager at above address

☐ I want to receive the printed black& white version of The Local at $9.00 per year $_____

☐ I want to receive the free electronic **color** version of **The Local** **Free**
Email:_____

Donation $_____
Total Enclosed $_____

Name_____

Address_____

City_____**State**____

Zip (+4)_____

Email_____

NMRA #_____**Expire Date**_____

Scale(s)_____ **Telephone #**_____

Make Checks payable to the "Mid-Eastern Region"

The Local welcomes articles, photographs and model railroad related material as contributions to members' mutual enjoyment of the hobby. Materials should have a wide appeal. The editor will exercise all due care of submissions, but contributors should not send originals without having back-up copies of both articles and photographs. Editors, by definition, reserve the right - and have the responsibility - to make corrections, deletions, and changes to accommodate space. Upon receiving any submission, the editor will confirm receipt, and, at a later date, indicate the anticipated edition the submission will appear in The Local. If you do not receive a postcard or email within two weeks, plaese resend your submission or contact the editor by phone.

Publication Schedule	Deadline
Jan/Feb	Dec 1st of previous year
Mar/Apr	Feb 1st
May/Jun	Apr 1st
Jul/Aug	Jun 1st
Sept/Oct	Aug 1st
Nov/Dec	Oct 1st

If you are interested in advertising with the Mid-Eastern Region of the National Model Railroad Association, please contact the editor. The current advertising rates (6 issues) for The Local are as follows, and must include camera ready are (jpeg, pdf, bmp, tiff formats):

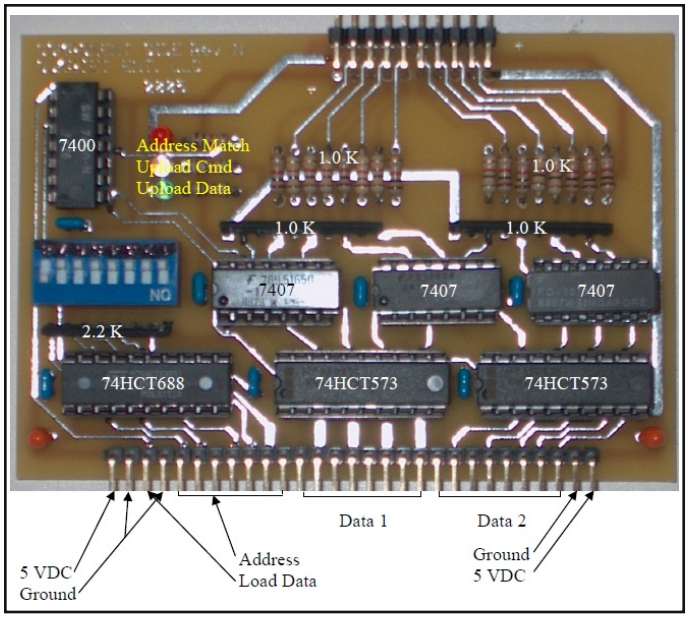
Callboard ads (50 words, Div and Clubs Only)	Free
Business Card size	$60.00
Quarter Page ad	$125.00
Half Page ad	$225.00
Half Page ad per issue (Div only)	$25.00

Arduino Boards for Model Railroad Electronics

Earl T. Hackett, Jr.

First, a little history: Many years ago I purchased boards from Bruce Chubb for the CMRI computer interface system. At the time I was running DC and the cost of converting all my locos looked pretty intimidating - many are still awaiting their decoder installation. After switching to DCC I kept the CMRI boards with the intent of using them for my signaling system. Signaling on my layout will be done with individual signal cabins - towers to non C&O railroaders. I built working models of the US&S and the GRS electro-pneumatic interlocking machines, but finally settled on the plain old Armstrong lever plants, many of which had the pipe connections disconnected and the levers equipped with electrical contacts. This was often the preferred upgrade for the prototype because it could be done one lever at a time, avoiding a complete shutdown of the interlocking. Each lever in my model system is equipped with a solenoid lock that will lock the levers just like the prototype.

I had concerns about the amount of wire the CMRI system would require until during an Op session on Bruce's railroad, I looked under the table. That was enough to convince me to design my own system that consists of a number of small memory boards on a backplane located near the cabin and signals it was to



control. A single 24 wire bus (1 strobe line, 7 address lines, and 2 bytes/16 bits of data) would run around the layout setting the memory on the boards and collecting layout status information. Wiring problem solved.

I ran into even bigger problems when writing the software. Although BASIC can control peripheral devices, neither it nor a PC is optimized for that task. With a single PC running the whole layout, all the code had to be in a single application. After 50 pages of code I had a buggy screen simulation that still had to be converted to a real world environment. As a result the whole project sat on the shelf for almost ten years.

In the Jan - Feb issue of The Local I published the "Counter Gadget" article by Fred Miller. I had been looking at microprocessors for several years, but you can't just grab a microprocessor and put it to work. It needs a lot of other stuff - clock signal, power supply, IO interface, etc. I contacted Fred and he suggested I look at the Arduino family of microprocessor boards. I quickly found the Arduino Mega with an IO structure that perfectly met the requirements of my local memory board.

My application of the Arduino is not trivial. A big problem is that many of the signals can not be seen from the cabin location. To simplify the software design process I decided to build an interlocking simulator. Twelve toggles will simulate the switch and signal levers while another eight toggles will simulate block occupancy. A temporary paper sketch allows the track plan to be changed to suit each interlocking. Substitute 'signals' and 'locks' show the output of the interlocking software.

The annotated photo is of the Coal Creek interlocking simulator connected to my main computer with a USB cable. The Arduino is mounted in a blob of RTV silicone adhesive in the upper right corner of the board. That's a lot of wire, but it's all in a small area rather than extending between several rooms. It shows the various components of an interlocking controller. My local memory boards are mounted on a back plane made from cheap strip board. The Arduino board loads and reads information from my local memory boards via flat cable. Booster boards drive the locking solenoids while signal LEDs are driven directly from the output boards. Simulated signals, held down by pill bottles filled with lead shot (labeled 3, 4A, 4B, 9, 10A, and 10B), and LEDs (just above the bottom row of toggle switches) showing lever lock status track the performance of the software in response to the lever and block occupancy state. (The use of color ribbon cable and patch cords sounded good, but in practice it is pretty bad even for a breadboard setup. Better wiring will be developed before software development continues.) When the software development is complete, the entire board will be taken to the layout and wired to the proper signals and block detectors.

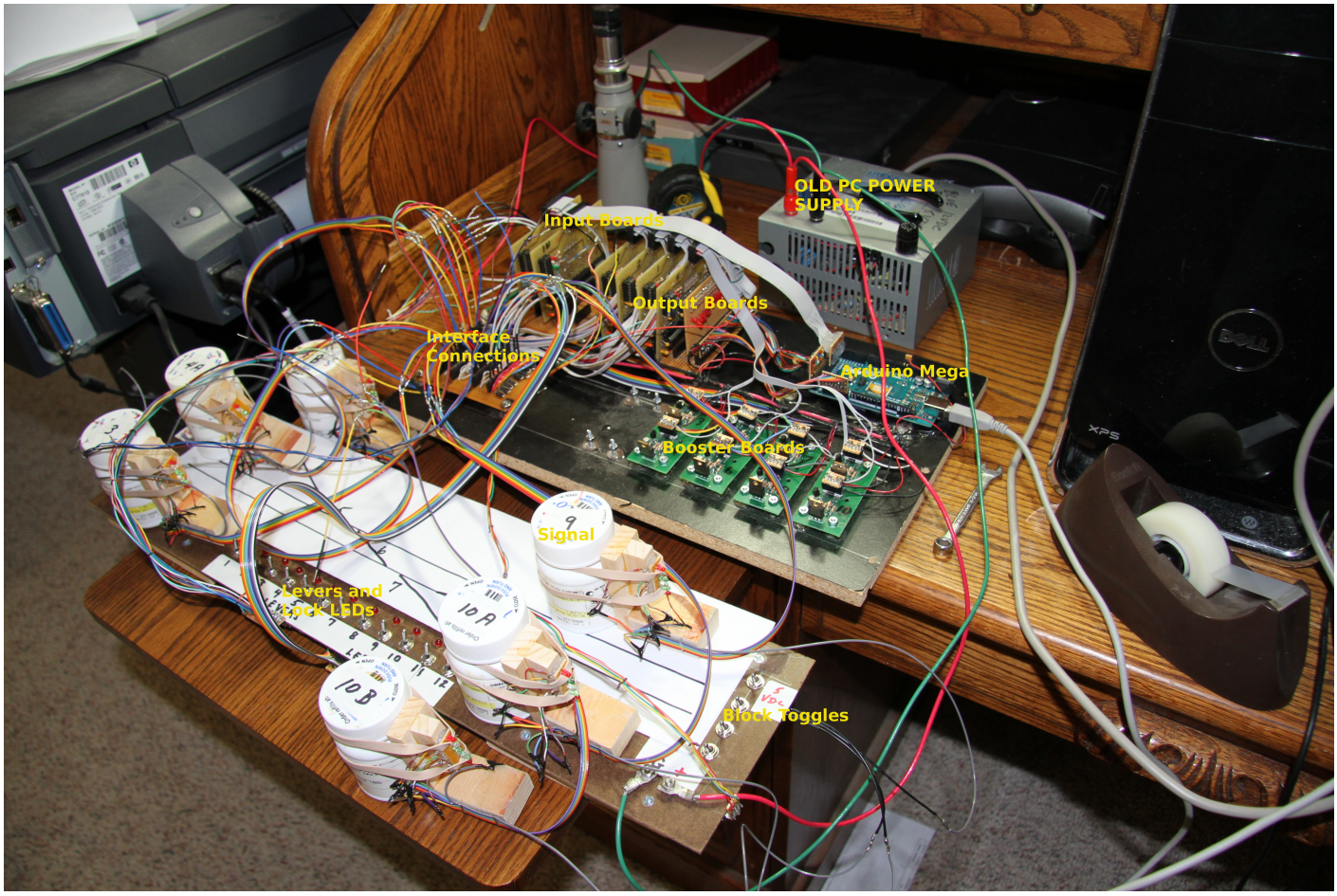
Arduino boards are programmed using a greatly reduced instruction set of the C language, consisting of a few flow control statements, bit handling statements, two print statements for debugging - it isn't attached to a PC

Code Example, all printing is for debugging purposes.

```
void setIO () {
  int i;
  Serial.println ("Begin setIO");              //debug
  Serial.println ("Set pins as OUTPUT");
  for (i = 14; i < 38; i++) {
    Serial.println (i);
    pinMode(i, OUTPUT);          //address 14 - 20
                                 //strobe  21
                                 //byte0   22 - 29
                                 //byte1   30 - 37
    digitalWrite (i, HIGH);      //turn off all outputs - pins open LOW
  }
 Serial.println ("Set pins as INPUT_PULLUP");
  for (i = 39; i < 54; i++) {
    Serial.println (i);
    pinMode (i, INPUT);          //byte0   38 - 45
                                 //byte1   46 - 53
  }
  Serial.println ("End setIO");
}
//************************ EXECUTION STARTS HERE ******************************
void setup() {
 // put your setup code here, to run once:
 Serial.begin(9600);                         // initialize serial connection to the PC
 inputString.reserve(200);                     //reserve 200 bytes for global inputString
 pinMode(13, OUTPUT);                           // initialize digital pin 13 as an output
 pressToContinue();                           //Just stop to get your shit together
 setIO ();                                  //Set digital IO pins
 oldLeverIndex = 0;  //REPLACE THIS WITH AN INITIAL READ OF THE LAYOUT LEVERS
 if (Lever_Positions[oldLeverIndex] != 0) {      //Should never see this
   Serial.println ("Ah crap");
   Serial.print ("Lever position ");
   Serial.print (Lever_Positions[oldLeverIndex]);
   Serial.print (" binary ");
   Serial.print (Lever_Positions[oldLeverIndex], BIN);
   Serial.println(" invalid.");
   pressToContinue();
 }
 digitalWrite(21, LOW);         //Set strobe line low
}
//*****************************************************************************
```

Output from above code

```
Enter any character to continue.
Begin setIO
Set pins as OUTPUT
14
.         just numbers from 14 to 37
.
.
37
Set pins as INPUT_PULLUP
39
.       more numbers from 39 to 53
.
.
53
End setIO
Enter any character to continue.
```



PC when doing its job, clock, math, and IO functions. The full list can be found here:

file:///C:/Program%20Files%20(x86)/Arduino/reference/www.arduino.cc/en/Reference/HomePage.html

For individuals familiar with the more readable languages like BASIC and Fortran, this will be a rather strange syntax full of potholes and bear traps. The biggest bear trap (that I fell into) is that it doesn't check for an array overflow. This speeds up program execution, but leaves you responsible for making it run right. The punctuation, as shown in the code example, can be intimidating, but it is not impossible to learn. The hardest part is keeping track of those curly braces that define the beginning and end of each statement. The user interface is primitive. For those who learned coding back in the '60's it will be déjà vu. For younger coders it will be a shock. See all those "Serial.print" lines? Those are your only debug tools. Use them to keep track of where the program (sketch in Arduino speak) goes and what it's doing. Once the program is operating properly you comment them out to produce the working code. The only negative I've found is that it is difficult to find information relative to specific questions. The information is there but it is not well organized and not searchable. The best method for accessing specific information is to ask Google and specify Arduino. There is also a very helpful and responsive forum of Arduino users, but I prefer to use them only as a last resort.

The Arduino Mega is pretty amazing. At a cost of $49 it has the capability of an old IBM AT. There are less expensive Arduino boards, but they are only a few dollars less and are much less capable. The Mega runs at 16 MHz, has more memory than you'll probably ever need, and is specifically designed to control external hardware. There are 40 digital IO pins, 16 analog input pins, and 16 analog (pulse width modified) output pins. You could probably make a very nice DCC Command Station with one of these.

Connections and procedures for programming the Arduino Mega are very simple. Run a USB cable from your computer to the Arduino, write and compile the code on your PC and download the compiled code to the Arduino. This is completely seamless with a single mouse click, and no system settings need to be changed. As soon as power is supplied the Arduino starts running whatever code is in its flash memory until you download new code for it to run. As soon as it's downloaded it begins execution immediately.

Applications for these boards in our hobby seems to be limited only by our imaginations.