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CARM WEBSITE BEING UPDATED

see page 11



a quarterly publication of the "Canadian Association of Railway Modellers"



THE CANADIAN ASSOCIATION OF RAILWAY MODELLERS

Founded October 15, 2003
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David King, Lex Parker

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USERNAME: gondola PASSWORD: hopper

*PROMOTING THE HOBBY OF RAILWAY
MODELLING IN CANADA*



NORTH KILDONAN PUBLICATIONS

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FRONT COVER PHOTO BY GERALD HARPER: The view is from my On30 and O scale mixed gauge Knob Hill Mine layout which depicts that copper gold mine in the 1930s. The mill building in the background is fed with ore by a train on an upper ledge and the engine shop is in the foreground. A new coat of green paint is the only thing that could be afforded in the dirty thirties, everything else is old. It is a 4 piece modular layout and this depicted module will be displayed for the first time at the Narrow Gauge Show in Schomberg in April 2017.



observation platform john johnston: editor

KUDOS TO RAPIDO TRAINS AND JASON SHRON

It was a year ago that Mike McGrattan of Rapido Trains passed away at too young an age. Mike was well known in the N Scale community and was that communities pipeline into Rapido. Mike left a wife and young son Sam. To assist Mike's family, Jason Shron announced that two special gondolas bearing the name of Mike's railway, the Puddington Valley, and the numbers 1964 and 2016 would be sold. All of the money from these gondolas would be placed into a fund to assist Sam in a university education. I ordered both gondolas and they were delivered in the last several weeks.



Enclosed with the gondolas was the following letter:

"We want to thank you once again for your display of support during this trying time. We all miss Mike greatly and we hope that these gons will help his legacy live on, even a little bit, on layouts everywhere.

We're happy to report that with your help we've managed to put aside almost \$15,000 for Sam's university education. It really means a lot to us and to his family that there are so many people in this community who really care about him.

Jason, Dan, Bill, Janet and the whole Rapido Team"

Jason can be a controversial figure and certainly has his supporters (including me) and detractors, but you can never doubt his heart and his class. Well done Jason and Team.

DOUBLEHEADERS LAYOUT TOUR

Along with my buds from the Bayview Junction Railway Group I decided it was time that I took in the Doubleheaders Layout Tour. Our day started with Registration at the Hespeler Arena. The Credit Valley FreeMo Group and the MOB N-Trakkers had their modular layouts setup in the arena. I also ran into Bruce Leckie and the fellows from the Ottawa Chapter who had made the trek

from our nation's capital to take in the tour. I would also run into them later in the tour at the Waterloo Model Railway Club. The photo below taken by Bruce shows myself and Bob Wakefield of the Waterloo Club.



We were surprised by the number of layouts on the tour, in excess of 40, and their wide geographic dispersion. After looking over the guide we decided we would stay in the Waterloo area and work our way north towards the new location of the Aberfoyle Jct Rwy and then work our way from there.

Also along were my two grandsons on their first layout tour. They had a great day and it solidified their interest in model railroading as a hobby.



I always like to leave a layout or a layout tour feeling that I have learned something that will help me as I build my own layout. This tour was no exception. Here are two of the things that I learned.

LESSON #1

The first lesson for me came when our group got to the O Scale Aberfoyle Junction Layout or as it is now known The St. Jacobs and Aberfoyle Railway. If I had to make a list of the 3 finest model railroads I have ever seen, this layout would be on the list. As many of you know, the layout resided in a Quonset hut in Aberfoyle for many decades. Several years ago they were given notice that they would have to move.

Along with other members of my group I went to

the Quonset hut one Saturday to assist in taking the layout apart in sections. The layout is DC and is very large so you can imagine how many wires were underneath it. Everyone had to be labelled and cut. It was to say the least a dogs breakfast. I for one was unsure that the layout would ever run again.

What I underestimated was the drive, the commitment, and the perseverance of the club members to have the layout rise again, like a phoenix and not only that to do it in a relatively short period of time.

That's the lesson I learned at the St. Jacob's and Aberfoyle. Never, never, never, say it can't be done. **Turn to the next page and enjoy some of the photos I took that day of the newly resurrected, and improved, Aberfoyle Junction layout.**

LESSON #2

The second lesson I learned that day came at the Waterloo Club. My mainline cuts through a wall in my layout room and I have been looking at vari-

ous options to disguise it. The obvious one is a tunnel portal, but a tunnel portal isn't really appropriate for the location. Another option would be a bridge in front of the backdrop with the mainline going under the bridge, however, the bridge doesn't really fit into the location either. Like most of us faced with this kind of dilemma, I have simply put off making a decision on how I was going to proceed.

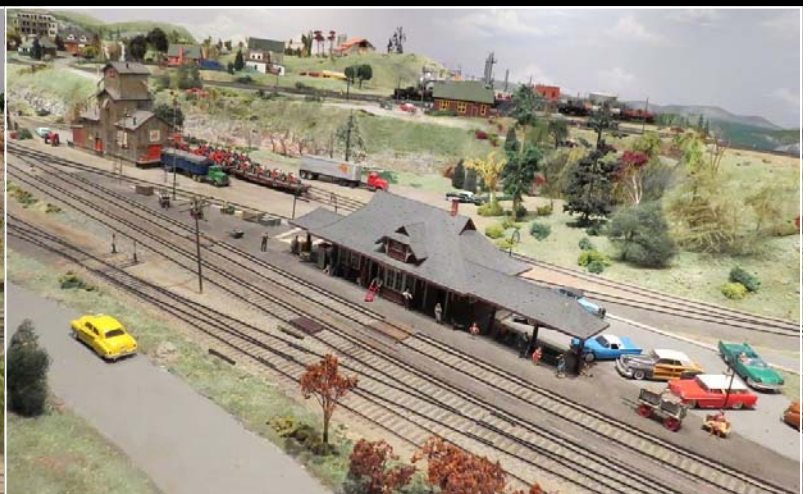
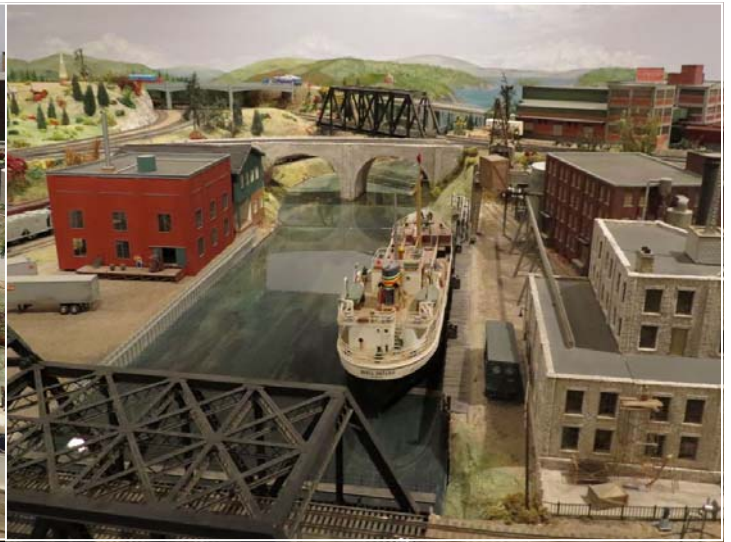
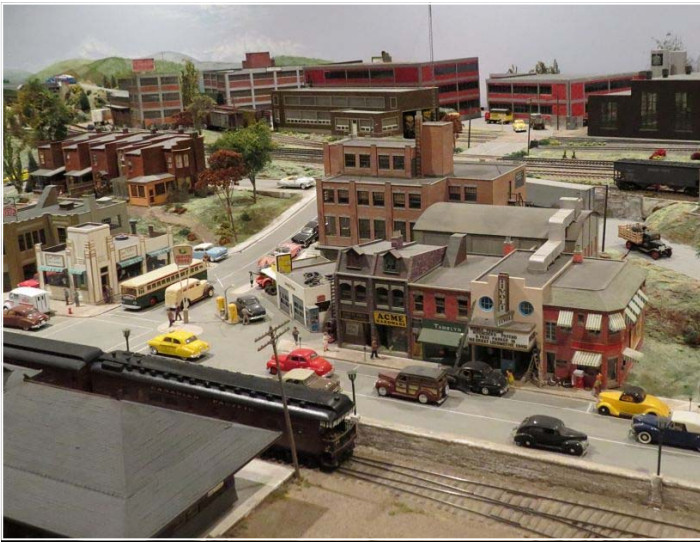
That was until I saw how the Waterloo Club had attacked a similar problem. Take a look at the photo below where a branchline curves off and through the wall.

Even in this close up photo it is very hard to tell that there is a hole there. What they did was continued the backdrop across the top of the hole. They then framed the hole with several trees. Lastly and most importantly, the sides of the hole inside are filled with vegetation material.

Sure, if you get up close and personal you can see the hole, but from 3 feet away it is indistinguishable from the rest of the backdrop. Very well done, and an idea that I am going to steal.

JOHN JOHNSTON: EDITOR





CARM SUPER MEET

“Opening Doors” Layout Tour Montreal August 5&6, 2017

This event is planned as a mini or micro convention, consisting of club layout tours only. The specific dates are: 5 & 6 August 2017. These dates were selected to take advantage of the long weekend in Ontario

There will be no clinics, no CARM organised lodging or transport. There may be time for an AGM, if it fits into the timetable. Similarly, a meet & greet could happen. A brief list of preferred Rail-fanning spots will be available. All participants are expected to have an up to date GPS available. The addresses; and pass to enter; will be in the booklet given to each participant. There will also be a visit to Exporail, in St Constant. Members in good standing of CRHA enter for free. There will also be private individual layout available to visit on the way to & from Montreal. These are all a short detour from Highway 401, on the way to & from the Toronto area.

There are 7 club layouts at this time, some in Montreal proper, others are in the surrounding region.

West Island Modular Railway Club
British Model Railway Club of Montreal
Vermont & Essex
Sorel, St Hyacinthe & St Lawrence Railway
Montreal Live Steamers
Green Valley Short Line Railroad Club
JAC Hobby (2 scales)
Exporail Railway Museum

There are a number of hobby stores catering to Railway modellers

Hobby Jonction
Udisco
VanHorne Hobbies
Belanger
JAC Hobbies

A list of hotels located close to the Dorval Train station & the airport is shown below. The contact information is sourced from the internet.

Hotels near Dorval train Station:

Quality Suites: 1010 Heron Rd, Dorval	H9S 1B3	514-631-4537
Marriott: Pierre Elliot Trudeau Airport	H4Y 0A4	514-636-6700
Sheraton: 555 McMillan, Dorval	H9P 1B7	514-631-2411
Fairfield Inn & Suites: 700 Michel Jasmin	H9P1C5	514-631-2424
Rodeway Inn: 580 Michel Jasmin	H9P1C5	514-828-5080
Montreal Express: 13000 cote de Liesse	H9P 1B8	514-631-4811
Comfort Inn: 340 Michel Jasmin	H9P 1C1	514-636-3391
Holiday Inn Express: 10888 Cote de Liesse	H8T 1A6	514-422-8080
Aloft: 500 McMillan, Dorval	H9P 0A2	514-633-0900

There are many more hotels in the surrounding area, and in the downtown area, but these are the closest to The Dorval Train station (and my club, the West Island Modular Railroad Club (WIMRC), and the hobby store Hobby Jonction. The access from the west is directly east on Highway 20, the Quebec continuation of Highway 401. The exit is the same one as for the Airport itself, Pierre Elliot Trudeau Airport. All the above addresses are extracted from the Internet, so beware any miss-spellings by yours truly.



Montreal 2017
 Opening Doors Layout Tour
 The Canadian Railway
 Convention
www.caorm.org



August 5th and 6th, 2017

Registration Form: Part 1: General Information

First Name: _____ Last Name: _____

Address: _____ CARM Membership # (optional): _____

City: _____ Province/State: _____

Postal/Zip Code: _____ Country: _____

Phone Number: () _____ Email Address: _____

Part 2: Primary Registrant

Tag Name (First & Last): _____ (postmarked by June 30, 2017) \$ 40.00

_____ (after date of June 30, 2017) \$ 50.00 _____

Part 3: Additional Registrants (Must be immediate family & same address only please)

Tag Name (First & Last): _____ \$ 10.00

Tag Name (First & Last): _____ \$ 10.00 _____

Total: _____

Please note that entry to Exporail is not included in the registration fee. Members of the CRHA get to enter free, while non-members will have to pay the regular entry fee.

Registrations must be received no later than **July 21st, 2017**. After July 21st, 2017, registrations will only be accepted at the convention. Send your payment by cheque or money order in Canadian or US funds payable to the "Canadian Railway Convention", and mail to: **Canadian Railway Convention, Walter Reid, CARM Convention Registrar, 2219 Council Ring Rd., Mississauga, ON, L5L 1B6, Canada**



WEST ISLAND MODEL RAILROAD CLUB





CHAIRMAN'S REPORT

Compared to last winter when I spent most of the first three months in hospital I can say that I have had an excellent model railroading winter this year. My friend Harold, my modelling team mate, and I have been putting the finishing touches to the scenicing of Module 4; the final module of my portable narrow gauge layout. We are going to display this one module at the Schomberg Narrow Gauge Show in three weeks time (April 22nd). We hope to display all four modules in an operating mode at the CARM Copetown show in 2018.

I have also managed to get out to several shows, layout tours and Chapter events, meeting with members and even signing up some new ones. In that regard it is pleasing to be able to report that CARM's membership is growing again after several years of decline. It is too early to say whether the free e-membership is a significant factor in that membership growth or whether it is due to the efforts of all those promoting the Association or a bit of both. I attended the Amherst Show in Springfield, Massachusetts and was very pleased to meet with Bruce Leckie and members of the CARM Ottawa Chapter who were exhibiting their On30 narrow gauge modular layout there for the first time.

Your Executive has met almost monthly through the winter and high on its agenda has been the implementation of the new website and internet driven membership, marketing and promoting membership in CARM. When you see a CARM table at a show come and say hi to the members staffing it. If you are a show organiser offer

CARM a table so they can help you grow your audience. The CARM tables will shortly be featuring bolder banners and maybe a switching layout. The new website is being unveiled little by little and if you haven't checked it recently I encourage you to do so. Also if you are interested in writing material, making mini videos etc which could contribute to the web content please contact me. Almost every modeller I know who has been in the hobby for any length of time has developed, learned or borrowed special methods of doing something to make layout construction more effective. Sharing those tips with other modellers is something they are always grateful for. So next time you are scenicing a part of your layout, modifying a freight car or scratchbuilding a building take some photos along the way so you can either write an article or send in the pictures and we can probably find someone interested in writing up the article for you.

Details of the Montreal Super Meet are not entirely finalised as I write this but I hope that there will be time during that meet to have a general member meeting of all those attending so the Executive members can benefit from hearing the ideas and concerns of the members at large. One of the important things about having an annual meet or convention is that it provides the only opportunity in the year for Executive and members to meet face to face and have a dialogue that gives the Executive a much better idea of what the association should be doing.

GERALD HARPER: CARM CHAIR



PROMOTING CARM: GUIDELINES AND IDEAS

Hello fellow CARM members. Welcome to the train show season. At these shows one can find almost any deal relating to model railroading or trains. One of these deals is the low cost, basic CARM membership of zero dollars. This membership allows access to the CARM website and the online quarterly issues of "The Canadian".

Getting this information out to other modelers requires members who are willing to spend some time promoting CARM at their local train shows. These train shows have proven to be our most effective method of introducing CARM to future members.

We are needing individuals to represent CARM at their local train shows. If you enjoy meeting other modellers, as well as new railway modellers, you are the type of person we want. We will provide the necessary material, banner, and a reimbursement for the table rental.

Attracting modellers to the CARM table is the first step. A small layout to catch the eye has been successful in the past. The layout along with doing some modelling will attract both the young and old who want to find out more about our hobby.

Here are some guidelines proposed by William Waithe on how go about presenting CARM and our hobby to the public:

Steve Hoshel

A Guide For Promotional Events

Why: Promotion of CARM at events where there are model railroaders (train shows, flea markets) is an important way to increase exposure of the organization and to recruit new members. It is especially useful to reach potential members outside of the existing chapters, since these modellers are less likely to hear of chapter events. The direct, personal contact with the happy smiling face of a satisfied CARM member is an effective tool.

Where: Pick the events which are more likely to have active modellers. Listings of train-related events can be found on the internet (e.g. for Ontario, see Ian McIntosh's "Ontario Train Shows, Open Houses and Meets" <http://home.eol.ca/~ianmc/shows/> and the CARM website: <http://www.caorm.org/> For your province, just Google "Model train shows ...(your province)" to get a list of events.

How: Get a few enthusiastic and dependable volunteers who like to talk with people to be on the "promotions team". With four or more volunteers your group can easily cover four or five events per season. You should plan on having at least two persons per event: It provides for one person taking a break and seeing the show and it

provides company (point out to potential volunteers the advantages of volunteering: You get to go to more shows in good company). Once you have chosen events to attend, reserve the necessary space early (tables, electrical power if needed and space for a portable layout if applicable). At the event, have items to attract visitors to your table (see "materials" below). Make eye contact and engage the visitors in conversation. Have selling points ready: e.g. reasons for joining CARM. For example: Think of why you yourself joined CARM. What do you like about the organization? What are the advantages of membership?

Volunteers might like to have CARM identification tags with their name and chapter, or shirts with a CARM logo, although these are not essential.

Materials: Have posters aimed to attract attention and showing samples of group activities. For example, we use a double poster with CARM activities on one side (conventions, meets) and publications (Newsletter, Calendar) and chapter activities on the other side (layout visits, op sessions, outings, talks on aspects of modelling, slide shows). A tall banner identifying the CARM table is useful (an inexpensive, portable support can be made with sections of 1 inch PVC tubing).

On the table, covered with a cloth, have items to engage people in conversation. In addition to (or even instead of) a portable layout, one can have parts, electronic items (e.g. a decoder or other electronic device), rolling stock of various types or buildings. Past copies of the national newsletter (The Canadian), chapter newsletters and samples of the annual calendar, accompanied by fliers with the application form can be displayed.

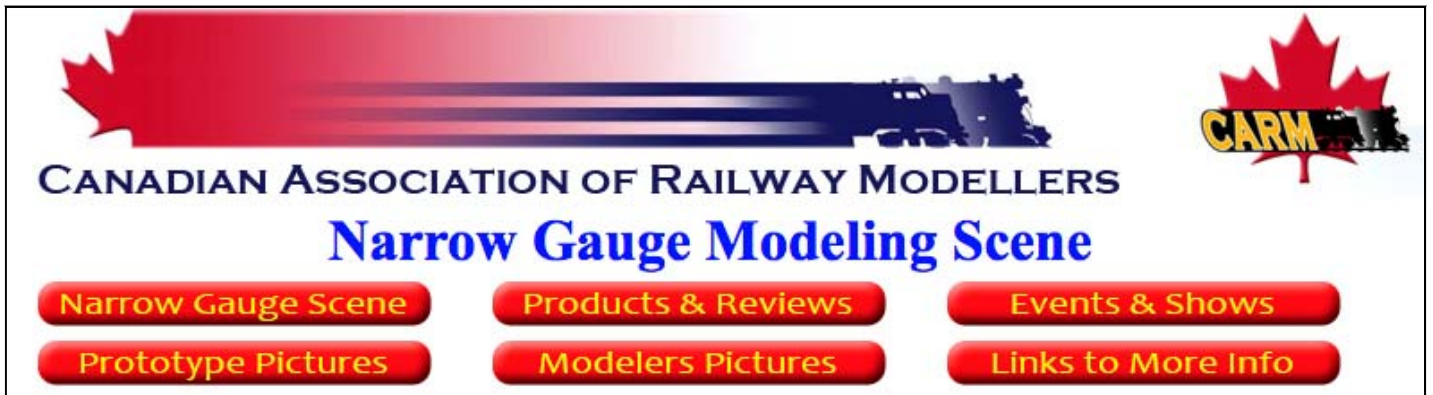
William Waithe



CARM WEB ADDITIONS

As you may or may not know changes have been coming to our organization and these changes are making there way into the website. The changes right now include more dedicated pages of information in the members section as well as a major update to the most basic of our memberships.

In the members area of the website, the area you need to log into, you will find a new section for the *Narrow Gauge Modeling Scene*. This area has 6 unique pages of information that includes the headings as shown below.



Each page covers a particular area associated with narrow gauge railroading. The idea here is to have one person act as a conduit to organize the information gathered from a number of sources including our members and send it to me the web master to have it published on the website for all to enjoy. This is where we need your help, as this is only the first of many possible *Scene* themes. Our president, Gerald Harper, is looking after this particular *Scene* but we need to people to oversee other *Scenes* such as *HO Modeling Scene*, *N Modeling Scene*, *3 Rail Modeling Scene* and so on. If you have an interest in overseeing a *Scene* or contribute to a *Scene* contact Gerald at ngscene@caorm.org and let him know.

The other big news is that we now have a modified membership format. Now there are only 3 types of memberships for anyone to choose from.

✓ Membership Categories		
✓ Internet	✓ General	✓ Calendar
Free	One Year - \$36	One Year - \$10
	Three Year - \$103	Three Year - \$30

All memberships, *Internet*, *General* and *Calendar*, include access to the members area of the website. The only memberships that have dues are *General* and *Calendar*. The *General* membership includes the printed newsletter and printed calendar for the term selected, 1 or 3 years. The *Calendar* membership includes the printed calendar for the term selected, 1 or 3 years. As you can see you are only paying dues if your membership includes us having to mail you printed material.

Some of you may be wondering what happened or what is happening to all of the other membership types that we have had in the past. All of these are being phased out as they expire and we encourage you to sign up using the new format. If you have questions please contact me at directordavid@caorm.org and I will respond.

David King

ONTARIO MIDWESTERN CHAPTER

We have received news that Peter Stamford has passed away. He had been in a care facility in Walkerton, close to his daughter.

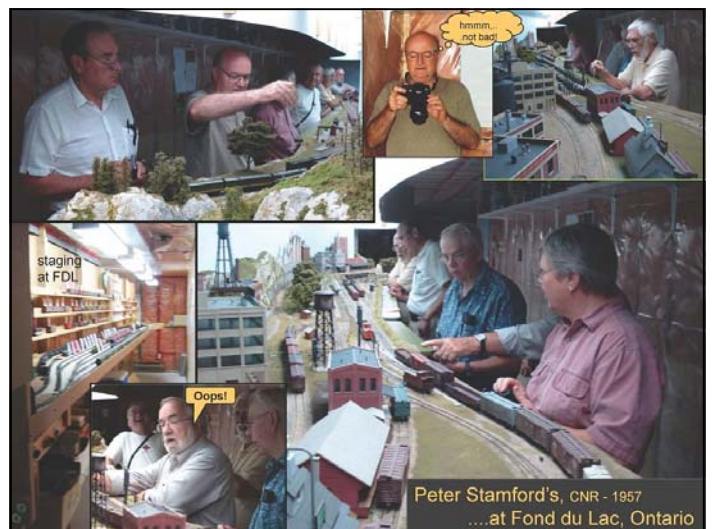
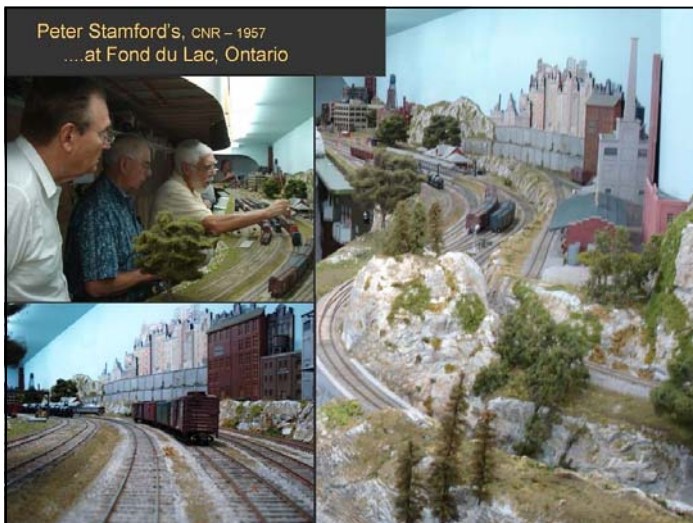
We remember Peter well, with many meetings to operate on the Fond Du Lac Railway. Peter was a very accomplished modeller, with a true bent towards prototypical models and operations. The Fond DU Lac Railway layout had staging behind an operating theatre, where trains were scheduled and operators assumed roles replicating real railway operations. Peter had an impressive roster of finely tuned and weathered engines and rolling stock. He was an avid computer techie and a keen photographer, a combination of talents that resulted in several excellent web photos of the Fond Du Lac Layout.

The photo below recalls an operating session at Peter's layout, attended by our CARM Chapter members. It brings back many good memories.

Peter's Fond Du Lac layout is alive and being reconstructed in the home of Southampton resident, Bob Funston. Rolling stock and motive power have found new homes with Michael Irwin (main recipient), Bob Funston, CARM OMW Chapter members ("Peter" mementos), Bruce County Museum Railway, and Randy Schnarr.

Peter had made plans to depart without fanfare, hence, no funeral or public celebration of his life. Our condolences go out to his life-long partner, Beverly, and his family. Memories of Peter Stamford live on in our model train activities.

Randy Schnarr



GOLDEN HORSESHOE CHAPTER:

The next GHC meeting will take place at the Royal Canadian Legion, 280 King Street West, Dundas, Ontario L9H 1W1 on Saturday April 22nd. 2017. This will be our annual General Meeting and election of Officers will take place. If you are interested in holding office as Chair of the GHC or Secretary/Treasurer, please submit your name to Tom Allan and position(s) for which you wish to run. **PLEASE NOTE THAT TONY IS STEPPING DOWN AS CHAIR AND TOM IS STEPPING DOWN AS SECRETARY/TREASURER.**

Mert Hambly will do a hands on clinic on making culverts for your layout. A list of what you will need will follow later. Meetings start at 12:00 pm. Admission \$2.00. Guests welcome. Refreshments: Coffee, water and cookies homemade by Tom's wife. For information contact: Tom Allan at: tom.allan@bell.net Be sure to visit the CARM website for more Information.

LONDON AND AREA CHAPTER:

On January 3rd the London and Area Chapter met for supper in London. For our first order of business, the group would like to have a booth at Don Wesley's home on the April 22 London Layout Tour, and would also like to have a CARM table at some local shows. The group has also decided to donate funds to help the Elgin County Railway Museum with their roof repair fund, and members are encouraged to donate privately as well.

Overall we came to the decision that the clinic held here in Centralia was a success, though a lot of time and resources were used up on something that was under-attended. In the future we voted that a change of venue to somewhere bigger would work better. Also noted was that there should be clinics/presentations for all skill levels, from beginner to the hobby to the more experienced. Possible times for another one would be in 2018 or 2019.

The group then dismissed and visited the London Model Railroad Clubs' O scale layout. The club models the fictional Lake Erie and International railway in O scale, and has been in existence since 1938. The club owns their own building, but is short of people, and is always looking for new members. There are many open houses held throughout the year, and anyone interested in model railroading is encouraged to visit. The next meeting will be on Saturday April 8th at 2:00pm at the home of John Kanakos



PHOTO ABOVE: A Lake Erie & International station on the layout of the London Model Railroad Club.

NATIONAL CAPITOL CHAPTER:

At the end of March, the National Capital Chapter took its first long distance excursion, travelling to the Tri Cities area for the Doubleheaders Layout tour. After an uneventful trip, We checked into our various accommodations and met on Friday night for dinner to compare layout itineraries and to setup the carpools. There were nine members on this excursion, but unfortunately, several members were reluctantly unable to attend due to work, family and health issues. Because we had pre-purchased our passes, and several members were unable to attend, at the registration hall we handed out the spares along with a CARM brochure with each pass. Present for the tour were Alex Thum, Bruce Leckie, Paul Anderson, Garry Comber, Jeff Hill, Grant Bruner, Richard Thornton, Rich Stewart and Peter Jackson. Steve Hoshel and Joan and Ian McIntosh joined us for Friday dinner.

With over 30 layouts scattered across many cities and towns it was impossible to visit all in one day. One group was able to visit 11 layouts on the day, with a break for supper at a nice pub in Guelph, followed by two evening visits. A second group was able to visit 8 layouts. The excursion was an enormous success and the chapter members indicated they would like to do this again. There are several layout tours organized in Ontario and we plan to attend most of them eventually.

There also was interest expressed in forming our own National Capital Regional layout tour. With the large number of excellent modellers in the region, there should be lots to see. Target date is 2018 and we hope to have this well underway by the end of the summer.

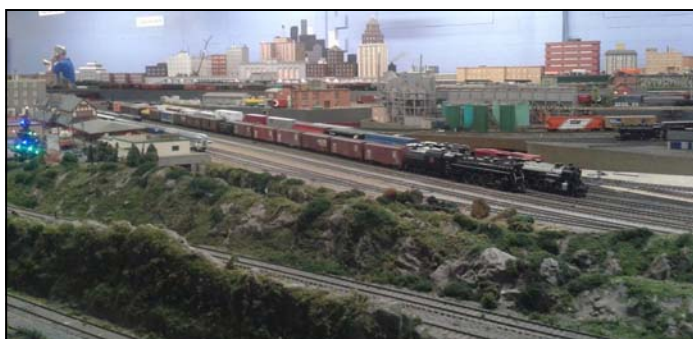
Bruce Leckie

The following pages contain a number of photos taken by our Members, Rich Stewart, Garry Comber, and Bruce Leckie.



PHOTO ABOVE: Members Rob Essery, Neil Froese and Dick Walker admiring the scenery on the layout.

PHOTO BELOW: Overview of the layout



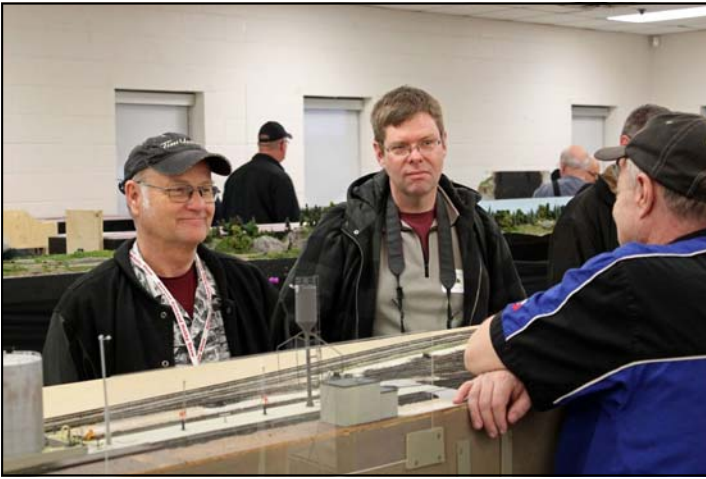


PHOTO ABOVE: Bruce Leckie and Jeff Hill discuss the FreeMo Layout with a module owner at the Registration Hall.

PHOTO ABOVE: A nice waterfront scene at the Preston Model Railroad Club.

PHOTO BELOW: Depot Harbour circa 1910 on Graham McDonald's Ottawa, Arnprior and Parry Sound layout

PHOTO BELOW: Gary Comber, George Watson, and Richard Thornton.



PHOTO BELOW: Alex Thum admires the swing bridge on Graham McDonald's layout.

PHOTO BELOW: Sudbury Yard on the layout of the Waterloo Model Railway Club.



INTRODUCTION TO MODEL RAILWAY ANIMATION

Text & Images by David King

As model railroaders we like to build our empires and we enjoy seeing our creations come alive. Seeing the trains move around the layout brings great enjoyment to both others and us as our imagination runs away. But no matter how many trains we have running something just doesn't seem right. We all sense this but sometimes we just can't figure out what is lacking. This article might just be the answer to that question.

Lights, movement, sounds or a combination of these things could just fit the bill. We sense these types of inputs in our life every day and just maybe we need to add a little of this in our layouts. Simple things such as a building having lights turn on, a warning flasher blinking away in the distance, a traffic light operating, a gate opening and closing, a garage door moving, a piece of construction equipment digging a hole, the sound of a revving engine are just a few of the hundreds or thousands of inputs our mind is looking for. We aren't usually aware of this happening around us but it doesn't feel right when they are missing.

A newer simpler way of creating many of the items listed here and more can be accomplished in a short amount of time by learning some very basic electronics, an open source software program, a small investment in money and of course some of your time. All of this may sound a bit daunting but it really shouldn't, as I will walk you through a series of articles that will start with this introduction and progress over a number of articles so that you can create projects that fit your needs and wants.

The software you will be using for these projects is Arduino, which includes many predefined features. The software is free and open source so many people around the world are constantly updating and improving it. The software can be installed on a Windows based machine, a Mac iOS machine or a Linux based machine. You will find the latest version of the software for each of the platforms at the following URL address. Remember the software is free but you are always welcome to make a donation on their website to support the software. Just download the software for your operating system and follow the instructions from the Arduino site.

www.arduino.cc

Another commitment that will be required from you is to obtain one of the three kits I will describe here. The kits vary in price a little and a few of the components included in each of the kits vary slightly but they all have basically the same items. As needed during the series of articles I will explain the differences so that everyone can follow along. As these articles progress from one issue to the next you may need to add a few components but in each case I will let you know what additional items are required

for the next article. The cost of these items will be relatively low in cost if you purchase them from afar but lead-time is needed. If the components are purchased locally you will likely find the costs higher. I will talk about this more in a later article when this becomes relevant. For now all you will need is the basic kit.

Let's take a look at each of the three kits that I recommend to use and just to let you know I have all three of these kits. The three kits are from Arduino, SparkFun and Adafruit. Each of these kits has pros and cons so I will talk about each kit separately, then compare them and finally I will provide you with URLs to each of the companies and possible locations on where to purchase them.

Each of the kits includes an Arduino UNO microprocessor or a compatible version of this microprocessor. UNO is just the version of the microprocessor. In the Arduino kit and the Adafruit kit an original UNO is included. In the SparkFun they have their own microprocessor called the RedBoard that is fully compatible with the Arduino UNO. The only minor difference is that the RedBoard includes a different USB communication adaptor. For the RedBoard you will need to install the FTDI driver for this communication adaptor to work properly but the driver and instructions are located on the SparkFun website. This is not really a big deal and I have installed this drive on both Windows and Mac based machines without any issues.

Arduino

I'll start with the Arduino Starter Kit also called the Genuino Starter Kit, as this is the first kit I used. Arduino is from Italy but like many businesses in the world everything is shown in English and is easy to understand. In the kit you will find a very well written manual that describes everything to get you started. It talks about how to install the software followed by what is included in the kit. Next you will be guided to assemble the microcontroller board (the brain or micro computer) to a wooden base and attach the breadboard (the area you will use to temporarily connect components together). Next you can remove the included USB cable from the kit and this will be used to connect the microcontroller to your computer. The rest of the items included in the kit can stay in the box for now.

Even though this kit is from Arduino the base that the microcomputer and breadboard are mounted on is simply a laser cut piece of plywood and once the laser cut pieces of wood are removed the wood base is not solid under the breadboard. As a result of this you may not get a good connection in any location where there is no solid base under the breadboard. You can solve this issue by mounting the breadboard onto a piece of styrene plastic

that is at least 0.020" thick and then gluing this to the wooden base. The box that the kit is enclosed in is made from a thick paper so if this is used a lot the box will start to tear. I solved this early on by obtaining a plastic box to store all of the components.



SparkFun

This is the next kit we will look at and it's the SparkFun Inventor's Kit V3.2, this has been replaced by the Special Edition Kit for a short period of time. The V3.2 Kit comes with the plastic case and Special Edition Kit will have the plastic kits ship later when they are available. The kit comes with components that are similar to the Arduino kit but the items are close enough to do the projects I will cover in this series of articles. One of the biggest differences is that this kit comes with the RedBoard in place of the Arduino board. The RedBoard works the same as the Arduino UNO board so you will not notice any differences in your projects. Even the physical dimensions are the same. The only difference other than the colour of the board is that the RedBoard has a different USB communications chip that will require you to install a FDTI driver. All of the instructions are on the SparkFun site and it is very simple to install this driver on both Windows and Mac iOS computers. A little more is required if you are using a Linux based computer.



The SparkFun kit comes with a sturdy plastic mould injected base to mount the RedBoard and breadboard. This gives a sturdy base compared to the Arduino kit base. The plastic case that comes with the V3.2 Kit is nice and easily stores all of the items included and has room left over for more components that you may add later.

Adafruit

The Adafruit ARDX v1.3 Experimentation Kit is the third of the basic kits that we will look at here. This kit comes with the Arduino UNO board same as in the Arduino kit and no additional driver will need to be installed on your computer. The kit comes in a basic black cardboard box but it does include a clear acrylic base with stick on feet. The UNO and the breadboard can be mounted to this base and it makes for a stable platform for all of your projects. The box is okay to use at the start but I would suggest replacing this cardboard box with a plastic case as small components can get lost the folds of the box.

The one item missing from this kit compared to the others is a LCD display that we will be using for projects later in this series of articles. You can purchase the correct LCD from many sources but Adafruit has an assembled 16x2 LCD available which when added to the basic kit makes all of this kits vary similar.



The Manufactures Websites and Kits

Arduino:

Main site: www.arduino.cc

Arduino Starter Kit: store.arduino.cc/product/GKX00007

SparkFun:

Main site: www.sparkfun.com

SparkFun Inventor's Kit V3.2: www.sparkfun.com/products/12060

Adafruit:

Main site: www.adafruit.com

ARDX v1.3 Experimentation Kit: www.adafruit.com/products/170

LCD Kit: www.adafruit.com/products/1447

Where to Buy?

You can purchase these kits from their respective websites but many of these items are available from other suppliers as well. Here is a short list of where you might look but others sites and location do exist. Just be sure to search within the web sites for Arduino kit, SparkFun kit and Adafruit kit.

Amazon	www.amazon.ca
Digikey	www.digikey.ca
Robot Shop	www.robotshop.ca
Canada Robotix	www.canadarobotix.com
Lee's Electronic	www.leeselectronic.com

Now What Do I Do With the Kit?

Once you have the kit of your choice you should follow the instruction box that was included and assemble the UNO and breadboard to the base. Also install the latest version on the Arduino software from arduino.cc along with any needed drivers if your kit requires them.

Once this has been completed you can use the included USB cable and plug one end in the UNO and the other into your computer. At this point you should see a power indicator LED light up on the UNO. Now you can follow the instructions in your kit for lesson 1 which is a simple sketch, what Arduino calls a program, and enter the code for a project called Blink. Upload the sketch into the UNO and watch a LED that is on the UNO board blink. Modify the code and change the duration of the ON and OFF cycles of your LED. I'll cover this in detail in the next article.

Congratulations you have completed the first major step towards model railway animation!

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REBUILDING THE WESTON SUB

PART 2

ARTICLE AND PHOTOS BY WILLIAM WAITHE

In a previous issue of *The Canadian* (Fall issue #57, 2016) I described the initial phase of building a new version of the CN Weston Subdivision in a dedicated condominium unit. Preparation of the layout space, construction of the layout supporting frame, backdrop and Styrofoam base and the laying of track were described. In this installment, covering the period from August 2016 to January 2017, I will describe the track plan, wiring and electrical installations and the installation of a new system (developed by Berrett Hill, inc.) using programmed servos and “Touch Toggles” to control turnouts. Progress in the construction of the layout was impeded by problems with defective Micro Engineering code 55 turnouts. The defect was detected after installation and was subsequently confirmed by the company. As before, all work on the layout is being done in collaboration with my colleagues Bill O’Shea, Keith Martel and James Rasor.

The Track Plan:

The track plan and location of industries and yards is shown below.

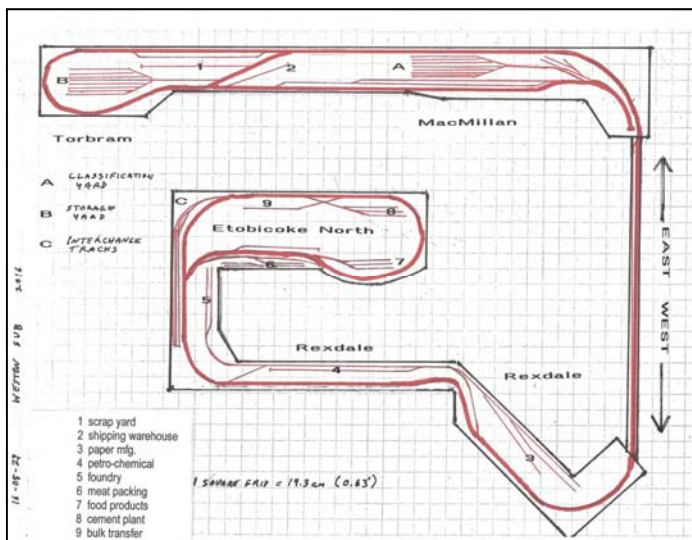


PHOTO 1: The plan is based on the prototype Halton (upper section) and Weston (lower section) Subdivisions and reflects the actual geographic sites.

There is a total of about 80 meters (260ft.) of flex track, including four passing sidings (1.2m), 2.9m of industrial tracks and 3,125 cm* of main track from the classification yard to Etobicoke North. The eight track classification

yard (A) and storage yard (B) have capacities of over 90 cars each. The track is currently being expertly and painstakingly ballasted by James Rasor (**photo 2**).



PHOTO 2: James does the ballasting on weekends, so he puts blue `flags` on the recently ballasted section to warn us not to run trains on this section until cleaned of loose ballast.

A few words about the rationale of the track plan: Using Ship It- generated switchlists, outgoing trains are made up and incoming disassembled at the classification yard (A). Loads in wayfreights then head west around the loop track, across the viaduct to switch the industrial areas of Rexdale and Etobicoke North. The interchange (C) is the source of off-layout shipping and consignment. Yard transfers pick up and deliver cars between the storage yard (B) and the interchange tracks. Further details of train movements and operations will be described in a later article.

Electrical:

The operating system is Lenz DCC. The bus for track power is 14 AWG twisted black and red stranded wire. Solid 22 AWG feeder wires to the tracks (maximum length about 30cm. are connected to the bus via brass terminal strips (**photo 3**) at appropriate positions throughout the layout. The layout is divided into four power districts with PSX circuit breakers (Tony’s Train Exchange) and are wired so that a flashing red LED and an alarm indicate a short circuit in a particular sector (**photo 4**). Polarity of turnout frogs are controlled by Tam Valley Frog Juicers (purchased from Fast Tracks) and polarity reversal of the two reversing loops is controlled by

OnGuard auto reversers (Tony's Train Exchange) (**photo 5**). Most of this equipment was salvaged from the previous layout. All wires are carefully labelled at several positions and dated and noted in a book. Past experience, where I discovered a wire or a device under the old layout and found myself fifteen years after it was installed wondering "what is that and what is it there for?" has convinced me of the necessity of carefully labeling wires and taking good notes. For permanent electrical connections all track joints are soldered. Because of the relatively constant temperature and humidity of the room and the type of layout frame construction, the chance of track buckling due to the soldered joints is low.

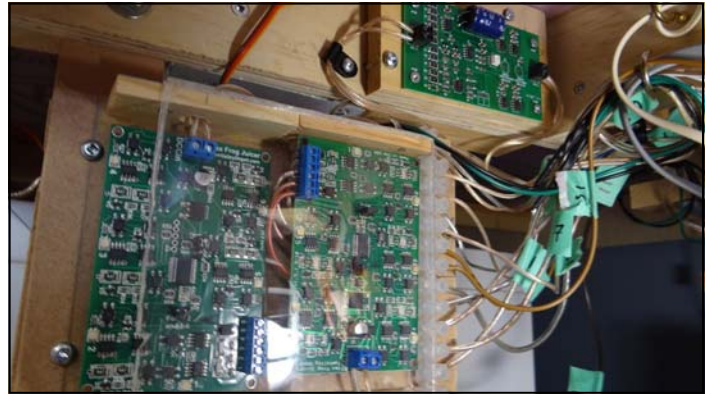


PHOTO 3: The DCC (Lenz) 14 AWG bus: Track feeders (22AWG) will be fixed to the brass connectors about every 120 cm. of flex track.



PHOTO 5: Polarity controls: Two Tam Valley Hex Frog Juicers, controlling a total of twelve turnouts is shown at the left. The labelled wires (green tape) from the turnout frogs are seen at the right. An OnGuard auto reverser for the reversing loop at Torbram is seen above the Frog Juicers.

Track and Turnouts:

We installed a system of turnout activation and control developed by Berrett Hill (BH) in which turnouts are activated by programmed 9 gm servo motors. In the BH system servos are plugged into a Servo Base (which can accommodate up to 8 servos) and the actuating Touch Toggle (which works by skin resistance) is plugged into the opposing connection. The direction and speed of turnout movement is programmed with a "Set up Remote Device". With Touch Toggles, a touch of the finger causes the turnout to change position and the indicator green or red LED shows the position (normal or reverse) (**photos 6, 16 and 17**).



PHOTO 4: Power district controls: Controls for two adjacent districts are shown. The left is for the Rexdale area industrial tracks and the right is for Etobicoke North. In the event of a short circuit in either of the two districts, the corresponding lower LED flashes red and an alarm sounds. The alarm is turned off and power restored to the sector with the toggle switch. The PSX circuit breaker for Etobicoke North can be seen below the fascia to the right (below the Touch Toggle)

There are 58 turnouts in the track plan, 53 of which are manufactured by Micro Engineering (ME) and 5 by Atlas. To mount the servos on the turnouts, we made a wood base: Wood strips (5/16" x 1 1/16" x 84") (available from building supply houses, e.g. Home Depot) were painted ballast grey and cut into 40mm sections resulting in a base for the servos which is 38mm x 40mm x 7mm. The 7mm thickness of the base matches the height of the Woodland Scenics N scale roadbed. For the industrial spurs and yard tracks which are laid directly on the layout Styrofoam base, the wood turnout base is sunk into the foam so that the turnout is flush with the surface. In most cases, ME turnouts were mounted with the actuating wire in the center of the throwbar between the rails while for Atlas turnouts we used one side of the throwbar external to the rail. A hole for the actuating piano wire (initially 3/32" diameter) was made 9mm from one edge (or on the side in the case of Atlas turnouts) using a jig made from three angle brackets and a drill press (**photos 7 and 8**). Servos were attached to these wood bases with double-sided tape (Gorilla or automotive) and the turnouts were affixed to the other side of the bases with contact glue (we used PlioBond or Gorilla glue) (**photo 9**). Care was taken to center the actuating wire in the correct position

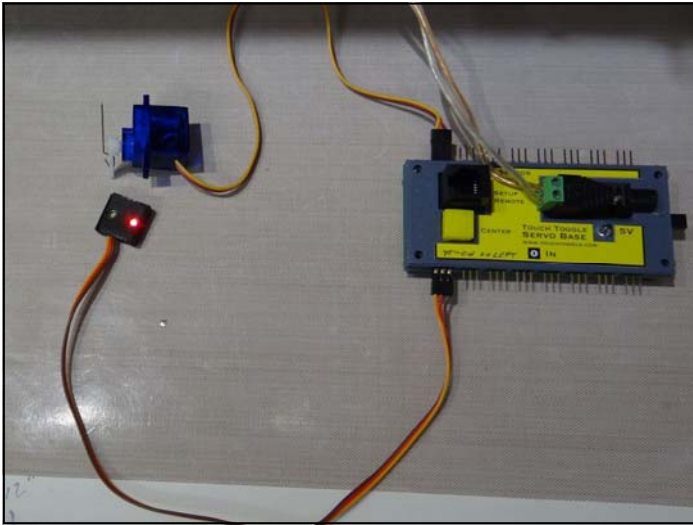


PHOTO 6: Berrett Hill components: The Servo Base for control and programming of eight turnouts is at the right. The 9gm servo motor with the piano wire actuator attached is at the upper left. The Touch Toggle (set for red, or reverse turnout position) is at the lower left. The Set up Remote programming device (not shown) plugs into the black plug on the left of the servo base. The 5 volt power supply for the system can be seen plugged into the green plug at the upper right of the servo base. The yellow button on the servo base serves to center the servo when mounting the assembly with the turnout. The complete assembled system can be seen in photo 16.

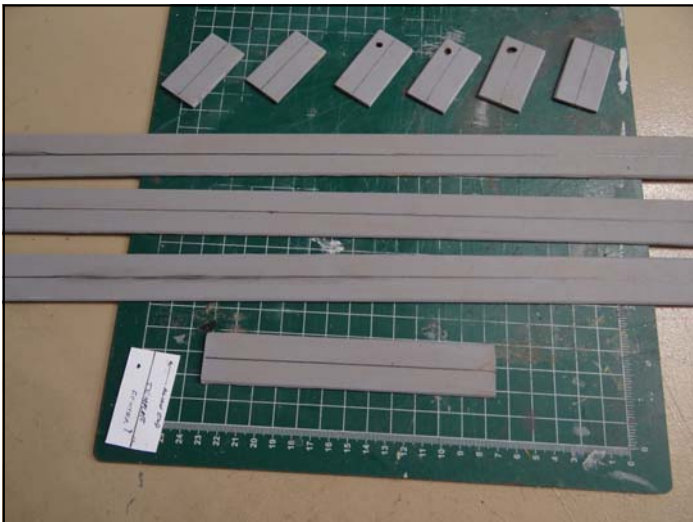


PHOTO 7: Making the wood base for servos and turnouts: Top of image: The 40mm base sections, some with the holes drilled for the actuating wires. Center: The wood strips have been painted ballast grey. Bottom: The template for positioning the holes is shown at the left.

when attaching the turnout to the base. Appropriate sized holes were cut in the roadbed and foam layout base for installing the turnouts (**photo 10, 11**). Initially, the hole in the wood support was kept small (3/32" diameter) in an effort to limit the movement of the actuating wire since it had been reported by BH that when the system is first turned on there is a forceful throw of the servos which could damage the turnout. However, it was shown that potential damage can be avoided by positioning the piano wire in a certain way relative to the servo lever (i.e. with the servo lever facing downwards). After testing the system, we found that the small diameter hole was unnecessary and only served to impeded the ability of the servo to function well. We therefore used a larger (1/8") hole in later construction and enlarged the already installed ones which were misbehaving *in situ*. After having broken several turnout assemblies while attempting to enlarge the hole *in situ* we learned valuable lesson #1: Do not solder a turnout in place unless you are sure it is functioning properly!

To mount the Touch Toggles on the fascia we used BH "mini cups". Installation is simply a matter of drilling a one

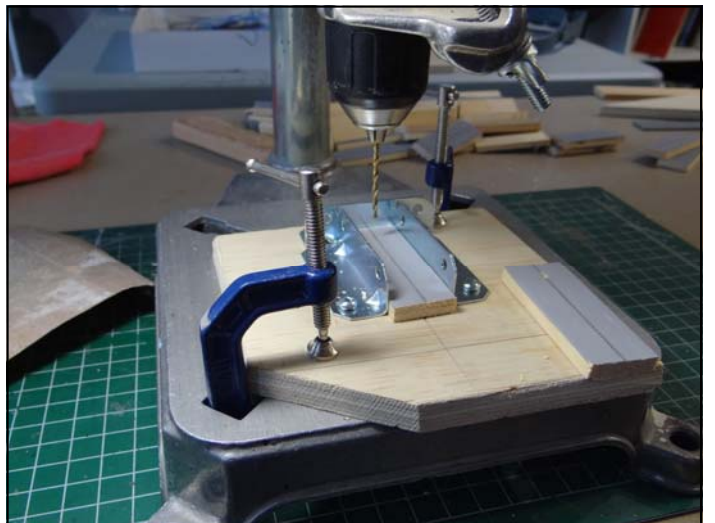


PHOTO 8: A jig was made from three angle brackets for drilling the holes for the actuating wires.

PHOTO 9: A turnout with its servo mounted on the wood base: In this case, the outer position of the throwbar is used

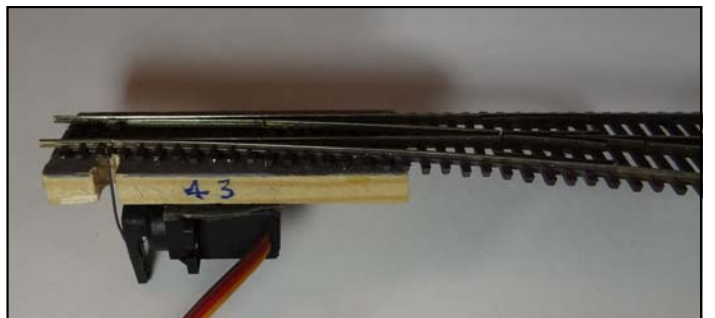




PHOTO 10: Installing the turnout assembly: Holes cut for installation in the MacMillan yard. The tracks in the yards and the industrial spurs are laid directly on the Styrofoam base (the track in the upper right without ties is for an engine inspection facility).



PHOTO 11: A turnout assembly installed: After installation, the hole will be covered with a thin piece of styrene painted earth color, the missing ties replaced, the joints soldered and the area ballasted. Note that the 7mm-thick base matches the height of the Woodland Scenics roadbed.

inch hole in the fascia and inserting them (**photo 12**). Where there are multiple turnouts as in the yards and the meat packing plant (photo1), the Touch Toggles were mounted in a plastic control panel using commercial 6"x 4" sign holders (Google search: use "sign holder"). Using a template, a (thin) styrene backing was painted the color of the fascia and the positions of the tracks indicated. Openings for the Touch Toggles were cut out and the styrene glued to the back of the sign holder with a small amount of styrene cement. The Touch Toggles were then taped to the openings (**photos 13, 14, 15, 16, 17**).

Testing the Track:

For an operating industrial switching layout, the most important thing after design is having good trackwork. This is especially important in the smaller scales such as N where, as I have experienced many times, one's shirt

sleeve can derail an entire train with little effort. So, once all of the track and turnouts were installed, we proceeded to run trains backward and forward through all of the turnouts. To our dismay, most of the Micro Engineering (ME) turnouts turned out to be defective. Cars were bumping over the turnouts and, in some cases, derailing. Inspection with an NMRA gauge showed that the part of the turnout around the points was too narrow. When I wrote to ME, at first they found nothing wrong with the turnouts they had on hand, however upon their request, I sent them some caliper measurements and upon further investigation they discovered that their code 55 turnouts were, in fact, out of gauge. The mold they used which was 25 years old had worn to the extent that the stock rails were coming off production too thick. They offered to replace the defective turnouts, but after lengthy consideration, we decided that it would be too difficult to replace so many of the 55 ME turnouts which were installed and soldered in place (Valuable lesson #2 (same as # 1): Do not solder a turnout in place unless you are sure it is functioning properly!). So, we filed the rails until the turnouts were in gauge. And filed, and filed, until finally after many weeks of filing, things are looking better. As they say, "Model Railroading is Fun"...and patience has its rewards. We can now finally get on with landforms and scenery, the subject of a future contribution.

**Addendum: In the previous article, p. 10, I made an error in reporting the length of the main track: It should read: "The main track is 3,125 cm long..." (not 118 cm).*



PHOTO 12: Touch Toggles installed on the fascia: The toggles are indicating the normal position. One has to be careful not to leave rolling stock on the turnouts after a session as all turnouts revert to the normal position when the system is turned on again.

In good railroad practice one should not anyway! At worst, a possible derailment.

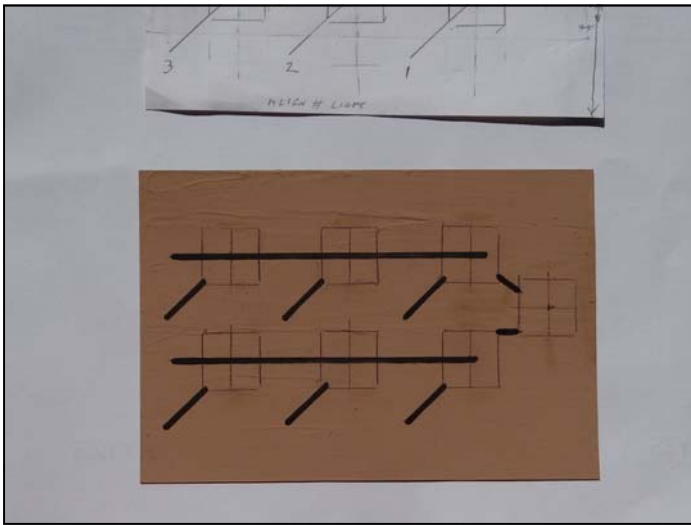


PHOTO 13: Building a control panel for Touch Toggles: The required track pattern and openings for the Touch Toggles has been drawn with a Magic Marker on a thin sheet of styrene painted the color of the fascia. The template can be seen above.

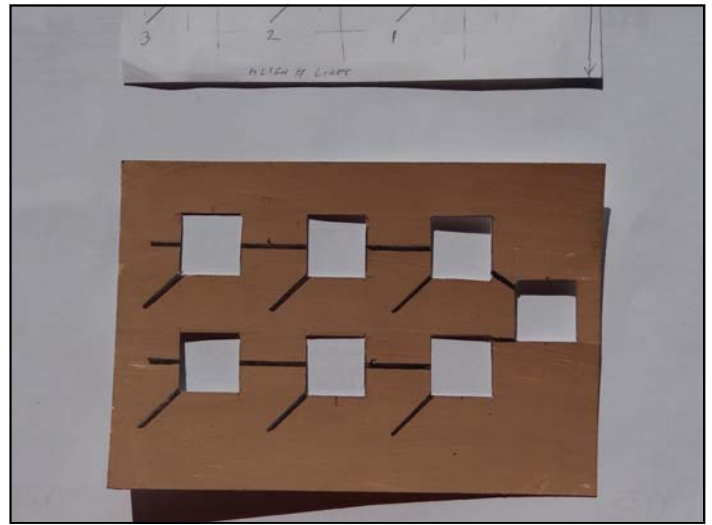


PHOTO 14: The openings for the Touch Toggles are cut out with a sharp knife.

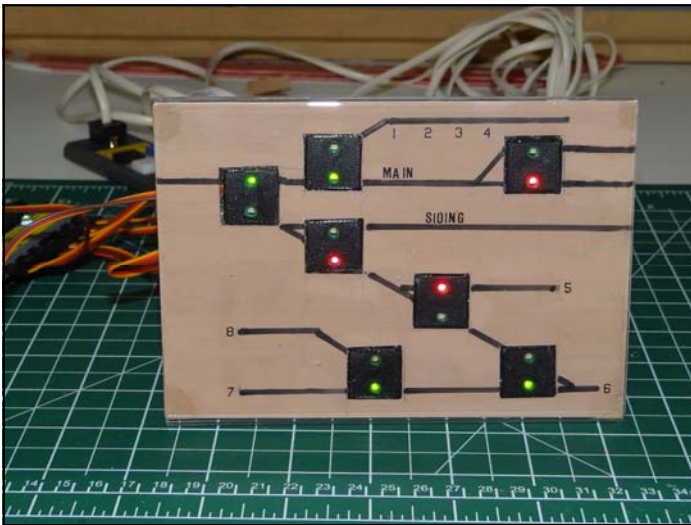


PHOTO 16: The assembled control panel: The programmer (Set Up Remote Device) is visible in the left background and the Servo Base is to the left. The Servo Base for the eight turnouts will be permanently mounted under the layout. The programmer is only used for the initial setting of the turnout. The programmer sets the LED color relative to the turnout position and the speed of movement of the points, allowing a realistic movement to be readily obtained. Adjustments of the turnouts can be done anytime after installation.

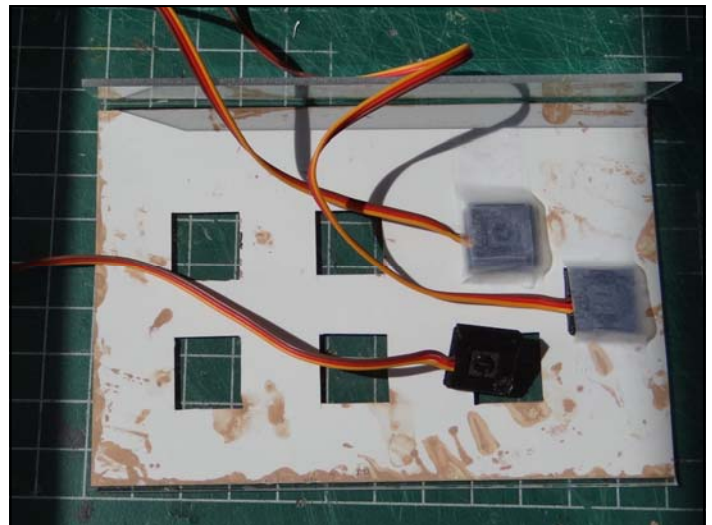


PHOTO 15: Touch Toggles are attached with tape to the back of the styrene sheet.

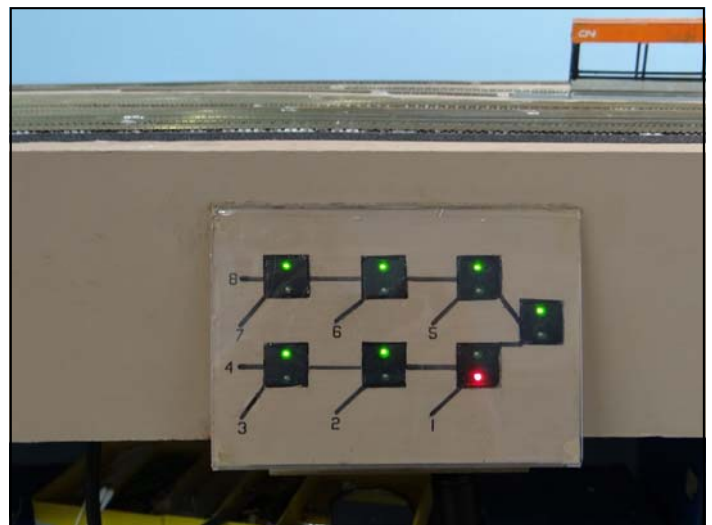


PHOTO 17: The MacMillan yard turnout control panel in place: When track 1 is selected, the red LED indicates the reverse position of the turnout.



EVENTS AND TRAIN SHOWS

Montreal, PQ: CARM Meet: Open Doors Layout Tour, August 5&6, See pages 6 and 7 of The Canadian for more information and details.

Brantford, ON: 11th Annual Brantford, Simcoe & Port Dover District Model Layout Tour, Saturday, April 8 9:00 AM — 5:00 PM. Brantford - Simcoe - Port Dover. For admission to the Layout Tour you must have a copy of the printed Tour Booklet with maps. The cost is \$5 per person. Children under 12 free when accompanied by an adult. The printed Tour Booklet can be purchased at the following ticket locations: Prior to April 8th at: Paris Junction Hobbies 300 Grand River Street, Paris; or at the Credit Valley Railway Co. - 2900 Argentia Road, Unit 24, Mississauga. On April 8th at the Brantford Model RR Club - behind 100 Waterloo St., Brantford. For more information, contact Ted Black 519.770.4086 or by email at revted-black@hotmail.com Proceeds to Brant Food For Thought.

Lindsay, ON: 43rd Lindsay Annual Train Show, Saturday, April 8, Sunday, April 9, 10 am to 4 pm, Lindsay Victoria Park Armoury, 210 Kent Street West, Lindsay, Ontario K9V 2Y8. Admission \$5, Ages 6-12 \$2, under 6 free. <http://www.ldmr.org> Wayne or Eric at annualshow@ldmr.org

Brantford, ON: Brantford Model Train Show and Sale. Saturday, April 15 10 am to 3 pm, Brantford Hotel & Conference Centre (formerly Best Western Brant Park Inn), 19 Holiday Drive, Brantford, Ontario. Free Parking. Admission: \$5.00 per person (Children under 12 FREE if accompanied by an adult) For vendor space or info, contact Ian 519.426.8875 (Mon-Fri before 8 pm), or email toy-show@kwic.com <http://www.collectorshows.ca/EN/train.php>

Schomberg, ON: The 12th Annual Ontario Narrow Gauge Show, Saturday, April 22, 10 am to 4 pm. Schomberg Community Hall, 325 Main Street, Schomberg, Ontario. Canada's only exclusively Narrow Gauge Railway Show. Door prizes. Information and advance ticket purchase (\$5): go to <http://www.narrowgagemadness.com> Admission \$8

London, ON: London & District Model Railway Layout Tour. Saturday, April 22, 10 am to 5 pm. London and St. Thomas, Ontario. Tour Pass Booklets are \$5.00 per family and are on sale from April 1 until April 22 at: Broughdale Hobby, London Pete's Trains, London Railway City Hobbies, St. Thomas Elgin County Railway Museum, St. Thomas. Over twenty model railroad layout available for viewing in the London/ St. Thomas area. There is something to see for everyone from gauges N to G and garden! Come view beautiful historically based layouts of Woodstock and west of Toronto in the 1950s, to present day railways, to freelanced roads! Info: Don Wesley, 519.673.1695 dqwesley46@gmail.com

Fenwick, ON: Greater Niagara Model Railroad Engineers Open House. Sunday, April 23 and April 30, 12 pm to 4:30 pm. Club Rooms, 1141 Maple Street, Fenwick, Ontario. Large HO scale model railroad, the Fenwick Central. We currently hold Open Houses 6 times a year (in April/May, November and December). We meet regularly on Wednesday nights starting at 7:00 pm, and welcome guests and prospective members to come out and join us then. There is ample parking in the lot next to the club. Info: Dave Stremlaw 905.892.2767

Stayner, ON: 23rd Annual Auction, Nottawasaga Model Railway Club. Saturday, May 6, 8:30 am. St. Patrick's Parish Hall, William Street (at Pine), Stayner, Ontario GPS 44.4166 X -80.092 Viewing 8.30 am to 10.15 am. Auction starts at 10.30 am Admission: \$5 For information Bill Payne 705.429.2762 or Martin Alborough: 705.444.5370 <http://www.nottawasagamodelrailway.com> Refreshments available. consignment pick-up service available.

Midland, ON: Midland 28th Annual Train Show and Sale. Saturday, May 13 and Sunday, May 14, 10 am to 4 pm both days. North Simcoe Sports and Recreation Complex, 527 Len Self Blvd., Midland, Ontario. Adults \$6 Seniors \$5 Children \$2 Info Richard Small: mdrcrs@rogers.com or 705.791.7968

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