THE "CANADIAN"

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CANADIAN ASSOCIATION OF RAILWAY MODELLERS

SPRING 2020 ISSUE #71

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

THE CANADIAN ASSOCIATION OF RAILWAY MODELLERS

Founded October 15, 2003
Founding Members: John Johnston, Peter Moffett, David King, Lex Parker

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COVER PHOTO BY MALCOLM BACK: Ontario Northland Railway's Northlander runs on the CN Bala Sub between Washago Junction and Parry Sound, on the layout of Ken Wilson. Ken's layout will be open during the Toronto 2020 Convention.

observation platform
john johnston: editor

ABERFOYLE JUNCTION RAILWAY:

I recently had a conversation with CARM and Aberfoyle Junction Member Craig Webb. He shared with me that the building in which they are located may be up for sale and it was uncertain what that meant for the future of the layout.

Aberfoyle Junction is truly one of the Great Model Railroads of our generation If you haven't seen it yet, make the trip to St. Jacobs and see this fantastic layout. Take the time to talk to the members, many of whom have been in O Scale Model Railroading for over half a century and have a lot to share.

Don't wake up one morning to find this layout is gone and you didn't take the opportunity to see it. If you have seen it, make the trip back, I'm certain I will.

DIGITRAX COMMAND STATION SLOT MAX

I was visiting my local hobby shop, Dundas Valley Hobbies, the other day when a fellow modeler started talking to the owner Robin about his Command Station which he had bought from her, being unresponsive.

Since Robin seemed at a loss to answer his question, I asked him if he always's released his locomotives from the throttle after using them. His answer "What's that" told me everything I needed to know.

I am surprised how many Digitrax DCC Users are unaware of how the slots in a Command Station work. That once an engine is acquired that it takes up a slot until it is released. If you shut off the system without releasing the engine, that slot will stay occupied and unavailable to you. If you start up the system next time and reacquire the same engine you will now use a second slot. In a DCS 100 you have 22 slots. As you might guess with multiple engines you will fill these up pretty quickly if you are not releasing engines when you are finished.

Several options are available to you. These are OPS SWITCH #36, OPS SWITCH #39, AND OPS SWITCH #44.

OPS SWITCH #36 will empty out all the slots in the command station. This includes any slots that are being used for consisting.

OPS SWITCH #39 will reset the Command Station to its factory settings which includes clearing out all the slots.

OPS SWITCH #44 will increase the number of slots available to you from 22 to 120. I highly recommend this.

What do you do when you have activated the OPS SWITCH on your controller. Do the opposite of what the display shows. i.e. if the display shows OP SWITCH #44 = c then press "t" to throw it. Conversely, if it shows OP SWITCH #44 = t then press "c" to close it.

For whatever reason, Digitrax doesn't put any of this in the manual. It can be found on the website but it is very difficult to find. If you Google "Digitrax Ops Switch 36" it should point you to the location on the digitrax website. It will give you a list, open up the first choice on the list. It should be: KB555 DCS100 Command Station/Booster Expanding Available Slots: with the following web address.

https//www.digitrax.com/tsd/KB555/dcs100-command-stationbooster-expanding-available-/

JOHN JOHNSTON: EDITOR

PHOTO BELOW: During a recent operating session on the Grand Trunk Southern we see Walter Reid running the PRR Xpress Reefer past a sitting GTS #122 at Ethansburg.

PUBLICATION SCHEDULE FOR *THE CANADIAN*

***The Canadian* is published four times per year. Submission by authors or Chapters should be submitted by the following dates.**

Spring Issue: February 1 Summer Issue: May 1
Fall Issue: August 1 Winter Issue: November 1

Chairman's Report

We held a meeting of the Board of C.A.R.M. recently which was memorable for several things. Firstly it was attended by several of the Chapter Chairs. For those who attended the last Annual Meeting in London you will remember we announced, voted on and approved several governance proposals of which inclusion of the Chapter Chairs at Board meetings was one. In follow up with some of the Chapter Chairs who attended, there was agreement that it had been useful for them.

The next item of importance that came out of the meeting was that the Board was presented with a report of a subcommittee that has been working on updating and revising the C.A.R.M. constitution. The constitution has not been updated since the original two page document put together at the inception of the organisation as a starter document. The new version adds in the various topics that need to be in any organization's constitution including the procedure to be followed in the event that the organization were to shut down or need to change its structure. The Board approved the document and subject to the approval of the membership who will vote on it at the Annual Meeting on May 9, during the Toronto C.A.R.M. Convention, it will become the guiding document for our organization. For those attending the convention please take a moment to go on the C.A.R.M. website and review the document before the meeting. We will have copies available at the meeting for those unable to access it any other way. For practical reasons, as it runs to 9 pages we cannot print it in The Canadian as there would then be no space for anything else related to either the upcoming convention or general modeling interest. I should note that the constitution will still need some by-laws to be written to define the operating procedures for our association, which process will get underway by a subcommittee of the Board after the constitution has been approved.

Something else that arose as a result of our meeting was a concern that we cannot contact a number of our e-members due to wrong/old e mail addresses. This is reflected in the masthead of this magazine on page 2 where several of our officers, directors and Chapter executives information has been updated. There are still some wrong addresses and the editor cannot divine a new correct e mail address out of the ether. It is up to the membership to check whether their information is correct and if not, advise our webmaster of the correct information.

Preparations for the Toronto C.A.R.M. Convention continue apace and I remind you that it is now only 8 to 9 weeks away and early bird registration rates have/will expire shortly. We have already received quite a few registrations and for those who might have been holding off until the accommodation information was up on the website I can advise that it is now. There are some new layouts on the layout tours which have never been seen before and if you do not take advantage of this opportunity to see them you might have to wait another 10 years. Almost without exception every modeler enjoys visiting layouts and benefits from learning something new about the way things are done.

I have been to several shows recently and had the pleasure of meeting with many members and seeing some of their portable layout operations. It was also nice to attend the Copetown show recently as that show makes a special point of highlighting Canadian manufacturers of modeling items. I was glad to see that one of our Canadian scenery manufacturers was present with a great stock of products including several new products, among which were unpainted cows. I needed cows to populate a field beside the tracks and the species of cow had to be Jerseys because they are the source of rich cream for Devon teas. The only painted cows are black and white beef cattle so that is why I needed unpainted ones. When my portable layout is displayed at a show near you in the not too distant future you can provide suitable comments on the fields of cows!! While on the topic of Canadian manufacturers a former Chapter Chair has taken up model trees manufacturing in his retirement and among his product lines are not only high quality trees of various sizes but also tree stumps and trees that can be mounted on a hillside rather than just on flatland. The more committed I get to the hobby of railroad modeling the more I am impressed by the talents of our colleagues whatever their field of endeavour.

GERALD

Chapter Reports

NATIONAL CAPITOL CHAPTER:

"The National Capital chapter had it's annual Christmas lunch today. We discussed this year's excursions, debated next year's events and started some preliminary planning for the 2021 Fall Supermeet being held in conjunction with the Capital Region Model Railway Tour. The members in attendance took the opportunity to re-affirm the current chapter officers in their positions."

Photo Right: From left to right: Jeff Hill, Peter Jackson, Rich Stewart, Richard Thornton, Paul Anderson, Seanna and Steve Watson, Bruce Leckie, Ian Frost and Garry Comber.

CLINICS BEING PRESENTED AT TORONTO 2020

Weathering with Pan Pastels
PRESENTED BY: George Dutka

A power point presentation on the use of this new weathering product that can be easily applied and easily removed. George will demonstrate the tones that should be acquired first, the type of applicators available and what actually works best. He will demonstrate the prepping and sealing of the model, how it is applied and how it looks on plastic, resin, plaster castings and wood and on rolling stock, structures and vehicles. George Dutkta has published an article on this subject in the October 2019 issue of Railroad Model Craftsman.

Resurrection of the Anyox Railroad
PRESENTED BY: Gerald Harper

The author has undertaken extensive research on the little known Anyox Railroad. The railroad may have set an all-time record for tonnage hauled by a narrow-gauge railroad in North America. From its start-up in 1914 until it closed down near the end of 1935 the railroad hauled at least 25,173,314 long tons of mineral freight traffic exclusive of logging trains, multiple daily passenger trains and miscellaneous other loads. Nine miles of three-foot gauge main line, one mile of bridges and trestles, six miles electrified, grades of 2.5% and a climate with 250 inches of precipitation a year.

This talk will explore the background to these figures and show what a remarkable operation this was. This achievement was even more remarkable considering that the motive power was an eclectic mix of steeple cab electric locomotives and 0-4-0 and 0-6-0 saddle tanks. The authors' On3 layout and scratch-built unique locomotives will supplement history in bringing reality to this hidden railroad serving the "Hidden Creek Mine" at Anyox in Northwestern British Columbia.

Building Models in Brass
Using Soldering Techniques
PRESENTED BY: Andrew Mallette

This clinic will discuss the art of soldering using various soldering techniques and demonstrate how to build a brass model steam locomotive boiler. It's easier than you think!

Model Railway Operations
Using Computer-Generated Switch Lists
PRESENTED BY: William Waithe

This clinic will include a brief overview of various systems commonly used to direct rail traffic and shipping of

goods (car forwarding) on model railways, followed by a demonstration of building a database in a car forwarding program (Ship It). The author has over twenty years of experience using this particular system for industrial freight operations and can vouch for the delight and creative satisfaction of building and operating a successful database. The advantages and disadvantages of using computer generated switch lists will be discussed.

The Formby Gorge Railway
PRESENTED BY: Mike Walton

The Formby Gorge railway runs through a beautiful garden over bridges, through tunnels and in front of waterfalls. The 45mm gauge trackwork is designed for live steam and battery operation. The line was first planned in 2000 to blend in with the prize winning English Country garden then being developed. Just as with a real railway, the landscape was surveyed to establish the 1 in 100 grades appropriate for live steam operation. The lie of the land is prefect in that the steaming tracks on the patio are at a perfect working height for raising steam in preparation for the journey ahead. After leaving the patio the trains meander through the garden at ground level often buried in the undergrowth. It is a truly whimsical railway through a garden where the plants and landscape dominate the scene. The presentation describes the construction and operation of this very special railway.

Scenery Lighting
Using NeoPixels and Micro-Controllers
PRESENTED BY Dave King

During this clinic we will explore how to use Micro-Controllers for layout lighting. We will look at overall scenery lighting and creating effective lighting decisions using NeoPixels in ways that can't be accomplished or easily done using LEDs or conventional lighting methods. Using NeoPixels will allow you to create a more realistic scene then you have been able to create previously. We will also explore the differences of using different Micro-Controller languages for programming from Arduino to CircuitPython. If you gain nothing else from this clinic you should have your eyes and mind opened up to the vast growth and applications of adding this to your skill set for model railroading and beyond.

Evolution of a Model Railroad
PRESENTED BY: Richard Morrison

Richard will relate how he got interested in model railroading, lost interest, then regained it when he cleaned out the basement and suddenly had a big empty room. Then children and pets forced the layout from the basement. Finally, in 2007 he built a structure for the layout in the driveway beside the house, where a carport or garage would normally be. The layout was originally 56 square feet and was later expanded. The presentation will describe the many alterations, renovations and changes which resulted in the present layout.

GO Transit
50 years of Commuter Service Excellence
PRESENTED BY: Walter Reid

This clinic will take you on a visual journey from the humble beginnings of GO Transit to the commuter system other transit authorities in North America use to model their systems against. We will focus on the rail service from the beginning to the upcoming electrification plans.

Introducing Ontario's Northland Railway
PRESENTED BY: Edward Freeman

A review of the landscape, settlement, and railway transportation into Northern Ontario with an overview of construction, mining camps, and rolling stock.

From Wood to Steel: The Evolution of Passenger Cars on the CPR from 1860 to 1920
PRESENTED BY: Richard McQuade

The latter half of the nineteenth and first decades of the twentieth centuries witnessed the evolution of passenger cars from small, virtually all-wood, uncomfortable cars to large, comfortable all steel cars. This included changes in construction materials and techniques, cars' sizes, weights and capacities, and the development of a variety of types of purpose built cars for the comfort, convenience and safety of passengers. Based on research done for his book, From Wood to Steel: Canadian Railway Passenger Cars from 1860 to 1920, Richard will examine five distinct stages of these developments in passenger car technologies as they applied to CPR's passenger car fleet.

Whether you are a CARM Member or not, plan to attend the TORONTO CONVENTION
MAY 8TH TO 10TH, 2020

CLINICS, LAYOUT TOURS, SOCIALS,
MEETING NEW FRIENDS,
RENEWING OLD ACQUAINTANCES,
AND IMPROVING YOUR MODELLING SKILLS.

Note the dates in our calendar and watch the website for registration information. We have a comprehensive information package being added to regularly at www.caorm.org

RANDY SCHNARR
ONTARIO MIDWESTERN CHAPTER

STARTER SETS THAT MAKE IT AFFORDABLE FOR YOUNG PEOPLE TO ENGAGE IN MODEL RAILROADING

Exposure to the general public with the Bruce County Museum Railway project has resulted in donations by visitors of model train equipment that is no longer needed or wanted. Other donations came from fellow modellers who have simply grown out of their earlier acquisitions. As with most donations, some are "very nice", but generally, they are usually old, often broken and relatively obsolete. The key here is in the word "relatively". I used to think of cars with truck mounted horn hook couplers as pure junk to be thrown away. However, it seems that a young person, might find this equipment to be very engaging.

With that in mind the process to refurbish the equipment began and soon enough components were available to put together 8 starter train sets. Each set includes a locomotive, 4 to 5 cars, 18 pieces of curved track, 12 pieces of straight track, two turnouts (to avoid the boredom of an oval), a power pack and a wiring harness. All components fit nicely into a small plastic tub. To finish it professionally, a label was attached, and inside the box a welcome to the world of model railroading, a list of all the skills a young modeller may develop in model railroading, an introduction to layout design, and finally an application to join CARM.

Signage and Sets at Kitchener Train Show

Starter Set in the Box Ready for Sale

Eight Starter Sets were offered for sale at the Kitchener Train Show where Steve Hoshel and our CARM members have regularly engaged young children in our 6 foot switching layouts. We sold all 8 sets, and had a request for a ninth set which was picked up at my home in Southampton. Sets sold from $30 to $45. In a surprise twist, two vendors at the show donated some of their obsolete inventory including sectional track and a very decent loco with some rolling stock. Gary Crowther of London actually made a day trip to Southampton to deliver five power packs and a parts box. We had a good time at the Bruce County Museum Railway exhibit.

High end sets for older children, may also include an "EXPERIMENT PACKAGE". The availability of a safe 12 volt power supply allows them to experiment using a variety of LEDs, resistors, a motor and wires with alligator clips. A user guide is included to promote creative think-

ing around model railroading.

For anyone wishing to engage in a similar project, the following information may be beneficial to get things started.

1: Track: clean it to remove soil and oxidation, remove soldered connectors, add new connectors, ensure turnouts are working, group track in packs of 12 or 6, using elastic bands. Be sure to provide a re-railer and a power hook up track with each set.

2: Rolling Stock: Install missing wheels and couplers. Don't worry about missing stirrups or hand brake wheels. They're not likely to be missed.

3: Locomotives: Ensure each unit is running well, add LED light, fit new rubber tires if needed and fit couplers if missing.

4: Couplers: If locomotive has KD style couplers but available rolling stock has horn hook couplers, provide a transition car to enable both styles to connect in the train.

5: Packaging: (KIS 6L OmniBox - Dollarama 10-3037752) Pack track and power pack on the bottom level, then add a cardboard divider, and place the engine and rolling stock on the upper level. Poly film dividers can be used to minimize in-transit damage.

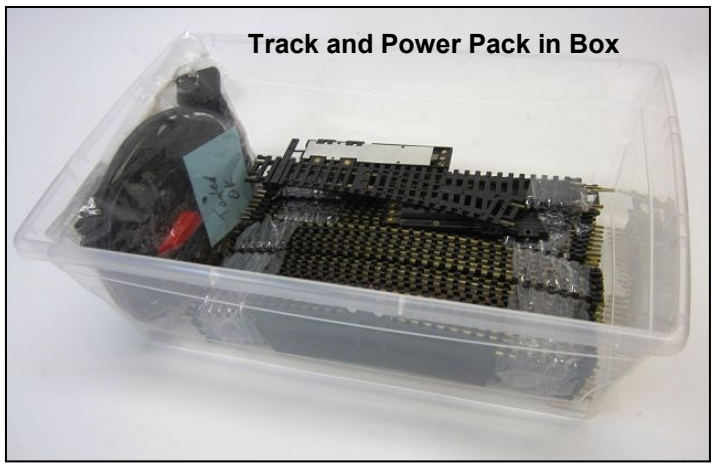
6: Labels and Information: Copies of all labels, sign, and model railway information is available to each CARM Chapter on request.

This is definitely a volunteer project. About the most that can be recovered is your cost for purchased materials and travel expenses.

The interest in the project has been amazing, and it is rewarding to think that a few more young children will have an opportunity to try model railroading. Some may even become committed to the hobby and benefit from the many technical, social and organizational skills they will want to learn based on their participation in model railroading.

Locomotive added to Box

Cars and Packaging added



Track and Power Pack in Box

Last, Place Instructions in Box

TIM HARRISON'S GOLDEN HORSESHOE RAILWAY

Article By Malcolm Back

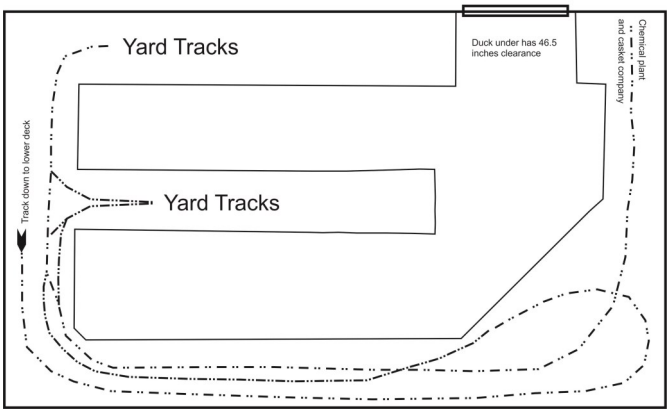
Tim Harrison's Golden Horseshoe Railway (GHRR) is a double deck layout set in the fall season in the 1980's. It is based in the Toronto/Dundas area, with a branch to the Occidental Chemical Plant (aka The Hooker Chemical Company), Niagara Falls, New York. The town of Dundas will be finished by the time of the CARM layout visit.

Tim and his friend Harold Kemp have been working on the HO scale GHRR for 5 years and have made terrific progress. The trackwork is complete, and the scenery is now 90% in place. Designed for operations with up to 4 operators, the railway uses DCC Digitrax for control. CN, CP and the TH&B are the modelled prototypes and many of the locomotives are equipped with sound. Tim has kit-bashed a very fine model of CP's RSD-17 #8921, "The Empress of Agincourt". **(PHOTO BOTTOM RIGHT)** It was the only RSD-17 ever built, and as the name implies, spent most of its life in the Agincourt yard.

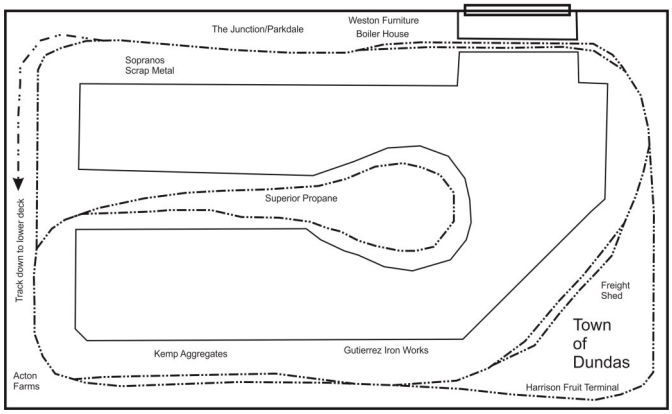
The GHRR occupies a 12' x 20' room in Tim's basement. It is a point to loop design with a continuous loop connection, built around the walls with a center peninsula. There is one duck under at the entrance to the layout room, but because of the double level design is an easy duck under to navigate. Access to the upper level is achieved by the use of a 2 1/2% grade which eliminates the need for a helix. The track and turnouts are codes 80 and 100, and are a mixture of manufacturers. The main line uses number 8 and 10 turnouts and a minimum radius of 36".

There are many mini scenes for the observer to discover, and if the sight of long trains with multiple diesel units hauling tonnage up a long stiff grade interests you, then this is a layout to visit. The design of the double decked layout without the use of a helix is another good reason to visit the GHRR, another of the fine layouts you can visit at the 2020 CARM Annual Convention, May 8 – 10, 2020 in Toronto.

The Golden Horseshoe RR Layout - lower deck



The Golden Horseshoe RR Layout - upper deck



MARCUS & VANESSA KOLLMANN'S LANDSCHAFT GARTENBAHN

Article By Malcolm Back

Marcus and Vanessa Kollmann's Landschaft Gartenbahn 9 m x 12 m (30' x 40') garden railway is set in Germany, Austria and Switzerland. The 91 m. (300 ') mainline meanders through cities, towns and countryside in this fully landscaped miniature world. Over 70 buildings and hundreds of people inhabit this railway, all lit for nighttime operations.

A full range of steam, electric and diesel locomotives are all DCC and sound-equipped, and are controlled by train drivers who are guided by operating semaphore signals. The trains on this railway run all year round, rain or shine, and even in up to 1 cm. of snow.

The Landschaft Gartenbahn was last seen during the 2010 CARM convention. Don't miss the opportunity to see this amazing large scale railway for yourself at this year's CARM Convention 2020.

TORONTO 2020

MAY 8 — 10, 2020

HUMBER COLLEGE

LAKESHORE CAMPUS

ETOBICOKE, ONTARIO

The Toronto Chapter is hosting the 2020 CARM convention May 8, 9 and 10. It will be at the Humber Lakeshore Campus between Lakeshore Drive and Lake Ontario, just west of Kipling Avenue. The address is 3199 Lake Shore Blvd West, Etobicoke, ON M8V 1K8.

The convention starts early afternoon Friday May 8 with clinics. After them will be a two hour meet and greet where we meet new and old friends over food, or have a look at the model and picture displays. To finish the day, more clinics.

Saturday morning will begin with more clinics, then the CARM Annual General Meeting. After noon we will leave the college and head out to the layout tours, one in the afternoon and another in the evening, in western Toronto, in Mississauga and further west in the Greater Toronto Area.

Sunday morning and afternoon the tours will continue. The morning layouts will be relatively close to downtown Toronto, and the afternoon ones will be further away, in East York and Scarborough. Lots of great layouts to see, in a full range of scales.

Those from too far away to drive each day can stay in the college residence, in a suite with a shared kitchen and two lockable bedrooms each with a double bed, for $90 a night. You can save more by sharing a suite with a friend, or we can suggest a match with someone. Or if you prefer there are reasonable hotels not far away. Note there will be a limited number of college suites available, so book early. The Residence web page has links to hotel / room booking sites.

Along Lakeshore Drive within a short walk of the college are over a dozen restaurants, and more are within a short drive. There are also many places to eat along the layout tour routes.

The web site has a page listing 51 non-railroad activities for adults, 17 for adults and kids, 5 for kids, 32 theatres, 11 tours and 14 web sites offering advice on activities. For your convenience each has a link to the web site for that activity. Bring your spouse/ partner and kids and have a great family holiday. If you have time, book (early) a day or two extra at the college.

A registration form is on the web site, and in this issue. This issue also contains articles on a few of the layouts we'll see.

Most information is already on the convention web site at www.caorm.org/2020_Toronto (be sure to include the underscore and capitalize the "T"), and more will be added. Check it out! If you prefer, you can find it by starting at the CARM home page, then selecting "Conventions" and "2020 Toronto". If you have questions not answered, the web site "Help" page gives an email address to contact and will list questions others have asked and the answers.

2020 Toronto CARM Convention - Registration Form

IDENTIFICATION **See www.caorm.org/2020_Toronto/registering.php for instructions.**

Name _____

Street / PO Box / RR # _____

City/Town _____ Province ____ P Code _____

Email _____ CARM Member? Yes ___ No ___

PRICE

We recommend registering in advance, postmarked by **March 31, 2020**, to save you money and time.
The convention **price** varies (see table below).
(Transportation, meals other than Meet & Greet and accommodation **are not** included in the price.)
If you want to join CARM, click on "Joining CARM" in the web site menu. Dues are $0 to $36.

	By March 31	After March 31	Price	Name(s)
CARM member	$65 each	$75 each	$_____	
Nonmember	$75 each	$85 each	$_____	
Spouse/Partner (full attendee)	$35	$45	$_____	_____
Spouse/Partner/Youth (non-rail only)	$10	$15	$_____	_____
Youth 6 to 16 (full attendee)	$30 each	$40 each	$_____	_____
Child under 6	Free	Free	Free	_____
TOTAL			$_____	

ACCOMMODATION

We do not handle accommodation arrangements - Humber College does that for us.
Click on "Residence" in the convention web site menu.

DISPLAY / CONTEST MODELS AND PICTURES

Are you bringing models or pictures? Yes _____ No _____

CAR POOLING

Do you need a ride? Yes _____ No _____
Can you provide rides? Yes _____ No _____

REGISTERING

Mail this form and a cheque for the total price above, payable to "**Joan McIntosh**" to:

CARM Convention Registrar
2219 Council Ring Road
Mississauga, ON L5L 1B6 Canada

It must be postmarked by **March 31, 2020** to take advantage of the discounted rate. Updated 2020/02/27 IM

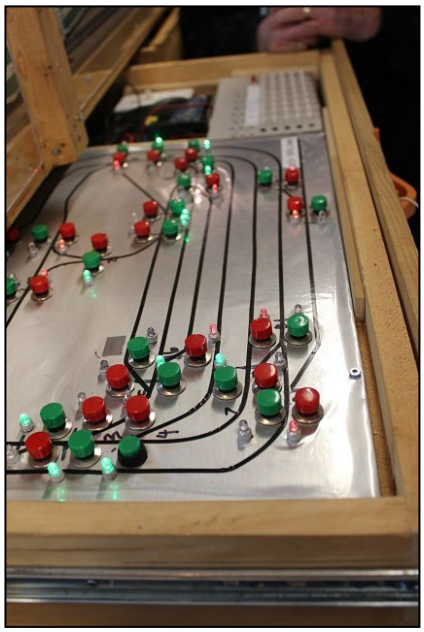
IAN JAMESON'S ORLEY STATION RAILWAY

Article By Malcolm Back

Ian Jameson had to come up with an innovative solution when it came time to build his model railroad. He and his wife, Anya Seerveld, looked at options inside the family home. They looked at the basement, other rooms in the house, even at the attic including possibly raising the roof, literally. None of these options were deemed to be practical. That only left the single car garage behind the home. This also had its problems to solve. The Jameson's are avid bicyclists with 5 bikes, a motorcycle, Anya's car, and other items that needed to be stored in the garage. Ian's solution was to install a car lift that the railway could be built on, raising it up and out of the way when not in use. This even allowed the car to be parked in the garage. A side benefit is that when wiring under the railway. It is simply dropped to an appropriate height that is easy to work at.

Ian doesn't model a particular prototype but instead prefers to freelance. He is also very interested in animation, and enjoys wiring his layout. The animation includes a fire and a fire truck responding to the call. It also includes sound effects. He even includes a thunderstorm complete with lightning and thunder effects. Most of the structures are lit and outside signs abound.

Much scenery work remains to be done on the Orley Station Railway OSR, but if you want to see an innovative solution to the space problem, and enjoy animation, then visit the OSR another of the interesting layouts that you can visit during the CARM annual convention in Toronto, May 8 – 10, 2020.

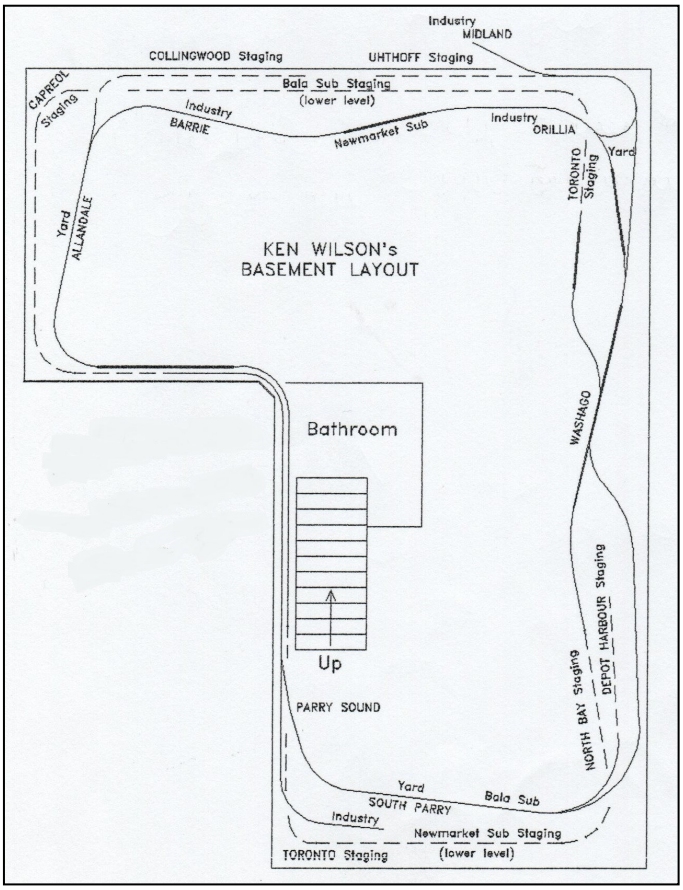


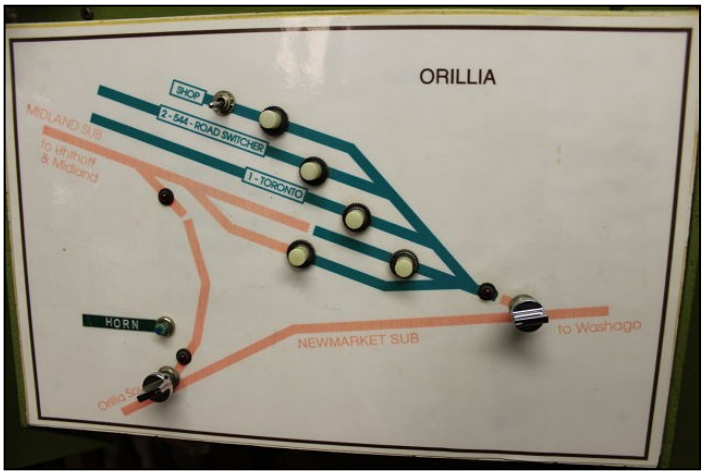
KEN WILSON'S CNR WASHAGO JUNCTION

Article By Malcolm Back

Ken Wilson has built a very interesting layout centered on the small town of Washago, Ontario. Now a shadow of its former self as an important junction on the Canadian National Railway System, Washago Junction lives again on Ken's 30' x 32' basement HO layout set in 1975. Washago was the Junction between the Bala Subdivision running between Toronto and Capreol, and the Newmarket Subdivision running between Toronto and North Bay. On the Bala subdivision, the town of Parry Sound is modelled. On the Newmarket subdivision, Orillia, Barrie and Allandale are modelled. There is a branch line to Midland, and Toronto, North Bay and Capreol are represented as hidden staging. The junction at Washago is of course the focus of the layout. People familiar with Washago will recognize the kit-bashed model of the coal tower.

This is a layout built for prototype operations. A fully functional CTC panel and working signal system keeps the trains running. Engineers run their trains while observing the trackside signals. Heaven help the Engineer who runs through a Stop signal. The 8 operators needed to fully staff the railway will never let him hear the end of it (all in good fun of course). The operators are also kept on their toes by a hotbox detector that comes alive occasionally and reports verbally that a hotbox has been detected, and the appropriate action must be taken. Other "situations" are also simulated during operating sessions including slow orders with lineside flags for rules 42 and 43. One of Ken's big interests is electronics, and he designed and built the CTC control panel and the operating signal system. He also wrote his own Computer program to generate switch lists for the operators to follow. He built his own DC throttles, and up to 6 can be in use at one time.





Ken's primary interest has been in building an operation layout that simulates the intense railway operations surrounding Washago. Lately he has discovered that scenery construction is not as difficult as he once thought and now that the railway is 100% operational he is turning his attention to that area of the hobby with very credible results. If your interests center around prototypical operations on a layout centered in Ontario, then this is a layout that you will not want to miss. It is one of the fine layouts on the CARM Annual Convention 2020 Layout Tours, May 8 – 10, 2020 in Toronto.

Bruce County Museum Railway
PART 5
CONTROL SYSTEMS

ARTICLE AND PHOTOS BY RANDY SCHNARR

The Bruce County Museum Railway (BCMR) exhibit is a volunteer driven community project commissioned by the Bruce County Museum to show the railway as it was in Bruce County during it's heyday. The exhibit becomes the medium to tell the story how the railways opened up the county, bringing prosperity to all communities fortunate enough to be on the rail line. The BCMR exhibit is an HO scale modular layout with six 12 foot long dioramas, one for each major town, a staging area and four flag stop window boxes. The dioramas and boxes are linked end-to-end, in a three level structure, sequentially, along the CNR Southampton Sub right of way creating a single track line with return loops at each end. One in Southampton, the other in Palmerston. A helix with a 2.2% grade serves to link the three levels. A kid's O-gauge toy train is on a 4th level below the main exhibit.

Each diorama is complete within itself, with dedicated power packs, computers, powered ON/OFF uncouplers and turnout controls. Each diorama is pre-wired with a provision to communicate with a central control computer at a future date. All dioramas are placed on drawer-like square tubes and can be removed for upgrades and maintenance.

POWER CONTROL AND CENTRAL COMPUTER:

There are four stages of power activity:
1: main computer and DCC power that is always on
2: overall exhibit lights and Kids Train which are activated by external motion sensors linked to the main computer
3: power to run main exhibit locos, detectors, return loop switching and related computers and is patron activated by pushing a red button.
4: manually engaged power for accessories such as turnouts and uncouplers.

The 4th level of control avoids random activity from phantom electronic interference. DCC is left on because some DCC locos have to be re-set when power is interrupted. Museum power outages require manual re-set to get trains running again. The "always on" central computer controls 120v relays, located on the power panel inside the exhibit, against the back of the helix wall. Power bars dedicated to specific functions are plugged into the appropriate computer controlled 120v power relays.

Objectives:

Our initial "pie-in the sky" control objectives included the ability to choose one of three power modes to operate locomotives: regular DC for members with DC locomotives, DCC, and computer controlled automatic DCC (ADCC). The ADCC option would have trains stop at each station and apply appropriate bells and whistles. In fact the computer mode could also include conductor callouts if we really get things working well. The ADCC mode is a "future" objective. Basic wiring is in place, but "finesse" wiring and arduino programming is required to complete the system.

A second "pie-in-the sky" objective was to have a switching operation capability for museum patrons to operate. This one is way out in the future. To make fool proof circuitry will require extensive programming in order to allow an operator to function without fouling the main line or running into "dead ends" that require staff to correct. All is possible, but can be a real nightmare if not executed perfectly. But we are allowed to dream aren't we?

TRAIN CONTROL:

Each diorama is an entity unto itself electrically. 12v 5A DC power packs are used to power ambient lighting, and turnout machines. A 5 volt 3A DC power pack powers the electronic controls for detectors and turnout interface. Isolating the wiring by diorama, allows us to power up when on the work bench for maintenance.

The Right of way is divided into 11 blocks (**SEE DIAGRAM TOP OF NEXT PAGE)**. Each block can be controlled by ADCC, DCC, and/or DC. This would allow a variety of motive power options. Power choice is selected at each block. Helix block power is determined at the central control panel.

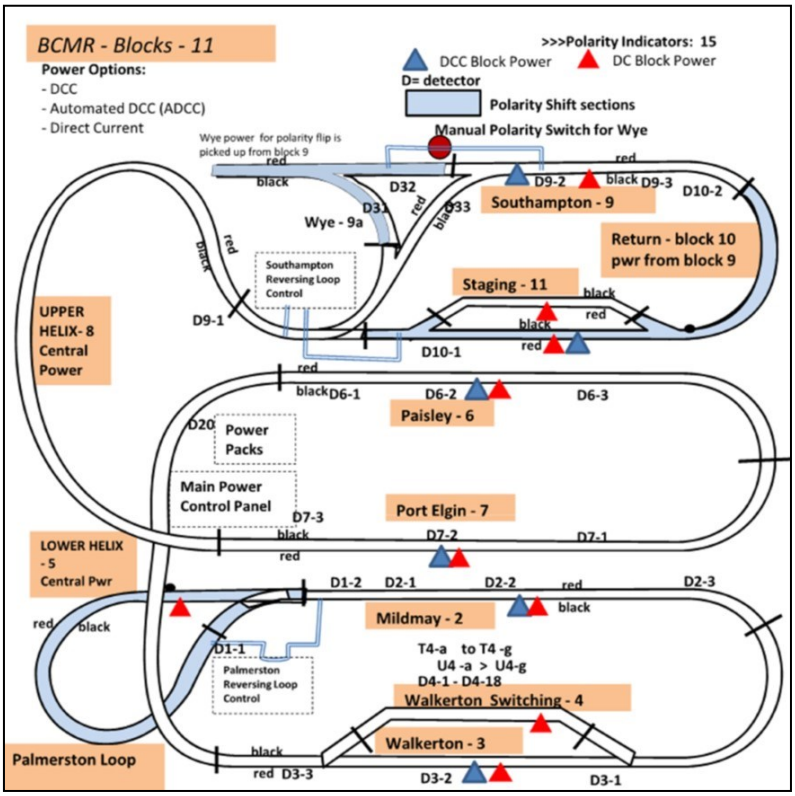
DCC power is powered by a Digitrax Evolution system. DC power uses an AC power source and remote controllers to convert to pulse DC at each block.

The diagram illustrates all of the blocks. Blocks help to isolate and identify circuit issues, whether derailments or breaks in the power supply. Each block is protected by an 1156 automotive incandescent light bulb in series. A short in one block does not need to shut down the main line.

Patron Initiated Operation: When the red button is pressed, the train will start from Mildmay and travel northbound to Southampton and back via the return loop in "Palmerston" to Mildmay, where it will stop, ready for the next press of the button. This process has two options. If all goes well, the train will be controlled by the programmed sequence noted by the detectors. If the train fails to return as programmed, the power to the tracks will be cut off after 15 minutes. If the train is derailed, the system will be protected.

Crew Operation: The "Stay On" switch on the central control keeps the DCC power alive until it is turned off. This allows operators to operate without interruption every 15 minutes.

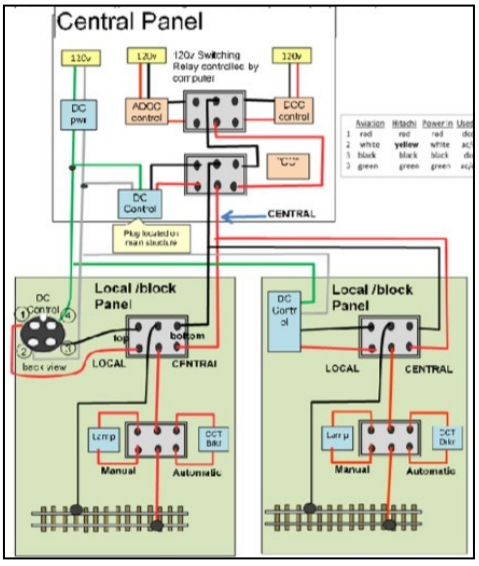
ADCC Operation: This is fully automatic operation, where the train stops in each town and uses appropriate



bell and whistle signals on arrival and departure. The system would be activated by the push of the Red Button. This is a future development. Most of the detectors and wiring is in place in preparation for this feature. I2C Expander Network logic is planned for this function.

Central Control Panel: (SEE DIAGRAM BOTTOM LEFT) Our central control panel has three key control switches. 1)"Stay On" which allows operators to function without interruption, 2)"Stay Off" which shuts down all power to the system for maintenance, and 3) the "Accessory Power" switch which controls power to all accessories. Switch 3 was installed to avoid situations where turnouts were randomly actuated due to unwanted "noise" in the electronic circuits. Net result: the train stopped.

The "Track Power Selector" determines the global power, .ADCC, DCC, or DC. When programming is in place the numbered lights on the lower portion of the panel will indicate the train's location.



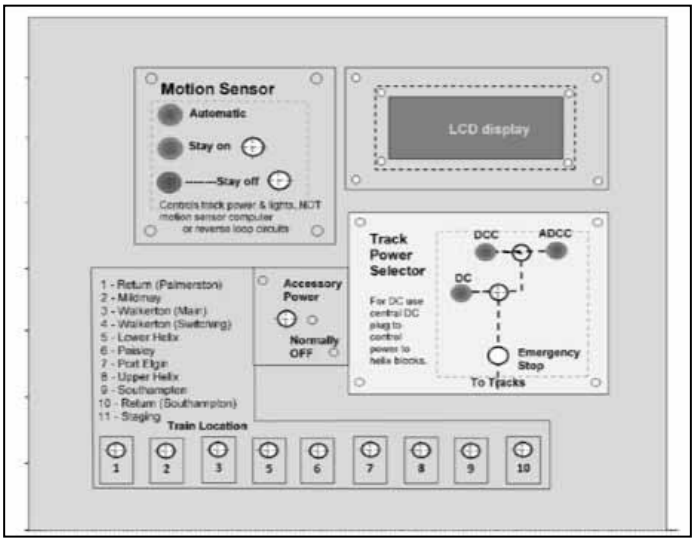
Local/Block Control Panel: SEE PHOTO AND DIAGRAM BOTTOM RIGHT: The local block panel allows a choice of power from the central panel or a DC direct option. Red/Green signals indicate ability to move from one block to another. The local block controller also features short circuit protection. The manual mode uses an 1156 automotive light bulb to protect the circuit, and the Automatic designation is for use when running without attendants. The circuit breaker will cut power and must be re-set when the offending short is resolved.

Track Routing Control

Turnout Control: There are 39 RailCrew turnouts replicating all turnouts on the CNR Southampton Sub Division, and those in the staging yard. Turnout position is controlled by push buttons which alternate the points position with each push. There is a time delay to stop rapid push button activity. Turnouts can also be controlled by the central computer to ensure all turnouts are set correctly for main line operation when the I2C circuitry is completed.

SPI circuitry converts the push button action to trigger the control computers. Custom Circuit boards provide momentary power of alternating polarity to activate the turnout machines. The primary computer is an Adafruit Metro Mini.

We tried capacitive touch and "See-Saw" circuits, but they were too sensitive to electrical "noise" to be reliable in this environment.



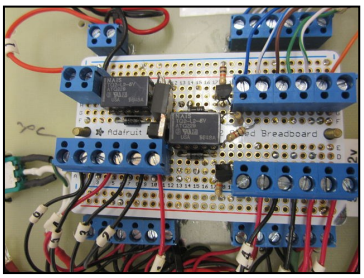
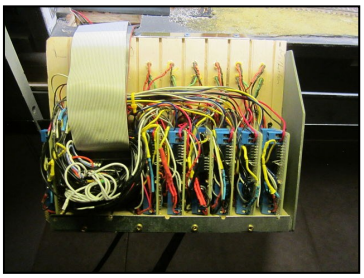


PHOTO LEFT TOP: Single turnout board. A similar board is used for return loop operation.

PHOTO LEFT BELOW: Six turnout boards are mounted on a hinged panel for easy access. The whole panel can be removed and taken to the lab by unplugging the ribbon wires.



Return Loop - Southampton: A northbound train enters Southampton from the top of the helix and runs along Railway street into the town. In the current operating mode, the train will proceed past the station and follow the return loop through the staging area. On exiting the staging area, the train triggers a detector which in turn aligns the points on the turnout at the top of the helix, allowing the train to continue Southbound. When the train has left Southampton/staging and headed south, down the helix, a detector will then give the signal to reset the turnout to send an incoming train into Southampton. Note: In real life, the train turned using a wye . That was too complicated for automatic operation.

Return Loop - Palmerston: The southbound train leaves Bruce County after Mildmay and enters a return loop named "Palmerston". As the train exits the loop it triggers a detector that in turn aligns the turnout. After the train exits the loop a second detector re-sets the turnout. The detectors are linked to a custom circuit board.

ON/OFF Uncouplers: RailCrew uncouplers are included in all dioramas and staging to facilitate switching operations, 34 in total. All uncouplers are marked with blue LEDs and are controlled locally. RailCrew ON/OFF uncouplers are powered by 12 volt power packs. Standard RailCrew momentary switches are used to control the uncouplers. Walkerton, uses push button circuitry, which was initially designed to be accessible with the exhibit doors closed.

Lighting: All lighting is based on LED strips (100/meter), cut to fit required spaces. This includes custom mini light fixtures used to light the bell, Kid's Train, Toy train display and CNR manuals display. The mini fixtures are made by mounting the LED strips inside a metal "J" channel, normally used to edge gyproc panels. Power comes from CSA/CuL 12vdc/5A packs. Warm white light is used for summer and cool white is used for late winter. The colour varies to suit the season that is modelled. All lights are on when the exhibit is powered up by the motion detector circuits.

On-Board Camera: The last car of the train has a camera facing rearward as prepared by Dolf Roelofsen. The camera gets power from the track and generates signals which are picked up and shown on a nearby television. Camera power is stabilized using a 4700 microfarad capacitor. The Camera is a Micro Mark model.

Kid's Train: The Kids Train is a simple oval using Lionel three rail track. The train is a Lionel steam locomotive operated by lifting a lever that is connected to a Lionel 1033 Transformer/controller. Excessive motion is limited by a controlled release screen door closer/cylinder. A Marx 3 amp pack is used to run accessories. Every child that comes into the gallery operates this train. This exhibit attracts a lot of repeat traffic to the museum. After 18 months of operation, the original locomotive is still "ticking".

Today, the basics for the exhibit are working very well. On entering the gallery, the exhibit lights up. At the push of a button, the train will run from Mildmay, north to Southampton, then back to Mildmay after it has turned in "Palmerston" (return loop). We are also able to do basic operations with DCC controllers to run the morning passenger train, mid day mixed train and evening passenger train which laid over in Southampton as well as any "specials" we choose to dispatch.

Special Thanks to Craig Dolbeer, who worked tirelessly to develop and re-develop electronic systems to control overall lighting, return loops, train movement, and turnouts. Without Craig, this project could not have turned out as well as it has.. While Craig developed circuits, installation was handled by Gord Eagles, Paul Maurer, Paul Carnahan, Larry Ker, Carl Blahut, and Randy Schnarr.

Power Control & Central Computer
Main power is fed into the center core through the top of the exhibit. Multiple power outlets are mounted on the back of the helix and return modules (end units). Helix end powers the main exhibit, while the return end powers the Kid's train. Power bars are switched using relays that are controlled by panel switches and motion detector. Power bars are dedicated to lighting, accessories, and train power. NOTE: the inner cavity is accessed from under the exhibit by opening the "lift up" doors and sliding out bottom panels.

Problems experienced in development of the controls.: Unreliable plugs. Sometimes the low cost plugs on Amazon just are not worth the pain they can cause. Electronic "noise" that is like a phantom. We tried shortening circuits, adding grounding wires, re-wiring to get components away from magnets and other wires and finally found the right combination. A lack of space and accessibility. Considerable effort was expended to organize components and connections to work within the available space. Overall, our basic control system is almost flawless, leaving us with opportunities to take the project to a higher level, someday.

Children's Train Wiring:
This article has not spent much time on the Children's Toy Train operation. It took a bit of time to get things right, but the Children's toy train runs almost flawlessly. Initially, the circuit breaker was kicking out on the Lionel 1033 transformer, caused by a heavy Lionel locomotive and too many accessories. Problem solved by adding a separate Marx powerpack for accessories. A separate on/off switch was hooked into the output side of the transformer to eliminate any chance of the engine overheating if the control lever does not turn off power output completely. After two seasons of operation, the Lionel locomotive is still running well.

PHOTO ABOVE: Paul Maurer and Gord Eagles have just finished assembling RailCrew DPDT switches and LEDs to the custom made mounting brackets, ready to install to control the ON/OFF uncouplers.

PHOTO ABOVE: Craig Dolbeer, our electronics guru, looks on as Gord Eagles makes connections on the feeder links to one of two electronic control panels in the Walkerton diorama.

O.H. WRIGHT & CO.

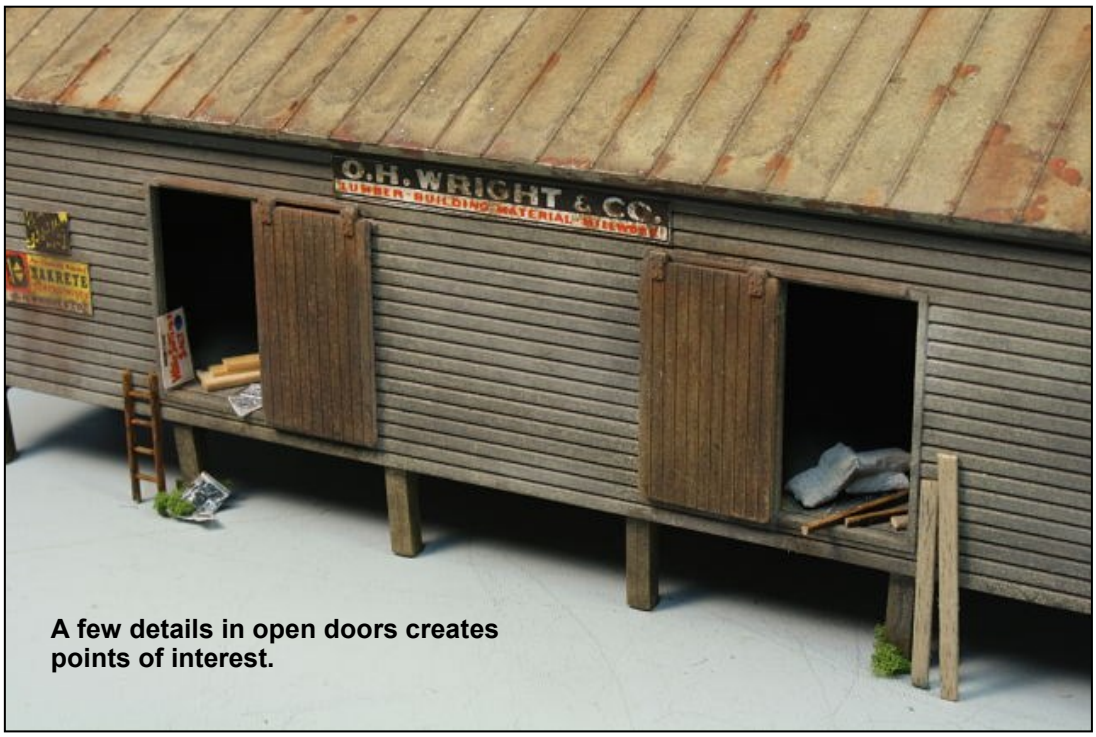
A WALTHERS STORAGE SHED COMES ALIVE WITH WEATHERING & SIGNAGE

ARTICLE AND PHOTOS BY GEORGE DUTKA

One of my more recently completed structures is a Walthers storage shed on stilts. It is a model still available in their catalog. I purchased it already assembled at a local train show. It was painted a green-gray tone with some spray bomb weathering. The structure has a large roof on a low slope which I though would work well for a surface to demonstrate my metal weathering techniques at two upcoming hands-on clinics I was presenting at. Once the clinics were done, I decided to finish the roof and walls adding some signages and details.

Finishing the Roof First

I began with the roof as it was already partly competed at the clinics. If you review past CARM issues, I have already covered how I rust up a metal roof which was pretty much what was done here. I actually decided to try a few new colours and products this time around. I began with applications of Raw Umber and Burnt Umber acrylic paints by Americana for my base dark rust tones. Both tones are similar but does give one a bit of variation. I then used Anita's Rust Red for my bright rust. Once dry some Bragdon bright rust powders are dragged down from the middle of the rust spots and along the seams. For a bit of variation in the bright rust tone I applied PanPastel Burnt Sienna a colour I really like for rust. I then sponged on some acrylic dollar store silver randomly to reflect unweather fresh metal showing through. I like to highlight some of the metal joints with Vallejo rust texture, another newer product to me. The whole roof then got a light dusting of PanPastel raw umber shade.



A few details in open doors creates points of interest.

These two photos show the opposite sides of the structure. While they are similar, you can create differences through details and signage.

The Walls and Supports

I then worked on the stilt supports and doors. These got a coat of AK wood wash another new product to me. It worked well toning down the wood that is modeled as not painted. The walls had been spray-bomb a green-gray tone, so I used this as the base coat. I used PanPastels for the weathered finish coat. Two colours are applied, white and Neutral Grey Extra Dark randomly over top of each other. The doors are then coated with Bragdon dark rust and soot over top of the AK wood wash applied earlier. Some Bragdon soot (blackish colour) was applied to the walls under the eaves and brushed down. The windows are coloured using PanPastel green applied with a micro brush.

The windows have clear plastic applied that was giving a spray bomb coat of flat finish. I like the looks of frosted, dirty looking windows on this type of structure. The doors are modeled open which many modelers do not normally think of doing. Actually one door was missing which worked out OK also. I like modeling my structures with all the doors open at least part way. Having the doors open gives me the opportunity to add a bit of detail which adds tons of interest to a structure. Things like newspapers, boards that are off cuts from other projects, boxes and barrels work really well. Tichy has a nice barrel that one can apply detail inside in all scales. I also added a few BEST pigeons to the roof that makes the roof stands out more. I added some Woodland Scenic coarse ground foam around the pilings. I went back and added a ladder to the docks as I thought there better be a way up and down.

Signages

What really makes the structure is the signages. I keep photocopies of signs I have found in magazines, on-line and in other kits. I decided to use the O.H.Wright & Co. sign found in a the September 1970 issue of Model Railroader. I also went through my poster collections and applied a few old weathered posters with their corners lifted.

The last signage applied with a group of signs I found on a tobacco kiln just off the 402 at the Komoka-Mt. Bridges, Ontario exit. I thought this sign added a bit of local flavour and updates it to a more current era. I just cut off the ones I liked and saved the rest of another project. To get the tobacco kiln signs I took a photo, made a print and then made colour photocopies from the print in a few different sizes. Having different sizes gives you the option to get a size that works best on the building while the other will work well down the road on other structures.

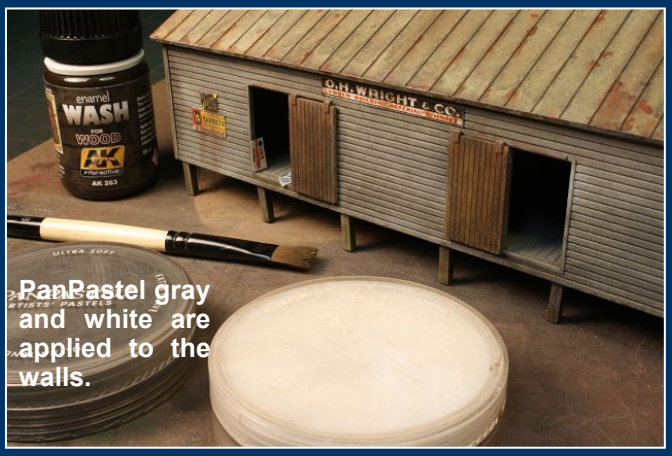
Final Thoughts

Although I did not do the initial assembly it was nice to get another great looking Walthers model that actually can work well in many themes and eras. I will keep my eyes open for another such kit that could work with my next project, a feed mill. Many feed mills have this type of structure located attached or sitting next door. Although the kit is all plastic the wood and metal parts look very realistic and gives one the opportunity to try some paint and weathering techniques. The doors are an add-on so they can easily be modeled fully open or just a bit giving the viewer a peek inside. I think this kit is a great structure that one can really have fun with.

Working on this project gave me the chance to try out a few new-to-me products such as AK wood wash, Vallejo rust texture and some Americana rust tone acrylic colours I just acquired. It is always fun trying new stuff…why not give it a try.

Vallejo's Rust Texture and BEST Pigeons on the roof.

PanPastel raw umber shade is applied as a final coating to blend all the tones together



PanPastel gray and white are applied to the walls.

Prototype Photo