



# The Interchange

Our 44th Year  
Ottawa Valley Associated Railroaders — OVAR

December 2005

Issue 400



Glenn Nixon took this photo of both of the Holiday Trains laying over at Smiths Falls on Saturday, December 3.

## Blocking Trains

by Colin J. Churcher

I recently earned a few brownie points on the St. Francis Valley Railway because, being operator at Sorel, I blocked train 394 back to front. 394 is a through freight running on the SFV between Sorel and Sherbrooke. It is a hot train which must run to time and so it is blocked so that intermediate work can be carried out quickly. Cars for this train are sorted into blocks by destination and it should leave Sorel with the Drummondville block on the front, the Richmond block in the middle and the Sherbrooke cars on the rear.

At Drummondville the yard switcher puts a block of cars for Richmond inside the caboose while the train engine sets out the Drummondville cars and picks up a Richmond block. Arriving at Richmond, it is a quick move using the train locomotive to set out the Richmond block and pick up the

Sherbrooke block. The train now runs to Sherbrooke as a solid block.

This is a method of operation which is used by many railways. We used it on British Railways but there were complicating factors:

- Whether the cars fitted with vacuum or air brakes or no continuous brakes at all.
- Was the train locomotive equipped with vacuum or air brakes, or both.

In the 1960s we were running a lot of freight trains containing cars with no brakes. In order to run trains a little faster we would put the braked cars on the front where they could be hooked up to the engine (known as a fitted head) and leave the unbraked portion on the rear. Close co-ordination was required between the engineer and the conductor to ensure that the conductor used the hand brake in the caboose to provide extra braking effort when it was required.

Using 394 as an example we would have made it up with twice the number of blocks leaving Sorel:

- Drummondville – continuous braked
- Richmond – continuous braked
- Sherbrooke – continuous braked
- Sherbrooke – non-braked
- Richmond – non-braked
- Drummondville – non-braked

This was complicated even further by the fact that many non-braked cars had a through

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plus much more

# From the Research Carrel of the C. Robert Craig Memorial Library:

by Dave Knowles

In April I used my own curiosity about ICPR's dynamometer car #62 as the basis for an article on how to do research. In that column I suggested both an approach and some sources to develop information. This column expands the process into a related field, i.e. research on models.

While prowling the booths at RAILFAIR this fall, I spotted an HO car that had the word "DYNAMOMETER" authoritatively stamped in large yellow letters below the window line. This car was not included in my a review of model dynamometer cars, at the end of the April article.

After reading my article Brian Ludlow mentioned that in his HO days he had had an operating dynamometer car but had sold it. So I put the car down and went in search of him. He allowed that it looked similar to the one he had owned and shortly thereafter some coins changed hands and I was the somewhat bemused owner of the car.

Despite heavy questioning Brian could not remember who had produced the model. At home that evening I examined it closely. It was well-made with first class under-frame, end and side door castings. The sides and roof were a single light metal stamping with good rivet detail. The recesses in the ends provided tight fits so that joint was not easily visible. After some careful manipulation I was able to disassemble the car. Inside there were some rather interesting metal parts attached to the floor which were clearly the remains of an operating dynamometer. The car ends and parts were assembled with bolts screwing into tapped holes in the frame. There were no clues on any of the parts identifying the manufacturer. Brian had suggested that Red Ball, Megow, and Devore might be possibilities.

Next evening. I fired up the computer and returned to the "model train index":

[www.index.mrmag.com](http://www.index.mrmag.com)

It supplied the same 22 hits I had consulted in March. But there was no joy in them despite hits going back as far as 1937. Then I remembered that I had a few old model railroad catalogues (including a Roundhouse, Kemtron, Bowser and Polk's catalogue from 1961) tucked away in the basement. Unfortunately these were no help at all either. A few days later I e-mailed The Kalmbach Memorial Library of the NMRA in Chattanooga, Tennessee:

[Kmlreserachdesk@aol.com](mailto:Kmlreserachdesk@aol.com)

Their website notes that it has a collection of data, assembly, and information sheets from a wide range of model manufacturers. An exchange of telexes with a research associate in the course of an afternoon, eventually car turned up, a couple of product reviews for a "Devore dynamometer kit". These appeared in RMC, Oct 1952, p.46 and MR April 1953 p.59. (The NMRA has a couple of product review indices for MR 1946-1982 and RMC 1952-1982. I hope to obtain copies for the CRCML.) I immediately raced downstairs to my own collection of model railway magazines. No such luck of course, I had March 1953 and September 1953! But not April and no RMC's back that far.

On my next visit to the CRCML I was able to locate both the issues I needed. The RMC article was a simple announcement of the release of the kit. However, the MR reference was a full review of the kit with a photograph of the assembled car and a description of the operating mechanism of the "dynamometer". From the description it appears that I have almost all of the parts, and may be able to cobble together replacements for the missing parts. The kit price in 1953 was U.S.\$5.95 and that included Central Valley trucks.

## INTERCHANGE YARD

Classified advertising in THE INTERCHANGE Yard is free to all OVAR members. Non-OVAR members: \$1.00 per line, minimum \$5.00. Cheques/money orders should be made payable to OVAR. Ads must include the advertiser's name and telephone number. Send to Ian Cranstone at address on last page.

TWO HAMMOND #165S18 TRANSFORMERS: PRI 115V 180VA; SEC 18V CT 10A. Jacques Huppé (613) 591-0005 or [jacqueshuppe@sympatico.ca](mailto:jacqueshuppe@sympatico.ca)

### For the Record

November Meeting:

127

Current membership:

181

## Correction

Ken Healy points out that the obituary for Frank Dubery was actually written by George Davidson, noting that Ken's role was as clearinghouse and messenger.

## TIMETABLE

Upcoming events of particular interest to OVAR members

**January 3: OTTAWA – Bytown Railway Society**, Canada Science & Technology Museum, 1867 St. Laurent Blvd. 7:30 p.m.: [www.bytownrailwaysociety.ca](http://www.bytownrailwaysociety.ca)

**January 4: CORNWALL – Moccasin Model Railroad Club**, Nativity Hall, 7:30 p.m. Info: Chris Patrick, e-mail: [cpatrick1@cogeco.ca](mailto:cpatrick1@cogeco.ca)

**January 7-8: OTTAWA – OVAR Modular Model Railroad Rally**, St. Anthony Soccer Club Hall. Sat. 10 a.m.-4 p.m., Sun. 9 a.m.-3 p.m. Info: Gary Baillargeon (613) 774-2380.

[www.ovar.ca](http://www.ovar.ca)

**January 28: OTTAWA – St. Lawrence Division Meet**, NMRA, Emmanuel United Church, Smyth Road. Info: [www3.sympatico.ca/gd.knowles/sld/sld\\_meets.htm](http://www3.sympatico.ca/gd.knowles/sld/sld_meets.htm)

**January 28-29: West Springfield, MA – Amherst Railway Society Big Railroad Hobby Show**. Sat. 9 a.m.-5 p.m., Sun. 10 a.m.-5 p.m. Info: [www.amherstrail.org/show/show.htm](http://www.amherstrail.org/show/show.htm)

**February 18-19: GATINEAU – Exposition des Trains Miniatures**, Mont-Bleu Ford, 375 Boul. Maloney Ouest. Sat & Sun. 9 a.m.-5 p.m. Info: Marc (819) 246-0603 or Mario (819) 671-2354.

**February 26: COPETOWN – CARM Copetown Train Show**, Copetown & District Community Centre, 1950 Governor's Rd., just east of Hwy. 52. Sun. 10 a.m.-4 p.m.. Info: [www.caorm.org/Pages/copetown.html](http://www.caorm.org/Pages/copetown.html)

**May 19-21: MONTREAL – CARM/CRHA National Convention**, McGill University New Residence Hall, 3625 Avenue du Parc. Info: [www.caorm.org/Pages/copetown.html](http://www.caorm.org/Pages/copetown.html)

The Interchange

## Blocking trains

*continued from page 1*

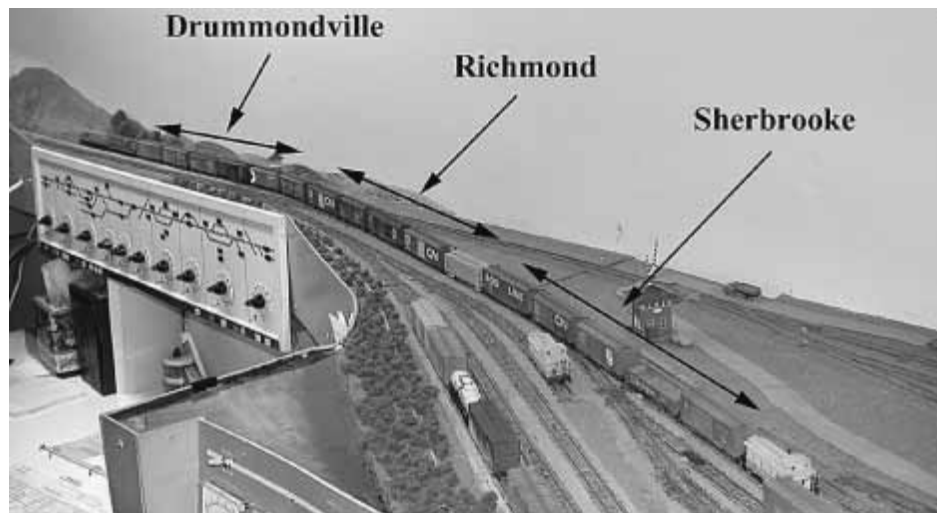
vacuum pipe but no continuous brakes. This was helpful in that it eased the switching problems but would easily lead to confusion as we shall soon see. Through pipes were painted white at the end while the pipes of fully braked cars were painted red.

If this wasn't bad enough, at that time British Railways was changing over from vacuum brakes to air brakes and new cars were coming out of the shops with air brakes. Now the problem was not only to provide a fitted head but to provide a locomotive with the correct braking system.

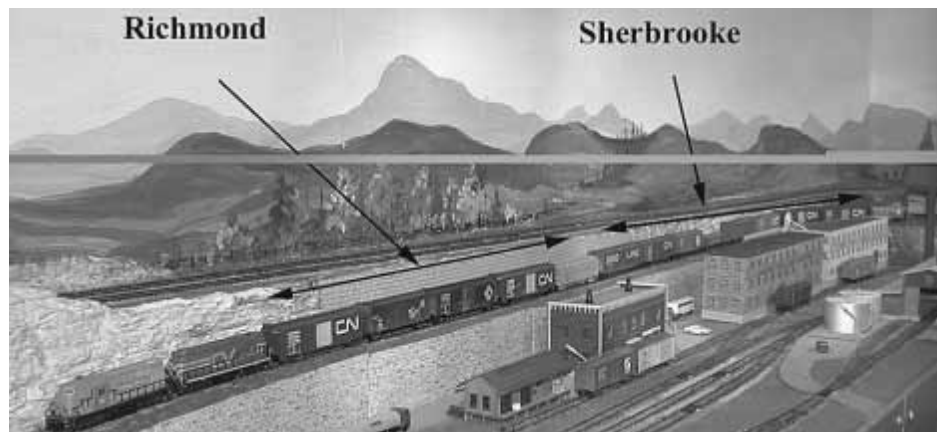
At one time, I was Area Manager, Haverfordwest, in west Wales. I came into work one morning and found a group of about ten large tank cars, all brand new with a coat of gleaming fresh paint. It turned out that this train had originated in Fishguard the previous night. The yardmen had connected up the white vacuum painted brake pipes to a Hymek diesel which was equipped with the vacuum brake. There was a quick brake test and the brakes applied on the caboose. Having assembled the train in the dark, aided only by a couple of oil hand lamps, they didn't realise that the entire train was only piped. They started up the steep grade from Fishguard in fine style and crested the grade when the train began to gather speed. A quick application of the vacuum brake produced no noticeable effect. The engineer looked across to the second man and gave it a hard application and it became apparent that they had a runaway on their hands. However, the section was a long one and they managed to get the train under control by the time they had reached Clarbston Road. The crew, thoroughly scared, dumped the train in my yard and went home to Llanelli, leaving me with the problem.

A call to Control provided a solution — sort of. They would give me an air braked locomotive but I had to get the train ready. This was the first time any of us at Haverfordwest had seen an air brake pipe. The ends had been given a thick coat of paint and, to make it worse, this was a two pipe system and we weren't sure which pipes had to be connected to which. The paint was so thick and the ends so stiff that we spent the entire morning and managed to connect up just four cars. I decided that we had enough of an air braked fitted head to get rid of this train which was filling the yard and everyone was glad to see the back of it.

About the only benefit from this episode



**Train 394 is leaving Sorel on June 11, 1965 correctly blocked. At Drummondville the front block will be set out by the train locomotive while the yard switcher will add Sherbrooke cars inside the caboose.**



**Having completed its work at Drummondville, train 394 is leaving for Richmond blocked in two sections.**



**Train 394 has completed its work at Richmond and is about to leave for Sherbrooke. The train locomotives have set out the Richmond block, standing on the platform track by the station, and picked up cars for Sherbrooke. 394 is now a solid train of cars for Sherbrooke.**

was that I was able to learn a number of Welsh swear words. The air turned blue as we struggled to couple up those pipes.

Train blocking is a good method of operating any railway although it does cause a little more work in the originating yards. So

if you are having trouble getting a train properly blocked and out on time just remember that it could be a whole lot worse if you had to worry about things such as the colour of the brake pipes and the type of locomotive to be supplied.

# Adding micro-swit

by Paul Anderson

On my set of Castor River Industrial Park modules I have used Tortoise Switch Machines (Fig. 1) on all the turnouts and these are controlled by Switch It™ modules from NCE so I can operate the turnouts from my DCC handheld throttle.

The Tortoise Switch Machine has an internal set of contacts that may be used for switching track power for turnout frogs and routes or controlling signals. I use Peco Insulfrog turnouts so the track power routing function is not required and all my rails have power feeds so no power actually flows through the turnout points.

One of my initial design objectives for my set of modules was to place signals on the mainline. To do this I used dwarf signal heads with two red/green LEDs in each. This gave me four distinct signal indications in each head. There are two mainlines and two signal heads for each mainline to cover both directions of travel.

At Castor River West there are four turnouts that have to be looked at to generate the proper signal indication and at Castor River East there are up to six turnouts that have to be considered. To do this required more than the simple Double Pole Double Throw (DPDT) switch arrangement that was available on the Tortoise Switch Machine so I designed some logic circuitry to do this.

When I installed the first Logic Board at the West End I discovered that one of the Tortoise Switch Machines had an open set of switch contacts so I could not get an indication in one position. I jumpered the connector to make use of the second set of switch contacts to bypass the problem. At the East End I found that I had intermittent contacts on a couple of Tortoise Switch Machines and that you some times had to exercise the switch machines a few times before you would get the proper indication. You could also see the poor contact of the switches as the turnouts were moving by watching the signals flicker between different indications.

With these problems in mind I started thinking about an article I read many years ago about designing electronic circuitry and the selection of contact materials and ratings for switches and relays. I took apart a Tortoise Switch Machine to find out what was used for switch contacts.

What I found was that they used the Printed Circuit Board (PCB) (Fig. 2) itself as one contact and what looks like Phosphorus Bronze for the sliding contacts that are mounted on the lever (Fig. 3) that moves the turnout points. Both of these materials will oxidize over time. Normally when Phosphorus Bronze is used in switches and relays there is a contact button welded to the arm and it is used to make the actual contact. I do not know if the oxide coating on Phosphorus Bronze is conductive or not. I do know that in production of the PCBs, tin/lead is plated on to the copper of the board to form the resist layer for the etching process and that the oxide of the tin/lead coating is non-conductive.

The switches in the Tortoise Switch Machine are rated for 2 Amps of current and in normal use they can see anywhere between 10 and 30 volts across the contacts depending on what

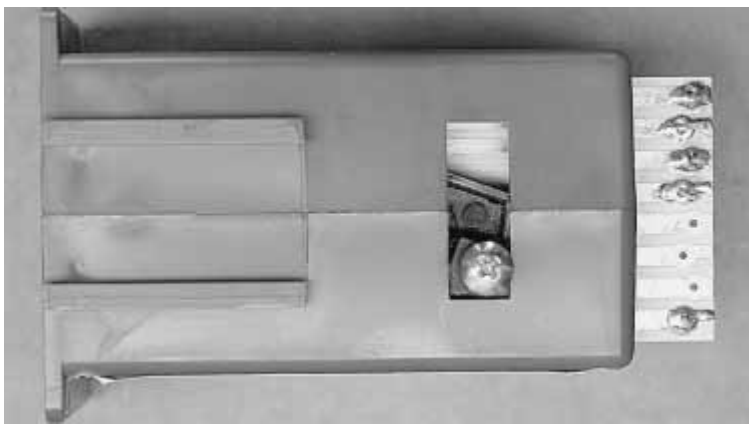


Figure 1: Tortoise Switch Machine

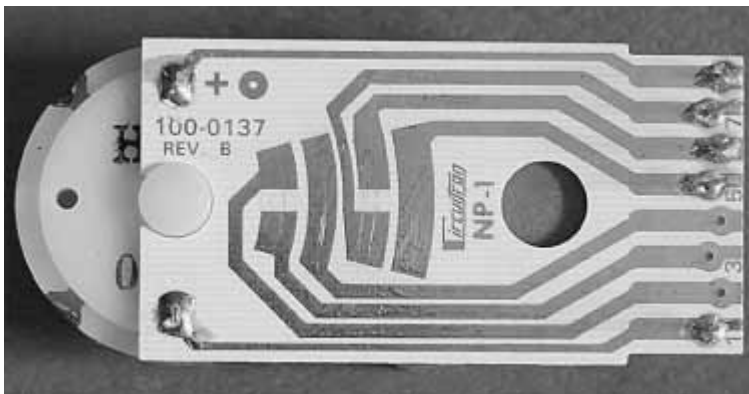


Figure 2: Printed circuit board reveals contact circuits.



Figure 3: Lever and sliding contacts.

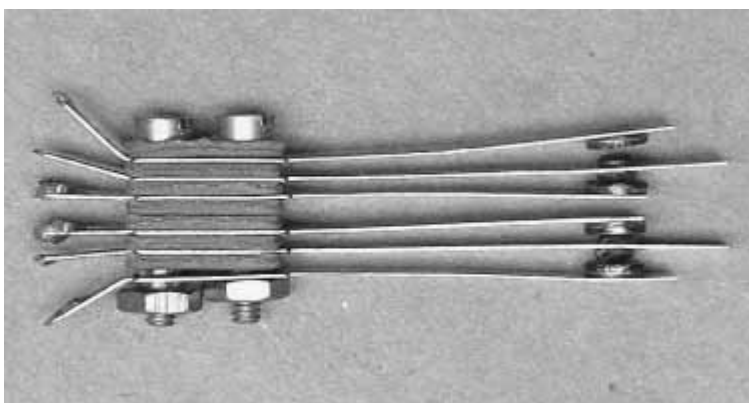


Figure 4: Originally considered auxiliary contacts.

# ches to Tortoise switch machines

scale is being used. These voltage levels and the currents associated with them are enough to burn through the oxide layers and make good contact in normal use. In my situation the voltage I was applying to the contacts was only about 1.5 volts and the current was 0.001 Amp (1 mA) which is not enough to penetrate the oxide layers.

My first thoughts for adding better switch contacts to the Tortoise Switch Machine was to use open contacts similar to what are used in snap action switch machines (Fig. 4) and use the travel of the mechanism to activate them. I looked around for a suitable source of materials to use for making my own switches but did not find anything suitable that I could modify.

My next idea was to use Micro-switches having worked with many types over the years in electronics and the aircraft industry. I selected a switch from Omron with body dimensions of about 0.50 x 0.26 x 0.23 in. The current rating of the contacts are a much more reasonable 100 mA and are gold-inlaid for better conductivity and reliability. The contacts are totally enclosed which also helps by keeping out any dirt or other contamination.

To mount the switches I used 2-56 machine screws and to have more material to thread into I made mounting pads that are  $\frac{3}{4}$  x  $\frac{7}{8}$  inch out of .040" styrene (Fig. 5 short strip). I made a marking jig (Fig. 5 long strip) by carefully scribing and marking the centres then drilling with a #72 drill. I used a dental pick through the holes in the template to mark the mounting pads. The holes for mounting in the pad are a little off centre so to get the position for the other side of the Tortoise Switch Machine I just flipped the marking jig over.

Before gluing your pads to the Tortoise Switch Machine centre the mechanism so there is no chance of gluing the lever to the side of the opening and also when you drill the holes out there is very little clearance between the lever and the

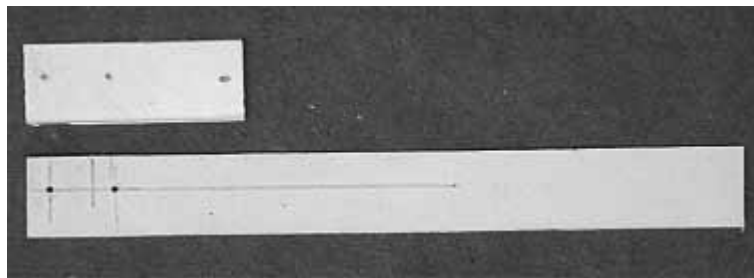


Figure 5: Marking jigs.



Figure 6: Mounting pads and drilled holes for micro-switch.

case. I next drilled out the screw holes with a #50 drill being careful not to penetrate too far into the case since the PCB is about a  $\frac{3}{4}$ " underneath (Fig. 6). I now mounted the micro-switches using the 2-56 screw to cut its own threads through the plastic. Use washers to adjust the length of screw so it only penetrates about .080" into the plastic since there is no clearance on the inside of the case and you don't want to snag the lever.

Now all you have to do is wire up the appropriate contacts and you are finished (Fig. 7).

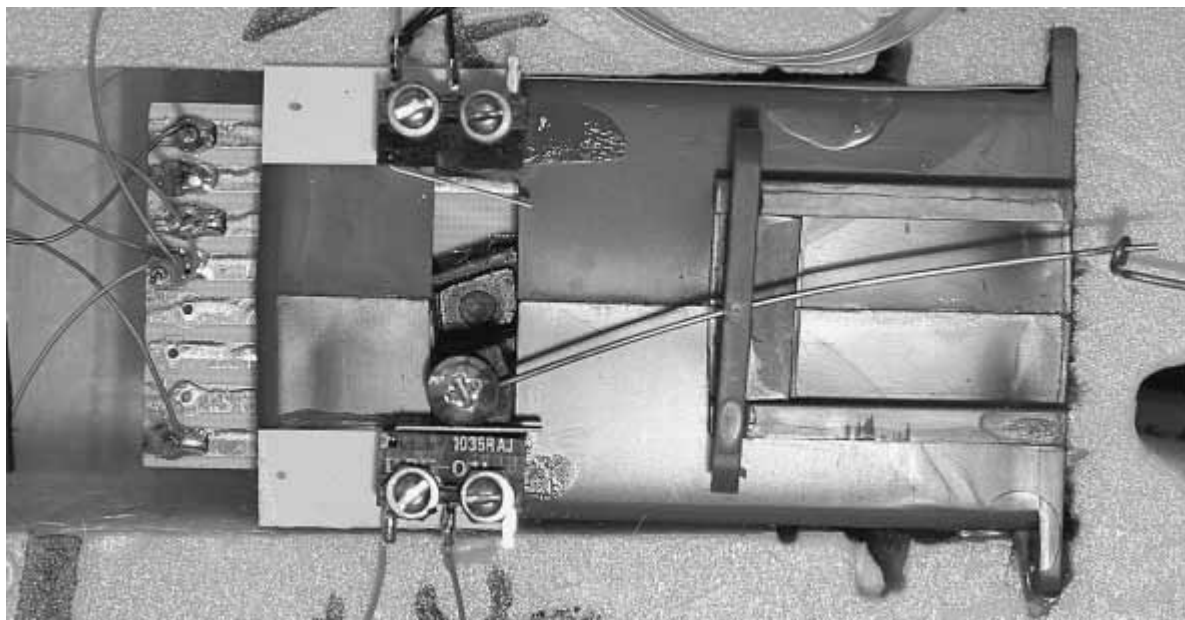


Figure 7: Paul's completed Tortoise, as installed under his Castor River module.

# Freight cars featured in November

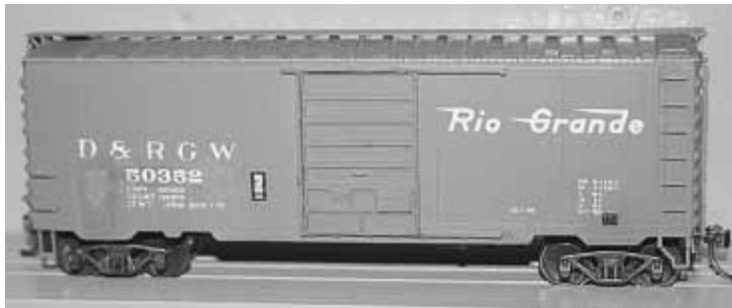
Ian Cranstone photos



John LeBlanc showed his PFE reefer that cost him \$2.75 in the 1950s.



Rare National Car Cast car was constructed by Tom Hood.



John Chambers built D&RGW car from a Front Range PS-1 kit.



Three CB&Q boxcars were shown by Michael Dawson, including this auto box.



Crystal Car Line tank car was among several cars shown by Dave Strong.



Brian Earl built, detailed and lettered CS Models N scale covered hopper.

Freight cars were the focus of OVAR's November display. Two heritage models were displayed by **John LeBlanc** — a PRR wagon-top boxcar and a PFE ventilated reefer. Both were metal Athearn cars with wooden floors, and John notes that the reefer cost \$2.75 in the early 1950s.

**Tom Hood** showed three cars — a Revell 52' flat lettered for his Canadian Northern, a Hobbyline CNW quad hopper and a CP 65' mill gondola built from National Car Cast sides.

**Paul Norton** showed part of his winter project, an On30 Broadway Limited 2-8-0 to be lettered for the Lake Nipissing Railway, along with some Bachmann On30 EBT hoppers. Paul notes that the loco comes with DCC and sound.

**Bernie Goodman** displayed several modern freight cars, which he weathered primarily with pastels.

Two Branchline 50' Berwick boxcars lettered for CP and BAR were displayed by **Don Leger**, along with a SOO Line Kadee 50' PS-1 boxcar weathered by Howard Scodras.

**John Chambers** displayed a D&RGW Front Range 40' PS-1, which he notes was built in 1941, leased from US Railway Equipment circa 1955, and examples could be found in MofW service into the 1980s.

Three N scale CB&Q boxcars were shown by **Michael Dawson** — one 40', one 50' and one 50' auto car with end doors. Michael notes that all of the prototypes were constructed in CB&Q shops from standard components.

Out-of-production CS Models N scale cylindrical covered hopper was fitted with Micro-Trains trucks & couplers, Gold Medal Models etched brass roofwalk & ends, and painted and lettered by **Brian Earl**. Where's the rest of the unit train Earl?

**Hugh Laing** showed a "just for fun" model of an 0-4-0 Porter which has been "Scobieized" to CPR.

**Dave Strong** brought in a number of freight cars including five Train Miniature boxcars (some still in the boxes), Athearn boxcar and Crystal Car Line tank.



Charles Shrubsole scratchbuilt two CNR boxcars, noting that car at right benefitted from increased availability of detail parts.

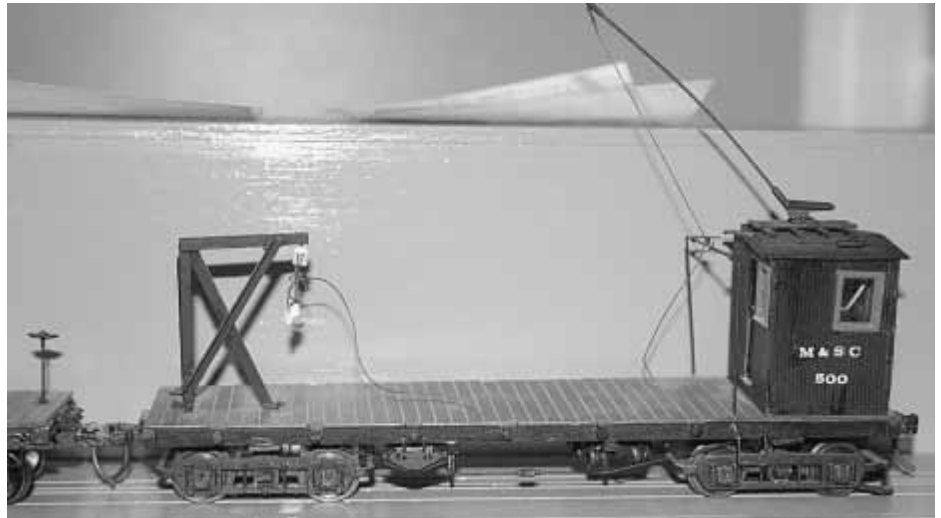
**Ken Healy** displayed SFV & CN wood chip cars mostly bashed by Bob Craig and finished by Ken, along with a photo of the CN prototype.

**Peter Joyce** showed freight haulers with a traction theme — M&SC traction workcar 500 which he constructed from wood & styrene from a November 1982 article in MRC; M&SC flat 510; and Intermountain CNR boxcar 480519.

**Charles Shrubsole** continued to exhibit examples of his S scale craftsmanship with models including: American Models conversion to TH&B hopper; D&H gondola from American Flyer car with new cast ends; L&N hopper converted from American Flyer car; Pacific Rail boxcars detailed to C&EI & NYNH&H cars; S Helper Service RDG hopper; and scratchbuilt CNR boxcars 508603 & 402560. Charles notes that the second model is more elaborately detailed than the first because better details are now available.

**Peter Cunningham** showed that his interests extend to this side of the Atlantic with models of AC&Y, CPR, Monon & Erie boxcars constructed from various kits, all equipped with metal wheels and Kadee scale couplers and weathered.

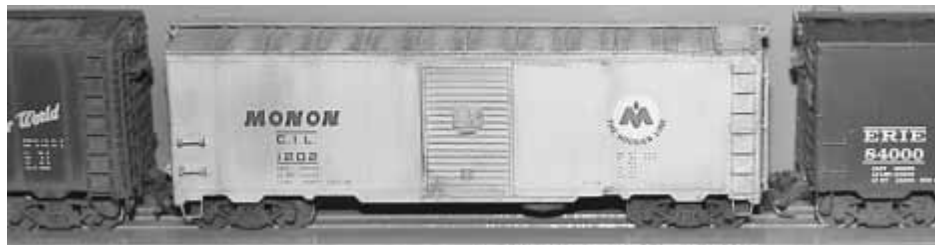
**Dave Knowles** had a string of scratchbuilt SP prototype silk cars on display, built from a plan in MODEL RAILROADER. He also had various other freight cars from other OVAR operations including: Mike Kidd's Quebec Atlantic; Bob Craig's Eastern Ontario; Tom Hood's Canadian Northern; and Graham Stremes' Green Mountain Lines.



Peter Joyce built M&SC traction workcar 500 from wood and styrene.



Ken Healy displayed woodchip gondola efforts of Craig/Healy car shop.



Peter Cunningham displayed four boxcars, including this Monon car.



David Knowles showed train of freight cars, including Cacouna Portage silk car (left) and Sicamous tank car (right).



# Next Meeting

# Mount Royal Tunnel

*presented by*

**Mark Walton**

**Display**

Short Lines

**Tuesday, January 10**

St. Anthony Soccer Club Hall  
523 St. Anthony Street, Ottawa

*(just off Preston Street at the Queensway)*

**Doors open at 5:30 p.m.**

**Dinner served at 6:30 p.m.**

**Admission: \$20.00**

Includes dinner, facilities, program expense, taxes and gratuities.  
Free parking.

**Please note:**

If you cannot attend the meeting after saying you would, please call Fred Mills at (613) 723-1911. Thank you.



## OVAR Directory

**2005-2006**

<b>Chair:</b>	Bud Nelson	613-837-3350
<b>Vice-Chair:</b>	Paul Norton	613-825-4113
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<b>Web Site:</b>	www.ovar.ca	

### THE INTERCHANGE December 2005 — Issue 400

#### Editorial Staff

**Features, Story Ideas,  
Comments and Complaints:**

Ian Cranstone  
3715 Campbellcroft Rd.  
Box 634,  
Osgoode, ON K0A 2W0  
Phone: 613-821-7423  
e-mail: lamontc@nakina.net

**Distribution and Mailing:**

Mike Shore  
25 Bainbridge Ave.,  
Ottawa, ON K2G 3T1  
Phone: 613-829-8867  
e-mail: mshore1@rogers.com

**Submission of Articles:**

THE INTERCHANGE welcomes your submissions that may be of interest to club members. Please send them to one of the departments listed above. Material submitted can be handwritten, typewritten, on floppy diskette, or sent via e-mail.

**Copy Deadline:**

January                      December 20

**Printing and Copying:**

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Smiths Falls

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