# MainLine

# NMRA Australasian Region Directory

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## Disclaimer

All comments published are the views of the author/authors and not the views of NMRA AR.

Articles are provided by members in good faith and the views expressed therein are not necessarily those of NMRA AR.

## Target dates for future issues

### July August

| | |
|---|---|
| **Content submissions** | **15 August 2018** |
| **Publish date on web** | **30 August 2018** |

### September October

| | |
|---|---|
| **Content submissions** | **15 October 2018** |
| **Publish date on web** | **30 October 2018** |

## Cover photo

NZGR preserved Ja class 4-8-2 number 1271 ready to haul the The Mangaweka Express in early 2018. Photo by Arthur Hayes MMR.

# Contents

## Articles

## Regular features

# Editor's Musings

The contents of this issue of MainLine give you an appreciation of the spread of railway modelling interests across Australasian Region.

The contributions from Division One members in this issue of MainLine also gives you an idea what to expect at the Region convention Division One is hosting in September this year.

# NMRA Regional Convention 2018

## Newsletter # 3.

As they say in the classics, time flies when you are having fun. By the time you read this newsletter in MainLine in early July, it will be around 80 days to the convention.

**Clinics.** Martyn has been working overtime to complete the Helensvale program. This will be a real National Model Railroad Association event with clinics from around the world. Ralph Renzetti and Miles Hale will come via a live link from Canada and the USA. Not only will you see them on the big screen, you will be able to interact with them. Ralph will come in on Saturday morning and Miles on Sunday morning. From Division 5 (NZ) Philip Sharp "Modelling the structures of the Toronto, Grey and Bruce Railway in the 1870s". Division 7 there is Gerry Hopkins, Division 8 Trevor Hodges, Division 1 there is Duncan Cabassi, Laurie McLean, Geoff Langridge, Maureen Kathage, James Lampard, Div 1. Operations SIG and Arthur Hayes. And as they say on TV, wait, there is more, we are waiting for others to return emails. If you have something you would like to share for your AP Certificates, it not too late. A draft program should be on the website in the coming days.

**Traders, Layouts and Sideshow Ally.** Various Traders have been invited with a good mix of model railway products for delegates to purchase. Likewise a number of layouts have responded with a mix of scales on show. Plus there is a number of modellers showing their talents where you can sit down, chat and ask questions.

**Contest.** This is a good place to start your AP certificates. There is no limit to the number of models you may enter. Additionally, attaining a point score of 87.5 pts. or 70%, entitles the entrant to a Merit Award which counts towards Master Builder Awards in the Achievement Program. The model contest is a great way to learn new skills and display your skills, plus you can see what other modelers are doing which will give you ideas for your modelling. There are two awards, model of Australian Prototype (Rick Shoup Award) and model of Non-Australian Prototype. Or maybe, you have a photo you would like to enter. Please filling out the paperwork BEFORE you arrive at the convention. Contest details are on the website.

**Layout Tours.** Expression of Interest was sent out to 22 private layout and 4 clubs, 12 private and 2 clubs have responded affirmative, 4 unable to host the tour, 8 have not replied. Duncan is working on fact sheets for each of the layouts which will include location maps. He plans to have this information posted on the website by the end of June. About four layouts could host operations session, this will be addressed a little later. The committee every much appreciates the support from these modelers opening their layout to convention delegates for viewing.

**Bring and Buy** Once again Anatol Zukiwskyj has put his hand up to look after the Bring and Buy. Details are on the website. Email Anatol (anatolij@optusnet.com.au) for a form, there is a limit of 30 items per delegate. Items must be registered prior to the convention.

**Non Rail Program.** "The Green behind the Gold" Visit Long Street Tambourine Mountain, a 'shop-a-holics' paradise. Joalah Falls and Canungra on Saturday. On Sunday it is a couple of hours at Harbour Town Outlet Shopping Centre. Full details are on the website.

**Toowoomba Field Trip.** "Carnival of Flowers" This is a self-drive, self-paced tour, you choose what you want to do at your cost. The brochure gives you suggestions of what is available on the day. Downs Steam Tourist Railway and Museum, Award Winning Gardens, Toowoomba Railway Station, maybe a train ride down the main range to Spring Bluff station and gardens, or self-drive with train spotting to Spring Bluff. Visit the Toowoomba Model Railway Club and Museum. Various layouts will be on display, clinic on decals and a BBQ. Details on the website. Booking require for the BBQ on the convention website.

**Convention Merchandise.** Shirts and Mugs can be ordered on the convention website. The committee is investigating the possibility of having a limited number of cloth convention patches.

**Convention Decal.** Ted Freeman of the Toowoomba Club has offered to do a convention decal. Ted has done decals for various Exhibitions and Convention. Please show your scale on the registration form.

**Saturday Night Dinner.** This will be something special, guys treat your partners to dinner. A three course two drop menu. Please advise if you have any special diet requirements. After dinner the awards will be presented and then some fun with a raffle. Around 9:00 pm we will cross live to Lionel Strang in the US. We do have Plan "B" should the link not work.

**Convention Brochure** highlighting the convention program which can be found on the website. If you are attending a local exhibition, meeting or other model railroad event, please feel free to run a few off to promote the convention.

**Sponsors.** The committee would like to acknowledge the following sponsors thus far, Adam of Wuiske Models (www.wuiskemodels.com) for donating convention bag, Scott Whitaker of **SRW** Publishing (www.railwayhotelsofaustralia.com.au) for donating a book on Railway Hotels for the raffle. And from the USA TrainWorld  www.trainworld.com. and Kadee Quality Products Co. https://**kadee**.com.

**Offers of Assistance.** Conventions are a lot of work and without assistance from the membership, it would not happen. I please to report offer of assistance is coming in from near and far including country members we don't see all that often.

**Registration.** *The early bird cheaper fees closes on the 31st of July.* Registrations can be made on line using your credit card. The link is on the convention website under registrations, the top left hand corner in Red will get you started. If you are unable to do the on-line registration, please call me on phone number 07 3345 7887, I'm sure something came be worked out. Registration is available for non-members. Register today and save yourself $ 30.00.

**Conventions are Loads of Fun.** They are a great place to learn new skills and see what others are doing with their modelling. Plus it allows you to interact with the presenters and ask questions. Conventions are a meeting places of likeminded people, old mates come together to catch up and gives you opportunity to meet new modelers. It will be something special.

Many members of the Australian Regional Committee (ARC) will be at the convention, This will be an opportunity for you to meet them and have a chat.

Regards,

Arthur Hayes MMR
Committee Chairman.  Phone # 07 3345 7887.
convention@nmra.org.au

**Website:** http://nmra.org.au/conventions/conventions.html

# Coming Events

The All Gauge Model Railway Club is back in business with a Train Modellers Sale of thirty plus tables full of model trains and all the paraphernalia modellers need on Sunday July 22, 2018. Non-member Sellers are welcome and can rent a table for $20. Phone 0420597460 for a table and information. Sellers (only) should arrive at 8am. Buyers, the public, and the curious will be admitted FREE from 9AM.

And - as for 30 years with our Clubhouse Table Sales - it's more than a sale; it will be our usual friendly, social occasion that finishes around 1pm.

However as the Clem Jones Centre has bulldozed our clubhouse, the Train Modellers Sale will be at the big blue Carina P.C.Y.C. clubhouse. Entrance to the sale is from Narracott Street (off Creek Road).
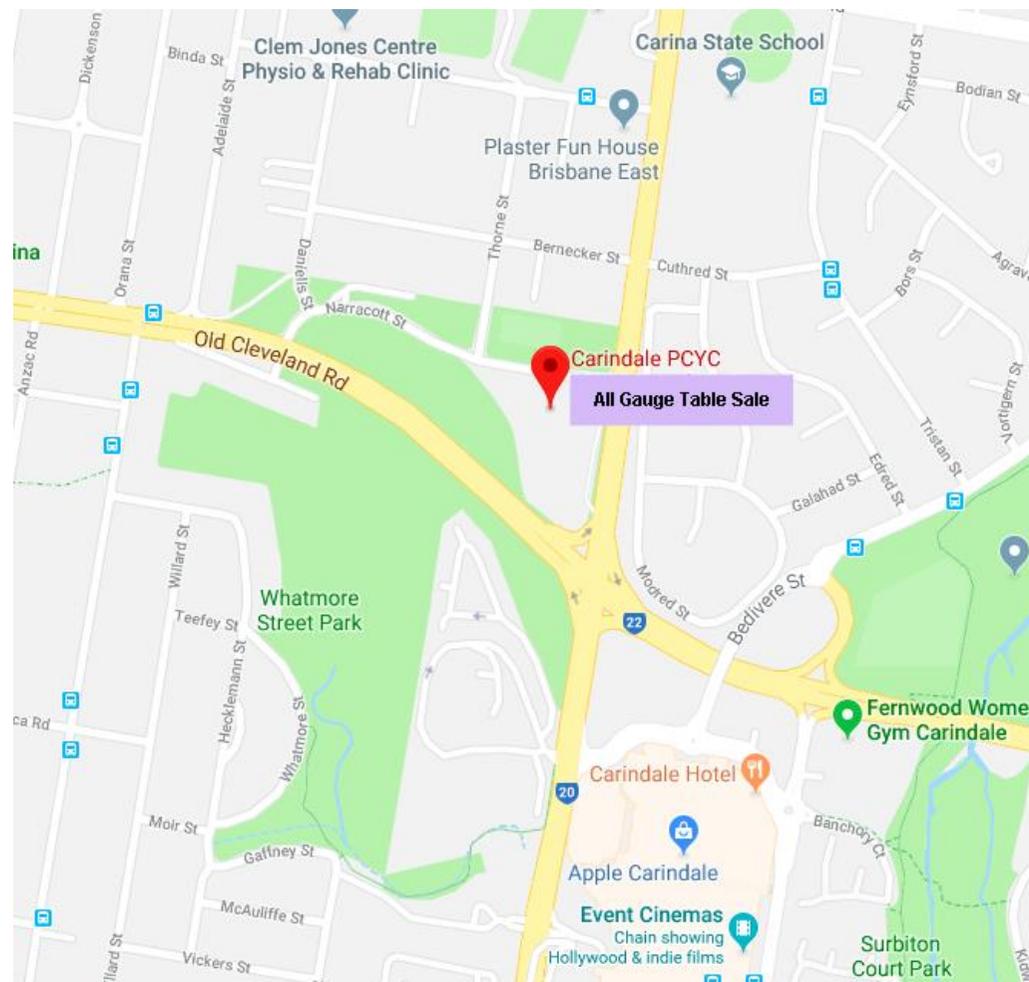
# Do You Have The Tools?

**Gerry Hopkins MMR Division Seven**

I often visit a layout and get asked to adjust or fix something. This is perfectly OK in most cases – BUT there it is again, that word – when I ask for a simple tool - - - - .In my opinion, modelers should have a basic tool set, but what is that tool set?

1. A jewel's screw driver set – flat blade and Phillips. **$3.50**

2 Tweezers – NOT the plastic ones in the Coles first aid kit but nice stainless steel ones that have been well looked after. **$3.50**

3 Wire cutters – two sizes, one for small wires like those on decoders and a larger one for buss wire and droppers. **$3.50**

4 Needles nose pliers. **$3.00**

5 A few small brushes. **$3.00**

6 Some micro brushes. **$5.00 per 100**

7 Solder – 0.7mm 60/40 is plenty big enough for N, HO, OO, O scales.**$16.00**

8 Liquid Flux – the paste type normally requires you wash off the residue when you have finished. **$6.00**

9 Soldering Iron – 40 watt minimum – with fine tip. Temp control would also be good. You would need to set it at 280 C. **$60.00**

10 NMRA Track Gauge **$10.00**

The above is the **basic list**, there are a few other tools to make life much easier.

1. Assorted Pin Vices – with a few small drills. **$17.00**

2. Dremel style motor tool **NOT** mains powered. **$60.00**

3. Assorted fine files. **$6.00**

4. Self-closing tweezers. **$8.00**

5. A good light – LEDs preferred. **$50.00**

6. A foam cradle for holding locos and rolling stock upside down. **$12.50**

7. Digital Meter **$15.00**

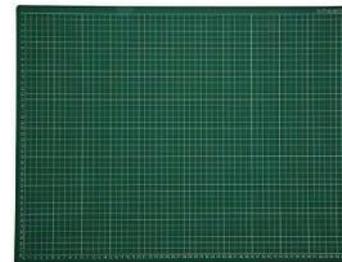8. Plastic cutting matt (dark green) A2 size is best**$20.00**

9. Xacto type craft knife **$6.00 OR** Scalpel **$3.00**

10. Metal Scale Rule **$13,00**

There are other personal things like OptoVisa **$30.00**, Digital calliper **$20.00** **and a** metal square. I hope the above list help you get things together. Many of the prices were obtained at the "$2 shop" at Wyoming or at other local shops with web site.

# Practicing your modelling skills on static models

Rod Tonkin Division Four

An inexpensive and rewarding way to practice your modelling skills is to practice on static models. A few years ago there was a part works series of OO scale British locomotives ( Another source of static models to practice on are the Dapol kits ED). The models came in "Pristine" condition with a booklet containing an airbrushed drawing of the beast and prototype photos. In the case of the model of BR 92220 the booklet included photos of the locomotive as outshopped from Swindon in a new car like finish and in a decidedly grubby in service appearance. When the packaging was removed, I was able to more closely inspect my model of BR 92220. Most of the features and fittings visible in prototype photos are included on the model with the exception of the driving wheel brake shoes.

The model was attached to the display plinth with self tapping screws. With the model free of its display plinth I could see what it was made of and how it was assembled. The locomotive has a die cast frame with the driving wheels moulded onto the frame. The side rods are removable and secured in place by the connecting rod, valve gear and cylinder mouldings. The die cast pony truck complete with wheels moulded onto the pony truck frame is screwed onto the frame. The coal tender is all plastic. The wheels of the coal tender are one piece metal die castings and are able to rotate. The coal tender wheels are secured to the underframe by a cemented on keeper plate.

I used a razor saw and fine files to separate the moulded together flanges between the first and second and fourth and fifth pairs of driving wheels.

The copper capped double chimney exhausts were drilled out with a three mm twist drill. This took some care especially after I discovered by accident the copper chimney cap was a separate moulding. If you do nothing else to your model, drilling out the chimney exhaust ports improves the appearance of the model immensely.

While the model was dismantled the locomotive framing and wheels, lead truck and the coal tender wheels were painted black to match in service photos of BR 9Fs. The cab floor was painted the same black colour as the wheels. The red paint overflow around the front buffer beam was scraped off with a sharp hobby knife.

I based the weathering of my model of BR 92220 on the photo of BR 92220 on the ready track in 1962 in the booklet accompanying the model. The predominant weathering effects on BR 92220 in service were overall grey from coal ash in the exhaust over the boiler, running boards, coal tender and cylinders, brown dust from the road bed on the running gear and white staining over the boiler cladding from the safety valves back almost to the cab. The copper injector and boiler feed pipes may have been a polished copper finish on delivery but after a couple of years service they blended in with the grime covering the rest of the locomotive.



**Evening Star's drilled out exhaust stack**

My prototypically weathered model of BR 92220 in service (shown below) now resides in my locomotive depot ready for its next trip. I've always shied off an operating model of "Evening Star" as until now I thought it was kept in pristine condition in service. Maybe there is a place in my preserved locomotive roster for an operating model of BR 92220 in its "prototypical" grubby in service condition.

# Regional Convention 2018

## You are invited to join us from

### 21st – 25th of September 2018

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## VENUE:

### Helensvale Culture Centre on the Gold Coast

## THERE WILL BE:

## Something for all Modellers of all Prototypes / Gauges / Scales.

### Proposed Program

#### Friday 21st.

- Layout Tours of Brisbane and Gold Coast, private and club layouts. Some Operations sessions are available by pre arrangement (See convention website)
- Registration.

#### Saturday 22nd.

- All day program, choice of 12 Presentations
- Demonstrations, Hands on, Displays, Trade, Society Stands
- Convention USB with Presenter's Notes
- Complimentary Tea and Coffee between Sessions
- Morning & Afternoon Tea, Box Lunch provided
- Banquet Dinner at local Club with Speaker
- Ladies Tour

#### Sunday 23rd

- Presentation to 11:30.
- Visit local club and layouts
- Or ride the " G:link"(own cost).
- Ladies Discount Shopping Nearby to convention location

#### Monday 24th

- Self-drive & Self-paced Layout Tours/Operations

#### Tuesday 25th

Why not take a drive to Toowoomba and see:

- Visit the Toowoomba Model Railway Club (100% NMRA)
- Visit "Downs Steam Railway/Museum"
- Visit Award Winning Gardens (Yes it's the Carnival of Flowers week)
- Toowoomba Railway Station
- Ride on a heritage diesel Train to Spring Bluff
- Or drive to Spring Bluff with some train spotting on the way (Nov-Dec 2017 MainLine)

*There will be a self drive layout tour program. You get to read a bio of each layout and some*



*sample photos to help you determine which layout you would like to see. The self drive tours will be available on*

*Friday 21ˢᵗ and Monday 24ᵗʰ September*







## Details of the Venue:

Helensvale Cultural Centre

http://www.goldcoast.qld.gov.au/community/helensvale-library-cultural-centre-3445.html

Location   Corner Lindfield Road and Sir John Overall Drive, Helensvale



Helensvale Cultural Centre – Ground floor and first floor auditorium





*Convention Dinner will be held at the Runaway Bay Rugby Leagues Club on the Saturday night*

## INTERESTED, BUT NOT SURE!

Come and enjoy the fun! A regional convention will allow you to:

- Participate in great modelling activities with fellow likeminded people
- Maybe learn new skills and techniques
- Build the Model Railway network
- Meet old friends and make new friends
- Exchange knowledge
- Layout tours and Open houses
- Display Layouts at the convention venue
- Trade stands at the convention venue
- Convention Dinner





*For further information please check out the NMRA Website at the following link:*

https://www.nmra.org/region-conventions#Australasian

Contact: Arthur Hayes (Convention Chairman)

abchayes@optusnet.com.au

# WiFi Throttles for non Tech heads

Martyn Jenkins Division One Superintendent

**Introduction:**

Since I got involved with DCC in the late 1990's, I have wanted a fully-functional wireless solution to control my layout. Most of the DCC manufacturers offer a range of radio-based systems, some with more functions than others but the cost of these in Australia makes it an uneconomical option. None of these systems offer the ability to display information in the same manner as the WiFi Throttle application in Java Model Railroad Interface (JMRI) in conjunction with a mobile device.



Our local model Railway club here on the Gold Coast *The Miniature Train-Club Gold Coast* uses a Wi-Fi Throttle exclusively to operate the club layouts at exhibitions. We decided to use this system as we have 11 different DCC systems used by members



on their home layouts. So, if we decided to pick a brand of DCC system from our members preferences we would be opening Pandora's box as to which brand we use.

All of our members have either Android or Apple smartphones, so a Wi-Fi Throttle was a no brainer and stopped any arguments over which system we should purchase. The club decided to use a Wi-Fi Throttle and a Digitrax Command Station as we already had a Digitrax DCC system.

**What is JMRI:**

Java Model Railroad Interface, JMRI, is a software suite consisting of several programs. The most popular in this suite are DecoderPro® and PanelPro®. The best part is this software suite is free to download and use from the following at  link: http://jmri.sourceforge.net/. JMRI has been developed by a team of volunteers worldwide over several years and who are model railroaders themselves.

DecoderPro® was the first program developed by the team initially. It was designed to allow easy programming of DCC decoders via a graphical interface. This makes setting up and fine tuning DCC decoders easy without having to know what CV's needs to be changed and what value to change it to. If you are setting up decoders for the same type of locomotive. DecoderPro®  allows you to set up that locomotive and save the settings from the decoder and then load them into other similar locomotives. Most of the people using JMRI use only Decoder Pro making it the preferred computer software for setting up decoders amongst the model railway community in Australia.

PanelPro® was developed to allow you to create Centralized Train Control  (CTC) panels and track plans. PanelPro® also allows you to control lights, turnouts, sensors, signals and more. When using occupancy detection, you can track the location of the locomotive around the layout on the CTC panel or on your track plan. Furthermore, since you can control turnouts from the CTC panel. You can than therefore create warrants. JMRI also contains several other programs and utilities which are very useful in the operation and maintenance of a layouts with a DCC system installed. One of these features is a Wi-Fi Throttle, which this article is based on.

### What is a WiFi Throttle?

A WiFi throttle is an app that runs on smartphone, iPod, or tablet, which in return communicates with a computer running JMRI. There are apps available for both Apple and Android. For Apple devices, the app is called "WiThrottle", and for Android device, it's either "Engine Driver" or "Digitrains".

With a Wi-Fi throttle  you can drive a train, operate pre-defined routes and control turnouts, display your CTC panel or track plan created in PanelPro, and also track you train on the CTC panel or track plan.

### How to set up your layout to use a Wi-Fi Throttle.

You will need a model railway, which is connected to a JMRI compatible DCC system. JMRI supports nearly every assorted brand of DCC systems from obscure ZTC system to the popular systems such as Digitrax, NCE, Easy DCC, and include Do It Yourself (D.I.Y) systems such as DCC++.



**A mobile phone in use as a DCC throttle**
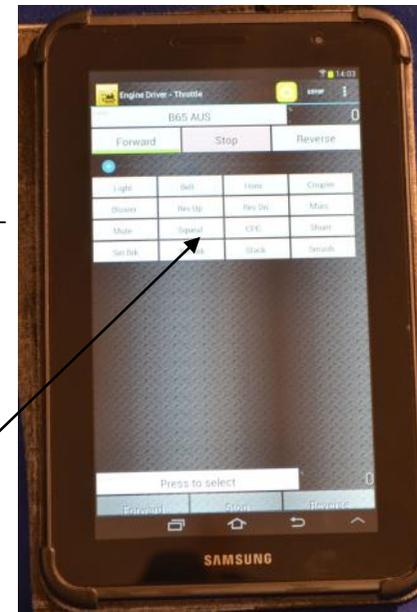
Next, you need a computer running JMRI which will be connected to your DCC system via the manufacturer's interface. With Digitrax it would be a "LocoBuffer" or a "PR3"  interface unit which will connect the LocoNet to a USB port on the PC. On some systems like NCE they have a serial port located on the DCC command station. This will all be dependent on what options your DCC manufacturer has for this job.

Now we need to set up a wireless router to make WI-Fi Throttle work. To do this we need to get the router and the mobile devices connected to the PC running JMRI. This is where we need to use a password so other people cannot connect to the model railway.

We are nearly there! All we have to do is start the app on our mobile device and connect to our model railway.

### Too much technical stuff???

Our model railway club has an average age of 65 so we do have quite a few members who cannot set up the system as they have very limited computer knowledge. Just wiring up the system can be daunting to the average person. So, what can we do?

The old way was very complex for some of our members to set up. Unless certain members were in attendance to set up the system and monitor it over the weekend we could have problems. There had to be a better way, something that would be easy for the average person to set up ie. someone with no knowledge of computers or JMRI. Furthermore the system had to start automatically and be reliable.

What we wanted was a method of using Wi-Fi Throttles that was simple. Just plug in the power and then start your app on your phone, connect and – *hey presto* – you are driving trains without:

- setting up a PC
- setting up JMRI
- setting up a wireless router
- setting up a DCC system.

All you do is connect two power sources and the track feed connection then you are done!!!

Well there is a solution now out of the UK using the Raspberry Pi single board computer and a new DCC system from SPROG.

The SPROG II allows you to operate a layout directly from JMRI, using either the internal throttle or a WiFi Throttle. It has been available for a number of years. You have a USB con-

nection which will connect to a PC running JMRI and then connections to your track. You can now program any type of decoder and even run a small layout. This little device will provide 2.5A of track power. The people who developed the SPROG II USB to JMRI interface have now designed a board which plugs directly into the Raspberry Pi3 General Purpose Input / Output (GPIO) pins.

### What is a Raspberry Pi?

The Raspberry Pi is a series of small, single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated, selling outside of its target market for uses such as robotics and model trains.

I got my first Raspberry Pi B model about three years ago when they first released them. And I have been using one along with a SPROG II DCC unit. This was better than the old method with a complete DCC system, but still required some knowledge to set up the system.

The new Raspberry Pi3 now has 1Gb of Ram and can run an operating system similar to windows. But the best part is it can run JMRI and furthermore is wireless ethernet and Bluetooth capable. Now because this new Raspberry Pi3 model has wireless capabilities we can do away with the wireless router. One less thing to setup at a show.

### The new way of using Wi-Fi Throttle in JMRI

As I mentioned previously SPROG DCC in the UK have made two new boards which will plug directly into the Raspberry Pi3 GPIO header providing either a DCC signal ready for a booster or a 2.5A DCC track output which is ready to connect to the rails.

The first board is called a "Pi SPROG Nano", which will give a DCC signal and will require a booster before you connect it to the track. This is the system our club now uses along with a Tam Valley Depot 5Amp booster to power the rails. It has run at the last three shows we have attended without requiring any attention.

The second board that SPROG has produced is called the "Pi SPROG One" This board again plugs directly into the Raspberry Pi3 GPIO port and has an on board 2.5A DCC booster. That means you can connect this directly to the track and run trains.

**The "Pi Sprog One" DCC system**

**The conventional approach to WiFi train Control**



Then all you do is assemble the modules connect two power supplies to the layout module with the Raspberry Pi3 mounted within it. Start your mobile device. Connect to the system and then start enjoying driving trains. This is what we have done in our club. It was so successful with the HO layout we have now fitted a system to all of our exhibition layouts which further removes the need to disconnect the clubs DCC system and take that to the exhibitions.

Since I have a 3D printer, I looked up a design for a Raspberry Pi3 case which has the room to fit the additional Pi SPROG board on Thingiverse.com and modified it to suit the Pi SPROG boards. Now I can print off as many as I require.

Finally, we now have in a package no bigger than a deck of cards that contains a PC running JMRI, the wireless router and a 2.5A DCC system. And we can set this up to all start automatically in the Raspberry Pi3 operating system and JMRI all we have to do is configure the software loaded on the Raspberry Pi3.

Now some people's eyes will start to glaze over when I start to talk about setting up software especially if they are not familiar with it. So, the good folk at SPROG DCC will provide for a minimal cost a formatted micro SD card with JMRI and the operating system for the Raspberry Pi3 already pre-configured. Just insert the micro SD card power up the Raspberry Pi3 then start the app in your mobile device connect and you are now driving trains.

Now being as this is such a small system we could mount this into one of our club's layout modules.

**The Raspberry Pi and Sprog approach to WiFi**
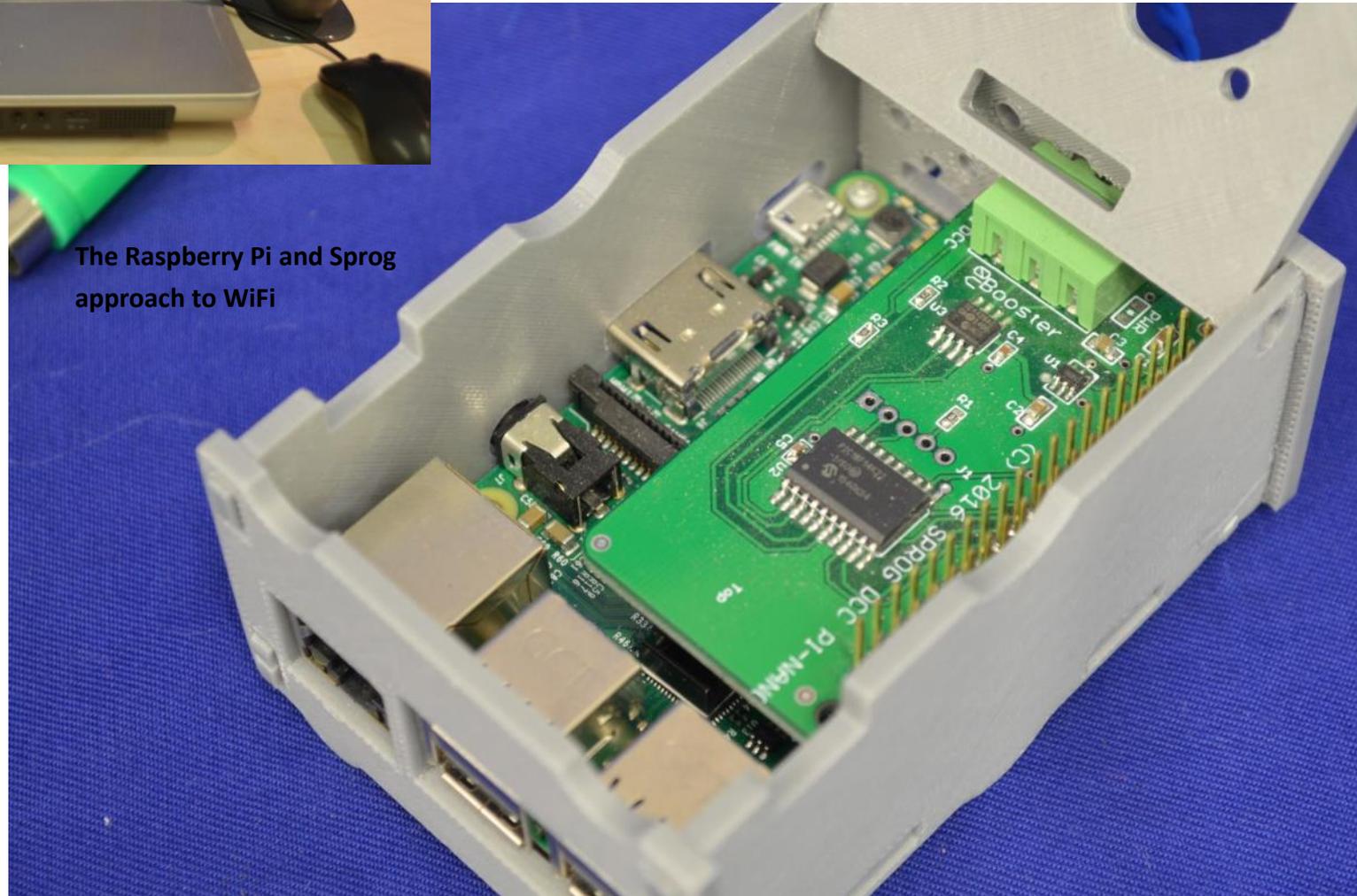
# The evolution of a layout design

Rod Tonkin Division Four

The realisation I could replace both Martindale Creek-2 and Wombat Gully, meant some thought was required as to their replacement. What did I like about each layout and what didn't I like about each layout?

Martindale Creek-2 with track 750 mm above floor level is too low for the state of my back now and will become less acceptable as I get older. The concept of a train passing though a scene once worked very well. The track geometry on Martindale Creek handled all the model locomotives I'm interested in operating. The three track staging yard provided ample train variety. The level main line worked well. The continuous loop layout schematic suited heavy coal traffic. The Plug in throttle DCC system was easy to use. The simple traffic control system worked well as did the "Car Order" freight car forwarding system. The 2,250 mm train length gave a reasonable impression of mainline trains. The walk around, walk in arrangement with no stoop access was worth retaining. The two modelled stations provided ample operational complexity.

Wombat Gully's track level of 1,250 mm above floor level was easy on my back and easy to build, work on and maintain. The concealed lighting was very effective. The duck under access became physically less acceptable as time went on.

As I age I'll need easier access around the layout. En suite bathrooms have 700 mm wide door way openings. I've adopted this dimension for all walkways around and into the layout

The likes gleaned from twenty years operating Martindale Creek -2 and nearly ten years operating Wombat Gully boiled down to;

- Track 1,250 mm above floor level
- Main Line trackage minimum geometry of 504 mm radius curves and Peco Medium Radius turnouts.
- Continuous loop mainline
- Trains only pass through a scene once
- View blocks prevent seeing more than one scene at a time
- Walk around, walk in access ways with 700 mm wide access ways around and into the layout.
- Concealed lighting

- Three track double ended staging yard.
- 2,250 mm long trains
- NCE plug in throttle DCC system
- Two modelled stations

Now I had the bones of the new layout's design requirements I could start planning the layout. The width of the layout was determined by the need for access through the car port and a 700 mm wide walkway behind the layout. Site measurements showed me the maximum layout width was 2,900 mm. The length of the layout was governed by a 700 mm wide walk way at each end of the layout and a row of 450 mm side steel shelving units along an end wall of the carport. Taking these factors into account the layout length was 3,300 mm.

A folded dog bone arrangement looked attractive. If I used the 504 mm radius curves on each end of the dog bone, it all fitted together. A 1,100 mm wide peninsular at each end of the dog bone would accommodate a 180 degree curve of 504 mm radius curved track. Two 1,100 mm wide peninsula plus a 700 mm walkway conveniently added up to the maximum allowable layout width of 2,900 mm.

I decided the aisle though the carport side of the layout would be one of the two stations. The side of the layout adjacent to the wall of the house would be the staging yard. The well between the peninsulas would be the second station.

The 3,300 mm length of the layout allowed the station on the aisle through the car port and the staging yard to accommodate the train length I required. The station in the well between the two peninsulas easily accommodated the train length I required.

During initial construction the Denman end of Rod's Reach was extended. The Wollemi branch with 371 mm radius curves was added. The Wollemi branch leaves the main line at Pauline's Bend is connected to the main line in the staging yard.



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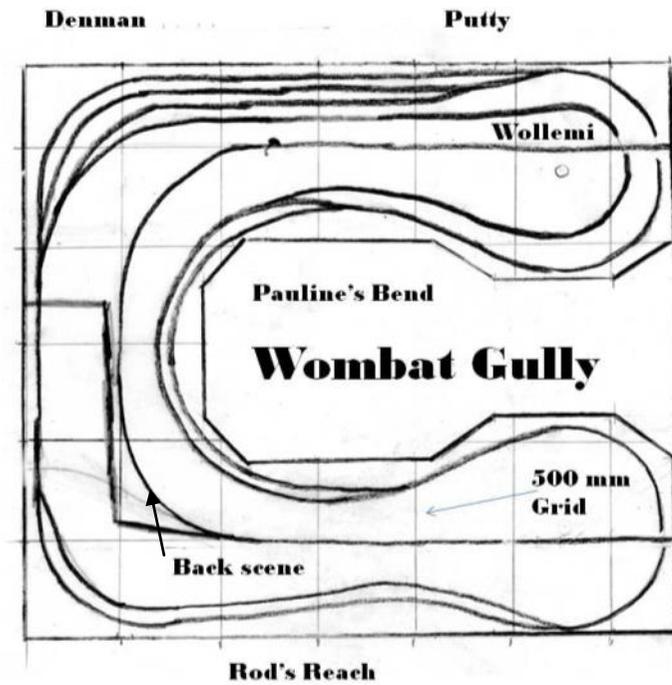
# Staffs for Model Railways

Stephe Jitts MMR Superintendent Division Two

In recent times there has been an increasing interest in the use of the very versatile Arduino. This article discusses the use of them to control the issuing of staffs and signals.

**A brief explanation of Staff Working**

One of the ways that real railways has managed single track occupancy is with the issuing of a staff. In its simplest form, a driver had to be in physical possession of the staff for a particular section of track (Block) before he could take his train into that section. In a practical sense, the driver had to stop his train before entering the block, be issued with the staff, traverse the block, and return the staff at the other end. To continue into the next block the process had to be repeated.

This system had the disadvantage of requiring that if a train had gone in one direction, there had to be a returning train to allow the staff to go back in the other direction.

To overcome this problem staff machines were invented. A machine was placed at each end of the block. Each held a number of staffs. The machines were electrically linked so that even though there were many staffs for the block, only one could be released at any one time. Thus we could have a train going in one direction followed (after the staff had been replaced at the far end) by a second train removing a staff from the first end and then proceeding in the same direction as the first train.

There were several variations on this theme but this is beyond the scope of this discussion.

For model railways the manufacture, installation and operation of such a machine is a challenge, but the objectives remain the same. Fundamentally we want a system that allows the following:-

- Drivers need to be able to request the staff for a particular block.

- The staff needs to be issued in such a way that only one train is permitted in the block at any one time.

- Drivers need to be told that the staff has been issued to them.

- Drivers need to "hand back" the staff.

**A model Staff Control System**

The system on which I am working on works like this. At each end of the block is a button and a bicolour LED. When a driver was to enter a block he "requests the staff" by pressing the button. In acknowledgement of the request the LED starts to flash green. The Arduino that services the block then determines if the staff can be issued. When the staff is issued the LED at the end requesting the staff turns solid green and the other end turns solid red. The solid green LED indicates to the driver that the staff has been issued and provided there are no signals to the contrary he has a limited time to enter the block. At the other end of the block the LED turns solid red indicating that the staff is not available at that time. On the train entering the block the solid green LED turns to solid red indicating to a following driver that the staff is not available. On leaving the block, the driver presses the a button to cancel the staff and both LEDs are extinguished. (Either button will cancel the staff so that a train may enter and leave the block at the same end if required.)

When designing the system it quickly became apparent that a problem might be caused if either the train failed to enter the block after the staff had been issued or if the driver failed to press the second button after he left the block. A refinement was needed. A time delay system is included in the programming. If the block is not occupied for a predetermined period of time (usually about 90 seconds) the Arduino is programmed to set the solid green light to flashing red. If after a further period of time (usually about 30 seconds) the block is still not occupied, the staff is cancelled and both LEDs are extinguished.

A second refinement came as a result of requests from the Stationmasters on Kangaroo Valley Historic Railway (KVHR). They requested that they had ultimate control over the issue of staff for blocks entering their district. For each block under his control the Stationmaster now has a panel with two buttons and three LEDs. For each end of the block there is an LED and a button. When a driver requests a staff one of the two LEDs starts flashing. When the Stationmaster approves the issue of the staff he presses the appropriate button, the flashing LED goes dark and the third LED turns on solid red. The red LED goes dark when the staff has been returned or cancelled.

**Signals**

On KVHR it is intended that every station will have its own Arduino driven signal box. At unattended stations, (ie those other than Sydney, Kangaroo Valley and Eden) the signal boxes are automatic and depend on things like track occupancy, point position and the issue of staffs. Three wires connect the signal box Arduinos to the staff Arduinos. They advise (1) the staff Arduino that the station is ready to receive a train, (2) the signal box the staff has been issued by the staff Arduino for a train to depart from the station controlled by that signal box and (3) the signal box the staff Adruino that the staff has been issued for a train to come towards the station controlled by that signal box.

This information, when coupled with other local information, allows the signal box to set signals appropriately. that have changed and then uses that information to make changes to its outputs.

I first check all the inputs for (1) any requests for a staff have been made, (2) which blocks are occupied, (3) what is the position of the points and (4) if the Stationmaster has made any responses.

Having gathered all this information, it is then possible to issue a staff under certain conditions. For instance, if (a) the staff has been requested at station 'A', (b) all the points are clear to depart, (c) a staff has not already been issued, and (d) the station at 'B' is ready to receive a train. Then, the staff can be issued, and the Arduino turns on the appropriate LEDs and sets a timer going.

There are many variations that can be included to the programme. Signals can be tied into the issuing of the staff. In many places in NSW, and probably in other jurisdictions, a small country station might have only home signals and the staff functions essentially as the starting signal. In this case the LEDs (upon turning green) inform the driver that he has the staff. However, where there are starting signals they can be cleared automatically when the staff is issued and locked at danger when the block is occupied.

### Developing an Arduino Staff programme

Arduinos have an inbuilt programmable mini computer. The programme is developed on a PC or laptop and then transferred to the Arduino. The programme is a special format available for free from the Arduino website. It is similar to C+.

When writing the programme, the first thing to do is to "declare" all the various items that are required to be considered in the programme. These include the block detectors, point position detectors, the buttons and LEDs, the three wires to the adjacent signal boxes, the wires to the stationmaster's control and the staffs (one for each direction).

To simplify the understanding of programmes it is often best to create Booleans statements (true, false) and Strings (eg "red", "green").

Eg. you might create a Boolean such as :-

Main Block Occupied = true or false

And a String such as :-

Down Home Signal = "red" or "green"

The Arduino constantly repeats a loop sequence. In that sequence it checks for any things that have changed and then uses that information to make changes to its outputs.

I first check all the inputs for (1) any requests for a staff have been made, (2) which blocks are occupied, (3) what is the position of the points and (4) if the Stationmaster has made any responses.

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### Conclusion

The forgoing has shown one of the many uses of the Arduino. By introducing the use of staffs one introduces another aspect of prototypical operation, not often modelled and one that adds a certain challenge to operators.

Finally, and this is my wicked side coming out here, think of all the opportunities there are for you, the fat controller of your layout, to issue "bungs" to your drivers! The fun can be almost endless.

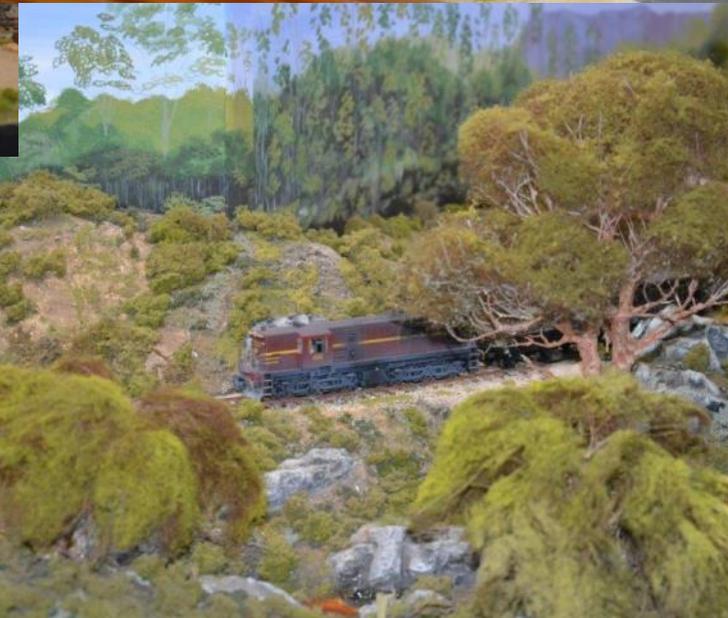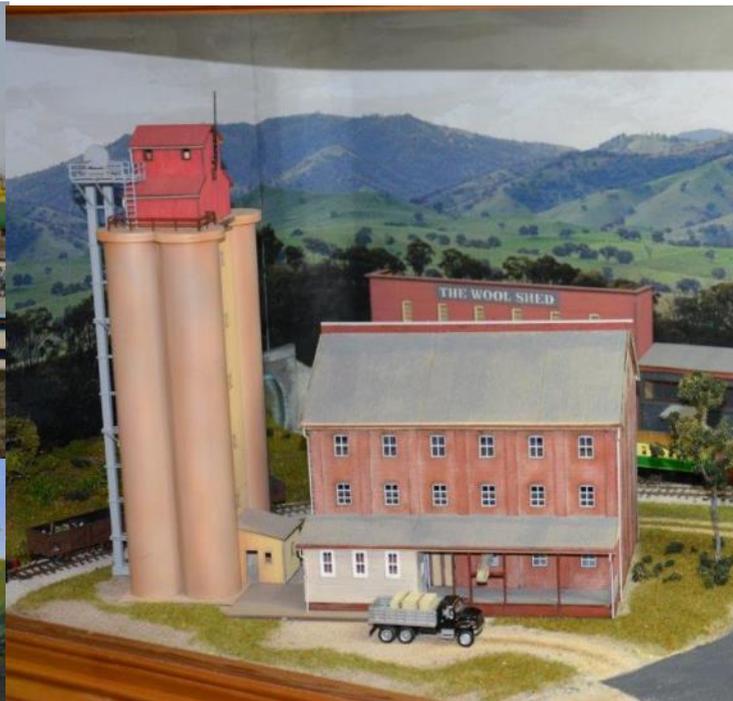# Peter Kendall's HOn30 Mystic Mountain

Mystic Mountain is Peter Kendall of Division Three's latest HOn30 display layout. It will be exhibited at this year's AMRA Exhibition.

Photos by Rod Hutchinson Division Three

# Division One highlights

.Arthur Hayes MMR's photos of the 100% NMRA Toowoomba Model Railway Club's "Model Trains and Hobby Expo" held on the first weekend in June this year.

# Division Three Highlights

The May meeting was held in Essendon at the home of Peter & Julie Kendall. Peter models in HOn30 and has one home layout and two exhibition diorama style layouts. He has just completed "Mystic Mountain" a fantasy layout of which 90% is within the confines of a natural formed cave turned into a mine. His other exhibition layout, "Deep Lake", was published in the April 2018 (Issue 69) of Narrow Gauge Downunder magazine. Mystic Mountain will be on display at the AMRA exhibition in Melbourne.

An overcast and cool day with occasional showers kept members away. Around 12 members and guests moved into Peter's garage where all three layouts are housed. A barbeque, as usual, was the order of the day and despite the cool conditions members enjoyed the warm pumpkin soup, fine salads and wonderful deserts provided by Julie Kendall. The cool day caused an early finish with most leaving by 3pm.

A number of items on display demonstrated the variety of expertise within the Division 3 community.

- Ken Hughes – 1/48 CNC milled building and signs & builder's plate.
- Peter Kendall – 1/50 scale wooden boat available on eBay for around $12.00 landed.
- Peter Macdonald – 1/48 Backwoods bodies on Bachmann Davenport mechanisms.
- Dan Pickard – Scenic material from Spotlight stores.
- Paul Ritchie – HO scale yard shunters modified for On30

Our Superintendent, Allan Ogden, presented Peter with the meeting plaque. A very pleasant afternoon was had by all despite the foreboding weather.
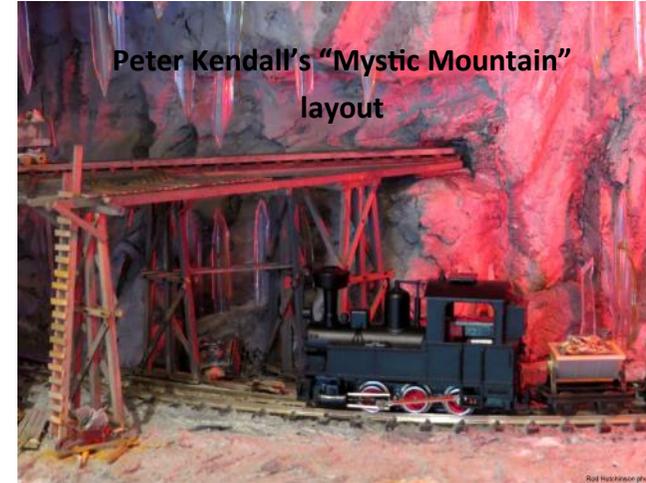
**Peter Macdonald's Re bodied Davenports**

**Paul Ritchie's On30 switcher conversions**

**Peter Kendall's "Mystic Mountain" layout**

**Dan Pickard's scenic material**

**Peter Kendall's Boat**

**Ken Hughes's CNC milled building and builders plate**
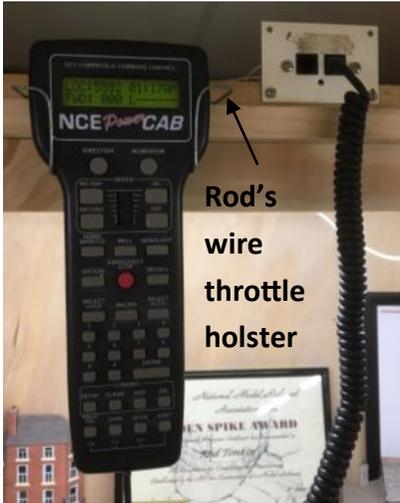
Division Four

# Division Four Highlights

Due to a lack of planning on our superintendent's part we met again at his place in May. The day dawned damp and windy following Perth's first taste of wintery weather. Due to the inclement weather dampening the outdoors seating arrangements we met indoors. Following the formal part of the meeting, show and tell showed we had all been busy. Alan showed us the latching relay test circuit he is developing to allow operation of point work from multiple locations on the Valentine Run layout he is responsible for at AMRA WA.

Peter showed us his sound equipped HO scale Union Pacific MP15.


Peter's MP15


Rod's wire throttle holster

Rod showed us the plug in throttle DCC system with the throttle sockets mounted on the layout upper facia and his home made NCE throttle holsters.

To give Rod's layout a work out Peter ran his Union Pacific MP15 and Alan ran his Santa Fe RSD 15. Having two sound equipped locos running on the layout was quite an experience.


Alan's RSD15

# Adelaide Model Railway Exhibition 2018
# from a T Track perspective.

The June long weekend is the traditional time for Adelaide's premier model railway show. Layouts of all shapes, sizes and scales from all over South Australia and interstate are gathered at Greyhound Park in the Adelaide suburb of Angle Park for a three day exhibition; one of which is the N Scale Triple T-Track layout of David, Neil, Liz and Casey.

We were allocated space on the upper level of the building, along with three operating layouts and the NMRA stand as well as a face painter and a play area for young children.

The Exhibition opened on Saturday morning and for the next three days we were kept busy with the general public looking at what was running and answering questions on the construction of the modules and maintenance of rolling stock. Our layout is sitting on standard outdoor tables, this makes it just the right height for children and people in wheelchairs, so we did have a lot of interest in what we showing. Given that we don't have barriers around the layout it was inevitable that there would be the occasional derailment caused by little fingers, but no damage was done.

Overall we were happy with the way that the layout performed and we may have convinced some people that for small spaces T Track is the answer. Only time will tell.

# Division 6 Chronicles.

## April Meeting.



Division Six's April Meeting

What a wild start weather wise for our meeting being held for the first time at Darryl Jones's home at Hayborough on the south coast. Some of us had lunch at Middleton Tavern before going onto Darryl's home. We meet our new members the Tonkin family and introduced ourselves and what we model before our general business commenced and three members showed us their bring and brag items. We checked out Darryl's layout which is under construction and one of our members Trevor Seddon offered to help Darryl with his wiring which was much appreciated. After a nice afternoon tea and socializing we all headed home. Thank goodness the weather had moderated by this time.

## May Meeting.

This month we headed north of the city to Bob Bevan's home at Mallala for our meeting. Some of us again had lunch at the local pub and then walked to Bob's home. General business was mainly about the upcoming AMRE on the June long weekend and the plans for the national DVD library. We had five members for Bring and Brag and then we checked out Bob's layout which is under construction at present followed by a lovely afternoon tea and socializing. We all had to rush out to watch the passing of two freight trains heading north



Bring and Brag session at the May Meeting

in between socializing as his home is across the road from the main rail line. It was a very enjoyable day for all before we headed back home.



Division Six members admiring Darryl's layout
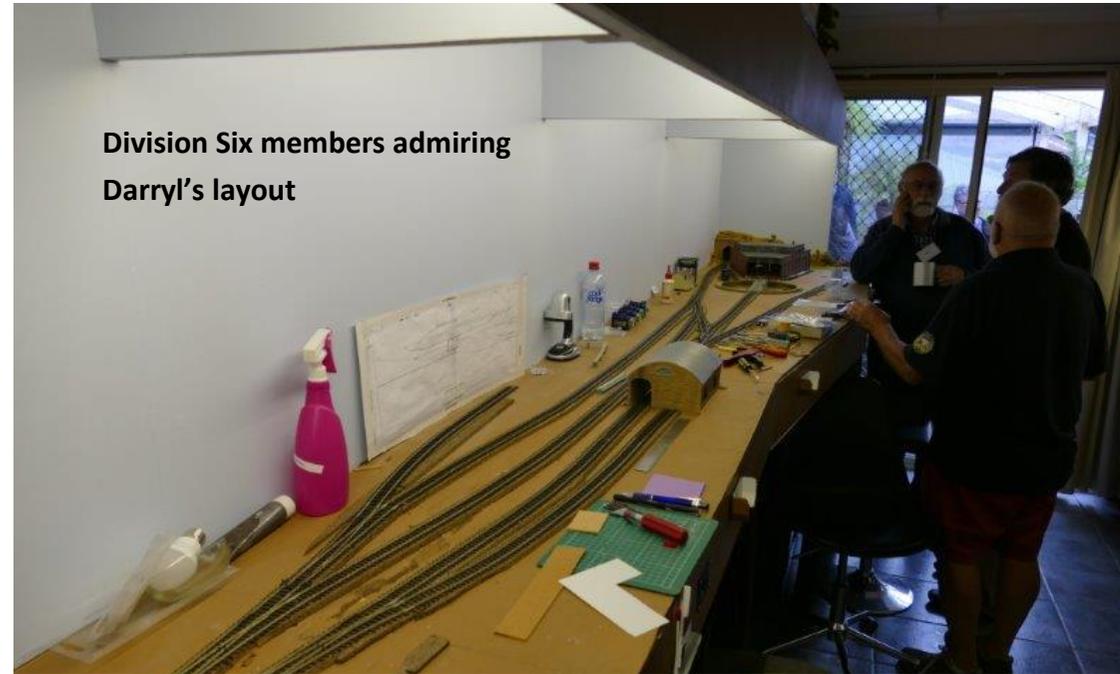


Division Six members inspecting progress on Bob's layout

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# Division Six's Display at the Adelaide Model Railway Exhibition 2018

It was the big Adelaide Model Railway Exhibition last weekend at the Greyhound Park at Angle Park. The weather was mild so there was a good crowd of people in attendance.

There has been plenty of videos uploaded onto YouTube already of various layouts. We all enjoyed our weekend and did get some modelling done in between chatting to each other and the visitors to the show about NMRA as well as meeting up with old friends and acquaintances. Our Timesaver layout was very popular with the children and their Dad's and there were many repeat visits during the day from various children.

There were three other layouts under the NMRA banner as well, so I think we displayed the breath of modelling interests of NMRA members.

Regards

Jane Robinson

Division 6 Superintendent

# Division Seven Highlights

Our April meeting was held at the home of Peter and Barbara Jensen in Narara. The weather was great and we had about 50 members attend.

Since our last visit , Peter has done a lot of work and started on the scenery. Peter is modelling the Vermont Rail System in the 2003-2010 timeframe. It is a modern, independent Class 3 Railroad, mainly within the state of Vermont – The Green Mountain State. The VRS is a grouping of 5 railways …

1. Vermont Railway (VTR),

2. Green Mountain Railroad (GMRC),

3. Clarendon and Pitsford Railroad (CLP),

4. Washington County Railroad (WACR), and

5. New York and Ogdensburg Railroad (NYOG).

All railroads (except the NYOG which is in western New York State) are fully integrated and operate as one railroad. There are locomotives and cars lettered for the five railways.

**The Area Modelled**

Essentially, the area modelled is the Green Mountain Railroad, and in particular Bellows Falls. As Bellows Falls is the interchange with the NECR, the part of the line from Bellows falls to White River Junction is also modelled. Space has caused some compromises. Space only allowed for Bellows Falls Patch Track and not the Riverside yard. Therefore the Yard duties are undertaken in Bellows Falls. On the prototype, most of freight traffic from lineside industries is generated by the OMYA plant in Florence, near Rutland. To model that traffic, the OMYA plant has been moved to White River Junction. This also creates more operation on the layout as most of that traffic must be exchanged at Bellows Falls. As paper is a major industry in Vermont and the North East, a paper mill was placed on a mythical GMRC branch to Lake Rescue where a modelled paper mill is situated.



**Scenes from Peter Jensen's Vermont Rail System**

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# Division Seven Meeting – 12th May 2018

With onset of winter we made our way to the Southern Highlands –Bowral. The weather was wet and windy but the trip was good not too many cars on the motorways. First stop was the home of Garry Glazebrook in Burradoo for the Newcastle & Fassifern Railway – an Australian HO DCC layout. The area modelled was the last in Australia to succumb to the diesel. As late as 1970 there were still 100 or more government-owned steam locomotives based at the twin roundhouses at Broadmeadows and the picturesque full-circle roundhouse at nearby Port Waratah. In addition, there were privately owned steam locomotives on some of the coal mine branches. Plenty of operation on this layout – looks like fun.

**The Newcastle and Fassifern**

The next stop was at the home of Richard Day and the Banbury Connection – a British OO DC layout. Dick has always had a fascination with transport. From early childhood, he enjoyed designing towns and their evolving transport networks. When he eventually realised you could get paid for playing trains, this interest transformed itself into a job as a railway planner responsible for the timetabling, infrastructure development and direction of Sydney's metropolitan railway. Upon retirement, the Banbury Connection we operate today is simply the development of a world which simulates the trials and tribulations of British Railways throughout his childhood in the early 1960s.

**The Banbury Connection**

The final stop was at the home of the McGuire family and the Kansas City Subdivision of the Milwaukee Road Railroad – an American HO DCC layout. One of the main features of the railroad is a fully operational CTC (Centralized Traffic Control) panel, interlocking signals and switches. The Dispatcher has full control over main line traffic and co-ordinates with the Yardmaster in determining what trains need to be run. The Yardmaster is the controller of the Coburg Yard, and this does not appear on the Dispatchers control panel, as he is not concerned with what goes on inside yard limits. The CTC system was built using 4 SMINI nodes and 9 block detectors from Bruce Chubb MMR. Kelly Loyd programmed the system on the computer. There is full logic in the program to provide all of the features of the CTC systems used in the 1970's. He did not want a 'modern' control system, but rather the familiar old 1940's style Union Switch & Signal CTC panel. For example, a signal cannot be cleared unless the switches are set correctly, and there is no opposing movement and there is no train in the block.

**The Milwaukee Railroad's Kanas City Sub**

After a great BBQ we adjourned to the house and the "regular meeting" was held. Les Fowler made the usual announcements about future meetings and the Regional Convention on the Gold Coast in September. Mention was also made of the New England Convention in November.

**Progress on Peter McGuire's new exhibition layout**

## Narrow Gauge SIG

The most recent Narrow Gauge SIG Meeting was held at John Meredith's residence. We had 8 members come along. Several topics were discussed including using real water in your layouts.

I showed the group the Doodle Bug I have just started. Alex showed off the tiny loco kits he has been working on.

We were able to see John's layout. it has plenty of operating possibilities. After a lengthy run on John's layout we adjured for a delicious afternoon tea.

Plenty of banter and fun was had by all, well done John for being a great host. Thanks John and your charming wife for your kind hospitality.

Meeting finished about 4.30pm

Narrow Gauge SIG notes and photos by Steve Chapman MMR

## Steve Chapman MMR 609

Steve Chapman co coordinator of the Narrow Gauge SIG achieved his MMR award this year. Attached are photos of some of Steve's modelling carried out on the way to achieving his MMR. The crossing built from a drawing and the turnout built using a "Fast Track" jig were for the Civil Engineering Award. The bridge was built for the structures and scenery awards. The work car was built for the rolling stock award. The Dunkirk geared locomotive was built for the motive power award.





**John's narrow gauge layout**
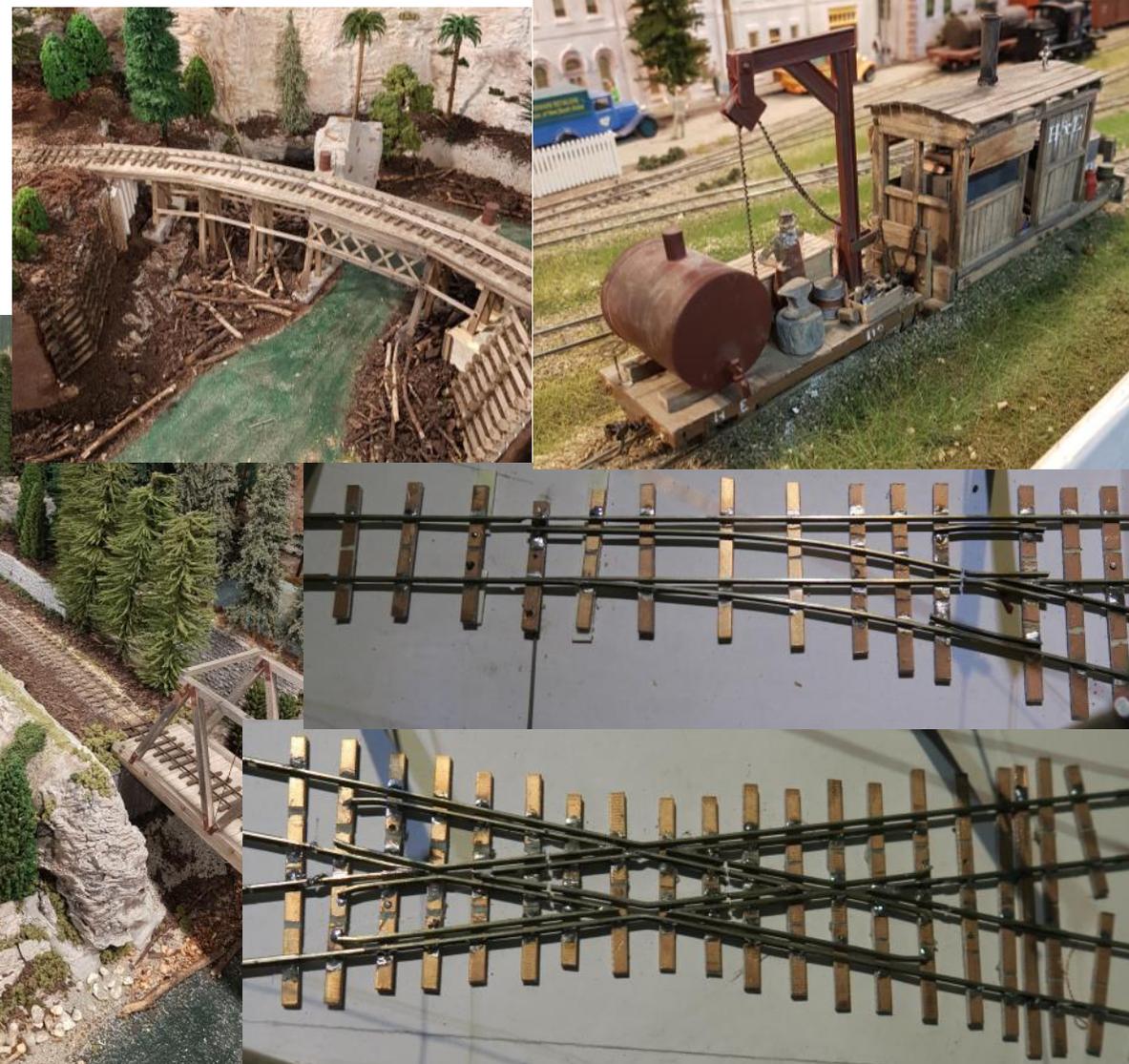
# "The Mangaweka Express"



On the Southern end of New Zealand around the Wellington area, there are a number of Operators running main line steam excursions.

The Mangaweka Express was operated by Steam Incorporated from "The Engine Shed" at Paekakariki (45 kilometres N/E of Wellington). Departing at 07:45 am the train headed north following an electric suburban service from the local stabling area. In route to Taihape the train stopped at a number of stations to pick up passengers, another two stops to take water from the street and a photo opportunity run pass.

Locomotive Ja 1271 built at Hillside wokshops in 1956, hauled six carriages on the trip, hardly a load for this locomotive capable of hauling 12/13 cars when in service. The consist of the train included a buffet car, crew car with open viewing platform, one first class carriage and three second class carriages. Taihape was reached on time at 1:20 pm.

After coaling, watering, turning and an oil up the train departed at 3:10 pm following the Northern Explorer. Stops were similar to the forward journey less one watering stop. Arrival back at Paekakariki was at 7: 45 pm, some 60 minutes early.

The train was well presented, the train crew was made up mostly by volunteers who were very helpful and professional making the day both memorable and enjoyable.

Arthur Hayes MMR.