



Volume 5, Issue 9  
11 September 2016

## From the Editor...



Welcome to the September (Convention Special) edition of The Extra for 2016.

We are now seeing the warmer weather reappear with spring and we get daylight savings time in a

month on Sunday, 2 October. This means we have more daylight and more comfortable conditions to dive into building a layout or working on new projects.

Like all magazine editors, I am always desperate for new articles and items of interest. As you can see, this issue is a little light on detail so please send to me any articles, either your own or even good articles found in magazines that you think others would be interested in reading. I am always seeking contributions for *The Extra* so please pass contributions to me at meetings or email them to me at:

[dohearn@internode.on.net](mailto:dohearn@internode.on.net)

All contributions will be gratefully accepted.

-by **David O'Hearn**

## September Meeting

**The September meeting** is our Division 7 Convention at Berowra on **Sunday 11 September**. Registration starts at 8:00 am with the Welcome address beginning at 9:00 am. The venue is the Berowra community Centre, The Gully Road, Berowra. Registration is through the Trybooking web site or by contacting Les Fowler.

## Next Few Meetings

**October Meeting**—On Saturday 8th October 2016 at 2pm at David Howarth's Railroad Room at 7 Uralla Road, Dural.

**November Meeting**—On Saturday, 19th November at Bob Best's place at 34 Winnicoopa Rd, Blaxland commencing at 2 pm. **Note: This is the third Saturday of the month NOT the usual second Saturday.**

**December Meeting**—Our Christmas Party on Saturday, 10 December 2016 at the Waterview Restaurant at Berowra Waters commencing at 12 noon. Tickets will be available from Les Fowler or they can be purchased at the sign in table at our October and November monthly meetings.

## Other Notable Dates

- AMRA Exhibition at Liverpool on 1 to 3 October 2016. Entry fee is adult \$15, Concession/Senior \$11, Child \$8, Family \$38 and Multi-Day pass \$30.
- Armidale Convention on 12-13 November 2016 at Armidale Bowling Club. See the web site at: [newenglandmodelrailwayclub.com](http://newenglandmodelrailwayclub.com) or contact Warren Herbert on 02 6732 5711.
- Market Day (ie Bring and Buy) at Epping Creative Centre, Stanley Road, Epping on Saturday 26 November 2016. Entry is free. Starts at 10:00 am.

## Division Seven Roles

Superintendent	Les Fowler
Treasurer	Sam Mangion MMR
Hospitality Manager	Jack Parker
Editor	David O'Hearn
Presentation Manager	John Sterland
Moose Wrangler	Paul Marrant MMR

## *Division Seven Meeting*

# *August—Rob Petersen at North Rocks*

Rob Petersen hosted the August Meeting at his house at North Rocks on Saturday, 13th August.

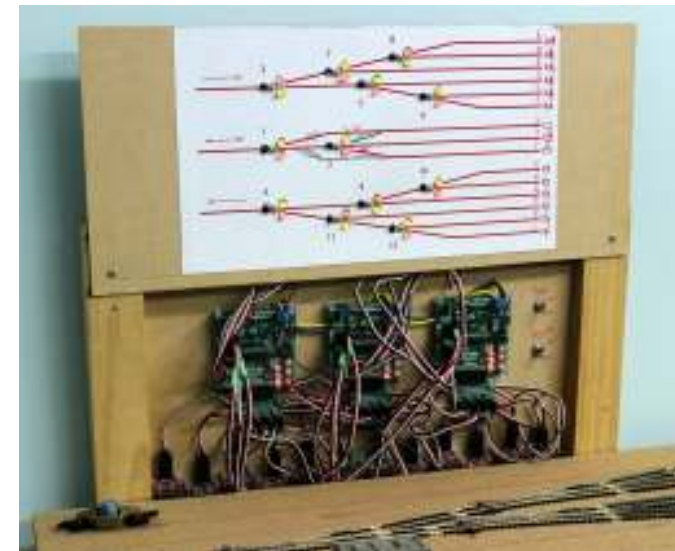
Rob models the Erie Lackawana in N scale.

I don't have a visit report for this meeting but some photos of the event follow.

- David O'Hearn



Some "high powered" conversations



Some of the Switch-its controlling the points



Gathering of the clan in Rob's yard



Rob at the centre of his empire



Some of the trains ready for duty on the layout

# Narrow Gauge SIG Meeting

The Narrow Gauge SIG Meeting was held on Saturday, 27th August at Ken and Jenny Scales place at Blue Haven. The numbers were down on the usual meetings with only 8 people attending, probably because of the distance from Sydney. Also, our fearless leader, John Montgomery, was missing in the wilds of Tasmania.

Ken demonstrated his range of Proxxon miniature drop saws and table saws to make and size scale limber for scratchbuilding projects.

John Meredith brought along a beautiful little tram that he scratchbuilt based on the Lyell Tramway.

Ken also had a number of scratchbuilt On30 structures on show during the afternoon.

At the appropriate time, Jenny put on a wonderful afternoon tea and the conversations continued in the kitchen and family room areas of the house before everyone headed home. Some pictures of the afternoon follow.

- David O'Hearn



Ken Scales with the Proxxon drop saw



John Meredith's scratchbuilt tram



Ken Scales' sawmill



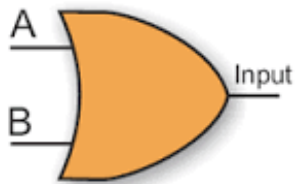
Some of Ken's structures

# Using Logic Gates for Route Indication

- by Peter Burrows

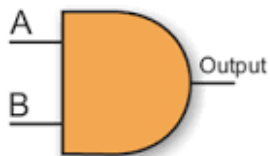
When designing my layout and working out how to indicate routes with just two change over contacts per turnout, I turned to logic devices such as "OR" and "AND" gates to limit the mechanical contacts required. An OR gate will provide a "1" output if any input is a "1" whereas an AND gate must have all inputs as a "1" to provide a "1" output.

### OR GATE



A	B	Output
0	0	0
0	1	1
1	0	1
1	1	1

### AND GATE

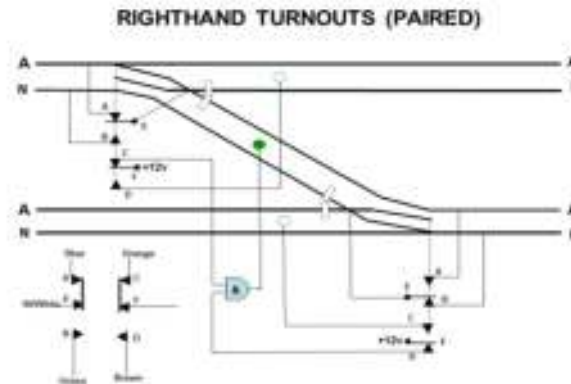


A	B	Output
0	0	0
0	1	0
1	0	0
1	1	1

These logic gates have been around for a long time and are probably best described as simple integrated circuits that use CMOS technology and are packaged

in chips with up to 8 gates per chip depending on the number of inputs. Typically these chips cost less than \$2 each so they are very affordable.

My implementation uses live frogs and mainly simple two input AND gates to resolve routing indication (note a "1" = +12v and a "0" = 0v):

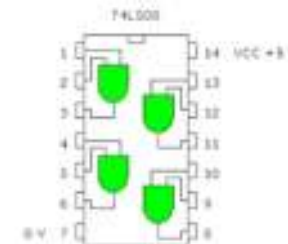


In the above example the green light will only be illuminated when both turnouts are switched to provide a route through the cross over. The AND gate has a "1" (+12v) applied to both inputs therefore the output is "1" (+12v) thus illuminating the LED in the crossover route. The LEDs in the top and bottom routes are out. With a little more circuitry these LEDs could be bi-polar and turn red in instead of off.

In this example only the bottom route is illuminated as it is the only viable route. Only one input to the AND gate is a "1" (+12v) therefore the output is "0" and the associated LED is off. With a little more circuitry these LEDs could be bi-polar and turn red in instead of off.

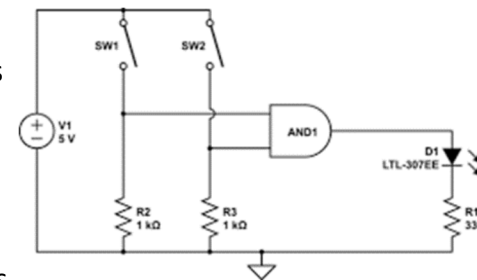


You will note that the route indicating LEDs are controlled by both contacts and the AND gate. The AND gate is only used to provide a decision when two switch or relay contacts are involved. The output of the AND gate is sufficient to illuminate a LED limited to about 20mA.



The chip at left is a typical AND gate IC chip showing the connections. VCC or supply voltage can be anything between 5 & 15v.

The following is a typical circuit design and would satisfy the turnout route indicators



## N.M.R.A. A.R. Div. 7 2016 Christmas Party

December 10, 2016 @  
Waterview Restaurant  
199 Bay Road  
Berowra Waters

12 Noon ~ 3pm  
Price \$65.00 pp + drinks



Christmas raffle  
\$5 per ticket  
Available now

Christmas Modelling Competition

*waterview*  
RESTAURANT  
LUXURIOUS WATERFRONT



### 2016 Sample Buffet Menu

Menu & price may change without notice

#### Cold Buffet

##### Platters

Smoked salmon with red onion slices and capers  
Sliced meats, Ham, Salami & Prosciutto  
NZ Green Lipped Mussels with passionfruit and sweet chilli

##### Salads

All our salads are made fresh on the premises by our team of Chef's

Caesar salad  
Potato salad  
Strawberry, Pecan & Mizuna Salad  
Italian Seafood Salad  
Marinated Mushroom  
Fresh Mixed Garden Salad  
Prawn Noodle Salad

##### Fresh Seafood

Queensland Tiger Prawns  
Freshly Shucked Sydney Rock Oysters  
King Crab Legs

#### Hot Buffet

Soft Shell Crab with chilli & lemon grass dressing  
Beef Stroganoff  
Sydney Rock Oysters Kilpatrick  
Seasonal Vegetable & Cheese Bake  
Salt & Pepper Calamari  
Beer Battered Flathead/Barramundi Fillets  
Chef's Jasmine Rice  
Tandoori Chicken

##### Desserts

Freshly Cut Seasonal Fruit Platter  
Chef's selection of gourmet cakes, Tortas,  
Cheesecakes, Patisa, Mousses & Custards

FRIDAY NIGHT  
*Wine  
Tasting*

FREE WINE &  
SOFT DRINK  
with purchase of Dinner

Tickets \$65pp

Children up to 15yrs \$2.50 per year

Tickets from [div7sup@nmra.org.au](mailto:div7sup@nmra.org.au)

Les Fowler 0411266196

## Design of the Jerry Can

In the early nineteen-thirties the German army reasoned that if they were going to fight a mechanised war they would need a far better fuel container than any of the current types. Most contemporary fuel cans were made of thin tinsplate, frequently merely soldered together. This made them fragile and easily damaged by rough handling. They also often had screw-on caps that could get lost and needed a special spanner to loosen. The cans were often an odd shape that made them hard to stack and awkward to carry, would not pour without sloshing and gurgling, which meant that you usually needed a large funnel or at least a separate spout, and last but not least, if they were filled right up and left in the hot sun the petrol would expand and burst the can.

The Germans came up with a design that was made entirely of steel plate and was essentially pressed in two halves. The halves were welded together and the weld was inside a sunken gutter that protected the weld from damage. The flat sides of the can were stamped with a deep, large X shape to stop the sides from bulging. The bottom corners were well rounded to minimise damage, the can was narrow so that it did not bump the legs when being carried, was tall enough to not require excessive stooping to pick it up and was rectangular in plain view to make them stack side by side efficiently. The cans were designed to hold twenty litres of petrol and to weigh twenty kilograms when full. This made life easier for the loadmasters!

Originally, the insides of the cans were coated with a plastic compound developed for beer containers. The idea was that the cans could be rinsed out and used for water, but this did not prove a success and instead cans for water had a large, white cross painted on each side.

The can has a spout that is designed to allow pouring without the need for a funnel. The cap is fixed on a hinge so that it cannot get lost. The hinge is designed to allow the cap to stay open without being held, thus freeing up both hands to hold the can while pouring. The cap is opened and closed by means of a lever device that can be quickly operated with one hand. The lever enables the cap to be tightly closed.

There are three handles on the top, which at first glance, looks to be two too many. The can is normally carried with the centre handle while the outer handles allow a can to be carried between two people. If two empty cans are placed side by side they can be picked up with one hand by grasping the two adjacent handles. So one man can easily carry four empty cans, two in each hand. If he was a burly type, he could carry four full cans! But the main use of the outer handles is that they make it very easy to pass the cans from hand to hand. So a line of men can set up a 'bucket brigade' and quickly move hundreds of litres of fuel. The handles also make convenient tie-down points.

The handles are made from the same steel as the main body of the can and they are rolled to make a handle of comfortable diameter. Anyone who has carried one of the old four-gallon kerosene tins with the handle seemingly made from coat hanger wire will appreciate that particular design detail!



Behind the handle the top of the can rises to a distinct hump. This creates an air pocket that ensures that the can cannot be filled completely up. Inside the spout is a breather tube that leads into the air space and prevents gurgling when pouring. The air pocket makes a chamber to allow the petrol to expand if left in the hot sun and stops the can from bursting in the heat. The air space also means that when the can is full of petrol and falls into water it will float!

*Continued next page...*

## *Design of the Jerry Can (Continued)*

The Germans mass produced the can in secrecy by the thousands and stored them in a guarded hangar at Templehof airport.

In WW2 the British first came across the can in the Norway campaign, quickly saw that it was much superior to their own and collected up all they could find for their own use. British soldiers usually called the Germans 'the jerrys', so the German can quickly became the jerrycan. The British quickly began to mass-produce the jerrycan, essentially identical to the original German design. After a couple of false starts the Americans also started to make it, again to the original design. In preparation for the invasion of Normandy the British made literally millions of jerrycans.

Just after D-Day President Roosevelt went before Congress and said:

"They were among the first supplies landed on the beaches of France. When the US 1st & 3rd Armies broke out of Normandy it was in these jerricans that the petrol our tanks and lorries needed to keep going was sent forward. Without these cans it would have been impossible for our armies to cut their way across France at a lightning pace which exceeded the German blitz of 1940. Cargo planes and even combat planes were loaded with them & carried them forward to airfields. Lorries of every size, jeeps, armoured cars – everything that rolled on wheels – loaded up with jerricans & rushed them to the front lines. They were tough enough to be dropped off lorries in motion without bursting open. They could even be dropped from the air into rivers & streams, or they could be dumped overside from ships, because they have air pockets at the top which make them float even when filled."

At the end of WW2 it was estimated that about twenty-one million jerrycans were scattered around Europe.

Today the jerrycan is made world-wide (my own was made in Croatia!) and is the standard issue for NATO countries, the Israeli military, many African countries and many of the former Warsaw Pact countries. It is still made essentially to the original design, eighty years later.

So next time you are down at Super-Cheap and you see jerrycans on display and you don't already own one, buy one, even if you don't need it. You can put it in your garage and tell yourself that you own an iconic piece of history. A classic piece of twentieth-century industrial design.



*The jerrycan has stuck to its original design*

*A WW2 scene - the labourious task of filling thousands of jerrycans*

