



## Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC

Managers of the "MARRINER RESERVE RAILWAY"

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July 2014  
No 402

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### TRACK RUNNING

This is held on the FIRST and THIRD Sunday of each month, from 1 pm to 4 pm Summer and 1 pm to 3 pm during the Winter. All club members are welcome to attend and help out with loco coaling, watering and passenger marshalling - none of the tasks being at all difficult. We may even offer you a cuppa.

Visiting club members are always welcome at the track, at the monthly meeting, or if just visiting and wishing to make contact with members, please phone one of the above office bearers.

Sender:- PNMEC  
22b Haydon St,  
Palmerston North 4414

Place  
stamp  
here

## This Months Featured Model



## Report on the June Meeting.

**Richard Lockett** presented a talk on how the operation of the Marriner Reserve Railway is managed to comply with Labour Department regulations and Health and Safety requirements. The **Daily Inspection** of the track before running trains and the recording of the inspection in the Operation Log Book.

All **Structures and Vehicles** are inspected on a regular basis and recorded in the Structures and Vehicles Log Book.

There is also a **Certificate of Fitness** issued for privately owned locomotives and driver's trucks. This Certificate is to be kept by the owner as other tracks will request to see it along with a Boiler Certificate.

The onsite **First Aid Kit** also inspected on a regular basis.

### Bits & Pieces

**Ian Stephens** showed us the now complete dray with a suitable horse in the shafts. The 'brass' horse had its ears laid back (not a good sign of the horses temper) and Ian replaced these with vertical ears soft soldered in place. The dray wheels have steel tyres fitted.

As it is some sixty years since Ian operated a horse and dray, he found it necessary to visit the Feilding Museum to refresh his memory of just how drays were built.

**Graeme Hall** has found that the model of the 'Snow' engine he is building has a large number of small copper pipes all with complicated bends that are never the easiest to produce in thin wall copper tube. The sizes were 3/32, 5/32, 3/16, and 7/32. Graeme got to work and made pipe benders for each size and by trial and error has perfected a method of producing neat bends. He has a friend rebuilding a racing bicycle which is being fitted with slightly wider rims. This meant that new parts for the brake gear had to be made and Graeme volunteered to make them out of stainless steel. Unfortunately the measurements he was given were incorrect and now he has to modify the parts so that they will fit.

**Bruce Geange** is making a scale model of an NZR 40 ton steam crane built by Craven's. Bruce has scaled it so that it suits O gauge

track. He admits that he now knows a lot more about steam cranes and their construction than he did before.

**David Bell** a new member has had a long career involved with jet engines as used by Air New Zealand and the natural gas powered units generating electric power near Stratford. David had been cleaning out his workshop and come across some failed components so he brought them along to see if we were interested. He also had some large pictures which he used to explain the workings of a jet engine. All very interesting.

### July Club Night

7:30pm, Thursday 24 July 2014  
Hearing Association Rooms  
Church Street, Palmerston North

#### Show and Tell.

**Come along and talk about  
Your Favourite Vehicle.**

**If you can, bring a model or a picture  
for members to look at while you are talking.**

## COMING EVENTS

### Track running at Marriner Reserve Railway

August 3<sup>rd</sup> from 1pm to 3pm  
August 17<sup>th</sup> from 1pm to 3pm

### Open Weekends

#### Labour Weekend at

Keirunga Park Railway 24<sup>th</sup> to 27<sup>th</sup> October.  
and  
New Plymouth 25<sup>th</sup> to 27<sup>th</sup> October

### Subscriptions

Subscriptions are now due and remain at the previous years amounts.

Full Membership	\$30
Country Membership	\$15
Junior Member	\$15

There is a joining fee of \$10 for new members or those that don't pay before October.

The closing date for the next issue of The Generator is Friday 15th August

## THIS MONTH'S FEATURED MODEL

By Ian Stephens

My wife Betty for a long time now has wanted me to build a model of a vintage car. I found some very old magazines with several pictures of old cars and I decided to make this one. The model was made from brass sheet. The chassis was made first and then came the four springs. I remembered a spring called a swinging half spring and thought that it would suit the model. These springs had no shackles, there were leaves to the top and bottom and main leaves were bent around in the front towards the back where an eye was turned for a shaft which went right through under the car from one side to the other. The shaft was locked into a slotted block to allow the springs to move up and down. The centre of the top main spring is locked to the chassis. The cab of the car was cut to shape in three pieces, two sides and a top. The radiator and the engine cowling were made and fitted followed by the mudguards and front and back seats, and steering wheel. All these had to be fitted before the roof was put on. The doors and door latches were made when the cab sides were first cut out. The headlights were turned from 1/2" brass bar and the side lights from 3/8" brass bar. The upholstery was done by Richard Stevens with leather floor mats and green felt seat covering. I then fitted the rear oval window and the glass wind screen, both set in 1/8" round brass frames.

I now have a very Proud and Happy Wife.

## LETTER from ENGLAND

By Stan Compton

I know a man who is responsible for the production of high quality hydraulic valves for the aircraft industry; he has some qualified engineers on the staff but they are unable to get stuck in and make a replacement item to keep production going.

A local firm who restore narrow gauge steam locomotives, contacted Hereford Model Engineers to ask if any one of our members could machine a multi- start thread for a whistle valve spindle with a square thread!!! This is the result of our education system that does not encourage pupils to enter engineering trades and the lack of apprenticeship opportunities. So we get a wizard on a computer that has no skills with their hands holding the tools.

I have taken on completing a kitset for a 5"

gauge 'Koppel' locomotive for the widow of one of our club members who died recently after a short illness. It was the third kitset for a steam locomotive that he had acquired and they all had problems. It is easy to check a simple hand-pump by immersing the suction into a container of water and moving the ram.

A good flow will result and the pump will then work against pressure. On this hand-pump the check valves had 1/8" lift instead of 1/6" of the diameter of the ball and the pump was useless. All the ball type check valves had 1/16" ball lift, i.e. one third of the diameter of the ball.

No one seems to check a lubricator; I have a pressure gauge I keep for this job. It turned out that the pump ram was 1 1/2 thou undersize which resulted in no oil flow and no pressure on the gauge. A scrap of steel drilled undersize and slit, compressed the body of the tube in the vice by 1/2 a thou and then the lubricator pump worked as it should. This pump is the latest type available. The original pump designed by Jim Ewins with two O-rings always worked well with a ball with a light spring seating on an O-ring providing a leak free built in check valve.

While we are talking about water pumps I had a 5" gauge Quarry Hunslet brought to me to find a bad leak. The builder had fitted a pair of axle driven pumps of 5/16" bore and he had made a very neat job. However the suction pipes got bent during loading into the car. To fit the pair of pumps the builder reduced the suction pipes to 5/32" and used 1/4" x 40tpi union nuts. He reduced the diameter of the brass pipe nipple sleeve too much creating a weak spot, (I now use a cone of copper silver brazed to the pipe instead of brass nipples). The damaged pipe split the cone off the brass nipple but by filing the sleeve of the brass nipple I found I was able to fit a copper cone to replace the original nipple.

By the way: the correct way to re-pack a pump is to wind the new packing around a round bar the same size as the pump ram or spindle. Cut down onto the bar with a sharp knife and then when the packing is fitted individually it will fit up flat to the end of the bore and gland.

**Note** if you are using 'valve twist' which is very soft, simply wind it in; never use PTFE (Teflon) as a packing for a pump ram, it can shred out. The Hunslet steamed well when it was bought at an auction but now we find that the super heater is leaking. The owner is a bit deaf and he could not hear the 'blow' up the chimney.



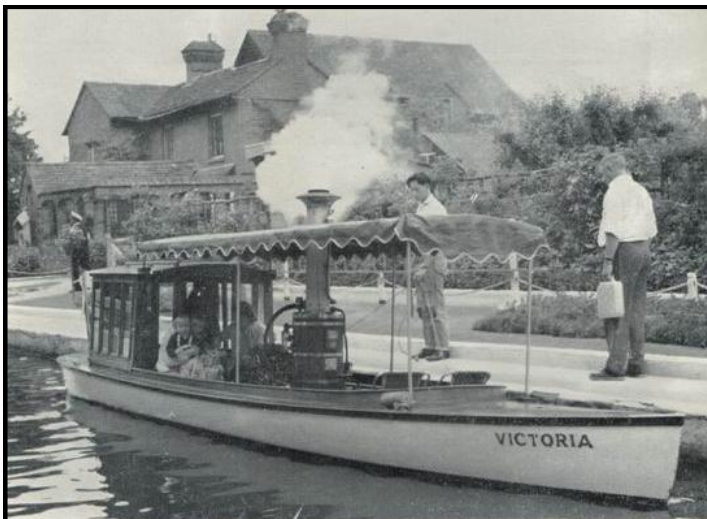
This is a problem with the purchase of an engine of unknown history. I have done a lot of work on this locomotive to correct worn items.

I was taken for a day out to 'Cosford', a Royal Air Force Museum just north of Birmingham. Well worth a visit with so much to see. Free entry and a cooked lunch; it was a day to remember. Knowing a little about aircraft, it was obvious the cost of the exhibits, and also the buildings to house them, it was all very impressive. The recently recovered 'Dornier' bomber is being treated for the effects of seventy years on the sea-bed in the English Channel. We arrived at 10.00am and left at 17.30pm so you can judge that there was plenty to see. [www.rafmuseum.org.uk](http://www.rafmuseum.org.uk)

I was so sorry to hear that Peter Hatton has had a serious stroke. I recall that when he had completed his 'Flying Scotsman' I offered to spray it for him with Dulux 93. Peter asked, "What is the right colour?" I answered that it was 'Apple Green', but Railway Companies were not known for accurate details. Peter took an apple to Alexander Clarke's paint shop and the result was a colour just like a Granny Smith apple!!!!!!

## A Traditional Steam Launch in 1965

By Doug Chambers



The hull of this launch was built about the turn of the century at the Springfield Works, Goring-on-Thames. The hull is of mahogany, triple skinned and sewn with copper wire. These copper stitches are about 1" pitch being also applied to the keel and all longitudinal members. Originally the launch was powered by

a petrol engine driving a small propeller. The largest propeller that will fit in the tunnel stern is 18" in diameter. This is rather small for a steam powered launch but a reasonable maximum speed of 8 knots can be achieved. The tunnel has a weed hatch which is very handy when steaming through weeded sections of English canals. Normally boiler feed water is taken from the river but when on a 'tideway' freshwater is carried in cans. The bunker carries 3/4cwt and a further 4cwt of Welsh steam coal is carried in the stern. The all welded 'Merryweather' vertical water tube boiler is a 10hp and allows a consumption of 35 pounds of steam per hp per hour. Forced draught is provided by an independent steam driven fan and the steam engine driving the fan is a Stuart Turner 'Sirius' twin cylinder, single acting, with 1" bore and 1" stroke. The exhaust steam is condensed. The main engine is a vertical two cylinder, two crank compound. Cylinder bores are 3 1/4" and 6" with a 5" stroke. It left the works of John Samuel White of Cowes, in the Isle of Wight in 1898. The launch owner heard of it in 1949 when he was an apprentice with the firm but it was not for another nine years before he was able to purchase it. Complete with a condenser, the engine required extensive restoration which included fitting balance weights to the crankshaft.

The launch now named 'Victoria' was completed in 1960 and has given good service. A trip in 1965 saw the launch travel 185 miles over eight days. The trip started from the Reading-Oxford section of the Thames, then by the Oxford Canal to Napton Junction and by the Grand Union Canal to Braunston which meant passing through the 1 1/2 mile long Braunston Tunnel, with the aid of light provided by an acetylene head lamp. Fuel consumption worked out at 30 miles per cwt. A little heavier than expected but passing through 110 locks and shallow canals that cause drag probably was the reason for high fuel consumption.

## An Old Model Locomotive Turns Up Again

By Doug Chambers

A few weeks ago Richard Lockett was contacted by a man whose profession is maintaining and repairing large boilers. He had been asked to inspect and report on the condition of a steel boiler in an older 7 1/4" gauge 2-4-0 tender

engine. He forwarded some photos via email but Richard couldn't identify it and he forwarded the email to me. Although I had only seen photos of the engine I was 99% sure it was the engine that Bren Campbell had built in 1955. As Bren was living in the Ranfurly Rest Home hospital wing in Feilding, I suggested to Richard that he print off the photos and take them to Bren for positive confirmation. Richard did this but was told by the staff that Bren had been moved to the Palmerston North Hospital where he sadly passed away a few days later. At Bren's funeral photos were screened showing the various stages of his life and there was a photo of him driving the 2-4-0 so we have positively identified the locomotive.



## In the Newsletters from other Clubs

**EBop Model Engineers** Now looking at extending their track.

**Manakau Live Steamers** hosted a very successful Queen's Birthday Weekend. Bill Parker has castings and parts for a 5" 'Springbok' for sale.

**Christchurch Model Engineers.**

The Wednesday work team are putting in some time ballasting the track. The new engine shed is nearly complete and the batch of new passenger wagons are nearly complete.

**Nelson Model Engineers** One of their members bought a used 'Beejax' off TradeMe and after a minor overhaul he now has a good looking and well performing engine.

## Building my First Locomotive.

continued from June

By Doug Chambers

In 1984 Martin Evans had produced drawings for a 'Super Simplex' which was basically the early 'Simplex' with an improved boiler design. I had also been reading Jim Ewins articles on boiler design and Bert Perryman and Lionel Woodhead's application of Swindon draughting to model locomotives. When John Comrie bought Bill Morris's 'Simplex' chassis with a view to completing it, I managed to persuade him to build a 'Super Simplex' boiler for it. There was a great improvement in steaming when compared to my own and it was obvious that if I replaced the original 'Simplex' boiler on my own engine with a 'Super Simplex' boiler my problems would be over. Financial restraints meant that a new boiler was not an option but I was fairly sure improvements in performance could be achieved by fitting a Swindon type venturi exhaust to the funnel.

Finally in the mid nineties the 'Simplex' was lifted onto the bench so an attempt could be made to improve if possible, its steaming ability. The first task was to remove the boiler, smokebox and saddle to expose the exhaust piping.

On 'Simplex' this takes the form of an inverted 'T'. This arrangement is not very efficient as the exhaust steam goes from one side to the other before eventually finding its way up to the blast nozzle. Although there is a small deflector plate to direct the exhaust steam up to the blast nozzle the design is not very good.

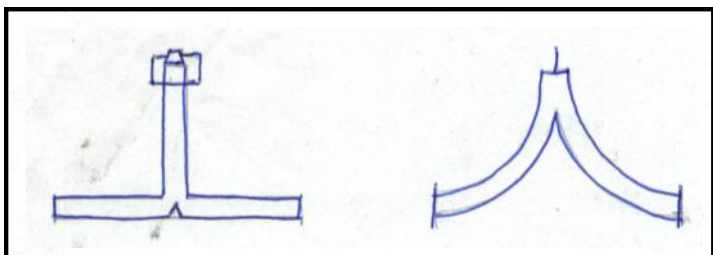
I made a new exhaust pipe arrangement which closely resembles an inverted 'Y'. I bought two 90 degree copper bends and after cutting them



back halfway through the tubes, silver soldered them together.

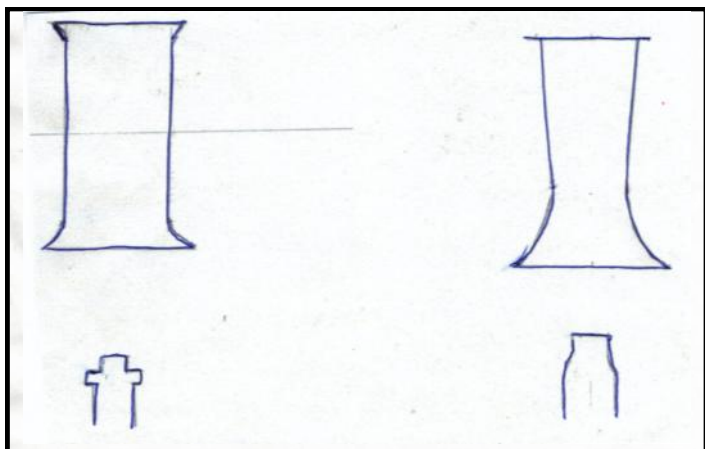
I was then able to carry out a simple test to compare the efficiency of the 'Y' against the 'T' exhaust. I set the air compressor regulator to 25psi and placed the nozzle against one side of the 'T' where the exhaust steam left the cylinder. A small piece of paper was held beside the other side of the 'T' and when the air was turned on the paper was blown away proving that a lot of the exhaust steam was travelling from side to side and not going up to the blast nozzle.

When I repeated the test with the 'Y' piping the



piece of paper was sucked against the other outlet pipe proving that all the exhaust steam was flowing directly to the blast nozzle and it was creating a small vacuum in the bend to the opposite cylinder.

The boiler and smokebox were refitted to the chassis and my attention was now on improving the smokebox draughting. I decided to follow Lionel Woodhead and Bert Perryman's formula as their's was not an unproven theory; they had applied the change of design to several engines with a great deal of success. Their article appeared in Model Engineer 5<sup>th</sup> May 1978 page 527.



If you look at the above picture you can see the usual chimney liner arrangement and on the right a chimney liner with draughting principles applied.

I came up against a problem with the chimney,

the diameter of the choke was very close to the bore of the chimney and I couldn't get a taper above the choke.

After a lot of thought I concluded that as the 'Simplex' was a 'freelance' engine it wouldn't matter if a larger diameter chimney was fitted to it. The new chimney incorporated a taper on the outside similar to the inside liner. It was not as tall as the original but it looked the part. The choke diameter D is the critical part, it is found by multiplying the area of the grate in square inches by .048 which will give the area of the choke in square inches. You will then have to look up an 'Area of Circles' to find the diameter of D. The rest is quite simple, the diameter of the petticoat is 2D and the radius of the curve from the choke to the petticoat is D. Although the taper up the chimney is recommended as being 1 in 14 this can be machined to a lesser taper. The chimneys of some models of prototype locomotives are too small in diameter to get the desired taper but I have found that if the taper is carried as far as possible, then the last part of the chimney liner can be parallel or just slightly tapered. It doesn't seem to make any difference.

The calculation of the area of the grate relationship to the area of the choke does not apply to boilers with wide fireboxes. These boilers usually steam pretty well but a venturi exhaust liner will assist but you have to work from the taper down to the choke as otherwise you will have a chimney far greater in diameter than the scale one.

The new liner parts were made and fitted and particular attention was made to making the smokebox air-tight around pipes and the joint between the boiler and smokebox.

I altered the blast nozzle base, threading it so that different sized nozzles could be tried to establish the correct one.

'Simplex' was then taken down to the track .....

Find out next month what happened.

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