



## Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC

Managers of the "MARRINER RESERVE RAILWAY"  
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May 2008  
No 334

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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 onerous.

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

Place  
stamp  
here

### This Months Featured Model



## REPORT on THE ANNUAL GENERAL MEETING

The AGM got under way promptly, and the various reports from President, Treasurer, Track Convenor, and Boiler Committee were read and confirmed.

Next came the election of Officers, and the following were elected.

President	Richard Lockett,
Vice President	Cynthia Cooper,
Secretary	Stuart Anderson,
Treasurer	Murray Bold,
Committee	Les Fordyce, Bruce Geange, Brian Leslie, Chris Morton, Dave Newstead.
Track Convenor	Richard Lockett,
Editor	Doug Chambers,
Librarian	Doug Chambers.
Roving Reporter	Stan Compton.

At the end of the AGM voting took place for the 'Clubman of the Year' trophy. The result was a tie. A few years ago a young chap joined the Club and has given his time to serve on the committee and last year as secretary. **Stuart Anderson** is a deserving recipient of the Shield as is his co-holder **Stan Compton**. Stan was a real driving force in the club during his time here. Stan's Letter from England reprinted in the Club's 'Generator' shows that at 83 years old he still has the drive and enthusiasm to help, advise and guide the members of the Hereford Society in England.

After the meeting members were able to look at the rear wheel of a 2" scale Durham and North Yorkshire traction engine that **Brian Avery** is building.

**Ian Stephens** showed us the now painted Royal Mail Delivery Van (1920) A very good effort. Ian has just turned 79 and only

started model engineering six years ago. You are never too old to 'have a go'.

**Doug Chambers** had the 'Minnie' traction engine he completed for the present owner. Also the superheater for the current project. A 5" gauge 'Britannia' that is being completed as a 'joint' project for owner Barry Parker.

## MAY MEETING.

This will be held on the 22<sup>nd</sup> May at 7.30pm in the Hearing Association Rooms, Church Street, Palmerston North. Richard Lockett will give a talk on milling, milling cutters as used by the model engineer. There will also be 'Bits and Pieces' on the table to be talked about and looked at.

## COMING EVENTS

### Mid Week Run at Marriner Reserve Railway

27<sup>th</sup> May between 10.00 am and 2 pm

24<sup>th</sup> June between 10.00 am and 2 pm

Please contact Doug Chambers beforehand.

### Track running at Marriner Reserve Railway

June 1st from 1.00pm to 3.00pm

June 15<sup>th</sup> from 1.00pm to 3.00pm

### Open Weekends

.HAWKES BAY Model Engineers

5<sup>th</sup> - 6<sup>th</sup> July

### FOR SALE.

Myford ML7 3 jaw, two four jaw chucks, face plate, angle plate. Usual extras. \$1500 ono. Heavy duty drill press 3/16" to 3/4" Jacobs Chuck, Power hacksaw. All home made. Various drill vices, LPG torch and 9kg bottle (needs retesting).

Contact Clem Parker 06 376 8353.

The closing date for the next issue of The Generator is Friday 13th June

## FOR SALE

Brian Wiffin wishes to sell the patterns and plans for his gear hobbing machine. The plans and patterns may be seen at Bruce Geange's home. Please ring 06 357 0566 to arrange a time to see them. Price to be negotiated.

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26" Chesterman Vernier \$150  
Small Ryobi bandsaw \$50  
Small and old air compressor \$20  
Three sets of rollers for placing under locomotive driving wheels while setting valves or trial steaming, will suit all gauges \$50  
7 1/4" gauge passenger trolley with coal bunker \$100, model submarine kit, untouched, all parts including RX servos \$500  
kit for a high speed drilling machine \$50  
three 3/4" x 3/4" hand pumps \$100 each.  
Moore and Wright micrometers 1" \$30  
1" to 2" \$40 - 3" to 4" \$50  
4" to 5" \$60 - 5" to 6" \$70  
To view Please Ring Chris Rogers 06 3561759

## THIS MONTH'S FEATURED MODEL.

The Vintage Van. This model was built from a picture of van that was produced in 1930. To get everything to conform I had the picture 'blown up' to the same size that I wanted the model to be. This gave the length as 15 1/2", width 6 1/2" and height 8 3/4".

I made a wooden pattern of the wheel and then got four cast in aluminium. The chassis was formed from 26 gauge steel folded to form a 'channel' section. The springs were made of package strapping and the steering is via a worm drive in a brass case. The differential housing was turned out of a piece of 2 1/2" diameter aluminium but there is no differential. The drive is by a single piece axle. A small steam engine drives a round section belt and the boiler is under the bonnet. The carbide type lights were turned from brass and have been fitted with LED light bulbs powered by an AA size battery.

When the gloss black was applied over the Plasti-kote the whole lot curdled. The second attempt after stripping away the first effort was successful. The second time I used Plasti-kote primer followed by Plasti-kote Gloss Black and it went on very well.

The van, now complete, sits in our lounge beside the TV in our sitting room, where it receives a lot of praise from visitors. It has been run on air and went very well.

By Ian Stephens

## LETTER FROM ENGLAND

By Stan Compton

Some of you may recall that years ago I made up a set of patterns, mounted on a plate of plywood, to obtain sets of castings to build a 'Rail-Motor' as drawn by the late Don Young. Milson Foundry were very helpful with a very reasonable charge, and a number of these very small engines were built in spite of Don's complicated description of construction. It was his first attempt and not easy to follow. Chris Compton, as a schoolboy built one with my help, it would go like a scalded cat and with a long wheelbase, still stay on the rails. Don Dudley built one and so did Bruce Geange, only his was completed as a 2 - 4 - 2 tank.



When the GWR absorbed stock from small Welsh Railways in 1923 they rebuilt two rail-motors, the original rail-cars by removing the attached carriages, increasing the length of the main-frames. A pair of trailing wheels were added with tank and coal bunkers on top; some were tried as an 0-6-0, but neither lasted very long and were scrapped.

When I spotted the 0-4-2 tank rebuild I realised that this could be a useful engine. One of our Hereford members acquired a casting set for a Rail-Motor and I suggested he build it as an 0-4-2 tank, not realising that many years later I would be asked to complete the project.

Two months ago I took on the job, ninety per cent completed. I removed every fitting from the commercial boiler. It always pays never to assume, I found things like no internal water feed pipe from the injector. Being alongside the injector steam take off, this would have picked up water with the steam to the injector. No internal blower-steam feed pipe plus other details, all simply because this was a first attempt at locomotive construction. The builder had been trained as a goldsmith in his youth going on to technical work so his platework was superb. To obtain a neat fold to bunker and tank material, he had carefully applied a hook-tool along a straight edge, cutting away part of the brass sheet. The resulting fold was so neat, just like a silver snuff-box. He is keenly waiting to see the engine in steam.

At the Midlands Exhibition this year a model of a

500cc Ariel motor cycle with sidecar was on display. I found a photograph of it and thought it was full-size. Then I noticed a glass of Guinness stout placed on the model, I assume to give an idea of scale, or was it a dummy?

Looking closer I noticed an extension spring holding the kick-start lever, just a detail but it spoilt an excellent piece of work. Now we all know that the larger the scale of a chosen model, how it increases the workload, if this project is half-size, that is a big job. Some workers prefer a large scale, certainly it simplifies a lot of the work, but it is still easy to get overscale. Looking at the girder-fork links, they looked too heavy. This is something I had experience of many years ago when I was asked to take a position of foreman with a firm who specialised in repairing smashed motor cycle frames and forks. Visualise the front fork off a 500cc Norton where the wheel spindle ended up under the crankcase!!!! We repaired it but that night riding home made me extra cautious.!! We repaired everything then in the fifties, there was no money for a new bike. I do not mean to criticise that model of the Ariel outfit, I wish I could have built it.

Many of the public cannot understand our interest and dedication building models. But what does the average man do on retirement, play golf or create a nice garden, buy a computer? None of these leave anything behind when we are gone.

Last summer one of our Hereford Club members was helping out at a local restored railway. A tank loco had been hired for a 'Thomas the Tank Engine' weekend and then suddenly the whistle that had been working perfectly, disappeared in a cloud of steam!!! When retrieved, luckily no one was injured, it was discovered that the short length of threaded brass tube had perished. This retained the whistle to the valve. No how to repair it? The engine was needed to please all the children waiting for a ride behind 'Thomas'. Our member volunteered to make a new support tube. He had had mechanical training but had never tackled cutting an eleven pitch thread before. So into the railway's workshop and onto a massive industrial lathe. The only piece of bronze available was over three inch in diameter. This was turned down to size and bored, remember he had to find the tooling for each part of the job. Now for the tricky bit cutting an odd number of threads; concentrating on the job in hand he paused and looked up and counted eleven men watching the work in progress.!!! The last thing he wanted was an audience, but all credit to him, he carried on and finished the job and 'Thomas' was able to complete the job it had been hired for.

This loco had a current boiler certificate, I bet the

inspector had no idea that someone was stupid enough to use a piece of screwed brass tube to mount that whistle. Often a short length of threaded steam pipe is used for a job like this, but a flanged fitting is better.

## **FURTHER THOUGHTS ON INJECTORS**

The previous article on injectors and why they don't always work as desired was read by John Cashmore of the UK who has sent a copy of an article on injectors that he wrote for the Society of Model and Experimental Engineers some years ago. In the hope that John's article might help someone with an injector problem I will include it.

The miniature injector supplied by reputable dealers these days can be relied on to do the job it is intended to do, BUT there are some simple do and don'ts that must not be ignored.

- 1 The injector must be supplied with all the steam it needs without restriction.
- 2 The injector must be supplied with all the water it needs, filtered, without restriction and absolutely air free.
- 3 The injector must be able to clear the water it is delivering without restriction.

There are no compromises to be made with any of the above and still guarantee that the injector will work properly.

There are no particular demands on pipes provided the internal cross sectional areas are not reduced in any way by flattened bends or over generous silver soldering resulting in partial blocking of pipes. Of great importance is the overall free area of the water filter. Even 90 degree bends can be tolerated. If the reader thinks differently he should consider why 90 degree steam valves, 90 degree check valves and the injectors themselves do not stop the system in its tracks.

Then why is so much trouble experienced, by so many people?

From correspondence, phone calls and conversations in the steaming bays, it becomes clear that a large number of modellers are looking at the injector in isolation, whereas in truth it is part of a complete system, from the steam space in the boiler from where it receives its steam supply, to the steam space in the same, or in rare cases different boiler. Included with the system, is the steam manifold, every pipe, steam valve, water filter, water valve, and boiler check valve. All these parts must carry without restriction all the flows to and from the injector.

**YOU IGNORE THIS AT YOUR PERIL.**

The water supply to the injector must be air free. This

should be interpreted as 'there should be no chance whatsoever of air getting into the system from water valve glands, loose fitting rubber pipes or for any other reason'. Nothing less will do. Try drinking a glass of lemonade through a straw that has a small hole in it. I'm afraid you will not make much progress, and neither will the injector which is also trying to suck water.

**YOU IGNORE THIS AT YOUR PERIL.**

Check also for rubber tubes being sucked flat. There must be in place a water filter of sufficient area to allow full flow to take place and which is capable of filtering to the smallest dimension of the combining and delivery cone entrances in order to stop a particle of any shape getting into the system. Remember the holes in the injector are tiny!!

**YOU IGNORE THIS AT YOUR PERIL.**

There is a problem that can occur from time to time in hard water areas. It would seem that all water companies are adding salts to the supplies, even in areas where the water was once considered as soft as the mountain dew. The symptoms are thus. On first fitting the injector it works for a period quite satisfactorily.

After a period of non-running, usually over winter, the injector, when first tried, begins to spit at the overflow and generally plays up. It may or may not deliver water at all. After a time the problem may possibly clear and the injector will work fine.

My own theory is that during the layoff the water remaining in the pipes has dried out and left a deposit of hard salts which are insoluble. These of course have already passed the filter, so should they break free you will be in trouble. It is very interesting to note the number of times over the years that I have encountered this problem.

My own method of attacking this problem is as follows. At the end of the season, or before a period of non-running, and while still in steam, I disconnect the water feed and replace with a temporary rubber tube fed into a jar of citric acid solution. The steam is turned on, but only enough to pull the acid solution through the injector and out of the overflow, but not into the boiler. The mixture is caught at the overflow and reused until the fluid is quite hot.

This will make sure that the injector's sensitive bits will get their fair share of acid.

Under no circumstances put water through afterwards. This will make sure that the insoluble salts normally left will be replaced by soluble salts which will dissolve quickly should any drying out in the pipes take place. This operation is easier if the injector is of the lifting type.

The water delivery to the boiler should be treated with the same regard to pipes and passages as previously stated. There must be sufficient annular clearance around the ball for full flow to take place, and the ball must be physically restricted from trying to enter the outlet port of the valve. If the ball can get into the boiler, it will!! I must point out at this time that of all the injector problems I have solved, at least 90% have been the check valve.

A recent discovery is that model engineers are apparently being recommended to put a tubular sleeve with a cutout for the water around the ball in check valves, presumably to contain and guide the ball. I had a problem engine with such a fitting, which stopped working above 125psi. This cage ball arrangement stopped the injector working properly by restricting the flow of water through the check valve. A check valve used with an injector is a slow operating device and designed correctly will require no assistance from such a cage and as in this case, can even find it detrimental to its working range.

I would think twice about using rubber balls in boiler check valves ( or anywhere else). I well remember digging the remains of three rubber balls from the inlet pipe to a Dutch check valve that had an injector that didn't work. After fitting a stainless ball the injector worked fine. The amazing thing was that the user, at no time questioned where the rubber balls were disappearing to, but simply fitted a new rubber ball!!!!

Think carefully about the pressure the injector should be working at and the accuracy of your pressure gauge. I had a problem once with an injector that wouldn't work and after testing the engine pressure gauge I found that the boiler was working at 165psi instead of 100psi as indicated by the gauge. At 100psi, the design pressure of the injector, it worked fine. An added bonus was that the owner was able to exercise much better control of the regulator!!!!

If you have everything needed in place you should have an injector that will work dry at the overflow at designed working pressure, with steam or water on first., will exhibit a decent dry working range and be self-starting with the steam and water valves full open, until the falling boiler pressure requires trimming of the water valve to compensate.

It should even run at ridiculously low boiler pressures by reducing the water input. Whilst doing this think in terms of chasing the dribble with careful control of the water valve.

The injector, filter, and water feed pipes will require cleaning from time to time especially in hard water areas and this is done in citric acid at between

25gms (1oz ) and 50gms (2ozs) per litre (2 pints) water. Do not simply drop in and leave, but from time to time remove and clear the liquid from inside the fittings in order to replenish the exhausted acid from the interior. Citric acid is kinder to the metal than some of the others. I have examined injectors after being put into some quite ferocious ( some fizzy drinks fall into this category) brews and the result is not a pretty sight.

If success still eludes you then it is now time to contact your supplier.

## HAZARDS of the BOILER ROOM

The following was taken from a text book of Maxims and Instructions for the Boiler Room dated 1903. It was written by N. Hawkins M.E. and published in New York.

Where there is great power, there is great danger. When the pressure is increased, the danger is increased.

When the pressure is increased, diligence, care and scrutiny should be increased.

During the twelve years between 1879 and 1891, there were recorded 2,159 boiler explosions, these resulted in the death of 3,123 persons and in the more or less serious injury to 4,352 others. These were only the recorded incidents. (this is in the USA)

Another frequent cause of death and injury was when boilers had to be repaired. Boilers left out of use for a few weeks often become full of a gas, which is generated in the mud and scale in the boiler. The gas can be removed by opening all the man and hand hole covers, washing out the mud and scale and allowing the boiler to be ventilated.

If a naked light is introduced into a boiler containing gas then there will be a severe explosion.

The following is one of the rules adopted by the German Government to prevent accidents in factories. Remember this was the time of line shafting and belt drives.

“All work on transmissions, especially the cleaning and lubrication of shafts, bearings and pulleys, as well as the binding, lacing, shipping and unshipping of belts, must be performed only by men especially instructed in, or charged with such labours. Females and boys are NOT permitted to do this work.

The final item in the text book reads as follows.

“The fireman, so called, in steam service of any description, should and does on the average receive double the compensation of a man who has only his labour to bargain for.

In addition, he exercises his skilful vocation in sheltered places and is almost the last of the employees of a plant to be “laid off” and is certainly the first to be called on again after stoppage.

Still further, the fireman has an almost equal opportunity, with the best shop trained machinist, for advancement to the position of engineer in charge of the most extensive steam plants.

Now this increased pay over ordinary labour and other numerous advantages accruing from this position, demand a generous return, and in ending this work, the author suggests these points for observance to the aspiring student, whether engineer, fireman or machinist, namely --- that sobriety should be held one of the first elements of strict observance; an unrelenting tidiness of person or premises; dignity of conduct, as being owed to the rising profession of steam engineering; and lastly, an unswerving fidelity of trust, which may include honesty, truthfulness and courage.”

EDITORS NOTE. I have known quite a few boiler attendants, and shift engineers and I can truthfully say that they all had followed the previous maxim. Now with the advent of the fully automated boiler this profession has now become virtually a memory of the past.



The “F” Loco above was recently seen at Hamilton Model Engineers Track. Do you call it a ste-trol powered loco.

The loco is powered by a weed-eater motor with



centrifugal clutch and the exhaust going up the chimney.