



Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC
 Managers of the "MARRINER RESERVE RAILWAY"
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August 2010
No 359

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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

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
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This Months Featured Model



REPORT on the July Meeting.

Yet another cold and wet night, but once again a good turn out of members to hear Fin Mason talk on his days as a Civil Engineer surveying for roading and bridges. Later in his career Fin was employed by the Palmerston North City Council mainly responsible for storm water pipelines. Fin explained the methods of surveying and showed us the way theodolites have evolved over the years. He had a very early example that had been used by his wife's grandfather when he surveyed the Otira Railway Tunnel. He also had several later models of differing types, leading up to a computerised version.

Fin was able to answer one question that had obviously been worrying several of us. How does a surveyor carry out a survey through dense bush such as through the National Park area when the Main Trunk Railway was being laid out? Fin said that slashers and axes were used to lay out clear lines to give the vital line of sight.

There were some examples of work being carried out by members.

Graeme Hall had his model of the Atkinson Differential Engine that was designed in the late 1800s to by-pass the 4 stroke engine patents held by Otto.

Fred Kent had the little 'Flying Scotsman' a kit being brought out in serialised form.

Merv George had some flanged wheels he has been making for a new project.

Robert Edwards showed us a wheel set with quartered keyways in the axles and wheels for the 7¼" gauge NZR F class locos that he and Terry Jowett are building.

Bruce Geange brought along the model Caterpillar RD 8 showing good progress since last seen.

FOR SALE

Eccentrics, straps and links for a Stuart Turner No 4 steam engine.

A small horizontal boiler 50mm diameter by 150mm long. Meths fired, Smithies type. No boiler certificate

Graeme Hall 06 3442495

FOR SALE

A Lux drill mill. It has eight speeds, and a three morse taper.

It comes with a stand, 13mm chuck. The table length is 20 ¼", width 6 ½".

Sideways travel 13" and fore and aft travel 6".

It has a 1hp motor, colour is light green.

Asking Price \$1,100 ono.

David Neilsen 06 3551520

AUGUST MONTHLY MEETING

This will be held in the Hearing Association Rooms, Church Street, Palmerston North at 7.30pm on the 26th of August.

Richard Lockett will speak on operating the lathe.

Members are invited to bring along their current project to display.

COMING EVENTS

Mid Week Run at Marriner Reserve Railway

24th August between 10.00 am and 2 pm
Please contact Doug Chambers beforehand.

Track running at Marriner Reserve Railway

September 5th from 1pm to 3pm
September 19th from 1pm to 3pm

Open Weekends

New Plymouth

Labour Weekend 23-25 October

Keiranga Gardens

Labour Weekend 22-25 October

The closing date for the next issue of The Generator is Friday 10th September

Ticket Maker

After building 3 microcontroller railways for "Model-Mee" last year, I needed a new project. In my job as the club Treasurer, ticket sales at an event are an important issue. A ticket counter was a good choice of project. "Ticket Maker" was born. The concept was to have an Adult and Child price. Also, for a Family price to be calculated automatically. Easy, I thought. Not so. I had a small thermal ticket printer available and a printed circuit board that could control a 2 line x 20 character Liquid crystal Display. The microcontroller I had selected for the job was a Picaxe™ 18x. The device has 2048 bytes of program space. The first program written without enhancements was way over the 2048 limit, so wouldn't fit. With careful program coding I was able to reduce this to around 1500 bytes.

What the buttons do:-



- "Adult"** Each press of the button adds one adult to the total and works out the pricing.
- "Child"** Each press of the button adds one child to the total and works out the pricing.
If the entries fit the criteria for a Family ticket this is worked out automatically.
- "Clear"** This clears the pricing and totals if needed before printing the ticket.
- "Enter"** This totals the price and prints a ticket on the attached printer. The ticket is numbered and the Price to Pay is shown.
- "Mode"** This button puts the Ticket Maker into Admin mode. Data can be printed that shows the Total Tickets sold or cleared. It is also where the Adult, Child or Family pricing can be altered.

After the Admin enhancements were added and the code optimised again, I was able to make it fit inside the 2048 byte limit with only nine bytes to spare.

Ticket Maker was first trialled at Rail-X 2010 and worked really well. 850+ rides were sold. I will need to increase the display backlight brightness to make it a little easier to read in daylight.

The front page of the Generator shows 2 of the tickets produced. The photo on this page is of Ticket Maker and the printer I used.

Ticket Maker can be run from the 230v mains or 24v DC (2 x 12v batteries) so is quite portable.

Murray Bold

Last Month's Meeting

Fin Mason drew on early experiences in his engineering career to illustrate the principles of surveying, ie working to the scale of 5280 feet to 1 mile. He commenced his working life with the Ministry of Works based in Taumarunui at a time when the highways between Turangi and National Park, & Turangi and Taumarunui were being reconstructed and the new highways on the Western side of Lake Taupo and from Tokaanu to the Chateau were being built. His involvement in these works was mainly the investigation surveys for the design of the highways and bridges, and the subsequent setting out surveys for the construction of the works.

Surveying is essentially the means whereby significant points are located one to the other in terms of bearing, distance and height. Three theodolites; the instrument used for measuring angles, were displayed. These included a vernier type pre 1900, a Wild microptic, and a Leica digital, state of the art. A steel band commonly known as a "chain" along with its associated "link" stick and spring balance for the accurate measurement of distance was on view. And for determining the difference in levels, two tilting levels; again one quite elderly, and the other still frequently used was on display.

A number of instruments used in the draughting office were also displayed.

The presentation then went on to cover the practical aspects of both investigation and construction surveying, and the elements of highway design. It concluded with some comments on surveying for municipal type engineering works, where the greater emphasis especially in a near flat City such as Palmerston North, is on the accurate assessment of levels. Pipelines and channels need to be installed at precise gradients to function correctly.

National Railway Museum at York.

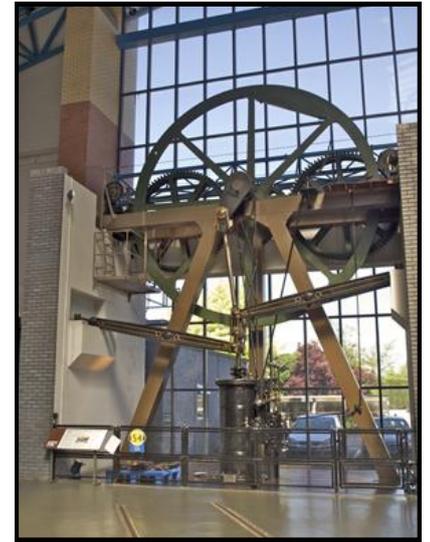
In early June this year Kathryn and I spent a week in the Yorkshire Dales. Lovely countryside. Kathryn had organised a half-day with some scientific colleagues in Leeds so I took the opportunity to visit the National Railway Museum in York. Kathryn joined me for the morning and we had a quick tour and then she caught the train to Leeds and I settled down to a closer look. It is a very impressive place, all the more so for having free entry! It is funded on the same basis as the Museum of Natural History and the Science Museum in London.

The main exhibition space is the old York steam loco depot and many of the locomotives are displayed around the original turntable, which enables them to be removed and the displays changed from time to time. The engines are all in immaculate condition and many of them can still be steamed. Several of the locos in the turntable display can be viewed from below and



one of them has the boiler, cylinders and valve gear sectioned.

There are a couple of mine winding engines displayed also and both were demonstrated several times during the day. Not steam or air but friction drive to the flywheels but impressive none the less. The one shown is a double-beam engine that has an intriguing motion when running.



The museum has an extensive workshop that allows complete overhauls of the locomotives. When I was there the Flying Scotsman had been almost completely disassembled. A mezzanine gallery provides a great view of the proceedings. One exhibit that impressed both Kathryn and I



was a very impressive model of a GW loco shown below. Kathryn was fascinated by the detail in the furnishings of the carriage on display (not shown), complete with upholstered seats, while the display of scale tools put me in mind of some of Bruce Geange's work! The model was made by a South African model engineer and presented to the directors of GW



There is far too much to see in one day and to describe in a short article. I will have to go back again!! Just before I was due to leave I came across a door labelled "Warehouse" and wandered through. On the other side was an enormous shed (about a rugby field in area) filled with three tier racks which held hundreds of items that they had no room to display properly. Most items identified by cardboard tags containing a minimum of information. Many model locos. What a treasure trove! Only had time for a very brief look before I had to leave.

John Tweedie

LETTER from ENGLAND

By Stan Compton.

A group of our members have bought a new 7¼" gauge saddle locomotive. On its first day out it was hauling heavy loads and one of the slide bars seized to the cross-head. They should have used steam oil, car engine oil is no good (gearbox oil would be a better option Ed) A new driver overfilled the boiler and gave his passengers a shower. The 1½" cylinders are run at 120psi and there is only a single safety valve fitted. This was questioned but as long as it does not exceed 10% over working pressure when under test, this commercial fitting should suffice.

The locomotive is well made, one of a small batch manufactured by 'Station Road Steam', the owner of the business told me years ago that he wanted to do this as well as dealing in steam powered engines.

I had a telephone call from a local person who told me he had acquired an early American steam engine and it needed boiler cleading and what should he use? I told him that often 'Russian Iron' was used and advised him of source of supply. Then he mentioned a chain at the front. "It sounds like you have a traction engine, all you require is cleading of brass from 'Reeves and Co'. "Who are they?" was his reply. Usually I will help someone but in a case like this I could waste a lot of my time which is limited these days.

Last running day I was on the site as usual when two young men, dressed in overalls asked for advice on locating some 8mm set screws made with an undersize hexagonal head. Obviously a special for the 'Landrover' they were working on. It was a holiday weekend, no suppliers open and I had nothing in the

club workshop suitable. I could have reduced the hex head size with a file, something they had not thought of, an alternative would be Allen cap screws and being of high tensile steel they would be ideal for the job.

It is so easy for someone to make a mistake and forget to re-fit a simple item like a copper washer under the cap on a boiler check valve. This happened to one of our club members who kept having the hose to the by-pass valve to blow off. I thought it was maybe poorly fitted but when a hose split I told him to check that the stainless steel ball was not blocking the outlet. He did this but failed to push a match stick up into the check valve to make sure the ball lifted. You probably have guessed already that the ball was held down on the seat by the screwed cap. This problem had plagued him for months until the day on site when I told him to drop the fire and pressure so I could examine the fitting!! Refitting the copper washer solved his problem.

Someone else had fitted new bushes to the trailing axle on his loco, this had meant removing the coupling rods and return crank which had a scribed line to facilitate refitting the return crank in the correct place. However this had been forgotten about during re-assembly leaving the engine running out of beat.

This engine often had the return crank slip, fitting an Allen cap screw cured this but it would be better to fit a taper pin after the return crank had been correctly set.

Incidentally fitting new bushes to the coupling rods caused a tight spot to appear indicating the quartering of the wheels was faulty.

An eccentric bush would solve it but much better to re-set the wheels on the axles if possible. This is where keys fitted to axles always insure the wheels can be re-fitted correctly.

The clock world is new to me and when I found my new regulator clock kept gaining I could not understand why. In the end I found a book on clocks that explained that a one second pendulum is 39" long at the equator and 39.2 at the North and South Poles!! This is measured from the point of suspension to the centre of the weight, called the 'bob'. I found that mine was 2 3/8" short, built as drawn, no wonder it gained. I modified it with a copper tube, Loctite and pinned, and within a day I was stabilising, we live and learn. (39.14" in London.

A strange thing was happening with this clock.

I found that when the drive weight (9 lbs) got low, down alongside the pendulum 'bob' for some reason the drive weight started to swing at the same rate as the one metre pendulum, stopping the clock!! I placed a sheet of card board behind the weight simulating the clock case and this effected a cure, how strange!! I have read in Lord Grimthorpe's classic book on clocks and he quoted a case of two clocks back to back on a brick wall and the two pendulums would end up swinging at the same rate!!

Incidentally this man was a Barrister in Victorian Times and later on he designed the Westminster Clock known as 'Big Ben'.

Earthworks @ Marriner Reserve

Last Thursday (12th August) a number of club members had assembled at the Marriner Reserve track. Some to mow lawns and do other jobs, some to run their locos and some just to chat. While we were having morning tea Richard, our president, happened to notice some large loads of earth being carted down Pioneer Highway for disposal. As always Richard was quick to realise that the club needed some fill for the track in the low spot where the little concrete bridge is. He quickly hopped in his truck and followed one of the empty trucks back to the source of the fill at the Takaro Bowling Club. After a short negotiation he returned and soon after we had three truckloads of fill dropped by the steaming bays.



Doug.
Showing his expertise with the loader.

Doug Chambers quickly hired a small front-end loader and in about 4 hours the fill had been put in place around the 300mm plastic pipe that had previously been acquired. So now if a train has to stop at that spot in the track the riders will not have to jump down about a metre if they have to disembark.

The Generator

Once the fill has settled and been grassed it will certainly improve the track.



Richard checking that the flow through the pipe is in the right direction!

Rail-X 2010

On the 17th and 18th of July the club was invited to run a live steam loco outside the Barber Hall. Thanks to the Mason family, "Robyn" was put to work for the weekend.



You will notice the club's Ticket Box, which now has a water-proof roof was again used to sell tickets for the railway.

