



Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC

Managers of the "MARRINER RESERVE RAILWAY"

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February 2010

No 364

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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.

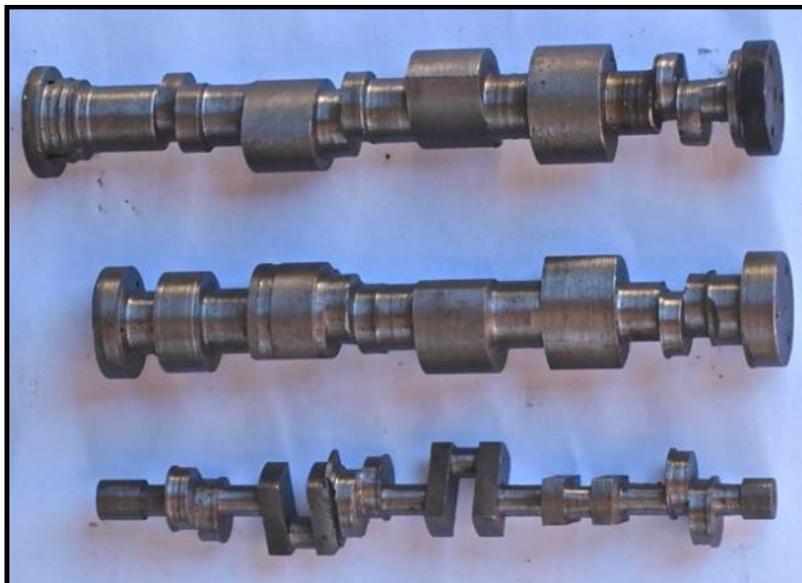
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This Months Featured Model



REPORT on the January Meeting.

This January meeting was the 'President's Bar-Be-Que' held at Jonathon and Donna Mason's home. There was a lovely garden and



orchard to explore, sheds with vintage tractors and Anderson stationary engines, a lead lighting workshop and the 7 1/4" gauge railway with the 'Wren' in steam and under the care of Daniel and Matthew Mason who were happy to give guests rides. Your editor, who was the



builder of the 'Wren' many years ago could not resist temptation and under the watchful eye of Matthew took a turn at the regulator and



completed several laps. The rails run through garden, orchard and through a 'native' bush section and over a bridge crossing a goldfish pond. The bar-be-que went down well as did the delightful jellies, pavs, and chocolate cake. On behalf of all the guests attending I would like to thank Jonathon and Donna for a very interesting and enjoyable afternoon.

February Club Night

7:30pm, Thursday 24 February 2011
Hearing Association Rooms
Church Street, Palmerston North

Be prepared to tell us of how your current project advanced over the Christmas-New Year break.

COMING EVENTS

Locomotion 2011 5 + 6 March 9am - 5pm

The committee requests members for the following duties over the weekend.

- Help with general setting up.
- Station helpers and Ticket sellers.
- Help out as hospitality kitchen staff.
- Steaming Bay and parking attendants.

The public will arrive from 10am so we need to have most things set up by then.

Members are requested to bring a plate for morning or afternoon tea for either day.

There will be a BBQ Tea for members and guests.

Track running at Marriner Reserve Railway

March 5th & 6th from 10am to 4pm
March 20th from 1pm to 4pm

Open Weekends

Palmerston North Model Engineers
'Locomotion 2011' March 5th - 6th

Hawkes Bay Model Engineers
Open Weekend March 19th - 20th

Otago Model Engineers Society
75th Jubilee March 19th - 20th

EBOPME Society Open Weekend
Hot Pot and Night Run July 23rd - 24th

The closing date for the next issue of The Generator is Friday 11th March

THIS MONTH'S FEATURED MODEL

John Tweedie

The Shay Crankshaft Saga

When I decided to build the 31/2" Shay geared locomotive the most common response from club members was "wait until you get to make the crankshaft". Undeterred by these comments I proceeded with the model and eventually the time came when the crankshaft needed to be made. I bought enough metal for three attempts, fully realizing that I would not be successful with the first. I also decided not to use stainless steel as recommended in Kozo Hiraoka's book as I was not confident of my ability to machine this material. The engine in the Shay is a 3-cylinder vertical inline unit with the cylinders separated by 120°. With 2 eccentrics per cylinder this gives a total of 10 turning centres. (Crankshaft, 3 big ends, and 6 eccentrics.) This is accomplished by making two end caps with centres for the crankshaft, one big end and two eccentrics that are attached to the 30mm blank by three screws set at 120°. The caps are then rotated to provide the appropriate centres for machining each cylinder. With the first attempt I decided I would continue to the end despite any mistakes made along the way, as then I would have experienced all of the operations required. Needless to say mistakes did occur. The most telling one was to miss-read the drawings and turn the shaft so that the cylinders would not work in the correct order. I also noticed that if I rotated the end caps the crankshaft main bearings only ran true on one of the three attachment orientations, indicating some error in alignment. As the end-caps went on equally easily in each position I realised that this was probably due to slack in the fit between the holes and the screws. For the second try I drilled the holes in the end-caps undersize and reamed then to 3mm. I made up some screws from hex and brought them to 3mm and checked their fit with the reamed holes. The screws were threaded leaving an unthreaded region to mate with the reamed holes. If I was doing this again I think I would use studs from 3mm silver steel and thread the ends to attach the caps with nuts. In any case I had no further problems with alignment of the end caps. Crankshafts #2 & 3 were only completed up to where I made a non-fixable error. With #2 I machined one of the sets of eccentrics in the wrong order so that the cylinder in question would be running in reverse while the others ran forward. Number 3 was ruined when I was interrupted by a phone call while shifting from a forward to a reverse eccentric on one cylinder. When I returned to the lathe I began turning the second eccentric without remembering that I had not moved the centres and by the time I realised I had removed too much metal.

If anyone is wondering why I did not notice this sooner they just need to realise how distracting to the eye it is to have several eccentrics and big end bearings rotating in unison. I found that the only way I could handle this was to focus only on the part I was actually working on.

All of this machining had produced so far was three now useless pieces of metal and a large amount of swarf. However I had learned a tremendous amount about turning. My skill in tool sharpening had increased considerably and I had also learned a lot about the effects of combinations of rotation speed, rate of feed and depth of cut. For the finishing of the eccentrics it was necessary to support the big end cranks so that the shaft does not distort between centres. The suggested remedy was to insert a screw and nut through the space and tighten well. I found that this did not hold the cranks sufficiently tightly and resulted in some movement while machining. I solved this by making square packing pieces that were a close fit and then turning and threading the ends to take the holding nuts.

By now all of the metal I had bought had gone but I managed to get a suitable piece from one of the local scrap metal merchants that machined very nicely. Crankshaft #4 proceeded apace (I was getting a lot faster) with no fatal errors. I now think I have a crankshaft which will be "fit for purpose". While I was machining the last main bearing to size I inadvertently made it about 0.05mm undersize.



Shaft #4 together with the two end caps showing the centres of rotation.

(It was late in the afternoon and I wanted to get finished!!! Another lesson learned the hard way.) Luckily this was one of the end cranks and so I can take care of this when I drill and finish the bearing journals. If it were an inside one I would be making #5!!

All of this took about 2-3 weeks. With each attempt I got quicker and a bit more skilled. The first attempt probably took about 20 hours (I don't record my workshop time.) The final job took about 10 hours over 3 days. I found I needed to stop and have a rest periodically or my concentration began to waver. For me the job demanded total

concentration and the time actually spent machining went very quickly. Was it worth it? I think so. It has given me a lot of experience and confidence and even though it was very frustrating to make the errors, especially on numbers 2 & 3, I never became discouraged.

LETTER from ENGLAND

By Stan Compton.

Do any of you recall the early years of TV in NZ and the programs that were produced about the farming scene of the day? Real farmers were quite scathing about a lot of the content which is really intended just to fill a slot. Many city people have no idea what it is like to be out in all weathers handling livestock or trying to get in a crop of hay between the showers of rain. Many years ago I owned a hay and straw business in the United Kingdom and learnt the hard way what to buy and to have to stand in the kitchen looking out at the rain when I had bailed hay standing in the fields ready to sprout that I could not get to.

So it was interesting to watch a presentation on our TV about how farmers worked the land in Victorian Times. A group of College lecturers are dressed in clothes of that era, good solid woollen garments that could only have been afforded by someone with money. There was no mention of what the poor farm labourer wore, often including a sack over his shoulders in the winter. So we are shown a small farm and the rebuilding of old structures such as a blacksmith's forge by a local bricklayer, and a cottage restored so we can be shown how the farmer's wife would cook everything for a harvest supper. Judging from the food on the table this was not the work of one woman who probably would have had the farm workers (who lived in) to cook for while looking after her own brood long before the days of family planning.

Then we saw the farmer trying to mow a field with a horse drawn mower, a field that had not been mown for years. You can imagine his problems in front of the camera, with the cutter-bar getting choked up, it was pathetic. After a hard days work in front of the cameras the re-enactors did not return to the cottage with the hand-pump in the yard that would have been normal, no they all went back to a first-class hotel for a hot bath before a good meal!!!!

But I found this out later to be true.

I know it is all for entertainment, I should not be so cynical but the latest production in TV about attempts to get life back into the centre of an old

town in Somerset we all know as 'Shepton Mallet'. These names have a lot of history. We were told that a new supermarket was built out of town and the town people ceased to use the town centre forcing the small shops to close. This attempt to put some life back in the town centre required a number of empty shops to be rebuilt in the style of Victorian, Edwardian, 1930s and the World War 2 period where rationing was in force. The families brought in for one week in each era had a shock to adapt to life as it was; so dressed in the clothes of the day, they all had to work hard preparing food etc. to sell when the shops opened for trade. Imagine an early grocers shop with just the basic foods on display compared to a modern supermarket.

The organisers let some of the shopkeepers down by not testing the bread and cake ovens. The baker had never baked bread in his life, his wife was the baker, but convention demanded that a man baked the bread, his attempts were a failure and unsaleable. Similarly, the oven, an electric one of the Edwardian era, was useless so the cake baking also failed with nothing, except a pudding, to sell when dainty cakes and cucumber sandwiches were on the menu. Such a pity no one thought to spend a few days testing. The volunteers found the working practices of long ago demanded long hours of work for all the family, children had to work to produce goods for sale.

So many modern customers had never seen meat being cut up by the butcher to order, the look on the face of a little girl who watched in horror as the butcher's cleaver cut up the carcass of a rabbit. She could only visualise 'Peter Rabbit' eating Mr MacGregor's lettuces, not this naked body on the butcher's block. The butcher's son is a natural who tried to use modern presentation of meat but the modern customers preferred the meat wrapped up in brown paper as it was, or even newspaper as I recall as a boy, with a sheet of greaseproof paper first.

It was interesting to hear comments from some customers that it was a pleasure to be invited to sit down while being served, also to be able to meet and chat with friends while out shopping as it used to be.

Some of you may recall the 'Morgan' three wheeled car that were built in Malvern near our home, still a family business, but now well known for their sports cars, still hand-made with a five year waiting list. The original three-wheeled

concept put them in the motorcycle and sidecar bracket for tax purposes, my father bought a four seat model and I took two mates camping in it when I was seventeen. A water-cooled V twin J.A.P. engine was adequate for family use, but the super sports two seater with an OHV 'Matchless' V twin engine provided a cheap sports car with 1000cc powering a car weighing 435 kg. It was a lot of fun.

My brother pushed me into buying one in 1947 but I did not care for it, it was pretty basic and was built in the year I was born 1924!!!!

There are a couple of Morgans in Len Southward's Car Museum, one is a 1938 Super Sports model.

There was an article in our local newspaper saying that the 'Morgan' firm intend to market a limited number of this model but modernised with disc brakes, a 1.8 litre Harley-Davidson V twin engine coupled to a Mazda 5 speed gearbox. I assume with a final drive to the rear wheel by roller chain as used on motorcycles. The car in the photograph has a left-hand drive, maybe intended for export to the USA or Europe.

Hutt Valley Open Weekend.

Barry Parker

Over the weekend of Saturday, 5 February and Sunday 6 February 2011 the Hutt Valley Model Engineers held their open weekend. I arrived in time for morning tea at 10am and was warmly welcomed by all there. The local members were still in the process of setting up for the weekend and I gladly assisted them. The weather was overcast with low cloud around the hills, by all accounts better than it was up in Palmerston North.

Passengers were very few and far between due to the weather, however this gave members and visitors plenty of time to have a catch up. Part of the catch up centred around the replacement of the 5 inch raised track and plans are in place to have it replaced in the



near future. There were three 7 1/4 locos and a 5 inch loco, that Peter Anderson had much fun tinkering with.



Inside the club room there were various models on display from locos to beam engines as well as a gas fired steam tug. As you can see by the photos it was very compact inside the hull. I would like to thank the Hutt Valley club for their hospitality and for making me feel extremely welcome and to Gavin McCabe for the drive of his loco.



Under the shade of a tree on a hot day.

by Richard Lockett

A section of track has been under watch for some time due to an upward pressure lifting the track which happens to be beside a large tree. With the rain and easterly winds of January it was felt that it had become much worse so while the ground was still soft?, a few of us



decided to investigate under the poured concrete slab. This involved digging down each side and underneath the two and a half metre long concrete slab.

This revealed that as suspected tree roots were the source of the upward pressure. One large root was cut

either side of the concrete slab but still resisted all attempts to remove it.

The slab was too heavy to lift to release the weight on the root and allowing its removal. It was not possible to dig below the root to relieve pressure so

John Tweedie volunteered to return to his home for a couple of wood chisels and after about twenty minutes the root was reduced in size sufficiently to allow its withdrawal.



The concrete slab dropped back onto the registers and the holes were back-filled. So after four hours 'hard labour' and with a bit of skin missing from our knuckles, and a blister or two, the rails again had a true alignment giving a degree of satisfaction to those involved.

Thanks to John Tweedie, Ken Neilsen, Doug Chambers, Warwick Leslie.

RECENT ADDITIONS TO THE CLUB LIBRARY.

The librarian

The following books have been donated to the club's library and are available for members to borrow.

Locomotive Management by J. T. Hodgson and J. Williams. A text book on the operation, maintenance and driving of full-sized steam locomotives. Covers the responsibilities of cleaners, firemen and drivers.

The Little Wonder by John Winter. The complete history of the Festiniog Narrow Gauge Railway. From its beginning, closure through to re-opening as a tourist line. The highs and lows are all included. The line began with the main purpose being the haulage of slate from the mines up in the hills down to the port at Portmadoc.

Bullied, the last giant of steam. By Sean Day - Lewis. The life story of O. V. S. Bullied who was born in Invercargill, New Zealand but made his name as Chief Mechanical Engineer to the Southern Railway in England. Responsible for a variety of designs and not afraid to try new features on his engines.

Narrow Gauge Steam out of Portmadoc by N. F. Gurley. Black and White photos covering the first 25 years of operations after the re-opening of the Festiniog Railway in 1954. Some excellent before and after pictures of the track showing how overgrown the track-bed had become since the closure.

Please don't forget

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