May 2011
No 367

THE GENERATOR

Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC
Managers of the **"MARRINER RESERVE RAILWAY"**
Please address all correspondence to **:- 22b Haydon St, Palmerston North.**

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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

This Months Featured Model

Report on the April AGM Meeting.

The Annual General Meeting for 2011 is behind us. This year is slipping by rather quickly.
The reports were read and accepted and the following Officers and Committee will lead us in the next financial year.
The election of officers resulted in the following.

President	Richard Lockett
Vice-President	Cynthia Cooper
Secretary	Stuart Anderson
Treasurer	Murray Bold
Committee	Chris Morton
	Fin Mason
	John Tweedie
	Dave Newstead
	Robert Edwards
Editor	Doug Chambers
Librarian	Doug Chambers
Track Convenor	Richard Lockett

The boiler committee is appointed (not elected) and the three members are continuing for another year. They are Doug Chambers, Richard Lockett and Ken Neilsen.

The recipient of the '**Clubman of the Year Trophy**' was Doug Chambers

Subscriptions are now due.
They are $30.00 and $15.00 for Junior or Country Members.

If any members require a black PNMEC membership badge, please contact the Treasurer by mail @ 22b Haydon St, Palm Nth or email at pnmec@trains.net.nz
I will be ordering these at the end of the month. (31 May).

RAFFLE

The Committee has obtained three vouchers from Trade Tools and we have decided to raffle them to the members.

First Prize	**$70.00**
Second Prize	**$50.00**
Third Prize	**$30.00**

The tickets are **$2.00** each or three tickets for **$5.00** and are available from the Treasurer.

Tickets for Palmerston North Model Engineering Club members only.

COMING EVENTS

Track running at Marriner Reserve Railway

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

Open Weekends

EBOPME Open Weekend
'Hot Pot and Night Run' July 23rd—24th

FOR TENDER

A Stuart Turner 10 V casting and parts set, complete, with drawings.
Tenders must be in the treasurer's hands by the 31st July either by snail mail to

"10V Tender"
22b Haydon St
Palmerston North

or email to pnmec@trains.net.nz with the subject line **"10V Tender"**
Highest or any tender not necessarily accepted.

Tenders restricted to Palmerston North Model Engineering Club members only.

May Club Night

7:30pm, Thursday 26 May 20110
Hearing Association Rooms
Church Street, Palmerston North

Richard will talk about

"The use of rubber O Rings in model engineering projects."

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

This Month's Featured Model.

By Doug Chambers

The picture on the front shows a 'Mountaineer' under-going its trial run at Marriner Reserve Railway. Barry Parker had for some years a strong liking for this engine and after some persuasion from Barry, on January 1st 2010 I started building the engine in 5" gauge.
Barry was keen to help where he could.
He made the flanging plates for the boiler, flanged the copper and did all the fitting of the copper parts so that my involvement was simply to Easy-Flo the joints. One stipulation Barry made was that the locomotive should be as user friendly as possible, easy to fire and drive. Large diameter hand-wheels on the steam valves etc. On an engine of this weight, cast wheels were going to wear excessively and quickly so medium tensile steel discs were machined to suit. The lack of spokes doesn't really matter as the wheels are hidden behind the frames, out of sight. Cylinders, pistons and piston rings were all made from Flo-cast iron.
Due to having a back injury I am unable to manage more than three of four hours a day and a few other jobs saw the 'Mountaineer' put aside for a while, but on April 12th 2011 the locomotive was steamed for the first time. The safety valves operated to the boiler inspector's satisfaction and on the 14th April the 'Mountaineer' had its trial run. Apart from a loud squeak that was found to have nothing to do with the engine (it was under the driving truck) all went well and after six laps I handed the engine over to Barry who then set about getting the running in period over.
As there are several 'Mountaineers' built with the cab that was fitted after the prototype's arrival at Festiniog in Wales and there is the model built by the late Gerry Gerrard that features the original Alco cab, I persuaded Barry to build a cab representing the current one on the prototype just to be different. Barry settled for a gloss black finish (the prototype has green sides to the tanks and cab) as he reasoned that you can't go wrong with a black steam engine!!! I insisted on a small amount of thin gold lining which just sets of the appearance perfectly. I am sure Barry is gong to get a lot of pleasure running the 'Mountaineer'.

Letter from ENGLAND

By Stan Compton.

A visitor to these shores along the south-east coast, (the location of the 15" gauge 'Romney, Hythe and Dymchurch Railway') may wonder about some strange cylindrical structures with no windows located on the foreshore. They were known as 'Martello Towers', built to defend us against invasion by Napolean's forces. There were originally thirty-four but now only a few remain. The walls were ten feet thick and each took half a million bricks to build, causing a shortage and costing a small fortune in those days. The cannons mounted on the roofs have gone long ago and what use can be made of such a building? Actually one has been modified with a home built on the top. The result is a living area with windows facing out to sea with a view few people would have.
A soldier's life was very hard in those days. Reading a history of the area I discovered that a 'Sergeant Mayberry' got into debt from gambling and was punished with 170 lashes, plus demotion, for stealing two hundred pounds from the mess fund. In 1800 that amount was a small fortune; surely the figure would have been twenty pounds? Could the number 170 be correct? Ten or twenty lashes were cruel even in that era.
He lived to take part in the war in Spain, became a hero by saving someone's life and got his sergeant's stripes back only to be fatally wounded later in the same conflict.
We read a news item recently of a quantity of lead being stolen off the roof of a local village church. It was only when rainwater was found inside the building that anyone was aware of the theft. It is now going to cost a lot more than the scrap value of the lead to affect a repair, there are few tradesmen available these days who are skilled in the process known as 'lead-burning'. The metal is melted with a small acetylene torch and I have examined some decorative lead-work in the plumbers shop at the 'Ironbridge Gorge Museum'. A plumber told be that in the old days the lead joints were made with red-hot irons, no one worried about lead poisoning back then.
Items made from copper are also being stolen more often now due to the high prices offered for scrap; we hear about signal cables being stolen from railway property. This puts a section out of use and again the cost to affect repairs outweighs the scrap value, even

disregarding the inconvenience to the travelling public. I gather the copper is cut into short lengths for disposal, but how did the thieves who stole four tons of heavy copper plate from the boiler-shop at the 'Severn Valley Railway' disguise their theft?
The Americans have used steel fireboxes for years, so did Bullied on the 'Southern Railway'. Why are we still continuing old practices when we now have modern welding techniques?
Does anyone remember the little locomotive boiler that lay in the grass next to the main highway in Sanson. It was the final remains of one of the 'Sanson Tramway' engines and the remains were near the old water tower in front of the Manawatu County depot. The residents complained to the County chairman about the rusty old scrap and a scrap dealer from Wanganui was asked to remove the boiler as soon as convenient. The scrap dealer arrived with a truck and the County foreman arranged a crane to load the boiler. The scrap dealer paid for the weight of steel and as the last chain was tightened down the County foreman said that there wouldn't be much money to be made out of that load of steel. The scrap dealer opened up his pocket knife and scratched the firebox exposing bright, shiny copper. There would be a good profit in that job!!!!!!
The late Percy Foot was a local Palmerston North scrap dealer. He was a very generous man and helped me often (he helped me a lot too Ed). He had a large American Ford Thornton truck and my wife always kept well clear in our car when she saw the truck approaching.
Noel Foot, his son, once offered me an 'Indian' motorcycle complete with sidecar for re-assembly and restoration. How I wish I had accepted his offer but I had no spare room in my garage and not enough hours in the day being fully occupied with building model locomotives.
We take our domestic electricity supply for granted, so imagine how a woman living in an African village copes when she needs to get the battery charged in her 'mobile phone'. I read of a case where she had to walk five kilometres, then take a motorcycle powered taxi for twenty-five kilometres to get the re-charge!!!
Then she discovered a Chinese made solar powered device that gave lighting at home and a battery charging facility for a cost of $70 (US).
I have no idea of the size of the storage battery or wattage available, but full marks to the Chinese manufacturer.
Years ago a performer in the 'Music Halls' could make a living with just one act, the chances of that act returning to your town was very remote. You got a variety of acts in any one show; the list was endless but it all got killed when Television arrived in our homes.
How many of you have seen a trick-cyclist perform? The Chinese still have this form of entertainment along with acrobatics etc. About 1950 I was a working foreman for a small firm that repaired smashed motor-cycle frames etc. One day an American performer at the local Variety Theatre arrived at the workshop by taxi carrying his trick cycle. He was a middle-aged man who had built his own machine and performed on it for twenty years. He admitted to me that he was finding it a strain to carry on doing his act. Fatigue had also set in on his machine and a fracture had occurred making the machine useless. He had to get it repaired so that he could perform on the stage that night. He explained that he had built the machine and asked if he could watch me repair it. I could understand his request, his workmanship was first-class. During his act, the whole bike came apart as he acted fool, assembling it upside down and then carried on riding it around the stage, amusing the audience.
It was a simple repair job, but the man was so pleased that he took a roll of pound-notes out of his trouser pocket, peeled one off and gave it to me!! I was only getting about five pounds a week then!!!! That was my tip, he was still happy to pay the firm for the work I had done.

Packard built Merlin Engines

From an article by the South Pacific Packard Club.
The Rolls Royce Merlin had become so vital to the war effort and with Rolls Royce being unable to produce enough engines, manufacturers in North America were checked out to see if the Merlin could be made there. Packard Motor Car Company's attention to detail and high quality impressed the parent British company so much that Packard was selected to build the Merlin. Agreement was reached in September 1940 and the first Packard built engine, designated V-1650-1, ran in August 1941.
The first American production of the Merlin was the Packard Merlin 28 (Mark XX). This engine was a single stage, two speed supercharger

type. As the Merlin 28 it was used to power the Lancaster bomber. The USAAF version of this engine was used to power the P40 F. The initial Packard modifications were done on this engine by changing the main bearings from a copper lead alloy to a silver lead combination and featured indium plating. This had been developed by General Motors Pontiac Division to prevent corrosion which was possible with lubricating oils that were used at that time. The bearing coating also improved break-in and load carrying ability of the surface. British engineering staff assigned to Packard were astonished at the suggestion, but after tear down inspections on rigidly tested engines were convinced the new design offered a decided improvement. However the real improvement Packard incorporated into the Merlin was adopting the Wright supercharger drive quill. This modification was designated the V 1650-3 and became known as the "high altitude" Merlin destined for the later P51 Mustangs.

The (two-speed, two stage supercharger) section featured two separate impellers on the same shaft which were normally driven through a gear train at a speed of 6.391:1. A hydraulic gear change arrangement of oil operated clutches could be engaged by an electric sole-noid to increase this ratio to 8.095:1 in the high speed position. The high speed gear ratio of the impellers was not as great as the ratio used in the Allison but speed of the impeller alone was not the factor that increased the engine performance at altitude. The double staging of the compressed fuel-air mixture provided boost pressure through a diffuser to the intake manifolds which increased the critical altitude of the power plant. The ability of the supercharger to maintain a sea level atmosphere in the induction system to the cylinders, allowed the Packard Merlin to develop 1,210 horsepower at 25,800 feet.

The two stage impeller created extreme heating of the fuel-air mixture during the compression process and in order to prevent detonation of the compressed charge, it was necessary to cool the mixture prior to entry into the cylinders.

This cooling was accomplished by the casting of an intercooler passage into the wheel-case housing between the first and second stage impellers. Ethylene glycol coolant was circulated by a pump through this passage to carry off the excess heat generated by the impellers. Without the intercooler the temperature of the charge could be as high as 400 degrees F. The intercooler in itself was not adequate to deal with the high temperature and an additional cooling fin and core tube was placed between the outlet of the blower and the induction manifold to the cylinders. This radiator was known as an after-cooler and served as a reservoir for the system. The glycol mixture used for the supercharger cooling was independent of the main engine cooling system and used a centrifugal pump driven by the engine to circulate the coolant through an aircraft radiator system at a rate of 30 gallons per minute. This combined system reduced the charge temperature to suitable levels.

The throttle valves in the updraft carburettor throat were controlled by an automatic boost control through the pilot's linkage to maintain the selected manifold pressure during changes in altitude. These valves were only partially open during ground and low level operation to prevent over-boosting of the engine. As air density decreased with an increase in altitude, the throttle valves were moved to an open position by the boost pressure corresponding to aircraft altitude. This system provided full power within engine boost limitations up to the critical altitude of 26,000 feet. This was the improvement Packard brought to the Merlin.

When the first Packard built Merlins arrived in Britain, the engineers at Rolls Royce stripped one down and were amazed to find the production line built Packard engine, far from being as bad as they expected to be for component tolerances, was actually better. Until then Rolls Royce Merlins were hand built, every face being finished off by hand, and this time consuming process placed great strain on the production capability of the skilled workforce involved in the manufacture of these engines. The Packard engine changed many minds, although there were still some at Rolls Royce who remained unconvinced of the quality of the American engine, produced as it was by a largely unskilled and semi-skilled female workforce. In the end the engine's performance removed any doubts about its quality and workmanship. The Packard V1650 so outperformed the Allison V1710 (which only had a single stage supercharger) that the Packard replaced the Allison in the later models of the North American Mustangs.

The Packard Merlins gave the Mustangs a better performance at altitude and led them to becoming one of the best all round fighters of the Second World War.
Some models of the Curtis P 40 (Kittyhawk-Warhawk) the F and L models were fitted with the Packard Merlin, as well as Canadian built Hurricanes, Lancaster, Mosquito and Spitfires.
Although it is not commonly known, Packard greatly improved the maintainability of the engine (by allowing easier use of interchangeable parts, rather than custom finished ones) and their changes were also incorporated in subsequent British production.

Old Cars and Toys

Richard Lockett

Down south at the Wanaka airport is a large collection of stuff, things and treasures, whatever you wish to call them, those things that bring back memories of days gone by. You have to admire people who spend a considerable amount of their money and time on the acquisition of interesting objects from the past.
The name on the gate is “The National Toy and Transport Museum”. Now I wouldn’t call it a museum at all, it’s just one man’s personal obsession with buying up other people’s obsessions/collections and housing them in his own shed. There are in fact four large sheds with a fifth being built as you read this. One is full of fire engines and a lone barber’s chair! I suppose firemen need a haircut like the rest of us. The toy shed held more of an interest for me as it contained a large assortment of Meccano and live steam models. Mamond, Auld, etc and a couple of 5 inch gauge steam locomotives. These last were familiar in that they were owned by Ken and Andrew

Sullivan from Christchurch. They are an NZR WAB 795, built by Win Holderway of Blenheim and a

narrow gauge Fowler sugar cane loco, the kind that were often seen in use around the country.
I made inquiries with a staff member (daughter of the owner) as to how they had ended up there. They were purchased at auction in Dunedin and just dumped in the shed as they came off the back of the truck. The WAB is between a Ferrari 400 and a Jenson Interceptor. The Fowler is covered by other purchases/stuff looking for a home.
A bit sad really, these possibly never to be in steam again. A full size Fowler compound road roller was parked outside the Fire Engine shed looking lost, serial number 14322. It looked to be in tidy order and not long since last steamed, which had me wondering where it was purchased from.
Other sheds were full of cars, a couple of aeroplanes, a large collection of seagull outboard motors (why?) and a few Military vehicles, far too much to go into detail.
So, if you’re down that way, have a couple of hours to spare and you don’t mind getting your hands dirty, it’s worth a look. However, there is little in the way of descriptions to any of the exhibits, so unless you know yourself what it is and why it’s worthy of being displayed, it’s just stuff in sheds, so not quite a Museum in my books.

Photo’s by Chris Saunders