April 2011
No 366

THE GENERATOR

Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC
Managers of the **"MARRINER RESERVE RAILWAY"**
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TRACK RUNNING

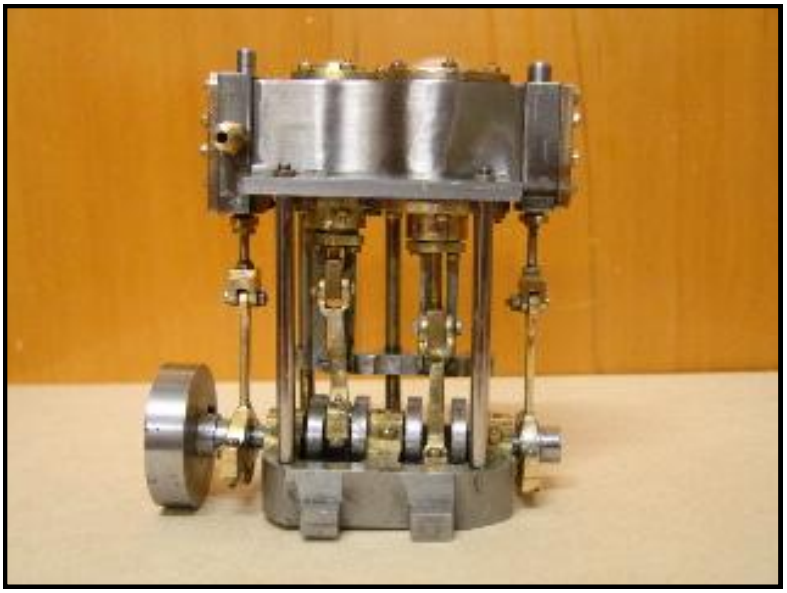
This is held on the FIRST and THIRD Sunday of each month, from 1 pm to 4 pm Summer and 1 pm to 3 pm during the Winter. All club members are welcome to attend and help out with loco coaling, watering and passenger marshalling - none of the tasks being at all

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 March Meeting.

The subject of **Favourite Tools** brought out some oddities.
Ian McLellan had a device made for making countersunk rivets for model work.
Neil Burn showed us a disc with about six holes in it. It was used to run electrical wires through and onto a draw wire so the wires could be pulled through a conduit without becoming entangled.
Merv George showed us an elderly two-speed Black and Decker drill. Obviously an old favourite.
Les Fordyce had a 'Bench Hold Fast for clamping wood to the bench. He also showed us a cutter for leadlight glass work.
John Garner favourite tool is a screwdriver with a pair of clips to hold a screw until it starts in the hole or thread.
Murray Bold had paper, pencil and eraser. Essential for drawing & designing circuits for micro-controllers.
John Tweedie while visiting in the United States bought a powerful magnet on an extending stalk. Ideal for picking up those items that finish up on the workshop floor. Especially when advancing years mean that kneeling down is not as easy as it used to be.
Chris Morton showed us a Mitutoyo digital read-out calliper. It was a farewell gift donated from his fellow sergeants in the RNZAF upon his retirement.
Ian Stephens showed us a very well made compound steam engine that has occupied much of his time over the last few months. He pointed out that during his days in the workshop his wife brings morning tea, calls him in for lunch, brings out afternoon tea and finally calls him in for dinner. Ian has come to the conclusion that the long-suffering Mrs Stephens is his greatest workshop aid.

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

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.

AGM Club Night

7:30pm, Thursday 28 April 2011
Hearing Association Rooms
Church Street, Palmerston North

Most of the current committee are willing to stay on. If you would like to take on any of the positions, then by all means please put your hand up.

Members should be thinking about who will get their vote for **'Clubman of the Year'**.

COMING EVENTS

Track running at Marriner Reserve Railway

May 1st from 1pm to 3pm
May 15th from 1pm to 3pm

Open Weekends

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

The May Generator

Due to Murray being overseas early in May the closing date for articles for the May Generator has had to be brought forward to the end of April. It will be printed early but sent out on the usual dates.

The closing date for the next issue of The Generator is Friday 29th April

It's Time to Build Something

We are a model engineering club and our members have a variety of talents and skills.
It is time for a:

Modelling Challenge

We have been donated some parts that are surplus to requirements. Next Club Night members can take home as many of these pieces as they wish.

The challenge is to build something from them. Whatever you construct, these pieces must be a significant part of the project.

Present and display your completed model at the September Club Night at which time they will be judged by your fellow members.

Anyone who is not in attendance in April can contact a committee member and pick the parts up later. Any member can request more pieces at any time if they need them.

This Month's Featured Model

By Ian Stephens

Having made several single cylinder stationary steam engines, I thought it time to try my skills on a compound engine.
First of all I had to acquire a piece of Flo-cast iron for the cylinder and a suitable piece was located in Wanganui. My little mill was too small to machine the cast iron block so I had to call on Richard Stevens who has a much bigger mill that handled the job with ease.
Next came the crankshaft, which was turned from a piece of 1 ¼" steel shafting. I had never used a back plate on my lathe and although it was a steep learning curve machining the crankshaft did not cause too much of a problem. Making piston rings is easier since Doug Chambers explained how to go about it.
The slide bars are flat so they were easy to produce. The connecting rods were made from brass that I had cast from various bits and pieces. One proved to have a few blowholes in it, so another was cast with better results. The two cylinder covers were turned from brass, drilled and fitted.
Finally with all the parts fitted and tightened down a test run on compressed air was necessary. A bit hesitant at first so a few drops of oil were applied to the inlet and away it went. Mission accomplished and not a bad effort from me for a first multi-cylinder steam engine.

Letter from ENGLAND

By Stan Compton.

I have been aware for a long time now that not owning a computer puts me into the stone age but I am too old to change, keyboards leave me cold. I can print this quicker than using one.
The last time I wrote a letter to 'Model Engineer' about someone who claimed he had to increase the size of his locomotive pistons to obtain more power, when increasing boiler pressure would achieve this object. I was able to prove this fact quoting the Worcester M.E.S. club loco which has only 1 ½" diameter pistons but the boiler operates at 100psi and the loco handles heavy rolling stock.
My letter, printed on double spacing, was once accepted but not now, so anyone of my age with helpful comments to offer will not now be read.
So many people purchase goods on line and find they are of poor quality. Recently a club member bought a 5" gauge 'Pacific' locomotive untested and when it was steamed it was found to be badly worn with steam leaking past the piston valves and pistons. On being stripped down it was found that although well made, years of Club running left it needing a complete overhaul. This is common with models of mainline engines, they look nice but scaling down modern valve gears leaves minimal material compared to the size of Stephenson Link valve gear on a narrow gauge prototype. Now our clubman decided to strip down his

purchase and found the cast iron rings on the valves and pistons were so worn a big gap was left causing blow-by, the cast iron rings now lacking all tension. He also discovered unequal valve events due to badly fitted lifting-link arms on the weigh shaft.
After being asked for advice I was able to find some fine grained cast iron and I made him some new rings for the pistons and piston valves with a few extras for spares.
Years ago I found a simple method of making piston rings; turn the material to a nice finish of the size of cylinder bore, bore out to obtain correct thickness, ie. 1.6mm for pistons and 1mm for piston valves. To part off first polish the eng face with 400 wet and dry abrasive glued onto a flat stick, a clock-maker gave me some of these and they will leave a dead flat surface. Part off with a sharp tool, measure the width of the ring by touching a parting tool to a spare tool -bit held against the end of the
material in the chuck. Now advance the top slide (or saddle) by 1.6mm and part off. With practice you can obtain size within one or two thou. Now polish work piece with abrasive stick, rotate at a good speed, this now leaves just one side of the new piston ring to be
polished with the same abrasive stick.
Some builders now break the new piston ring but I use a very fine saw. Now to anneal the rings. I make up a jig to hold the new rings,
with a 6mm insert to form a gap on a 1 ½" diameter ring, say four rings pressed against a shoulder, retained with a bolt, nut and washer, all of cast iron or steel. Coat the new rings with soft soap or typists correcting fluid to protect the surface. Bring to a dull red heat, leave to cool and the result is nice new piston rings.
Obviously the smaller rings for piston valves need less gap. For them I use a steel bush turned to create an 1.8mm gap. With a suitable taper I could fit six new rings with a hollow washer lightly clamped.
Remember to use a pipe- centre to support rings during parting off in case of a 'dig in' that should not really happen when a sharp tool is used on fine grained cast iron.
Talking of cast iron reminds me of a man building a 'Speedy' from castings supplied by Reeves Co. A cast iron stick was supplied to make the piston valve sleeves. As the quality looked very poor I recommended that he buy some good stuff. He didn't listen and carried on; later I heard a tale of woe, that cast iron stick had hard spots and when the sleeves were pressed into the cylinders they could not be reamed. Lucky for him I had some diamond lapping paste; with a suitable lap he was able to correct the problem and I lost some lapping paste. Incidentally there is an article in 'Engineering in Miniature' on modified Speedy valve gear January 2009.
One of our members built a 'Rail motor' No 2 in 5" gauge and then asked me to suggest a 7 ¼" gauge loco to build next. After giving this some thought I suggested a Kerr Stuart 'Wren' class for the following reasons, his son will be driving it and both men are of hefty size and narrow gauge is easier to reach the controls.
Our member is an engineering tradesman so he could use cast iron instead of castings to save expense. Steel discs for wheels, a simple boiler, (I told him of a source of new copper at half price). My advice was ignored and the man started on a 'Rail motor' in 7 ¼" gauge and has just realised the detail Don Young put into his drawings and I get telephone calls asking how he can simplify things !!
I understand that the reason castings are so dear is because no one wants to work in a foundry these days.
Years ago I met someone from the old 'Post and Telegraph' in Palmerston North who had converted a 'Vanguard' pick up to run on batteries, ½ a ton of which he got free from old stock, these filled up the load space. Modern electric cars are very expensive and no one mentions the replacement battery-pack cost added to recharging costs. The cars with a small petrol engine added seem to be a good idea to be able to get to a recharging facility.
Why is it that most modern cars use electronics to perform simple functions yet can be so unreliable? I know a family with two late model 'Jeep SUVs', and after a spell of heavy rain moisture got to the electronics of both cars creating problems needing expert advice. One of the problems sounds amusing but it is not funny when the driver starts up the engine and the rear door opens automatically!!!!!
Our son bought a new Fiat Multipla that developed a problem of the engine being shut down to an idle while being driven on the highway, most embarrassing!! It was found that a sensor was telling the computer that the hand brake was not fully released ! My old Honda has a warning light on the dash and has electronic ignition and I am not about to part with it as I can

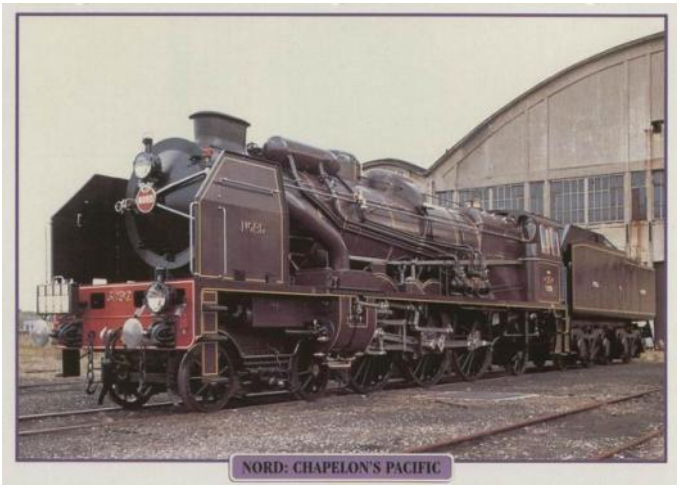
rely on it to go when required.
One further thought on piston rings; I made a simple clamp from 1mm sheet steel to compress the new rings to ease them into the cylinder bore and I used a bush bored with an internal taper to help insert the piston valve bobbins.
Years ago I had a simple device to fit rings onto pistons, just two strips of feeler gauge strip about 300mm long joined by a rivet in the centre held to the piston in the form of a cross. One just slides the rings down over the four strips.
The piston valve rings were fitted with the aid of four thin strips cut from an old steel measuring tape.

CHAPELON'S PACIFIC.

By Doug Chambers

The picture shows a French Nord Railway Pacific as rebuilt by Andre Chapelon.
This particular locomotive is No. 3-1114, SNCF No 231 E4 and is kept at the French Railway Museum at Mulhouse.

This class of Pacific was built from 1909 by the Paris Orleans Railway which operated over the south-west of France. As built their performance was nothing very remarkable. Indeed when the original wooden carriages were replaced with new steel carriages, it was found that they
couldn't manage the 25% increase in train weight. The directors of the Paris-Orlean Railway were faced with either dividing the train into two sections, (not popular on already busy tracks) or double-heading which too met with little favour. The rather young, for his senior position Chapelon managed to convince the directors that he could increase the horsepower output by improving the smokebox draughting, improving the flow of steam to the valves and cylinders and by fitting better superheaters
increase the steam temperatures.
Chapelon was given an engine to test his theories on, it was No 3566.
The final results were astounding. Horsepower at the drawbar was increased from 2000 to more than 3000hp and coal consumption was reduced by 25%. The Paris and Orleans Railway decided to modify the whole class of Pacifics and some were found to be developing 3400 drawbar horsepower hauling 1000 ton trains.
The Nord Railway were in need of a more powerful Pacific and they arranged to have a class built by the Paris and Orleans Railway that would follow Nord railway practice, but would incorporate Chapelon's improvements.
The class of 48 locomotives became known as 'Chapelons' and they went on to produce some remarkable performances. They handled the Paris-Calais 'Golden Arrow' from 1934 onwards and other trains having little trouble maintaining speeds of 60 to 80mph (100kph to 120kph) with very heavy loads.


NORD: CHAPELON'S PACIFIC

The Nord Railway Pacific is finished in chocolate brown with yellow lining. The main steam line can be seen emerging from behind the smoke deflector, heading down to the valve chest. The huge diameter of the pipe and the gentle bends are evident.

CAMBRIDGE and ROTORUA LIVE STEAMERS Inc.

The Rotorua Model Engineers advise that their lease at the Te Amorangi Museum was terminated by the Society on the 9th of December, due to demands by the Museum Board that they could not accept.
Since then a new Society has been formed, 'Cambridge and Rotorua Live Steamers Inc' and a new track of 650 metres length, is to be laid in a local Cambridge park and it is hoped to be ready around December 2011.

The Great Manawatu Steam Fair

Richard Lockett

If you have an interest in steam engines, you'll have come across a machine called a traction engine. We are fortunate to have a large collection of these at Maewa beside the

railway, just north of Feilding. This is where the headquarters of 'The Steam Traction Society' are. A lot of our members are or have been active in the Steam Traction Society over the years. My introduction to model engineering was when I received a Mamod traction engine for Christmas when a ten year old. I used to get taken to the local traction engine rallies, the first being held at the Feilding A and P showgrounds (now Manfeild Park). I don't know what year that was? Our editor will know. (No) A couple were held at the Tokomaru Steam Engine Museum. One year; the Prime Minister Norman Kirk opened their railway.

As a young child I would run and hide in the broom cupboard when a traction engine happened to drive past our house, belching smoke and the scream of the whistle, frighting stuff to a young fella. I still get reminded of that at any opportunity by my parents.

It was probably the editor and his father Jack road testing a Fowler traction engine around the streets of Feilding.

Another occasion we went to a motor show held in a wool store in Wanganui, what year Ed.? The first exhibit inside the door was a newly restored Ransomes, Sims and Jefferies Traction engine, with the fire lit and ticking over slowly with the chimney extended up through the roof of the wool store.

Out at Maewa on the 19th of March 2011 this same engine still owned by Mike Barnes was being looked after by young PNMEC member Scott Bleackley from Wanganui complete with a young female assistant. I was invited up onto the tender and to steer the Ransomes around the paddock, Scott doing a very competent job of driving it.

Bruce Geange had his 3" Burrell in steam which kept a group of younger boys amused being not quite as scary as the full size engines.

A good exhibit of old steam powered toys/ models was to be found in the workshop some of which I hadn't seen before. New to me was a display of operating stationary steam engines fed from a small horizontal boiler all housed in the newer large shed behind the traction engine shed.

Thanks to Jonathon and Donna, our hosts for the Clubs B.B.Q. held at their lovely property at James Line, Palmerston North.

The Club members greatly appreciated the opportunity to relax and enjoy the park-like surroundings, the Museum and lead lighting workshop.