May 2009
No 345

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.**

PRESIDENT	SECRETARY	TREASURER	EDITOR
Richard Lockett	Stuart Anderson	Murray Bold	Doug Chambers
(06) 323-0948	(06) 357-3420	(06) 355-7000	(06) 354-9379
pnmec_president@trains.net.nz	pnmec_secretary@trains.net.nz	pnmec_treasurer@trains.net.nz	pnmec_editor@trains.net.nz

PNMEC Home Page www.pnmec.org.nz
Email:- pnmec@trains.net.nz

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 AGM & April Meeting.

The Annual General Meeting passed along quickly and without fuss. The various reports were read and accepted. The election of officers resulted in the following.

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

The Boiler Committee is appointed (not elected) and the four members are continuing for another year. They are Doug Chambers, Richard Lockett, Ken Neilsen and Chris Rogers.

The President noted that two of last year's committee had indicated that they would like to 'stand down' this year. On behalf of the Club he thanked Les Fordyce and Bruce Geange for their efforts over the years.
It was noted that there were more people prepared to stand for the committee than there were positions for and it is the editor's belief that this comes from the quiet and 'laid back' informality that has prevailed through the years in the club.
Always good to see new faces prepared to 'do their bit' as they always seem to bring a new way of looking at things and subsequently new ideas.

The Treasurer, (Murray Bold) pointed out that now the subscriptions have been set, members could pay him right then as he had the receipt book with him
The subs remain at $30 full membership, country and junior members $15
It is a great help if members pay up promptly.
If you wish to pay by internet banking the clubs account number is 06-0996-0831663-00.
Make sure your name is on the transfer so we know who to credit.

After the Official Part of the evening was declared over, attention was turned to the table.
Graeme Hall led off with the fuel/oil tank for his nearly completed Offenhauser i/c engine. He also had a spark plug that he had made and a photo of the engine. At present he is working on the radiator.
Les Fordyce has been going to night school to learn the art of lead light glass making. Les had two examples of what he has made and he gave a description of the tools and skills required to carry out this work.
Eddie Bleakly had his version of the traction engine made from the PNME club casting sets. As yet only run on compressed air but looks very good with a full length roof.
Richard Lockett says he still has two sets of castings if anyone wants to build one of their own.
Ken Neilsen showed us the single-cylinder i/c engine that he has built. It was a design called Kiwi by Edgar Westbury. Ken had made patterns for the aluminium castings, but a problem with the cylinder head saw him machine a new head out of a solid lump of bronze. As yet the engine hasn't run. Ken had a small spark plug off another engine but feels it may be too short and the spark is jumping from the top of the plug to an adjacent cooling fin. He is looking at making a longer spark plug.
Doug Chambers brought along the newly rebuilt 5" gauge NZR 'F'. It has passed its steam test but has yet to make a return to the rails. See more details in 'This Month's Featured Model' article.

Once again the **'Clubman of the Year Trophy'** is being shared, this time between **Murray Bold** and **Dave Newstead.**

COMING EVENTS

Mid Week Run at Marriner Reserve Railway

26th May between 10.00 am and 2 pm
23rd June between 10.00 am and 2 pm
Please contact Doug Chambers beforehand.

Track running at Marriner Reserve Railway

June 7th from 1pm to 3pm
June 21st from 1pm to 3pm

Open Weekends

.Manakau Live Steamers
Queens Birthday Weekend 30 May - 1 June

The closing date for the next issue of The Generator is Friday 12th June

May Monthly Meeting

The May Meeting will be held on the 28th May, at 7.30pm, in the Hearing Association Rooms, Church Street, Palmerston North.
Fin Mason is going to give a presentation on his European trip, a 15min DVD and followed by **'Bits and Pieces'**, so bring along your current project.

THIS MONTH'S FEATURED MODEL.

By Doug Chambers

This 5" gauge NZR 'F' class loco has a long history. Seventy years ago it was running on the Invercargill Model Engineers track. It was built by Bill Cleine, a mathematics and science teacher at the High School. The model carries the No 19. The full-size No 19 was allocated to Invercargill in those days and the drawings were prepared from measurements taken off the full-sized 'F'.
How did the model finish up in Palmerston North? One of Bill Cleine's pupils was John Couchman. John admitted to me to be a poor student in maths and science until he found himself in Bill Cleine's class. Bill must have been a good teacher for soon John was able to make his way to the top of the class in both subjects. John was able to progress through a career in electricity, founding a very successful business in Palmerston North, something he could never had achieved without the knowledge of mathematics and science.
Bill Cleine later moved to Timaru where another of our members, Brian Leslie met him. After Bill died the 'F' passed into the hands of another model engineer and it was from him that John Couchman bought the 'F' and brought it home to Palmerston North. From conversations with John it was obvious that he had bought the 'F' as a 'keepsake' in memory of what Bill Cleine had been to John as perhaps not just a teacher, but as a mentor as well. John recalls that the Invercargill High School metalwork teacher (a ship's engineer retired from the sea) and Bill got on very well and he probably had an input into the 'F'.
The 'F' sat on a bench in John's workshop, run from time to time on compressed air for visitors. But John really wanted to see it back in steam if that was possible. John and Murray Bold are great friends and the 'F' passed into Murray's hands, but with the proviso that I be given the job of overhauling and re-commissioning the locomotive. The model represented the 'F 19' as it originally was when imported in 1864. John and Murray wanted it altered to represent the 'F 19' as it appeared in its final working days and John had a photo of it at Lyttleton in 1949, with a longer smokebox, Westinghouse pump and air tanks, coal bunker extensions and a Pyle National generator.
I admit taking on the job with a certain amount of trepidation, an old boiler, probably lots of stripped threads, broken studs etc. I started off on the boiler, removing it from the frames and carrying out a hydraulic test. No problems there, so all the boiler mountings were overhauled and new safety valves were made. The chassis was stripped and the frames were repainted. When I dismantled the cylinders I found the pistons were made of aluminium and the rings were of soft packing. The cylinders were bronze castings. The pistons had corroded and I replaced them with bronze pistons and bronze rings. The slide valves and the valve faces were re-machined.
When I dismantled the eccentric straps I found they were made of steel as were the eccentrics. Steel on steel is not a good idea, but when I examined the straps more closely I found that they had been white metalled, just like the old car big ends were done prior to the steel backed shells of today being introduced. Remember this locomotive was being built around 1937-8.
The model follows the prototype very closely. The centre and trailing axles are compensated and like


1st steam up on blocks

the prototype the springs are of the leaf type. The centre and trailing axle springs are under the axle and the springs are mounted above the leading axle. The 'F 163' that is in Feilding was made by 'Dubs' and on it all the springs are under slung. F 19 was built by Avonside.
The coupling and connecting rod bearings are all

'split' and adjusted by a tapered wedge as per the prototype.
The further I got into the job the more respect I developed for the original builder.
The workmanship was of a very high standard and the practical way of achieving things impressed me a lot.
The boiler has a combustion chamber with six Galloway tubes. There is a steel plate that comes down low behind the centre axle keeping any ash that escapes the ashpan from getting into the eccentrics and straps.
The axle sets had been made with a back to back measurement of 4 7/16" rather than the standard 4 11/16" that we use today. This was just as well as when Bill moved to Timaru he found the track there to be of 4 ¾" gauge. He was able to turn away the wheel flanges until they were very thin and use the engine on the narrower track. I turned away the backs of the wheels till I had the 4 11/16" back to back and then turned the tread away and fitted steel tyres, thus making the engine compatible with today's tracks and points.
One modification I did was to remove the inverted 'T' type exhaust and fit up a inverted 'Y' type. I have found this to give the loco a clearer 'bark' and usually means that a larger blast nozzle can be fitted reducing back pressure and generally improving performance.
The longer smokebox, coal bunker extensions, dummy Pyle National generator and dummy Westinghouse pump were all made and fitted.
The 'F' has been painted in gloss black with gold pin striping and the red-brown painted lining. The cab now has glass in the windows and a back for the cab which can be removed quickly when the engine is to be steamed.
The 'F 19' certainly hasn't had seventy years of steaming, perhaps about twenty. I am quite sure that it will be capable of giving Murray, John and a lot of others a lot of pleasure for years to come.
On the 24th April 2009 the 'F' returned to the rails for the first time in many years. After a few laps she seemed to remember what was expected of her and away she went. A few minor faults showed up, the smokebox door leaking, right rear cylinder drain leaking and a few glands to tighten up.
On the 1st May the 'F' was again steamed. There was a considerable improvement in steaming and Murray was soon well on the way to mastering the firing and driving of a small 5" gauge locomotive.

LETTER FROM ENGLAND

by Stan Compton

One of our Hereford members recently met a couple from Lyttleton in the South Island, New Zealand, at the elaborate display of working models at Sinsheim in Germany. He met the same couple again in London where he was reporting on the Exhibition at Alexander Palace for 'Engineering in Miniature'.
It was their intention to buy a kitset for a 7 ¼" gauge mainline engine to take back with them as excess baggage !!!!! It would have been far cheaper to arrange shipment by container ship, better still locate a reputable dealer to purchase a completed one from ; if a suitable engine was unavailable in New Zealand. There are many kitsets available over here that need skilled work to sort out the many problems involved to obtain a successful engine. I fear that a lot of people will live to regret parting with good money for what appears to be a simple way to obtain an engine of ones choice.
We have had some really cold weather lately, many mornings I have had to get rid of the block of ice formed in our bird bath, an old baking tray, and re-fill with cold water, how the birds can get into it these days I don't know.
When we arrived at our tracksite, just before the weather changed, we found a young man, with a terrier pup, living in a small tent, in a corner out of the way, on the empty tracksite. Our president asked him how long he intended to stay and was told just one week. That was a month or so ago and we were all concerned in case he froze to death, short of food when trying to live by begging in the town. We get a lot of unemployed young men from Europe hoping to find work at fruit picking in the season, unscrupulous con-men bring them here, but there is not enough work for everyone.
Young women from Europe, mainly Poland, can often find work here as waitresses or in hotels and are usually good workers with nice manners. Many study the English language before arriving and only need practice to fit into a new country.
I have read that since the downturn in our economy affecting everyone, many of the young Polish workers are returning home because their banking system is still regulated, unlike ours, where pensions and savings are not safe anymore.
Even in winter there is still work at our tracksite, last week we had fifteen men, some repairing mowers, others clearing and burning blackthorn. Those thorns are wicked. Last year a member got a thorn buried in his scalp, luckily we have a doctor in our group who got the thorn out, after digging in with a pair of pliers !! At lunch-time we all gather in the warm

clubhouse for hot soup, plus a mug of tea. This is a great time to put the world to rights!!!!! All being retired, it is a good chance to meet every week, my workshop, an old railway wagon body has a 2 kw electric space heater alongside the Myford Lathe so I am comfortable, in the summer it can be too hot in there.

Last week it was so cold on site that I could hardly move with so many crowded in to get warm until they got a brushwood fire going outside and carried on clearing up the site. This would be a good time to be checking over our rolling stock, but as they are suspended high up above flood level that job will have to wait. Everyone asks me "How is the clock coming on ?" Stan, probably because it is different to my usual projects. It requires a new set of skills, take for instance making lantern pinions. Turning and polishing the brass body is easy. I indexed my three inch chuck back plate for twenty and twelve rods, called 'trumbles' in the clock world. These are hardened blued steel of 1mm and 1.2mm diameter. I could start drilling OK but a spiral drill wandered into the outer flange, even with a temporary land in place. Then I discovered the new drill was poorly ground and I replaced it and had success.

This project is really interesting once I know what to do and how to go about it. All the gears are cut, the escapement finished and all the arbors (spindles) are made. The main one has a two inch diameter drum to carry the bronze flexible cord to carry the 30 pound weight, this called for a 12 tpi thread to be cut on the drum. Due to a lack of correct change wheels, my drum has 12 ¾ tpi!!! Soon I shall start mounting everything into the clock frame.

I shall need the tall frame of wood construction to carry the clock with pendulum mounted for the first test. I am lucky to have a supply of hardwood cut from a teak table top by Wally who was a cabinet maker. His 7 ¼" gauge American diesel loco has a body of wood, the finish is so good it looks like steel, he is now building a 7 ¼" gauge GWR railcar for club use, petrol- hydraulic drive.

We have all seen these programmes on TV showing elephants in the African Bush, and their tusks are impressive, but Wally told me of a project he had to mount a pair of tusks forming an arch, the tusks were ten feet long !!!!!!!! This required a box full of lead to hold them securely in place. There is not much that Wally has not done, from welding the cast-iron frame of the Hereford Cathedral Clock, incidentally having to carry his arc-welder up the spiral stairway up the tower, to machining breech blocks for naval guns.

STEAM POWERED MODEL AIRCRAFT

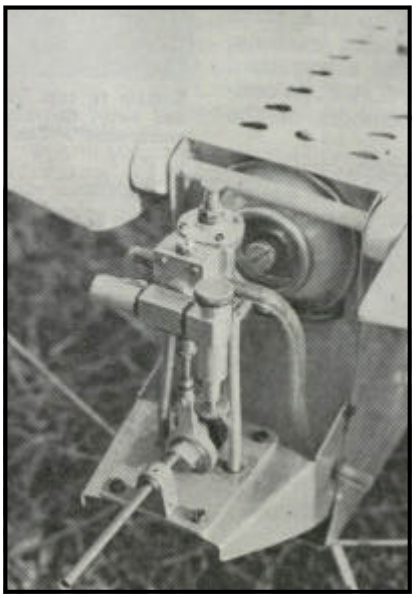
By Doug Chambers

The content of the 'Generator' has been focused on locomotives a lot lately, so here is something different.

Chris Morton drew my attention to an article in a 1967 issue of Aero Modellor written by a D.E. Parker telling of his experiments in building a steam powered model aircraft.

The writer tells of beginning his experiments some thirty years before 1967. He tried various oscillating engines and (tin can) boilers but was not able to get a suitable power to weight ratio from them. Thirty years passed and during this time more knowledge and skill had been acquired. The oscillating engines had been discarded as being too inefficient and a lightweight slide valve, double-acting engine of ½" bore and 9/16" stroke was designed. The maximum use of aluminium and magnesium was made.

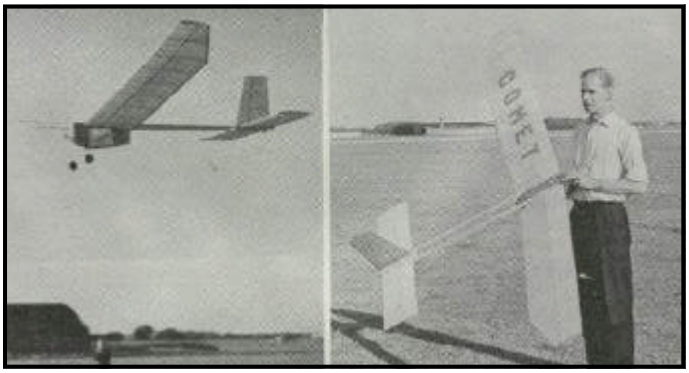
The cylinder was made of brass and the piston was made of dural with a bronze sleeve shrunk on. The port timing was arranged so that steam was admitted just before top dead centre and cut-off was at ¾ of the stroke. The piston rod didn't have a packed gland (this to reduce friction) and lubrication was by a displacement lubricator. The weight of the engine was just 3 ½ ounces.



The engine was tested with a 12" K K propeller and found to produce suitable power.

The next stage was to design and build a boiler weighing not more than 9 ounces and having a heating surface of 48 square inches. Sources of heat other than a meths burner were tried, bottled gas, paraffin blow lamp and picnic stove type solid fuel were all tried but the simplicity of the meths burner proved the best choice available. The boiler was made from a 2" diameter by 6" long Aerosol can fitted with nine ¼" OD 26 SWG brass water tubes in two banks. These are all silver soft soldered in place and the wrapped seam of the can is opened out and cleaned, and then silver soft soldered. Some degree of superheat was achieved by taking the

main steam pipe from the front of the boiler, through the flames and back out the front of the boiler to the engine.
A nine wick burner of 005 thou brass shim fires the boiler. A conventional arrangement where the spirit is in a container at one end feeding the wick tubes through pipes could not be used as the changing attitudes of the aircraft could starve one end of the burner.
The need to have the meths container contained within the boiler casing then resulted in increasing amounts of meths vapour being emitted due to the heat leading frantic efforts to smother the fire.
Eventually the problem was overcome by fitting a forward facing air vent which led to better combustion and a greatly improved output of steam from the boiler.
A stage was reached where the boiler weighing 9 ounces was producing a steady 8 ounces of thrust.



The safety valve was lifting at 40 psi.
The power unit was fitted to a model aircraft that had an 8 foot wingspan and a length of 4 foot 5 inches.
The all up weight of the plane and power unit was 30 ounces.
The air test consisted of lighting up the boiler, a few turns of the propeller to clear the water from the engine, then the prop started to spin, the safety valve started to lift and then the plane was launched. All went well and a successful flight was achieved.

ITEMS FOR SALE

The following items have been advertised in the Newsletters of other Model Engineering Clubs.
The Auckland Model Engineers :
The Matakana Country Express. A 5" electric locomotive built by Steve James.
Approximately 180 metres of track is also for negotiation. Contact Ken 09 425 4082 or Mobile 021 040 3461

The Annual trip to Thames


Check the sky behind Richard

Richard, Murray, Janice, Chris and Paulette made the annual gathering at the TSGR. We were blessed with two days of brilliant weather. It was a little breezier on Sunday but well worth the effort to go. I got to drive a steamer without getting the overalls out of the car. I had taken some G scale track and my 'Lady Anne' live steamer.

There was only one incident during the weekend, when John Harman's loco split the points and derailed spectacularly. It was soon back on the rails due to the many helpers.

Special thanks must go to the kitchen staff that kept us all fed and watered for the entire time we were there. Rest assured we will be back. Serrena Burton from TSGR has a an online album with more pictures. Email me for the web address. Murray Bold