July 2017
No 435

THE GENERATOR

Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC
Managers of the **"MARRINER RESERVE RAILWAY"**
Please address all correspondence to **:- PO Box 4132, Manawatu Mail Centre, Palmerston North 4442**

PRESIDENT	SECRETARY	TREASURER	EDITOR
Robert Edwards	Fin Mason	Kerry Puklowski	Position Vacant
(06) 280-3057	(06) 356-7849	(06) 353-6189	
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 difficult. We may even offer you a cuppa.

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
PO Box 4132
Manawatu Mail Centre
Palmerston North 4442

Place stamp here

This Months Featured Model

Bore - 1in
Stroke - 1.25in
Capacity - 49cc
RPM - 3000 approx
Fuel - Fuelite
Lube - pressure by oil pump
Prop - 20 x 8in

Report on the June Meeting.

The meeting began with the **President** informing the meeting about the upcoming exhibition in the ground floor of the City Library in George St. Further information will be forthcoming.

The outgoing **Treasurer** thanked those members who had already paid their subscriptions and pointed out the importance of providing some identification in the reference field when paying online by direct credit. The Treasurer has no way of getting this information if it is not provided in the bank statement.

Richard Lockett then gave an informative talk on cutting threads using taps and dies. Much useful information and tips were given and these provided the basis for an interesting discussion among the members present.

Phillip Bealing showed his partially built heat engine, which is coming along nicely. He is concerned that the displacer cylinder he has made from a piece of steel tube is too heavy and he is planning to build a lighter one.

Graeme Hall reported that his Anzani three cylinder radial engine is now complete and, although hard to start, runs well once going. As usual I am looking forward to seeing another example of Graeme's workmanship.

July Meeting

This will be held at 7.30pm on the 27th of July in the Hearing Association Rooms, Church Street, Palmerston North.

This month there will be a talk by Laurie Perkins about his and Pat's holiday in Myanmar (Burma) and navigation on the Irrawaddy River.
Also Bits and Pieces.

Model Mee

To be held in the George St frontage of the PN Library
26 - 27 August 2017
We will need to fill the space so start polishing your models.

COMING EVENTS

Track running at Marriner Reserve Railway

August 6th	1pm-3pm
August 20th	1pm-3pm
September 3rd	1pm-3pm
September 17th	1pm-3pm

SUBS are Now Overdue

Please pay now - $30.00
Internet payments accepted to account **06-0996-0831663-00**
Please add Name as reference.
You may also pay on club night.

If you haven't paid by 1 November Your club membership will end.

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

Letter from England

By Stan Compton

Recently we watched a program on TV (Quest) called “Arctic Rescue” and were taken out on a wrecker-truck at night in the Yukon with a temperature of thirty below zero.
Having lived in Canada in the fifties I know what that is like and wore suitable clothing. Our driver got near to his customer contacting him on his mobile phone being off the highway down a bank. He spotted the car in trouble in the snow; parked-up and put the young couple in the car to get warm. My wife commented on the girl wearing a very light jacket for those conditions.

Meanwhile our driver ran out his cable from the winch and commented that he would really need a snatch-block to halve the load, being a dead-lift, but his had been stolen, so he had been using his crow-bar instead. This horrified me because to bend a steel cable, under-load round such a small diameter would damage it. Sure enough by the time he dragged that heavy American car up onto his truck there were only two strands taking the load. He must have known the cable needed replacing, yet was out in the bush doing a recovery.

In New Zealand at Massey College I witnessed the recovery of a tanker-truck loaded with sludge that had slid backwards into a sludge-pond. The young driver of the recovery truck really needed a snatch-block, yet he dragged that load up with a direct pull and I expected the cable to break under those conditions.

On a different subject I have often heard criticism of Volkswagen cars. We owned a 1955 model, not new and were pleased with its reliability. Granted the air-cooled engine was noisy but when you consider the design of a “Peoples Car” by Ferdinand Porsche had to be very basic, so the idea pre-war was for the German people to purchase coupons to save-up to pay for a basic car with no frills.
I gather that no one obtained one with these coupons.

The works at Wolfsburg built an army-truck with the same engine and transmission and was so successful in desert conditions I knew an ex New Zealand army man who bought a VW car when back in civilian life. I also met a man who was part of the team in the British army who got production going at Wolfsburg at the end of hostilities. Those cars really were basic, but he was impressed with their performance on the autobahns as a delivery driver.

Just before WWI a car rally from Paris to Peking attracted many entries by wealthy men driving heavy cars of about five to eight litres capacity, of heavy construction. This allowed some of the drivers to jump their car up very steep grades and the clutch could take this punishment.
When I worked at Massey University one of the lecturers had a VW Combi. He used it to deliver building materials for a ski hut, high up on Mount Ruapehu, using the jump technique on the steepest grades. Because the reduction gears on the half-shafts was clever it could withstand this brutal treatment, but the clutch failed.

At last I have completed the kitset of a City of Truro in Gauge one as a display only. It nearly beat me and I was prepared to scrap it but I can report the builder’s widow was delighted now it is mounted on a display track.

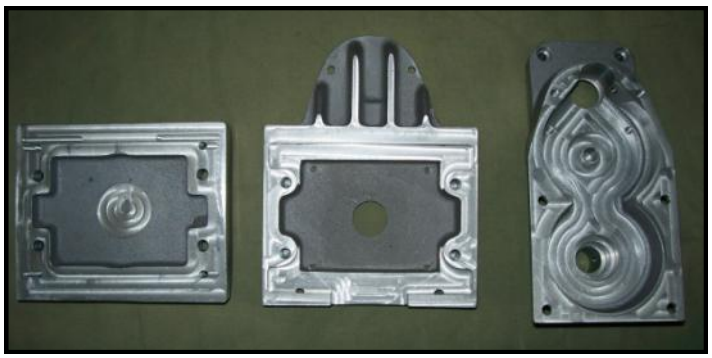
We have a cock pheasant visiting our garden looking for bird food. One wing seems to be damaged. He is probably escaped from Eastnor Castle not far away where they are raised for sport.

Locally Made Gearbox

By Merv George

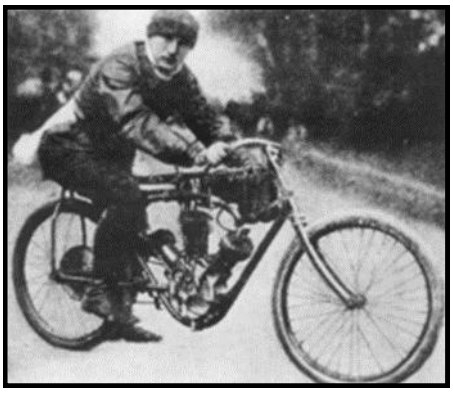
The pictures show a full size gearbox manufactured by some of our members in their production work.
It accepts a mini 4 stroke engine on the back, driving through a centrifugal clutch.
It has a reduced RPM output to the rear and a reciprocating output at the lower front.
Richard made the moulds. Aluminium is cast at Friendly Feilding foundry, gears are bought in, machined and case hardened.
Other components are laser cut, machined, hardened

and ground as necessary.
The gearboxes were all manually machined but to speed up production and free up workshop capacity they are now CNC machined elsewhere.
The gearbox has achieved its goals, proved durable and is currently in use around the World. Nothing is perfect and some upgrades have included adjustment on wear strips and slightly different construction allowing the engine to be removed without stripping the gearbox apart. Ease of maintenance is second only to the gearbox doing its job.



Anzani Project

History:
Alessandro Anzani 1877-1956



Born in Italy and moved to France in 1900 and started building bicycles in a small workshop in Paris, with three staff. He began building motor cycle engines around 1905.

His first designs were 2 cylinder V engines and he rode machines powered by them to records and race success in 1905 and 1906. In the same period he had developed a three-cylinder version, more powerful than the twins. Three-cylinder or fan-type were alternatively known as 'W' or 'W3' engines.

Being air-cooled, the engines were light in weight and with upright cylinders there was little danger of plugs being fouled by lubricating oil.

In response to the growing interest in aviation in France, and the Wright Brothers visit in 1908, Anzani produced the first of a series of three-cylinder fan flight engines. They were all air-cooled side valve engines.

One of this sort that famously powered Louis Bleriot's Type X1 monoplane across the English Channel in 1909.

Anzani was aware of the weight cost of the counterweight in the fan configuration and by 1909 he had a symmetric 120^{o} three-cylinder radial engine running.
Although termed the 'Y' engine after its cylinder arrangement, it ran in an inverted Y position and produced 30HP at 1,300 RPM.

Radials are smoother running than the less symmetric fan engines, as well as lower weight but with low power available from their three cylinders, they had limited applications.

They led however, to Anznai's two-row radial engines, beginning with the 6 cylinder radials, two Y's on a common crankcase. Anzani went on to build five, ten and twenty cylinder radials of 200HP.

Demand for engines continued to grow and the original Paris workshop replaced and one in London and Italy were added in 1914.

After WW1, factories in Britain produced engines for car and motor cycles, including Frazer Nash, A.C. cars, Morgan, Berkley and Cotton, Tandon and Greeves motor cycles.
Other projects included outboard motors, lawnmowers and small tractors.

British and French factories closed in 1980. Anzani died in 1956.

My Project

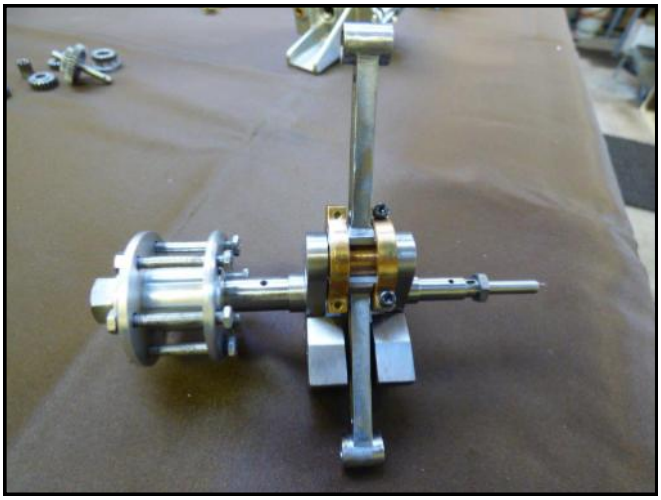
Graeme Hall Wanganui

A visit to the Bristol Model Engineering Exhibition in the UK last year rekindled a long interest in old aero engines, a number of scale

models which were on display. Contact was made with a builder who had three ¼ scale Anzani engines on display.

Castings were ordered for crankcase and carburettor for a 'Y' type Anzani engine.

On return home plans from a series in the Model Engineer magazine were obtained, photocopied and enlarged.



Crankshaft and connecting rods built. Castings arrived and machined to plan, these where built using basic plan dimensions and photos from aluminium with cast iron liners and bronze valve seats and guides.

Problems arose when cam drive gears, made to plan, would not fit in the available space in the rear of the crankcase casting – bother!!

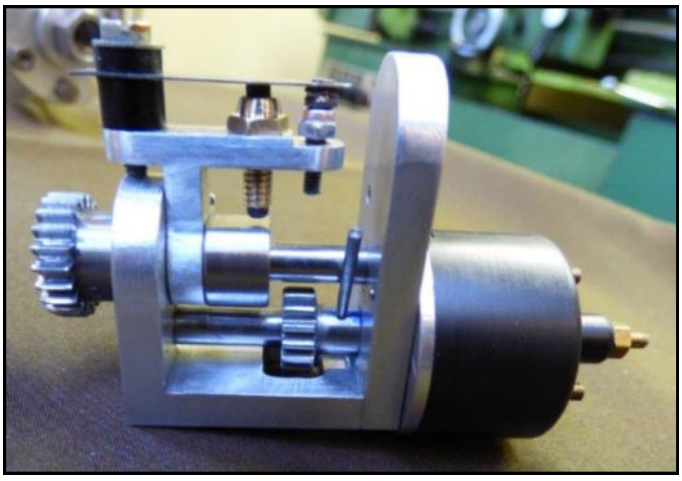
After some calculating, two smaller gears were made to fit the five gear train, two to one reduction to the exhaust cam.

Many other parts were built, including pistons and rings, valves, special bolts, oil pump, propeller hub and spark plugs, from my last piece of ceramic tube!

The carburettor next – made from a casting which required some difficult work holding and machining.

The magneto at rear of engine has a contact breaker and distributor with 4 drive gears was built to incorporate ignition advance and retard to prevent back-fires when starting.

A mounting bracket and base built, oil and fuel tanks, pipe work and ignition wiring sorted. A twenty inch propeller acquired and balanced.



After final assembly, the oil pump primed, a first start was planned.

A few pops and splutters, after a lot of prop flicking – back to the drawing board!

The fuel tank raised ½" – success, noisy and smoky – but it runs – after 7 months work!!

Profile of the Month

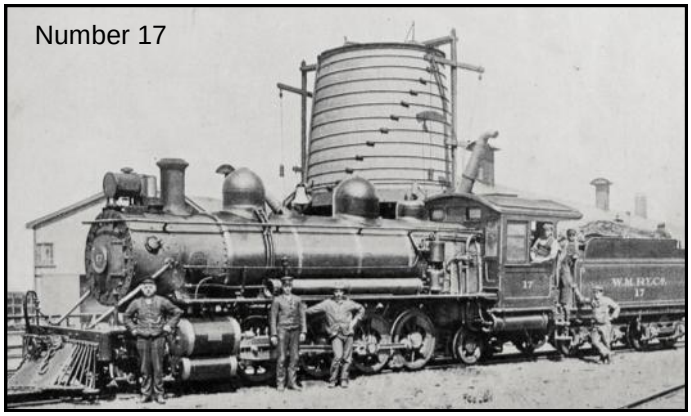
By David Bell

Jean and I have been married for 40 years and we have three grown up children, and four grandchildren. My son is a Mechanical Engineer working on the oilfields in Alberta, Canada. This is a great place if you don't mind working in winter temperatures as low as -35°C in snow up to your knees or summer temperatures as high as 40ºC while working in a dust bowl. My two daughters live in New Zealand. With two young grandchildren in Canada, Jean and I attempt to holiday with my son and his family once every two years.

I served an apprenticeship in an engineering works in Stratford, Taranaki. After you completed your apprenticeship you were encouraged to build something to demonstrate the skills you had learned. With a gunsmith as a past employee fire arms and steam models were very popular. Many of the tradesmen I worked with had served their time in the railways and would talk for hours about how it was done. Around this time I discovered the New Plymouth Society of Model and Experimental Engineers, (a club I later joined). This combination of circumstances sealed my interest in live steam locomotive construction.

Later my wife and I moved to New Plymouth where I set myself up as a Contract Design Engineer and worked on a number of the energy projects in the Taranaki Area. Towards the end of my time there, the engineering industry changed. The introduction of the internet and reliable emails meant that projects could be designed and managed from offshore, and work for local design engineers became harder to find. Then for a variety of reasons the family decided to move to Palmerston North. Here we found ourselves designing air conditioning systems for ships, fast ferries, etc. Work that has continued 'til this day.

At the time of writing official retirement is less than a month away (like that's going to happen). Over the years I have managed to accumulate the tools and machinery I will need to pick up where I left off and build a live steam locomotive, only a lot more substantial than my earlier efforts. I learned the hard way that small sized steam locomotive construction has its challenges. I am planning to build a 1/8 scale (5" gauge) model of the Wellington Manawatu Railway Co's which later became NZR BC463. This is a Vauclain Compound 2-8-2 and was built in the United States entering service in New Zealand in 1901. Although outline drawings are available, general arrangement and component drawings are difficult to find. To compensate for this I have been able to source a substantial amount of information about Baldwin Compound Mikado, and Consolidation Class Locomotives, including photos and drawings from various groups in Australia and the United States. I have also received a lot of input from others who have attempted to build one of these locomotives, including photographs showing how they attempted to construct the cylinders. Still in the design phase I am looking forward to the day I can step away from the drawing board and start construction. This is going to be a challenge.


Number 17

If you would like an email when this newsletter is published, send us an email with **"Generator Please"** in the subject line with your **Name, Club** and **Email** address to **pnmec@trains.org.nz**

Notice of PNMEC Special General Meeting

At the commencement of our next Club Night (Thursday 27th July) there will be a short Special General Meeting.

Agenda:

Discuss and approve the 2016/17 Financial Statements and receive the Auditors Report.

These statements were incomplete at the time of the AGM on 27th April and the Auditors Report has now been received,

John Tweedie
Retiring Treasurer