June 2012
No 379

THE GENERATOR

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

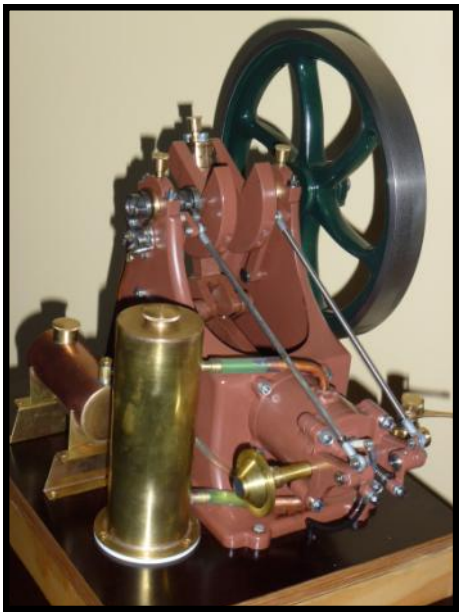
This is held on the FIRST and THIRD Sunday of each month, from 1 pm to 4 pm Summer and 1 pm to 3 pm during the Winter. All club members are welcome to attend and help out with loco coaling, watering and passenger marshalling - none of the tasks being at all

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 May Meeting.

Quite a few members brought along mystery or unidentified objects and some of the objects remain unidentified even after close scrutiny.

Robert Edwards had a level used by surveyors around the early 1900s.

Merv George had a device for tightening wire hose clips used on pipe connections.

Chris Morton had three objects; one was identified as a window stay locking device. The other two items remain a mystery.

Cynthia Cooper had a knitting needle gauge and a set of plates for tablet weaving.

Les Fordyce had a side rebate plane.

Fred Kent had a propeller driven by a pulse from magnets and battery.

Doug Chambers had an LH grease cap for the little end of the connecting rod of NZR Ja 1258. Doug was able to acquire it from the man who was cutting up 1258 at Wingatui.

Richard Lockett had a device for centring round bar in a four-jaw chuck.

On The Table

Robert Edwards had brought along the 5" gauge Heisler bush locomotive that he has recently bought from Bob Walters.

Track running at Marriner Reserve Railway

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

June Club Night

This meeting will be held on the 28th June at 7.30pm in the Hearing Association Rooms, Church Street, Palmerston North.
The theme for the evening is bridges. Members are requested to hunt out a photo or digital image of their favourite bridge and be prepared to tell why the bridge has significant interest to them. The bridge need not have anything to do with Railways (model or full-size).

RAIL-X 2012

This event is the weekend 14-15 July at the Barber Hall, Waldergrave St, PN
The club will be running the portable track outside the hall and will also have a stand inside. Both will require staff to run the railway and talk to the patrons at our stand. We get free entry to the event as we are exhibitors, so come along and help out on the stand or the track and relieve someone else for an hour.

COMING EVENTS

Open Weekends

Eastern Bay of Plenty Open Weekend
7th-8th July. Contact Dave Fitton 07 308 8884

Hawkes Bay Model Engineers, 50th Reunion
6th–7th October.

New Plymouth Model Engineers 60th Birthday Bash
Labour Weekend 20th-22nd October.

Havelock North Live Steamers Open Weekend 19th -22nd . October.

E.B.o.P. MEs River Edge Park Miniature Railway
10th Anniversary Run 15th -16th December.

Hawkes Bay and **New Plymouth** events will require registration.

The closing date for the next issue of The Generator is Friday 13th July

THIS MONTH'S FEATURED MODEL

By Graeme Hall

Atkinson Cycle Engine c.1886

James Atkinson's second four stroke engine is like his previous 'Differential Engine' which completes all four strokes in a single revolution and has no gears with cams on the crankshaft.
Information from books, patent drawings and the internet enabled a start to be made on this model.
Because of the unique two-part linkage between the connecting rod and the crank throw, the piston is able to go through four complete strokes in one crankshaft revolution.
The engine is built as near to original design with fabricated crankcase, cylinder and cylinder head, aluminium connecting rods and piston.
The crankshaft is cut from steel plate with counter weights added for better balance.
A pattern for a curved spoke flywheel was made and casting sourced locally.
The power and exhaust strokes are longer than the inlet and compression strokes, so experimenting was required to obtain dimensions for connecting rod pivot points, cylinder length and cam lobe shapes.
Small rod ends for push rods looked a formidable task until a friend obtained four from the UK made for model helicopters.
As original engine was powered by town gas, a carburettor was made. Fuel tank, water cooling tank and ignition system were built.
The fuel used is 24 -1, two stroke mix.
Engine painted, assembled and mounted on a base – 'now will it run?'
After many adjustments to cam and ignition timing, a short run was made.
A fuel shortage was noted, the fuel tank raised one inch – 'success!!'
This engine now as easy starter and reliable runner and fitted with a muffler – quieter!!
Over 1,000 of these engines were built in the United Kingdom between 1886 and 1895, plus a number in USA. They were made in sizes up to 30 H.P. – only two survive.

LETTER FROM ENGLAND

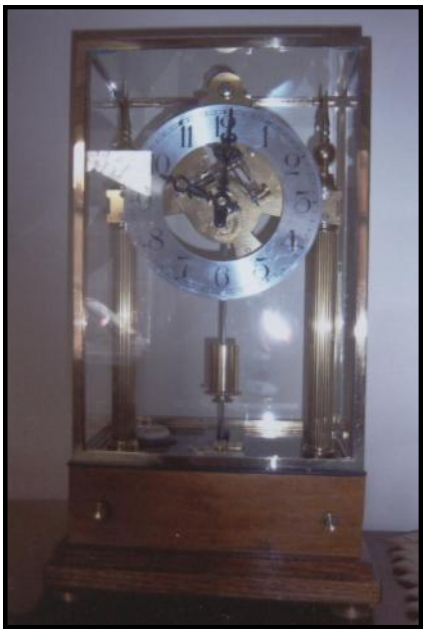
By Stan Compton

Some years ago I was travelling through our local countryside with an overseas visitor who spotted a single specimen of an English Oak tree; quite common to see years ago when I was a youth. The visitor asked, "Where are all the Oak trees that we used to read about?"
I explained that the two World Wars had decimated them, the stocks of hardwood being used for Military purposes.
I recently came across a photograph taken in 1904 at Iron Cross during an attempt to move the massive tree from Burton Court, Eardisland, to the Railway Station in Leominster. The log twice fell off the wagon, once when a wheel collapsed due to the excessive weight. A special wagon called a 'crocodile' would have to be sent for to handle such a load.
There is a local firm, trading as 'Border Oak', who build houses to order using timber grown for this work using traditional mortise and tenon pegged joints, but designed using modern computer technology.

We have been watching a programme on TV about traditional crafts still being practiced in various parts of our country. Yesterday we saw the tanning process of hides using traditional oak bark to soak the leather. All of the finished product went for export. The final finish was produced by rolling the leather on an ancient machine operated by a worker who had been employed for the last twenty years on this job.

Elsewhere we saw a 'bowl turner' operating a treadle-powered pole lathe, a very old craft. He showed us his own hand-forged turning tools of semi-circular form with a stout handle needing a lot of skill to make a cut forming the shape of the bowl, leaving what he removed as the basis of another bowl!!! We were shown a bowl with external carving round the rim, the 'Turners trade mark' that had been in use in a kitchen for fifty years and still perfectly round. Obviously it was only wiped after use and not put into a dishwasher. He had learned his skill from the maker of the carved bowl and was prepared to carry on with the craft.

A news item today stated that seven churches a night are being robbed of lead and copper off the roofs, goes into a container for export instead of local scrap dealers, often no-one knows of the theft until the rainwater appears below. Metal theft is a big problem here, even cast iron manhole covers are taken from road junctions overnight. Railway signal cables that are marked with 'smart water' that shows up under a certain light, still disappear.
I suspect that a lot of this material goes into a container for export instead of going to local scrap dealers.



I won't bore you with details of my efforts at clock building, but I can report that the battery-powered clock (right), plans published by John Wilding is now running properly after a long struggle.

The 'Castle Clock', intended to be built on a Unimat 3 lathe, is making steady progress but I feel it would be a real challenge for a newcomer to the hobby on such a small lathe.

One of our new club members has bought two locomotives and as we know a lathe is the most used machine to make replacement fittings for our locomotives or to build a riding car. When I heard he was having instruction on lathe work at the club workshop and that he was on the lookout for a lathe of his own, I went out and located a good second-hand 'Myford' at the right price. He drew the money out of the bank and went to view the lathe and thought it good value but declined to buy it because he didn't know what he would do with it!!!!! Maybe not having a workshop, even a simple garden shed would do once lining was fitted. What a pity, I recall 'Sparey's' words in his book 'The Amateur's Lathe' "For a modest sum of money one can buy a friend for life" or words to that effect.

This reminds me of a clock-builder I met recently who spent his working life in the Insurance business, retiring from a senior position. When asked what he would like as a present, he asked for a lathe and the reply was "What is a lathe?" He told me he taught himself how to repair clocks for a start and after seventy were restored he went on to building a number of high quality timepieces, to give them their correct name. He has the tidiest workshop I have ever seen. He had cut a hole in his bench top with a container underneath to hold the bits of metal brushed into it; what a good idea, Full Marks!!

A sign seen in the window of the local Laundromat "If you want your clothes clean, leave some room for the water!!!!"

OPEN WEEKEND at THAMES

A few PNMEC members attended the Thames Open weekend of 19-20 June.

Stefan Lipsey on the footplate of Dennis Searle's 7.25" gauge Wab

Craig Sands driving Bob Vines Mogal

The usual Upper North Island members were also in attendance.

OPEN WEEKEND at KEIRUNGA PARK

Fa 9 driven by Brett Lilley from Whakatane

CANALS and NARROW BOATS of ENGLAND

By Doug Chambers

In the late 1700s there was a need to be able to transport raw materials from ports on the coast, to factories near inland cities.
Then the manufactured goods needed to be transported to other cities where they could be sold or even back to ports where they could be shipped to overseas markets. The roads were not up to much and horses and carts were not able to handle the tonnages that had to be moved.
Railways were still to make their appearance in the future.

These factors then saw the emergence of the canals and Narrow boats. Over a period of years canals began to appear all over England until there was a huge network of canals linking cities inland with ports on the coast.
The earliest Narrow boats were in fact simply barges. They were pulled along by a horse often with a lad in charge of the horse and a man steering the barge. Some canals had

tunnels and some were crossed by low bridges. The horse was unhitched and the man on the barge would lie on his back and walk on the roof of the tunnel thus propelling the barge through. Once clear of the tunnel or bridge the horse would be re-hitched and the barge would continue as before.

Later the Narrow boats were fitted up with a small boiler and steam engine and a Narrow boat skipper often had his family on board with him. Later the Narrow boats were fitted with internal combustion engines.
Some canals were built wider than usual and so the barges used on them were built a little wider than the usual narrow boat. These barges were towed by small tugs.
The usual Narrow boat was about 60 feet long and had a beam of less than 14 feet.
Some of the Narrow boats were privately owned but most were owned by big companies. One company, Thos. Clayton Ltd had well over 350 Narrow boats.
Even after the Railways had made inroads into the transport of bulk items that had been the preserve of the Narrow boats, there was still work for them in certain areas. Often factories had been built with a canal at their back yard. This gave the Narrow boats an advantage as the bulk materials had to be unloaded at the railway yards and then transported by truck to the factory which added costs to transport.
The Narrow boats could be unloaded right at the factory door and although their numbers started to decline after WW1, there were still quite a few still working after the Second World War even as late as the mid 1950s.
The canals and locks fell into disrepair as they ceased to be used. Now the canals and Narrow boats have seen resurgence. Many of the canals have been cleaned out and locks repaired. The Narrow boats have been restored and are now used by tourists and holiday makers as a sort of floating, mobile house boat. They are in great demand and it is easy to see why people enjoy a relatively peaceful holiday chugging along the canal seeing a part of the country not able to be seen from the busy motorways.

THE MAKING of WOODEN PROPELLORS

By Doug Chambers

On the 10th June members of the Military Vehicle Club visited Jeff Fox at his home and workshops in Manakau just south of Levin.
I was invited to 'tag along' with Laurie Gudsell and I am very glad that I did.
In the early 1990s Jeff had made a couple of propellers for microlight or home-built aircraft. Previously he had been involved with making the wooden framing for vintage cars and it was through the vintage car movement that he met the late Stuart Tantrum. When Stuart found that Jeff was making wooden aircraft propellers, he asked Jeff to make him a propeller for an Avro 504 that he was rebuilding. Jeff made the propeller and that led to him being introduced to Peter Jackson (now Sir Peter Jackson) by Stuart. Peter's passion for World War 1 aircraft has led to an industry in New Zealand that has seen the restoration
of existing aircraft of that era as well as the building from 'scratch' of new aircraft from that period. That introduction has seen Jeff making propellers pretty much as a full-time occupation for Peter Jackson and for the firm that specialises in the overhaul of De Havilland aircraft at Manderville in the South Island.
Under construction at the moment are two 10 foot diameter four bladed props for RE 8 aircraft of 1917 vintage. The first is nearing completion and when finished it will have taken 400 hours in labour. The wood and glue will have seen the cost increase by another $6000. The wood is walnut, although the second prop is to be of walnut and ash laminate.
All the timber used is imported and arrives in a rough sawn state. Only after it has been planed to thickness can the timber be checked for grain, lack of knots and density. Each board is cut to a shape and glued on a special press bed. After that the prop register and mounting bolt holes are drilled and the blades are marked out to set the 90 degrees of a four bladed prop and the centre height of the blade and the blank set up on the copy router table.
A master blade is used to guide the copy router to obtain the correct profile. Then sanding and balancing begins, followed by 7 coats of two pot varnish and a final coat of polyurethane. During this process the prop is continually checked for balance.
The blank weighs about 124 kgs before machining. By the time it is finished it will weigh about 45 kgs. Jeff points out that he produces an awful lot of sawdust and shavings.
It is interesting that propellers of World War 1 aircraft were designed to act as a governor for the engine. On the RE 8 the V8 engine ran at a maximum of 1800rpm. The propeller rotated at a maximum of 900rpm. To achieve this, the propeller was driven by the camshaft which of course rotates at half engine speed.
The propeller is carefully made matching pitch and width of the blades so that 'pull' of the prop equals the horsepower of the engine. This ensures that the engine cannot exceed its design maximum rpm.
A new type of aircraft would have prop a made for it slightly oversize. The engine would be run on 'chocks' up to full power and if maximum rpm was not reached the outer tips of the blades would be trimmed until the desired rpm was achieved.

During World War 2 aircraft props developed from the fixed two bladed props on early Spitfires and Hurricanes to the constant speed variable pitch propellers that were in universal use by the end of the War.

And here is another one for you; the only place you can have new blades for a Spitfire propeller made is Germany!!!! The blades are still made of wood but are heat treated. I know nothing of that process but when the blades are being machined instead of a wood router tool, an end mill as in those used for milling steel has to be used.

Laurie Gudsell admiring the finish of a four bladed RE 8 Propeller.