July 2010
No 358

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

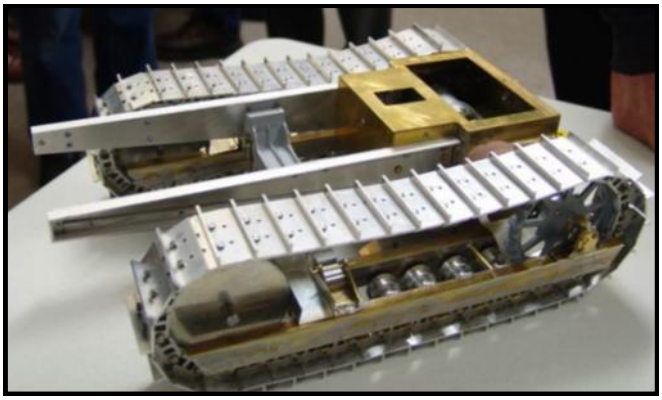
This Months Featured Model

REPORT on the June Meeting.

Another good turn out of members on a cold and wet wintery evening.
Richard Lockett gave a very good talk on the setting up of milling machines, the vices to hold the work and setting up the jobs. His talk was accompanied by slides which helped make clearer the points being made by Richard.

There was an interesting collection of items brought along by members on the table. These were:
A Fokker Triplane being built by **Fred Kent**.
Graham Hall had a model Aero engine, single-cylinder, four stroke. Not quite ready to run, but not far away.

Christopher Mason showed us the horizontal steam engine that he is building, and making a very tidy job of it.
Merv George showed us a hydraulic lowering damper that he made for his bandsaw.
It was described in a issue of Model Engineer's Workshop. Merv used an old shock absorber as the basic components.
Wawick Leslie had a small furnace that he is making to enable him to temper steel tools.
Richard Lockett had components for the hot air engine he is making.
Doug Chambers showed the smokebox for the 5" gauge 'Mountaineer' that he and Barry Parker are building as a joint exercise. He explained that unfortunately the chassis is now too heavy to bring in for the members to see.
Bruce Geange had the tracks and chassis for his Caterpillar RD8



July Meeting
7:30pm 22 July @ the Hearing Association Rooms, Church Street Palmerston North.
Fin Mason will give a talk on the means of investigation and setting out surveying for civil engineering projects.

COMING EVENTS

Mid Week Run at Marriner Reserve Railway

22nd July between 10.00 am and 2 pm
Please contact Doug Chambers beforehand.

Track running at Marriner Reserve Railway

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

Open Weekends

None known at this stage

FOR SALE

Frames, axles, wheels and cylinder castings for 'Tich'.
Castings and plans for a 'Sensitive Drill Press' as described in 'Model Engineer' $40 .
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.
Call Graeme Hall - (06) 344 2495

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

THIS MONTH'S FEATURED MODEL

Chris Rogers

Since downsizing my loco building activities over the last two years I have been building and buying to the scale of 16mm/foot. Even these locos can consume large amounts of time, so I decided to build a loco using a considerable amount of bought in components. Keith Bucklitch,a legend in the 16mm world, wrote an article in "16mm Today", about a loco called Isibutu.

Isibutu was built by Messrs Bagnall of Stafford UK for the Tongaat Sugar Company, of Natal, South Africa, in 1929. At the end of her days she was returned to Britain, where she was lovingly restored and now runs on the Welsh Highland heritage railway at Porthmadog.

She was 2 foot gauge and had frames of only 32 inches apart. I have built the model to run on 45mm track.

There is an excellent firm in the UK called Roundhouse Engineering, who make 16mm live steam locos and they also sell various parts for the home builder. Both Murray and I have examples of their fine work, but they are quite expensive.

I invested in valve gear and cylinders, lots of time saved!. This enabled me to build the loco in one month. The boiler was made by our resident "joggle patch maker" Doug, and it fitted like a glove and steams beautifully.

Isibutu (now called Lord Gary after my grandson), is gas powered and runs at 35 psi.

I can highly recommend modelling in 16mm or "G" gauge. It is just as much fun and much less expensive than 5in or 7.1/4in. It can also look very attractive in a small backyard. There are several Garden rail groups around NZ and we all visit each other with our locos tucked under our arms, or carried by the wife in my case. No more heavy lifting and backing trailers etc. Anyone fancying a visit is welcome any time at 42 Manawatu Street.

LETTER from ENGLAND

By Stan Compton.

We have a member of the Hereford Model Engineers Society who decided to build a 'Railmotor' as a first attempt. For the benefit of new members, this is a simple 0 -4 -0 tank locomotive designed in 5" gauge by Don Young. Don Young told me that the design is very popular in Australia.

To help new members I made up a set of plated patterns and Milson Foundry cast them at a very modest charge and many were encouraged to build one. This included my son Chris who completed the running chassis while still at High School. The first time it was run was at Rotorua and it went like the proverbial scalded cat!!!! Due to the relatively long wheelbase (9 inches) they are steady runners and a useful engine.

Our Hereford member has an agricultural contracting business to run so you can guess he has limited spare time, even so after a couple of years he completed the basic version that has only two tiny water tanks, a saddle tank would be more practical, although different to the drawings. The number one version is designed with a small tender, and this is what I recommend.

Even so our busy man wanted to hear his engine run but he had no time to get to our tracksite so I told him to block it up clear of his bench for a steam test. On his first attempt he used ordinary house coal and this was unsuccessful. A second attempt using the coal we use ' anthracite beans' was far better and he obtained a bright fire and those small wheels flew around. Luckily I had warned him to have plenty of water containers handy, like many people steaming their first attempt at home he could not believe how the water and coal needed constant replenishing.!!!!

Now he wants to build a 7 ¼" gauge locomotive, so I gave this a lot of thought and realised that the 'Wren' as built by your editor Doug Chambers, should fill his needs very well. First Narrow Gauge locomotives are usually plain and simple designs made to stand hard work and having no frills. The frames are plain and simple, boilers are designed to produce plenty of steam, and superheating is not really required.

My second Quarry 'Hunslet' was built less the superheaters and it performed just as well as the first one I built named 'Maid Marion', which was superheated.

An 'Elider' is a 7 ¼" gauge Quarry 'Hunslet' built to 3" scale drawings from Reeves and Co. It is a little larger than the 'Wren' but it is not a simple engine to build with Stephenson Link

valve gear compared to the Hackworth on the 'Wren'. The 'Wren' has simple marine type coupling rods.

NOTES on the RAILMOTOR

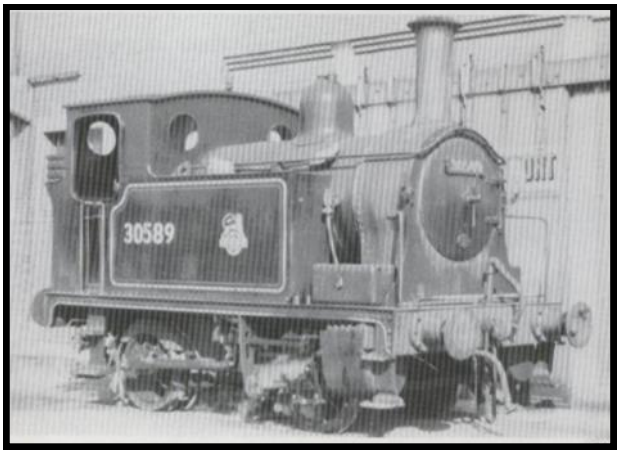
By Doug Chambers

I have to confess that when I first read of Don Young's 'Railmotor' design I couldn't understand the name or the purpose of the engine. The 'motor' part indicated an internal combustion engine, but it was definitely a steam locomotive. It wasn't until I saw a picture similar to this one that I understood that the 'Railmotor' was an early type of Railcar.

If you look closely at the picture you can see that the locomotive is very similar to the 'Railmotor' that Don Young drew up. But note that the carriage is altered so that it can be used specifically for this purpose. It has a bogie at the rear of the carriage but a special drawbar connects the front of the carriage to the locomotive. Some of the weight of the carriage is thus brought to bear on the axles and wheels of the locomotive and this extra adhesion would help the little engine handle the load.

Note that there is little capacity for water on the engine, probably stops were frequent and water could be taken on during these halts.

This example is of a 'Railmotor' in use in the early 1900's on the Belfast and County Down Railway in Ireland. Most of the Railway Companies in the United Kingdom produced similar 'Railmotors' at the same period. They were replaced by more conventional internal combustion powered units and the little engines were rebuilt to be used as shunters employed on light duties at small stations.



The second picture shows a Southern Railway 'Railmotor' after conversion for shunting duties. It had been designed as a 'Railmotor' in 1906 by D Drumond.

Getting the most from your Milling Machine

Richard Lockett

With a few of you having brought yourselves new or second hand milling machine recently, it was thought to be appropriate to have a club night talk and a follow up article in the newsletter.

We are referring to mills having a moveable quill which are the most versatile for our purposes in that we can not only mill shapes but drill, ream, bore and tap holes in these shapes during the same set up which you can't do in a drill press.

The axis of your mill are moved using a screw and a corresponding nut, the screw being fitted with a graduated hand wheel which allows us to move the machine table set distances very accurately. These screws will be either 4, 5 or 6 mm in pitch and graduated down to 0.02 mm divisions. My mill has screws of five mm pitch so I tend to use milling cutters of 5, 10 or 20mm diameter just to make the sums easier to do in my head as I machine a component.

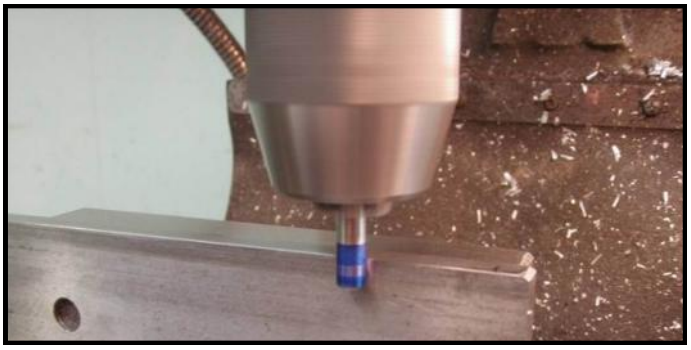
When first setting up your mill you need to set the head square with the table, this is best done using a trammel bar, one end held in the drill

chuck or collet and with a DTI held in the other end (the finger style is best for use with mills). This rotated about the mill table, adjusting the head until the DTI indicates no movement. This can take some time to do so don't move it again. Most of your machining jobs will be done in your

vice so we need to align the fixed jaw with the travel of the table; this is done by traversing a DTI held in the drill chuck or collet along the jaw, moving the vise around until the DTI indicates no movement before clamping up the hold down bolts. You will have to do this every time you remove the vice from the table unless it is fitted with tenons or dowels which locate into the tee nut slots.

To be able to machine useful components we need to determine a datum from which all measurements are referenced from, this can be the edge of the vice's fixed jaw, the edge of the work piece or the centre of a hole etc.

One method to do this is to use a dowel or in my case a broken slot drill shank as I seem to have a few lying around handy and held in the drill chuck or collet. With the chuck spinning and a dap of marker pen on the dowel carefully



bring the dowel sideways into contact with the jaw so that ink is rubbed off the dowel and left on the jaw. The hand wheel dial is now set to zero and with the quill retracted the table is moved over by half the dowel diameter with the dials reset to zero, this is your datum 0. This process is to be repeated for the other table axis. You could also purchase a wriggler to do this job. Using the marker pen I draw an arrow above the graduates to indicate which direction the hand wheel was turned to arrive at this position.

This is so as to be consistent with regard to the backlash in the nut. Not doing so will result in your work inaccurate and possibly having a faster trip to the scrap bin.

With the hand wheel dials set on zero at your determined datum edges it is now easy using the graduated dials to accurately position holes, slots, etc. Ther is no need to mark out with a scriber etc or remove the job from the vice etc. If you leave your vice set with dials zero'ed on the jaw edge this can speed up the next job also.

All for now and happy milling.

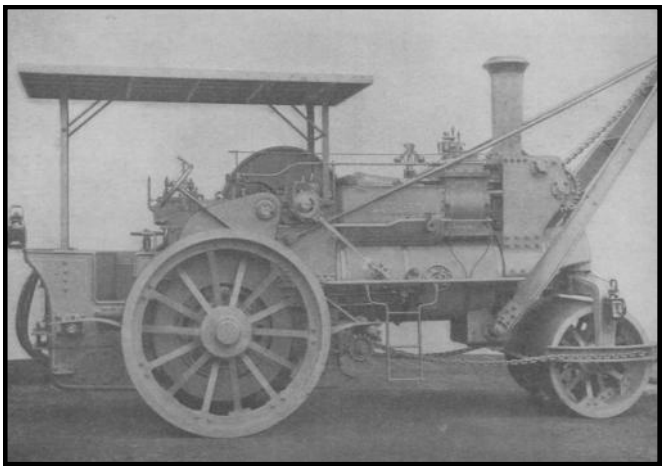
ODDS AND ENDS

From the editor.

I have in the past written in the 'Generator' that it is unwise to make blanket statements about traction engines and their types and features, ie, that traction engines never had machine cut gears, some Garrett's did, and another fallacy was that single-cylindered traction engines always had the valve face to the left hand side. Aveling and Porter's for a period offered to supply engines with right or left-handed cylinder blocks to the purchaser's demand. Rollers never had cranes fitted.!!!!

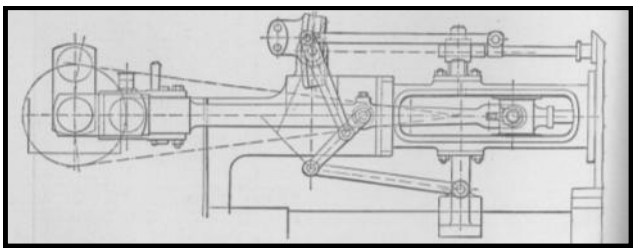
Unlike today's car manufacturer's where the buyer gets what is on the showroom floor, traction engine builders were happy to alter their engines to suit an owner's purpose. However the engine supplied to His Majesty's Dockyard, Chatham is very much a special with a lot of extras to suit the owners.

The engine appears from the picture to be a roller. However it is really a convertible roller. That is, it can be readily converted to a traction engine. The engine also has a three ton crane fitted to it.

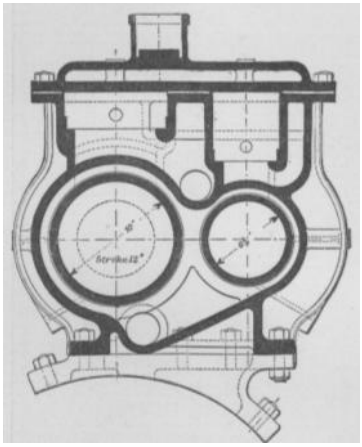


The convertible roller was built by Clayton and Shuttleworth and weighed twelve and a half tons. The engine is a compound with bores of five and a half inches and nine inches and a stroke of twelve inches. There is a boiler feed pump worked by an eccentric on the end of the crankshaft and there is also a steam pump. There are covers over the motion gear, an awning for the driver and a disc flywheel.

The rear roller wheels are five feet seven inches in diameter and sixteen inches across the face. The front rolls are three feet seven inches in diameter and each of the front rolls is two feet two inches wide.
There are spring scrapers on the rear wheels and adjustable scrapers on the front roll.
The valves are above the cylinders and are driven by Joy radial valve gear. This means that the eccentrics required to drive the usual



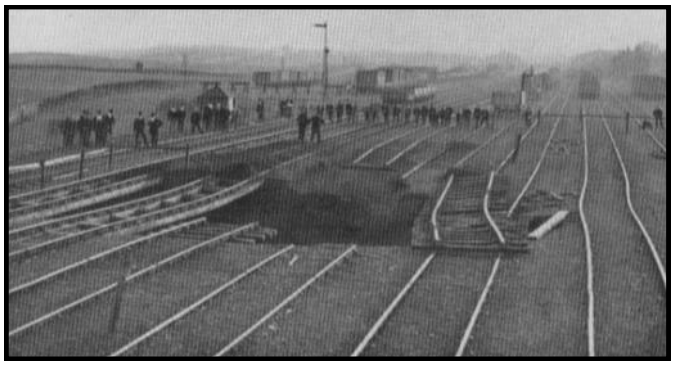
Stephenson valve gear are dispensed with giving more room for wider gears to provide the two travelling speeds between the main bearings. There is a Simpling valve to allow high pressure steam to enter both cylinders for starting.



To convert the engine from a roller to a traction engine was relatively simple. The two rear rolls were removed and replaced with conventional traction engine wheels. The front of the engine was then raised to allow the fork and rolls to be removed and then lowered onto the traction engine front axle which pivots under the bracket under the front of the boiler. The lower ends of the crane arms are mounted on this bracket.
The line drawings show the layout of the cylinder block and the lay out of the valve gear.

In the early 1970's I went down to Ashburton with Mike Barnes to Hughie Rainey's to assist with the fitting of a new backhead to a Clayton and Shuttleworth traction engine. This was an 8nhp compound and had Joy valve gear. Neither Mike nor I had seen an engine fitted with Joy valve gear and we asked Hughie what he thought of the Joy valve gear. I will never forget Hughie's comment, " It looks like two mating grasshoppers moving along or a cow with a loose leg rope, kicking in the bale." Bernard Watson of Tokomaru later bought and fully restored this engine and I have to say that the Joy valve gear did not have the smooth action that the Stephenson gear has.

One thing I have often pondered is that when millions of tons of coal or ore is removed from underground, what holds the weight of the earth above the empty space up. The answer is of course nothing. Over the years problems with subsidence over old mines has become more common. In New Zealand the problems around Waihi resulting from the underground gold mines are well known.
The photo shows the scene at Lindal, on the Furness Railway on September 22, 1892 after an 0 6 0 locomotive disappeared down a sudden mining subsidence.
In the article I have before me there is no mention of the fate of the locomotives crew, but I fear that they could have hardly escaped death or severe injury.
Apart from the damaged track immediately in the vicinity of the subsidence, note the tracks to the right and how they have become distorted towards the hole.



Ten Years Ago - July 2000

On the 1st July 2000, 6 Metres of concrete arrived at Marriner Reserve for the new steaming bays. These were needed for the 2002 convention to be hosted by the Palmerston North Model Engineering Club.
A visit to Fieldair's hanger had been arranged for the July meeting.
July 2nd Running Day saw Richard Locketts "Wren", Peter Hatton's "Duchess" and John Comrie's "Kea" and visiting was Dennis McConkey's "Enterprize" recently purchased from Bernie Coyne. Jim Curtis tested his "Dsa" which he had recently converted to hydraulic drive.