The Generator

Issue 484
November 2021

Palmerston Model Engineering Club

www.pnmec.org.nz - pnmec@trains.net.nz

Managers of the Marriner Reserve Railway - Marriner Street - Palmerston North
c/- 119 Ruapehu Drive - Palmerston North 4410

The Palmerston North Model Engineering Club

Upcoming Club Events

Club Nights typically start at 7.30pm and are usually held at the Hearing Association Hall, 435 Church Street, Palmerston North.

27 November (Saturday)

End of year gathering in Levin, 9.50am.
See Club Notice's for details.

30 January (Sunday)

Presidents Barbecue.
Date and Venue to be confirmed in the January 22 Generator.

Marriner Reserve Railway

5 December

Railway operations for club members.
No public passenger hauling.
1pm to 4pm
(Richard Lockett 06 3230948)

Thursdays

Railway operations for club members
Subject to ongoing track maintenance and weather

PRESIDENT'S REPORT

The club has hosted two successful events since the last newsletter was issued. The October Club Meeting was our "Project Progress Night" and this was well attended with a variety of completed and semi completed works on display. Covid is still clouding the way forward but the turnout at this meeting was higher than anticipated. Accordingly, the committee will be working towards organising similar events in the future if the situation permits.

The club also ran a "Members Only Day" at the Marriner Reserve. This event was very well patronised with many members bringing along locomotives to show or operate. Even more brought deck chairs and enjoyed the fellowship in the shade under the trees. Member's who attended, have requested another event run on similar lines, and events like this may be a way forward. Although I attended only briefly, it was obvious that the absence of the public made running a very relaxed affair. A "Well Done" to Richard and his team for hosting this event.

Finally, I have been advised that a significant number of members still have not paid their subscriptions. This is the last polite reminder you will receive. If there is any doubt about the current status of your membership, please contact any committee member and we will advise accordingly.

For general interest: The subject of the attached photograph is a 2-8-0 steam locomotive of the Norwegian Railway. The Norwegian rail system is standard gauge (four foot eight and a half inch) with a very generous loading gauge. Under these conditions their main line steam locomotives assumed massive proportions. This photo was taken in the National Railway Museum in Hamar Norway in 2017.

Keep Healthy and Keep Building
David Bell

Club Notices

End of year gathering **Saturday 27th November**

Club member Verdon Heath has arranged for PNMEC members and their families to visit a private workshop where vintage vehicles restoration take place along with where wooden aircraft propellers are crafted. We will gather outside the Manakau Hotel 39 Honi Taipua St Manakau at 9.50 am (**turn left over the railway track upon entering Manakau approximately fifteen Km's south of Levin on state highway one)** We will then proceed in convoy to the workshop. Phone 027 254 1059 if you are late and need the address.
For lunch we will make our way back to Levin and their Cosmopolitan Club at 47-51 Oxford Street Levin located between Rina and Ward Streets, with car parking at the rear off Seddon Street.
The Cossie Club do a special Covid Lunch deal for $16 with plenty of choice!
After lunch we will visit Murray and Janice Bold at their new abode at **2 Ewehurst Lane, Speldhurst Country Estate on Kimberly Road** where the residents have an inbuilt outdoor G gauge railway which will be in operation for us subject to the weather conditions on the day!

Wanted to buy

Club member Lionel Ford down in Foxton wishes to purchase the following workshop accessories,

A 8 inch Dia Rotary Table.
A 6 inch four jaw lathe chuck.
A set of Vee Blocks.
A cast iron surface plate 300mm x 300mm.
If you can help out Lionel please contact him at 027 311 2335 or lionel.ford@xtra.co.nz

Model Engineer Magazines wanted

Graeme Hall wishes to borrow a couple of editions of the Model Engineer Magazine for articles on a Hot Air Engine that he wishes to built. Editions 4257 30 Sept 2005 and 4261 from a later date.
If you can help Graeme please contact him at 06-344 2495 or gandjhall@xtra.co.nz

What is this Tool?

The picture shows a tool with bevel edged holes with a slot to the edge. Holes are beveled on the back also. The adjustable piece may be on the correct way or it maybe fitted the other way around with end tab facing outwards. It is made in Germany by Henry Boker.

Bring your answer along to the next meeting. Merv George.

October Club Night

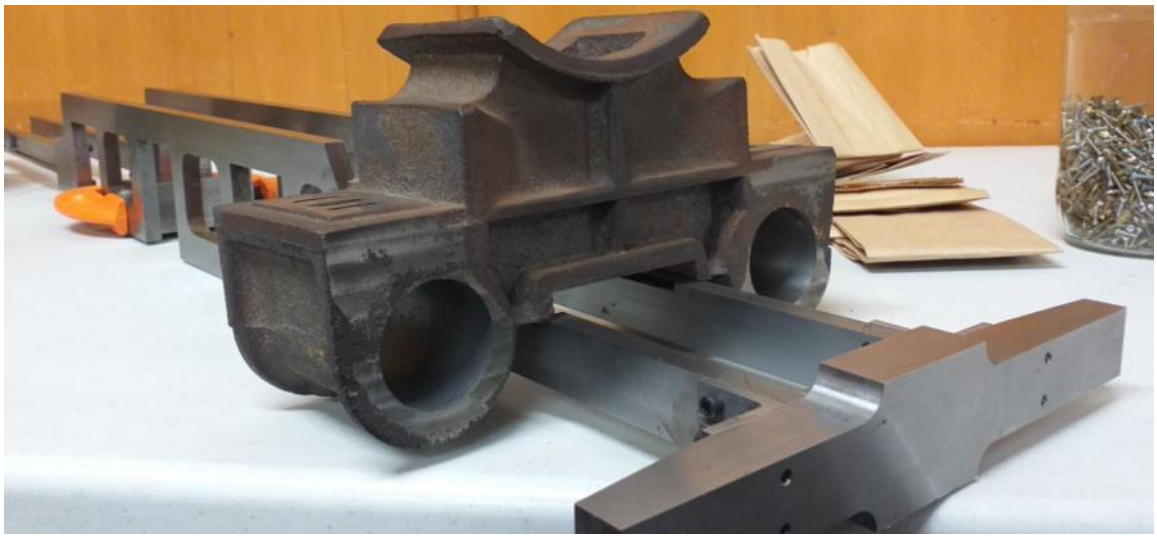
Project Progress

As a club we have not been able to share the progress with our projects for a few months (long over due!), so I was looking forward to this club night. Which saw a good assortment of members projects assembled on the tables for discussion.
First up was **Richard Lockett** with two items the first being a newly fabricated mounting system for his Bikepacking Mountain Bike. Richard explained that riding a bike for extended hours per day causes damage to the Ulna nerve in the hands, commonly known as cyclists palsy and that this can effect the function of the hands for months if badly damaged! To mitigate this problem, multiple handlebar hand positions are used to lessen the amount of time that the rider actually grips the handlebars while riding.
The fitting of aero bars which Triathlon bikes use to gain an aerodynamic benefit are not usually fitted to mountain bikes (MTB) but an MTB set up for bike packing over long distances they are commonly fitted for comfort and to mitigate the hand problem. This is where some engineering comes into the situation as there is very little parallel tube diameter on an MTB handle bar to clamp additional items to and the aero bars are just one additional item, there's the wrist pads, headlight, cycle computer, satellite tracker and the dry bag storage tube which hangs off the bars also! So with a lot of thought the new mounting forms half of the bikes head stem clamp and is formed using 4mm acrylic sheet with machined aluminium spacers for the tracker and headlight mountings. Rigorous testing to date by Richard has found this new setup to be an improvement in riding position and comfort with a small weight saving.

Tender tank for U193 and the aerobar mounting for Richard's MTB Bike.

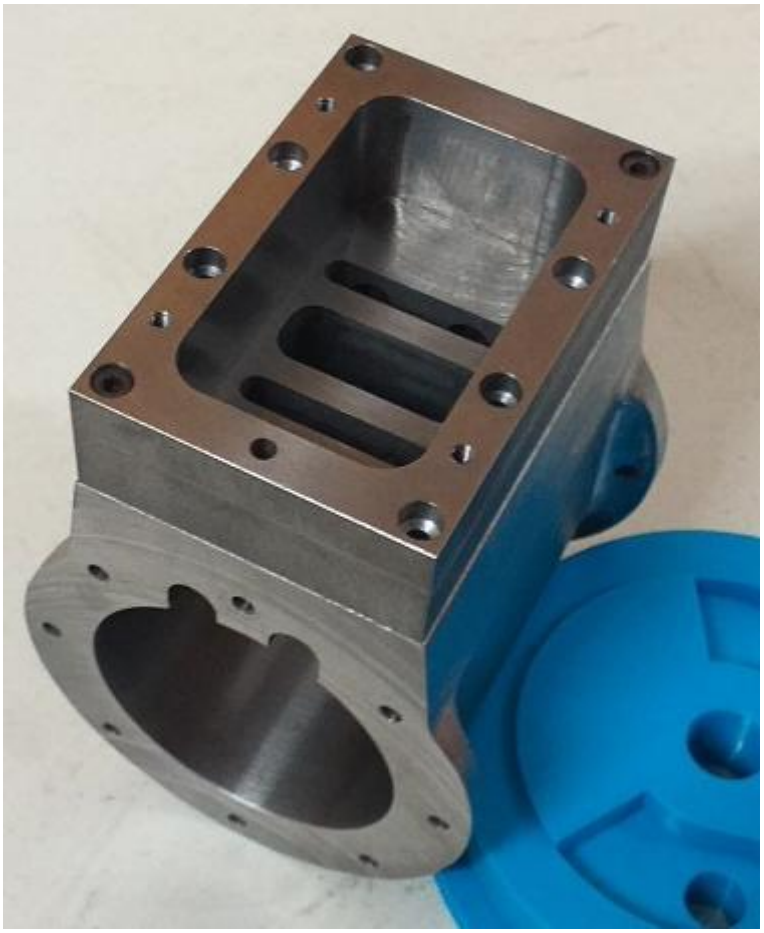
Richard also had the tender tank for his 7.25 inch gauge NZR U class 193 which he has been working on during the covid lockdowns having acquired a set of general arrangement drawing prints for the NZR standard 1700 gallon Tender from Feilding Steam Rail. The tank is being fabricated from 1.6 mm brass sheet which he had brought from the people involved in the stripping out of the electrical equipment from the old Himatangi Radio Station many years ago and put aside for this project as well as the W192 loco. Richard explained that in the 20 meters between his drawing office and the workshop 60 mm disappeared from a dimension for a piece of the tank top which wasn't picked up on until the top was placed in position. Richard put this down to impending old age! The driver of loco U 193 will be seated on the tender tank so extra reinforcement of the tank top is required to support the weight in the form of baffles which the full size did not have. The U class locomotives were built with different style tenders from new, some with coal rails around the sides, Richard is building this tender to the 1897 drawing which has no coal rails as these if fitted may become an issue when one wishes to sit on the tender! The tank is fabricated from brass sheet and brass 12mm x 1.6 brass angle using 3mm brass csk screws before being soft soldered to provide water tightness.

Lawrence Brooshooft has started machining components for the frames of the 3.5 inch gauge New York Central J class 4-6-4 Locomotive. This being a Little Engines Kit designed by Martin Lewis which is no longer produced by the company who only produce kits for 7.25-7.5 inch Locomotives now. This project was started by the late Jim Garden many years ago. These locomotives are commonly referred to as Hudson's with the fist built (J1) in 1927 by Alco who produced 204 loco's to this design. J2 and J3 variants were built by the Alco and Lima locomotive works for the New York Central and Boston and Albany Railways with the NYC J3's featuring the famous streamlining of the 1930's. These loco's were built for speed. You will note that the cylinder castings pictured feature slide valves with the prototype being of piston valves which caused a degree of confusion for the editor as to what locomotive this actually was!
With a bit more research it became evident that these kits were available in either slide or piston valves.



Frames and cylinder/ saddle casting for the 3.5" gauge 4-6-4 J series Hudson Locomotive.

You may recall a picture of a steam powered bicycle being built by **Robin Wallace.** Well Robin has had the bike in steam and found that his engine design used far to much steam to which the boiler couldn't keep up! With advice from Doug Chambers on a suitable conventional steam engine, design drawings were sourced from Doug and Bruce Geange and the machining of a new cylinder from solid cast iron bar commenced. This involved first purchasing a Milling Machine! By the look of the finished cylinder on display Robin has not had any difficulty in using the Mill. The new engine will have Stephenson's Valve gear so that the engine can be well notched up when in use.

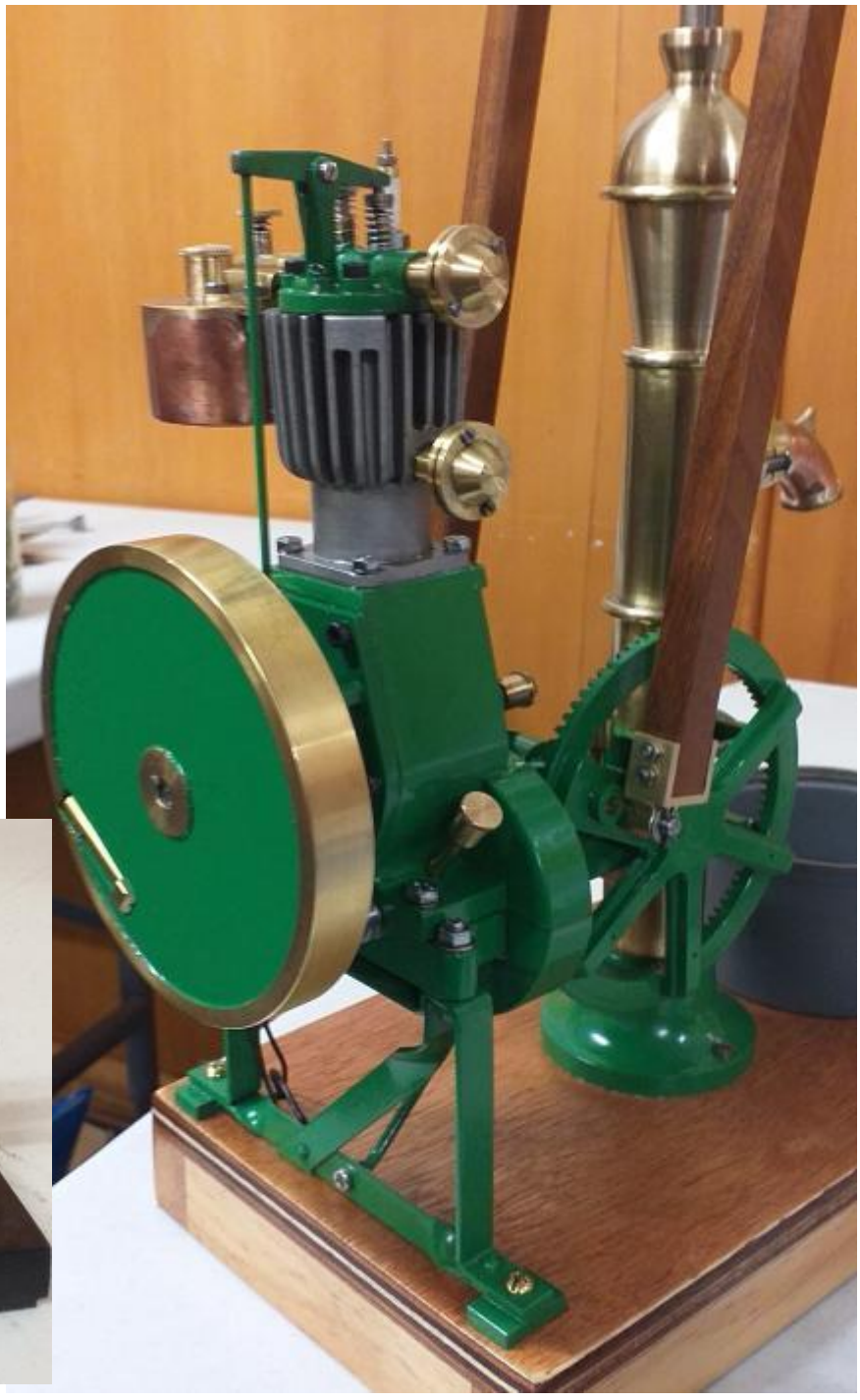


A nicely machined cylinder for Robin Wallace's steam powered bicycle.

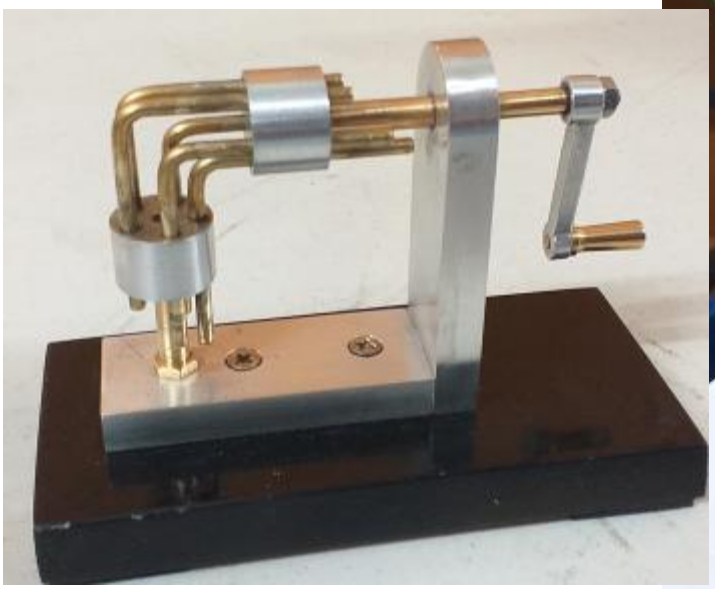
Graeme Hall had been busy finishing off his Fuller and Johnston pump engine of 1909 vintage. These were produced in Madison, Wisconsin, USA with many produced under licence in Australia under the Buzzcot brand, six thousand being made and were used to replace windmill driven water well pumps.

Graeme has had a few problems getting the engine to run for an extended period and has had to modify the ignition timing and the carburetion. Speed control with this hit and miss style engine is via a governor which is housed within the flywheel and springs and the linkages had to be altered to get a constant 500rpm resulting in the flywheel being removed far to often for Graeme's liking!
I remember when building the 1.5 inch scale Allchin Traction Engine and its Pickering style governor that there are a few things that don't scale down to well, a couple being mass and friction. Little governors are tricky!
The engine has a bore and stroke of 3.5 inches, is air cooled and has a suction activated inlet valve with a double ported exhaust burning petrol for fuel.
While Graeme was waiting for the paint to dry he make a little curiosity piece, the one where a rotary drive is taken trough 90 degrees without using gears. Editor.

The Fuller and Johnston pumping engine



Look no gears.

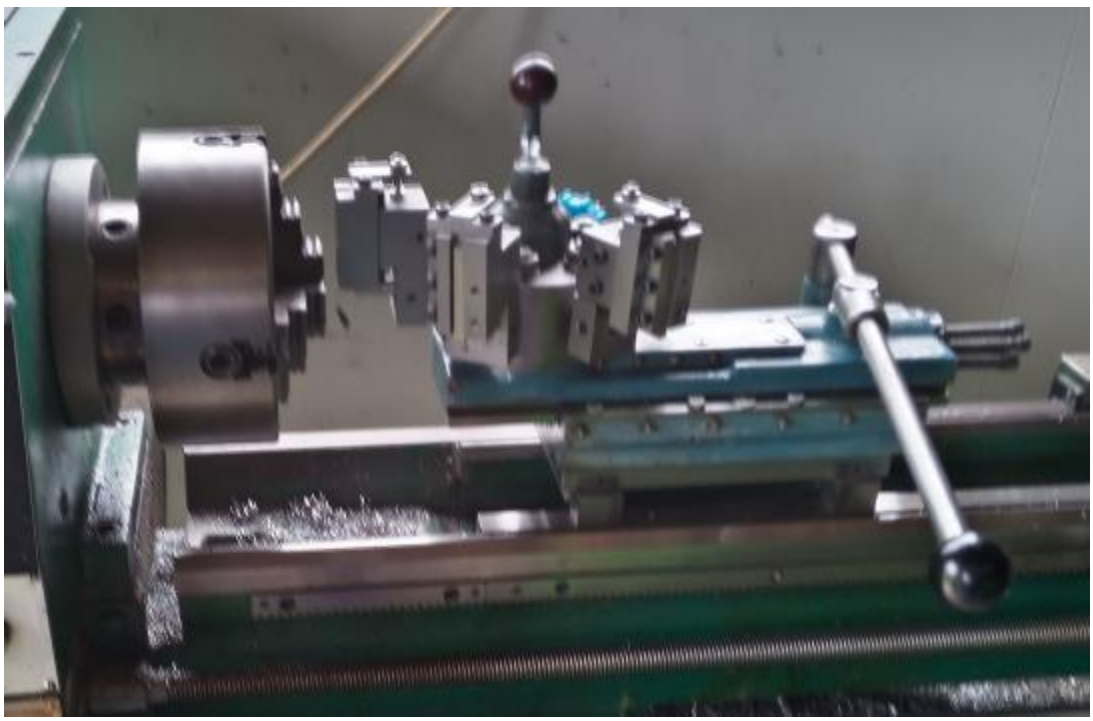


David Bell brought along a capstan turning attachment and I'll let David tell the story about it.

Capstan Lathes are a predecessor to CNC technology, and were used to mass produce turned components. Although old technology these tools still have a place in the model engineers workshop, and Capstan attachments make the conversion of a conventional centre lathe to a production lathe an attractive possibility. The core of this particular tool is a Capstan attachment manufactured by Boxford to match their 4 1/2 inch centre height lathes. This item was originally owned by a Wellington tool making business that purchased it new with a matching lathe in the very early 60's. The lathe is long gone leaving this attachment sitting under a bench for the last 30+ years before being offered for sale with the closure of the business.

My lathe has a 6 inch centre height which meant that rising blocks were needed to locate the attachment over the vee's on the bed and raise the tools to the correct height. The manufacture of these is normally a relatively simple operation but two very abstruse machining errors in the original manufacture of this attachment turned this into a nightmare. Firstly the ram was incorrectly machined and as a consequence it did not move parallel with the lathe bed. Secondly the tool mounting holes in the turret were bored at a very slight angle to the centre line of the ram. The first of these errors necessitated scraping the machine ways, an operation that took an eternity, and also required adjusting the height of the rising blocks. The second error was overcome by reboring the tool mounting holes with the head correctly positioned and aligned, but this increased the diameter of the mounting holes to a non standard size (not ideal). Although the capstan head would have worked correctly when new, the combination of these two alignment errors would have made it very difficult to set it up for accurate work. Hence after 40 years it has seen very little use.

The operation of the head and its tooling is still being refined. Improvements include converting the ram to oil lubrication to overcome the stick slip movement associated with grease lubrication. When cutting 12BA and smaller male threads on brass with a die, the sticky ram movement caused the threads to strip in the die. Conversion to oil lubrication, and use of a fine machine oil overcame that problem allowing me to reliably cut even smaller threads with accuracy and ease. I still have a way to go with this project but this attachment is already proving itself capable of mass producing the very small studs, specialised nuts, non standard bolts, oilers, tube fittings, valve glands, etc I require.



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