The Generator

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Palmerston Model Engineering Club
www.pnmec.org.nz - pnmec@trains.net.nz

Managers of the Marriner Reserve Railway - Marriner Street - Palmerston North
PO Box 4132 - Manawatu Mail Centre - Palmerston North 4442

The Palmerston North Model Engineering Club

Upcoming Club Nights

Club Nights held at the Hearing Association Hall 435 Church Street, Palmerston North 7.30 pm.

24 September 2020

Graham Toms will give a presentation on a not too recent visit to the world famous Oskosh Air show in the USA .

22 October 2020

Project Progress. Our last meeting of the year in the Hearing Association Hall. Bring along your current project or part of and share the journey of the build so far!

Marriner Reserve Railway

4 October &18 October

Subject to Covid 19 Level Restrictions
Railway operations at the Mariner Reserve
Trains in operation from 1pm to 4pm
Weather permitting (Kerry Puklowski 06 353 6189)

Thursdays

Railway operations for club members
Subject to ongoing track maintenance and weather
Contact track manager (Richard Lockett 06 323 0948)

Presidents Report

The club meeting of 27th August was another meeting under the theme of "Understanding New Technology". Club member Robert Edwards provided a very well-presented demonstration and tutorial on the use of "Fusion 360", a professional drafting and 3D modelling software package. This was very enlightening showing how 3D modelling works, what it is used for, and how this pictorial model is converted into the instruction set (G code) the CNC machine understands.

The club currently has six members that use CNC technologies for model engineering purposes:
a) One member has just completed the rebuilt of a derelict CNC machining centre.
b) Two members are engaged in the construction or conversion of smaller CNC machines.
c) Two others are involved in the application of CNC technologies (laser cutting, 3D printing)
d) One member with no prior engineering experience has taught himself CNC machining and built a mechanical clock (that you only wind once a year) using a CNC Shireline lathe and mill.

This list is testament to the fact that we are a very diverse group. This diversity is an asset, but the future will only treat us kindly if we use this to our advantage. The committee is aware that falling membership is the biggest threat to the club's long-term existence and is working towards addressing the situation. We need to sell ourselves to the public, but the results we are getting from our current efforts do not reflect the effort we are putting in. Selling to the public is like fishing, if you don't use the right bait, or fish in the right spot, you won't catch the fish:

a) The fish we are expecting to catch (new members) are out there.
b) We appear to be fishing in the right spot.
c) But the bait we are using may need to be freshened up a bit.

Changing the bait (what we are selling) does not mean throwing everything away and starting again. It does not mean we are going to stop building aero engines or steam locomotives and transform ourselves into a knitting circle. It means looking at what we have to sell and emphasising aspects that match what the public wants to buy. But what the public wants to buy is a fickle thing and changes, so we have to get smart and change too. Selling to the public is getting harder, and clubs with a narrow focus may not fare so well in the future. Our future depends on broadening our base so we fit with the expectations of a broader range of potential members. Come along to the next meeting, 24th September, to hear what the committee is proposing. We do have a plan.

The covid restrictions are continuing to curtail public running days at the Marriner Reserve. Hopefully this situation will soon be resolved, and regular running will resume. Richard Lockett is the Mechanical Group Leader and he will decide when public running will commence and what form this will take. Members are reminded that the Thursday Club is still operating. If you want to turn up for morning tea and a talk you are more than welcome.

The 28th November is the date for our "End of Year Outing". The organising committee is proposing that we meet in Fielding for a finger lunch and then move to The Coach House Museum for the afternoon. An afternoon tea will be provided in the late afternoon before everyone departs. This plan is still preliminary. Finalised details will be posted in the next generator.

Keep Healthy and Keep Building.
David Bell

Club Notices

Subscriptions are Due

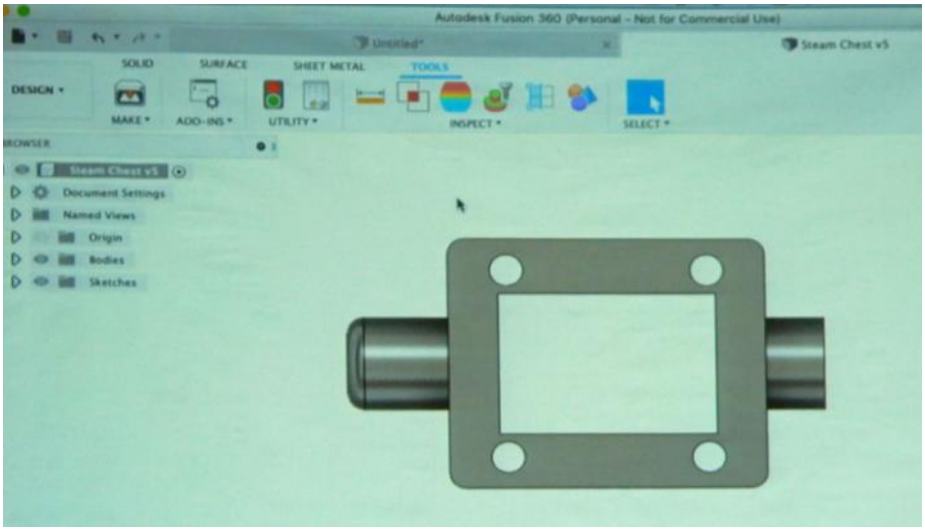
Adult /Family membership **$30.00.** Please pay Kerry Puklowski at a club night or via Internet Banking.
PNMEC Bank account no 06-0996-0831663-00 Please use your name as the reference! Please pay by November.

November Club End of Year Function

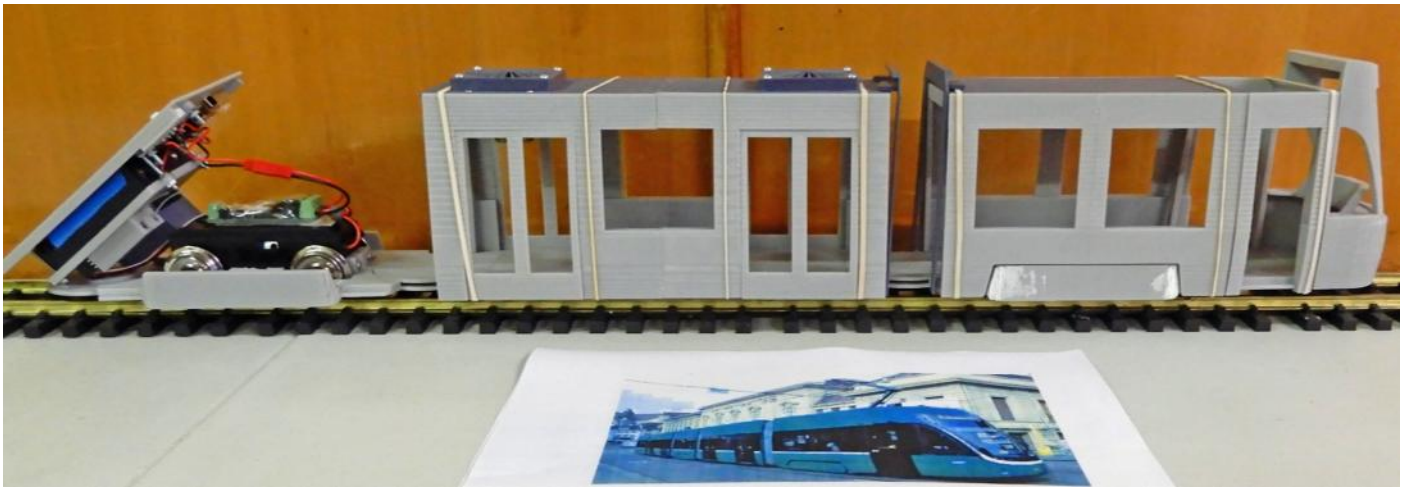
Saturday November 28th Gather at around 11.30am at the Coach House Museum, 121 South Street, Feilding. We will head into town for lunch and return to the Museum for a 1pm start with an introductory talk. We will foregather for tea later in the afternoon. We will advise the entry fee next month.

Club Night 27th August

Robert Edwards gave instruction in the use of the Fusion 360 Computer Aided Design (CAD) software. The screenshot below is of a steam chest of a beam engine that Robert is building using Fusion 360 CAD to draw a produce G code for his machining centre.



Murray Bolds 3D printer had been busy producing the components for the fabrication of a Bombardier Flexity city tram. The photo below is of the first 2 cars, with the powered bogie being in the middle followed by another 2 cars.



Members Project Report

David Spark and his NER Class M1 Locomotive

From the National Railway Museum in Shildon and York, to the Auckland University of Technology, then to a workshop in Levin this is the story of skill, dedication, and a true to scale live steam locomotive.

Prior to retirement David Spark was a Senior Lecturer in Engineering at the Auckland University of Technology. The skills and technologies he taught are evident in his work. He started as an engineering apprentice with Vickers Armstrong Engineers in Newcastle-upon -Tyne, In England. David is a highly skilled model engineer who regularly operates his locomotives at the Marriner Reserve Railway. He also has interests in model boating and proudly displays his working models.

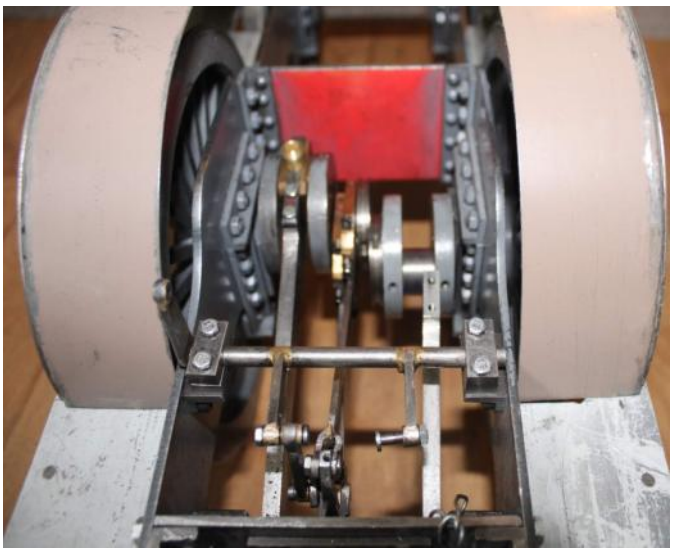
The locomotive David is currently building is a true to scale English North East Railway Class M1 4-4-0 steam locomotive. This class of locomotive was designed by Wilson Worsdell, (7th September 1850 - 14th April 1920) who was an English Locomotive Engineer and Superintendent of the North Eastern Railway. These locomotives were originally built as express passenger engines in multiple cylinder valve gear configurations. They included inside or outside cylinders, inside or outside valve gear, inclusive of slide or piston valves also compounds. As design and technical improvements were made newer locomotives in the class were updated to reflect the evolving technology of the time. These improvements were also incorporated into overhauled earlier builds.

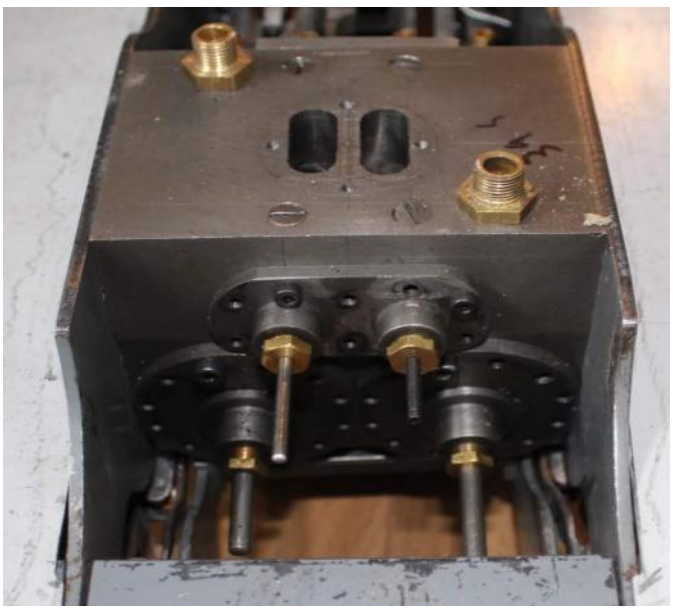
This model locomotive is being built from actual works drawings of engines M1 and "D" Class of which number 1621 is as it is now. It's final configuration with twin inside cylinders angled downwards, and twin inside piston valves angled upwards inside a single cylinder block. The original locomotive was built in 1893 for a cost of £3,110. It is currently on display at the National Railway Museum at Shildon. According to the locomotive records, it was retrofitted in 1905 with the latest design of cylinder block incorporating piston valves. In 1914 it was fitted with a superheated boiler. Withdrawal of the class began in 1931 with the last being scrapped in 1948. 1621 was withdrawn from service in July 1945 after having run a total of 1,543,407 miles. Because of its continuous association with the North of England, 1621 was given a superficial restoration soon after retirement. It was then put on display.

David Spark posing beside the highly polished NER class M1 number 1621at the National Railway Museum, Shildon, County Durham, England.

David has made good progress in building this scale replica . At the time of our visit he was working on the engine and tender super structure. The machining of the cylinder block with upwardly inclined piston valve bores and downwardly inclined cylinder bores was a particularly challenging task that would have deterred the faint hearted. However, with skill and some intricate setting, this block was machined without error. Another point of interest are the two mechanical boiler feed water pumps being mounted under the tender. A non scale feature but one required for running convenience. These pumps will be driven by twin eccentrics on the middle tender axle which will in turn be coupled to the other two axles by a discretely hidden transmission chain, ensuring to give a constant drive.

David has visited the National Railway Museum and through acquaintances has made contact with the personnel who repainted the locomotive during its second restoration in 1975. Attempts are now being made to establish the paint details to add a final touch of authenticity to the final product.





Research Note:-*The M1 locomotives were built to haul express passenger services on the north east coast main lines and were heavily used during the 1885 "Race to Aberdeen" (Race to the North!) against the LMS. During the final week of these trials the train weight was reduced from 120 to 105 tons and M1 engines were used without double heading. On the final night of the trials an M1 covered the distance from Newcastle to York in 78.5 minutes an average speed of 61.6 mph and Newcastle to Edinburgh a run of 124.25 miles was reached in 113 minutes, an average speed of 66 mph. It is assumed that the driver only managed this time by ignoring speed restrictions on curves at Morpeth, Alnmouth, and Portobella, and a 5 mph limit through Berwick Station !!! (Information Wikipedia: LNER Encyclopedia) Report Dave Bell/Dave Spark*

Marriner Reserve Railway

With some form of covid 19 restrictions in place since late march, railway operations at the Marriner Reserve have been somewhat infrequent over that time period, in fact only three rail operations having taken place since March during level 1 restrictions! Thursday gatherings have been able to continue during level 2 restrictions which has enabled us to keep up with the maintenance, as they say rust never sleeps!
Since coming out of the level 4 and 3 lockdowns a lot of work has taken place at the reserve in vegetation removal i.e. Coprosma Robusta (Karamu) a rapidly growing native tree which continuously encroaches out into the rail corridor particularly on the bank below the Levin bridge. These trees were cut down, fed through a chipper with the mulch spread on to the bank with some more Whanganui sourced Renga Renga lilies planted as ground cover. This has opened up the sight lines for locomotive drivers as they enter the 180 deg curve following on from the bridge.

Chris Morton being encouraged to dig deeper, it's under there somewhere!
A bump in the track seemed to have got worse over the lockdown period and warranted investigation!

With the tree root surgery completed Chris contemplates the hardships of being a railway ganger on the Marriner Reserve Railway.

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