

# Wheels & Floats

July 2020



**Tauranga Model Marine and Engineering Club Inc.**

## TAURANGA MODEL MARINE AND ENGINEERING CLUB INC.

The Secretary  
PO Box 15589  
Tauranga 3112

Miniature Railway Memorial Park  
Open to Public, weather permitting  
Sundays : 10am to 3pm approximately

Palmerville Station Phone 578 7293

Website: [www.tmmec.org.nz](http://www.tmmec.org.nz)

Facebook: Memorial Park Railway Tauranga

### MEETINGS

General Members Meeting every first Tuesday  
7pm.

Committee Meeting every second Thursday at  
7pm.

Maintenance Tuesday mornings from 9am.

Engineering discussions Tuesday evenings  
7.30pm.

### COMMITTEE

President: Jason Flannery 5721165

Vice President: Bruce McKerras 5770134

Club Captain Max Donnelly 5716778

Secretary: TBA

Treasurer: Joanne Knights

Committee: Ash Thomas, Russell Prout,  
Warren Belk, Bruce Harvey  
Brian Fitzpatrick, Owen Bennett

Boiler Committee: Peter Jones, Bruce McKerras,  
John Heald.

Safety Committee: Chris Pattison, Peter Jones,  
Warren Karlsson, Jason Flannery.

Editor: Roy Robinson 07 5491182  
[royrobkk@gmail.com](mailto:royrobkk@gmail.com)

### CONVENERS

Workshop: John Nicol, Brian Marriner.

Track: Bruce Harvey, John Stent.

Librarian: Chris Pattison

Rolling Stock: Bruce Harvey

Website: Max Donnelly

MEANZ rep John Heald

### OPERATORS 2020

16 August J Flannery

23 August B Harvey

30 August P Jones

6 September W Karlsson

13 September B McKerras

20 September R Prout

27 September M de Lues

4 October B Fitzpatrick

11 October J Flannery

18 October B Harvey

25 October P Jones

1 November W Karlsson

7 November B McKerras

8 November R Prout

**Cover photo** : John Heald's first track run with "The Gadget".

## Presidents Report July 2020

Hi TMMEC.

Another month over, how time flies.

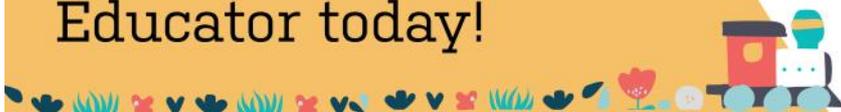
The 18<sup>th</sup> saw about a dozen of us visit Murray de Lues workplace for a demo on the machine he oversees. A serious bit of kit with a serious price tag to go with it, and there is me moaning about the cost of a couple carbide tips for my lathe. The morning consisted of a talk about the machine, the cutting componentry, processes of setup, then followed by the machine doing its thing on some timber. Thank you for organising that Murray, it was highly informative with all having a good time. Also, thanks to Murray, a bit of the days handy work will soon be hanging on our clubroom wall with the K class cab plate that was donated to the club. This will make a nice feature amongst the photo collection that remembers our previous members and their contribution to the club.

The Sunday crew have also been busy with the public out in force, most Sundays are now normally all trains on the track for most of the day, so well done to them for keeping everybody smiling. Some new faces have joined the “regular crew” and this is good news for all, not only is it spreading the work load, but hopefully most importantly it means these people are enjoying the comradery of the club and creating solid friendships.

Then we also had a playdate / have a go day on the 1<sup>st</sup> of the 8<sup>th</sup>, this was very well supported. The turnout was fantastic with great support by our club members. To add to this, we had our “have a go visitor’s” plus several visitors from other clubs with their locomotives in tow, a busy day indeed. It is great to see so many people enjoying themselves and our hobby.

There were many things to see on the day, far too many for me to start listing here. One very notable item was John Heald’s “Gadget” hitting the rails for the first time. Smiles all round for those who got to see it and those that got have a go at the controls, well done John, what’s next?

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The raised track saw some action again, two playdates in a row, I hope to see a hat trick for the next one!

The 5<sup>th</sup> of September then sees another playdate, this time for the Menzshed, please come along if you can and support your club. Thanks once again to Barbra and Roy the troops will be well fed with another sausage sizzle, the grub is much appreciated by all.

Tuesday night's meeting was well supported, a good turn out by the members. Lots of goodies on the table and photos of these should be in the mag from Roy. There was a lot of various items discussed so please attend any future ones if you can. It's your contributions to these evenings that help the club move forward, be they operational or inspiring others to have a go. Some great machining on the table by Regan, the finish on his engine is superb.

Tuesday night's Engineering group has also kicked off again so please coming along and have a catch up on what's being built.

There have been discussions with the Tauranga City Council of a clad container being situated in the park with to date 4 options being proposed. If you have any comments about these 4 proposals, pro's or con's, then please send them to the Committee so they can be discussed. They were emailed out if you haven't seen anything on this yet.

Subs, if you have not paid them yet then please do so, it would be good to get the members list updated and filed away. Drivers licenses, the paperwork is currently being updated and I have issued new ones. If you do not currently have one and would like one, then please let Warren Karlsson or I know so we can get you assessed and documented into the database accordingly. Any of the other Operators or Committee members will also be able to help with this if Warren or I are not about.

Kapiti Miniature Railway is holding their open weekend plus twilight run on the 26<sup>th</sup> and 27<sup>th</sup> of September and some of our members are planning to go along. If you would like more information, then speak to Joanne Knights as I hear there is talk of a stopover being planned in Taupo etc. Bruce McKerras is also involved and would know details. Leaving Friday, the 25<sup>th</sup> back to Tauranga the 28<sup>th</sup>. If you have not been to the Kapiti track yet I highly recommend it, its great track winding through numerous tunnels and the trees.

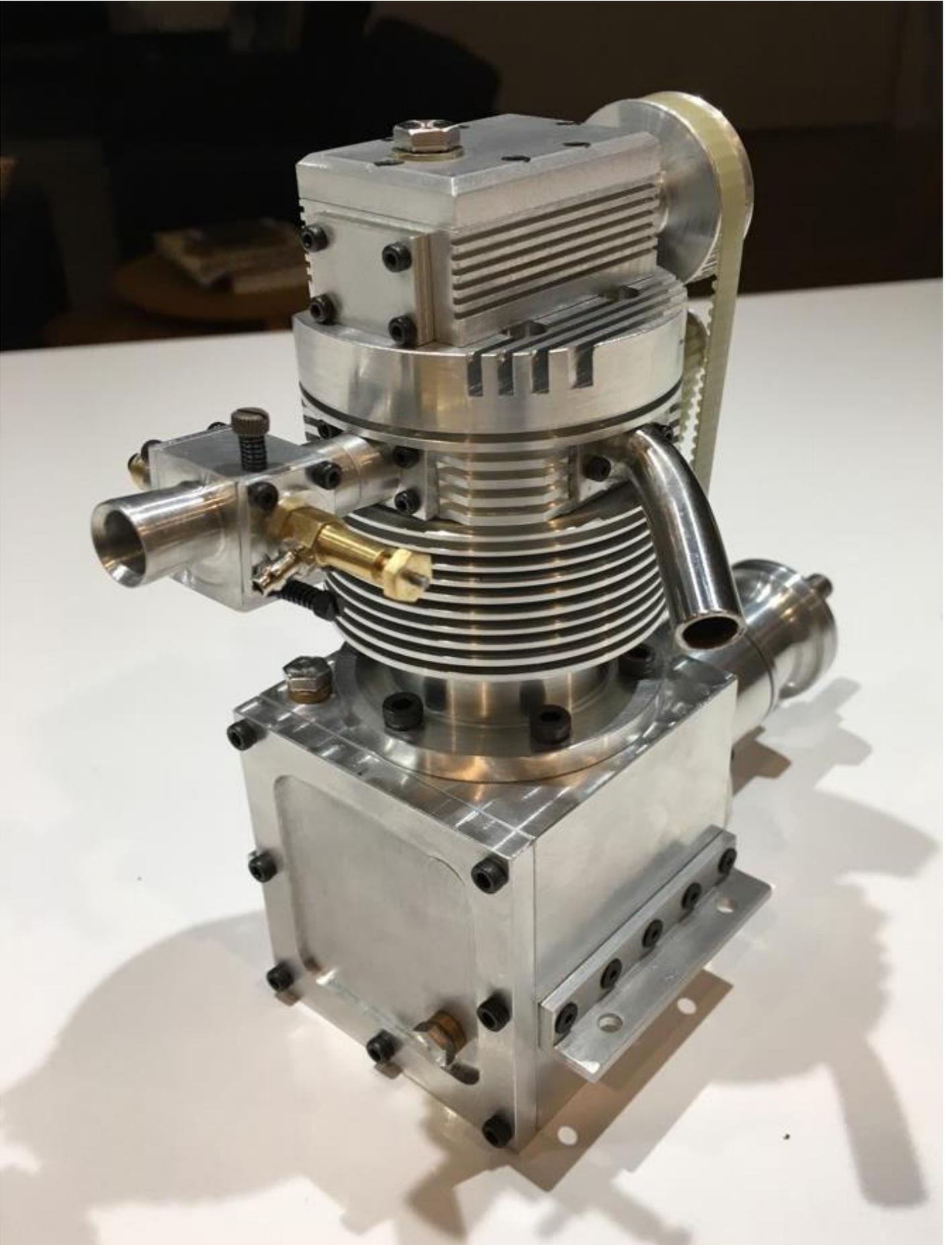
Once again if I missed something then it's down to bad note taking by myself.

Regards

Jason

## Show and Tell

Regan Olivecorona's completed 4 stroke engine. The workmanship in this engine is immaculate, a real credit to Regan.



## Classical Doors Ltd Visit

An invitation from Murray de Lues to visit his place of work, Classical Doors Ltd, was accepted by about 20 members and others. This operation as explained by Murray was one of those I had only read about and never experienced. State of the Art, is the only way one could describe it.

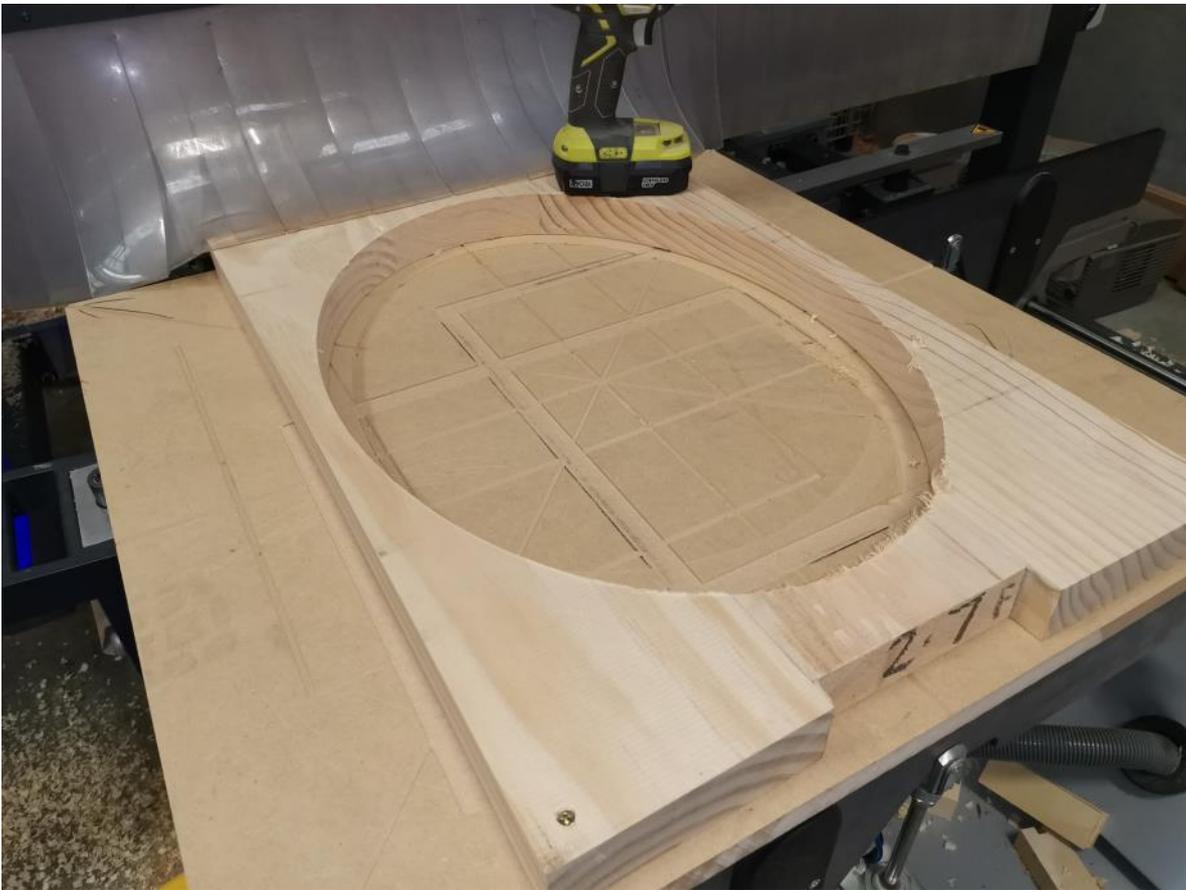
After a general outline Murray gave us examples of what the machine could do, and then with off cuts of timber set the CNC machine into action to produce the example. I think the biggest surprise is the speed at which the machine goes through its selected cycle. It begins at an already selected start position, goes to a "rack" selects the required tool for that part of the job, goes and "does its thing" when that operation is complete the machine puts the tool back in the "rack", selects the next tool and does the next operation, so on and so on.



Obviously all this requires a heap of computer nous which is as we know is Murray's passion. I understand the computer program comes with some basic programming relevant to what the machine does. However there then is required the real nuts and bolts to get the computer to tell the machine just what you want done and this is where Murray's skills are.

To finish off the day Murray placed a piece of timber on the operational deck and proceeded to cut an ellipse out of the 2" timber which is to be the backing for the NZR engine plate number which was given to the Club by the Estate of our late member Don Hamilton.

A real fascinating day with a great explanation by Murray. Our thanks go to Murray and to Classical Doors Ltd for allowing us access to their operation in Greerton.



Previous page :

The work head of the CNC machine with the material from which the ellipse on the operational deck.

Above : The offcut from cutting the ellipse.

Left : Murray showing the completed backing for the engine plate number.

# Play Day 1st August



Pics from the Play Day

Photos by Peter Davies





More from the Play Day

## From the Cave at Katikati

Still NO articles.....Please.....

There are several people who have not paid their Club dues yet. Hi guys, it's only \$30.00, that's only 4 loaves of bread and 3 bottles of milk or 2 bottles of cheap wine, not too much out of the grocery budget !!!!! Just remember also you will not receive the Club Mag !!!!!

I Forgot to take my camera to Show and Tell so sorry Bruce Mc I didn't get any pics for the mag. Appols also to Joanne whom I didn't give credit for pics in Julys mag.

Phil Drummond came to our Play Day with a Mallett Loco. I have included an article on that particular design as background to the design type.

## Disclaimer :

The views and opinions expressed in articles contained in this magazine are those of the author (s) and do not necessarily reflect the policy, position or opinion of the TMMEC or its officials.



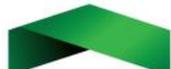
## **Mallet Articulated Compound Locomotive (American Locomotive Company).**

The Mallet articulated compound locomotive is one having two sets of cylinders, compounded together and driving independent groups of wheels. The two sets of cylinders are supplied with steam from a single boiler; which makes it practically two locomotives combined in one, and having only one boiler. The rear group of wheels is carried in frames rigidly attached to the boiler in the usual manner, while the frames which carry the front group of wheels are not secured to the boiler, but support it by means of sliding bearings. There is a hinged connection between the frames of the front engine and those of the rear engine, about which the former is permitted a limited swing in relation to the latter. It will be seen that the front group is a truck which swivels radially about its articulated connection with the rear

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group, when the locomotive passes through a curve. It is from this feature that the articulated type of locomotive derives its name.

Because of the fact that only the rear group of wheels is carried in rigid frames, the articulated type of locomotive provides a short rigid wheel base capable of passing through curves of short radius. At the same time, the total number of wheels is greater than in the ordinary types of locomotives; and the weight is distributed over a greater number of axles. Consequently, an enormous weight with corresponding tractive power may be provided in this type without an excessive weight per wheel on the rail. In an articulated compound locomotive having twice as many driving wheels as a given locomotive of the rigid-frame type, double the tractive power of the latter is available, with the same weight per driving wheel on the rail and with no increase in the length of the rigid wheel base. Or vice versa, with the same tractive power in each case, the weight per driving wheel on the rail of the articulated compound locomotive may, by the use of the proper wheel arrangement, be reduced to one-half of that of a given locomotive of any of the types in ordinary use.

The work being divided between two sets of pistons, crank pins, rods, and driving axles, an enormous tractive power is obtained in the articulated compound locomotive with practically no increase in the weights of the moving parts over those of a locomotive of the rigid-frame type, having half the tractive power; or with the same tractive power in each case the moving parts of the articulated locomotive may be made much lighter than those of locomotives of other types.

In addition to the advantages due to its wheel arrangement, the articulated compound locomotive possesses all those resulting from compounding the steam. This type of compound locomotive is what is known as a two-stage compound; that is, the steam is used successively in two sets of cylinders. Steam from the boiler is admitted to the first set or high pressure cylinders, which ordinarily drive the rear group of wheels; and, having done work in those cylinders, is then used over again in the second set or low pressure cylinders which are connected to the front group of wheels. From the low pressure cylinders, the steam is exhausted to the atmosphere.

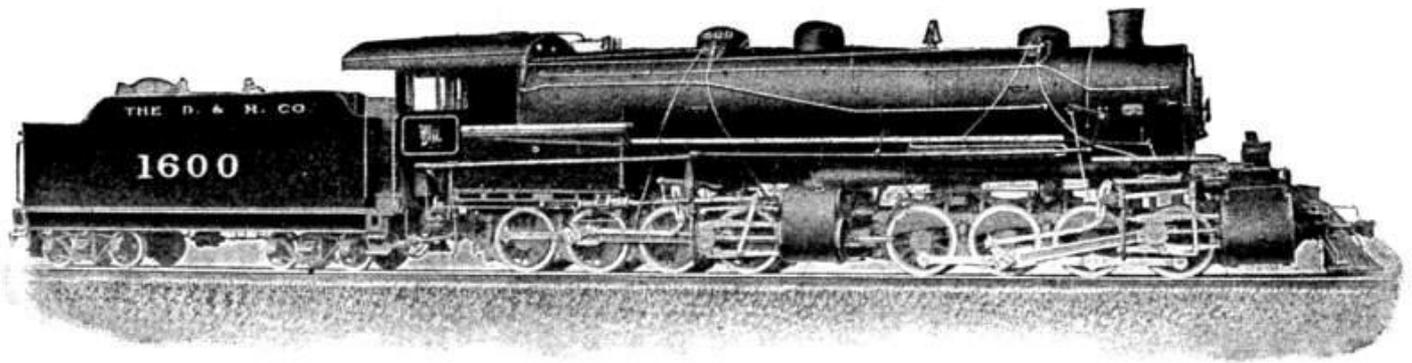


FIG. 1. MALLET ARTICULATED COMPOUND LOCOMOTIVE.

Between the high and low pressure cylinders and connecting the two is a large pipe called the receiver, into which the steam from the high pressure cylinders exhausts when the locomotive is working compound. The receiver is simply a reservoir in which the exhaust steam from the high pressure cylinders is stored until it is required by the low pressure cylinders. From the receiver, the steam is admitted into the low pressure cylinders by their valves in the usual manner.

The low pressure cylinders have a larger piston area than the high pressure cylinders, the ratios between the two being such that, at the ordinary working cut-off, the steam at the lower pressure per square inch acting against the larger piston area, exerts the same force as the higher pressure steam acting on the smaller area. Consequently, the high and low pressure cylinders having the same stroke, each set of cylinders ordinarily does practically the same amount of work.

By using the steam successively in two sets of cylinders, a greater range of expansion is obtained than in a simple or single expansion locomotive. In other words, the difference between the pressure of the steam entering the high pressure cylinders and the pressure it has when the exhaust from the low pressure cylinders opens, is greater than in the case of the simple locomotive.

In a simple locomotive, the steam is ordinarily expanded only four times, while in a two-stage compound six or seven expansions are obtained. As a result, more work is performed by the same amount of steam in a compound than in a simple locomotive; and a considerable saving in coal and water consumption is thereby effected.

Moreover, compounding divides the range of temperature between the two sets of cylinders; so that the condensation in the cylinders is reduced, which effects a further saving in fuel

and water consumption.

In every compound locomotive some provision must be made for admitting steam direct from the boiler to the low pressure cylinders in starting and until the exhaust from the high pressure cylinders supplies the low pressure cylinders with steam. Also, provision is usually made by which in case of emergency when additional hauling capacity is required, the locomotive may be changed from working compound into simple with an increase in power. In this articulated compound locomotive, these functions are performed by a special mechanism called the intercepting valve, which is located between the receiver and the exhaust passages from the high pressure cylinders.

Another device used by some locomotive builders, in place of the intercepting valve, is an arrangement by which, on opening a valve operated from the cab, communication is established between the two ends of the high pressure cylinder through a by-pass pipe; and live steam reduced in pressure by passing through this pipe is admitted to the receiver and so to the low pressure cylinders.

With the by-pass arrangement, when the locomotive is working simple, live steam is necessarily admitted to both sides of the high pressure pistons. Consequently, these pistons are very nearly balanced. At the same time, the live steam which is admitted to the low pressure cylinders is reduced in pressure. The result is that under these conditions, when the locomotive is starting or working simple, practically all of the work is done by the low pressure cylinders, and little, if any, increase in power is secured. In the American Locomotive Company's system of compounding, the intercepting valve is so designed that when the engine is working simple the exhaust from the high pressure cylinder passes directly to the atmosphere and the valve cuts off communication between the receiver and the exhaust side of the high pressure pistons, thus relieving them of back pressure, except that of the steam exhausting to the atmosphere. Moreover, the live steam from the boiler reduced to a



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pressure of somewhat above the ordinary pressure in the receiver is admitted to the low pressure cylinder. . The result is that under these conditions, when the locomotive is starting or working simple, practically all of the work is done by the low pressure cylinders, and little, if any, increase in power is secured.

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power than when working compound. This additional power, added to that secured in the high pressure cylinders, because of the reduction of the back pressure, gives a total increase in power when- working simple of about 20 per cent. The intercepting valve also automatically regulates the pressure of the live steam entering the receiver when starting and when working simple, keeping it at such a pressure that each of the four cylinders does practically the same amount of work.

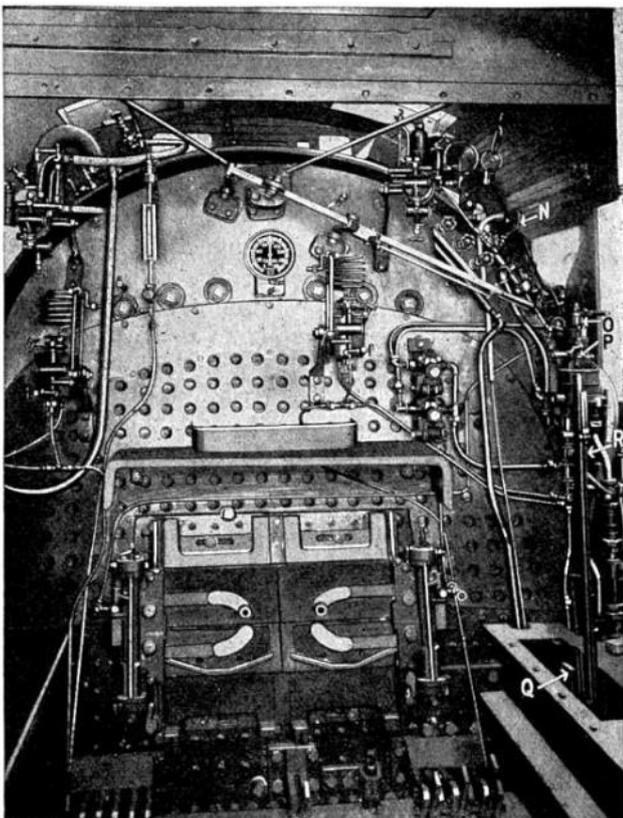


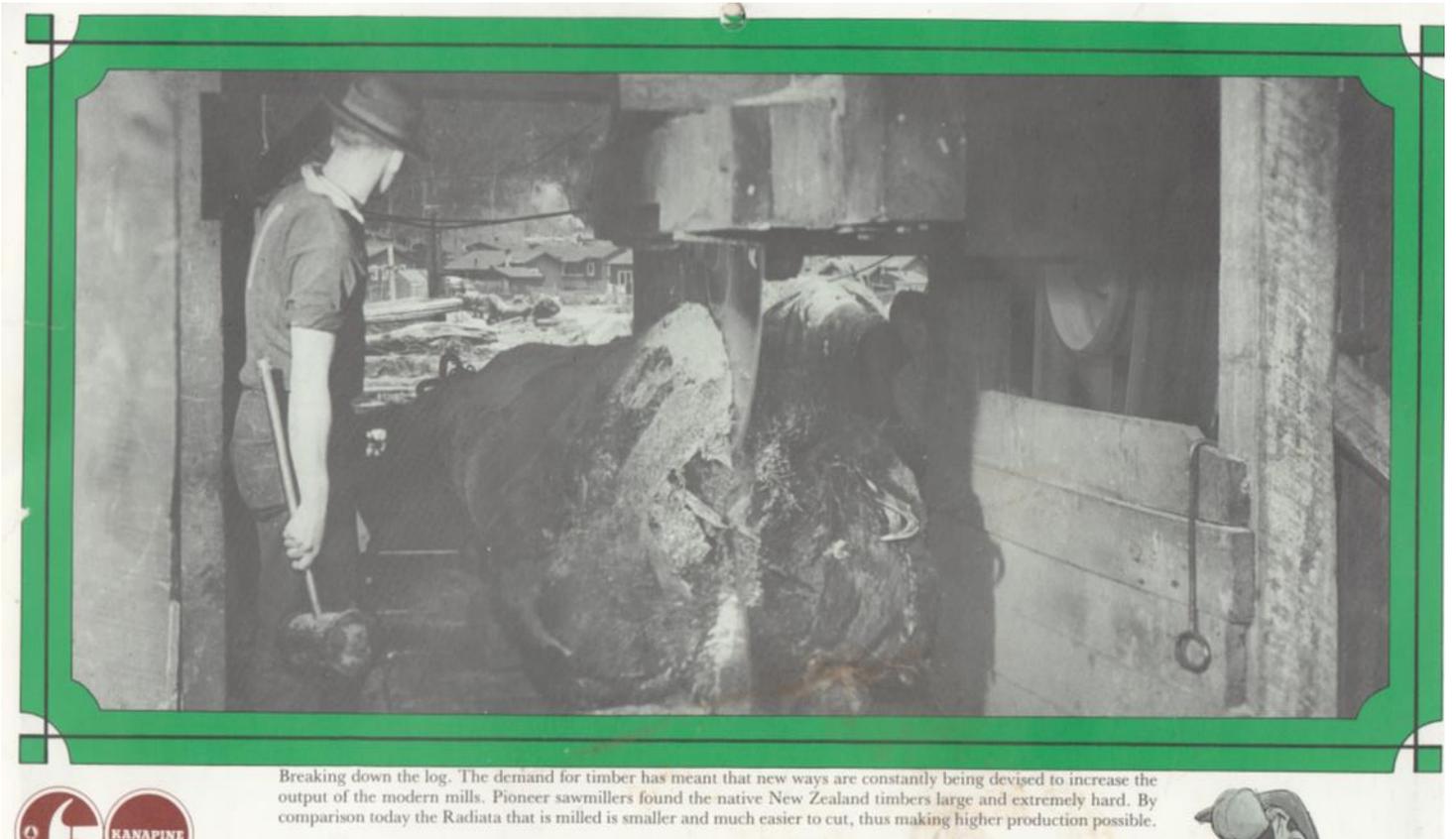
FIG. 3. INTERIOR VIEW OF THE CAB OF A MALLET ARTICULATED COM-  
POUND LOCOMOTIVE.

N. Emergency Operating Valve. P. Engineers' Automatic Brake  
O. Engineers' Straight Air Valve.  
R. Auxillary Reverse Lever.  
Q. Main Reverse Lever.

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Breaking down the log. The demand for timber has meant that new ways are constantly being devised to increase the output of the modern mills. Pioneer sawmillers found the native New Zealand timbers large and extremely hard. By comparison today the Radiata that is milled is smaller and much easier to cut, thus making higher production possible.

Another picture from the 1985 Kanapine Timber and Hardware Calendar

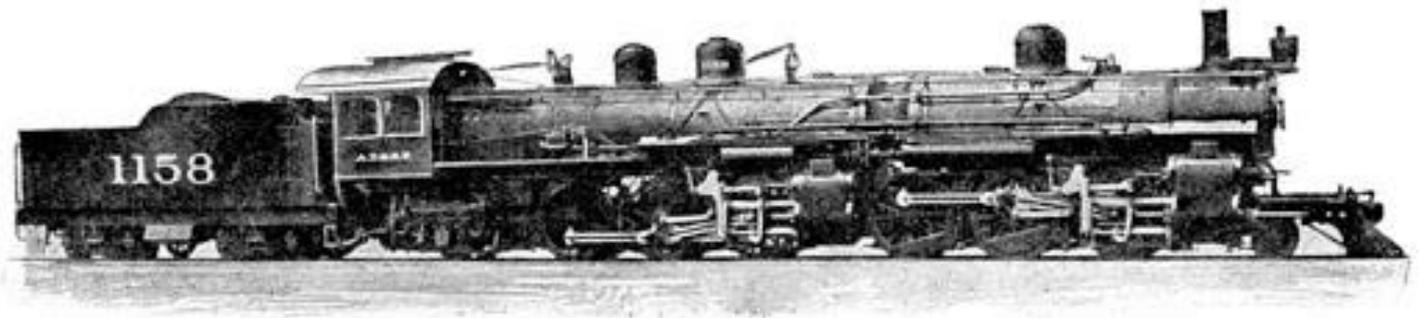


FIG. 6 Mallet Articulated Locomotive with Double Ball-jointed Boiler

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# CRANES

And why I love them as much as trains!

I attempted to tell this story one Tuesday night, the pictures wouldn't show up in the sequence I had planned, it was a lot to go through in a short space of time, so I thought I'd put it down on paper and have a second go at it.

So some of you may know I work as a Structural Detailer, aka Draughtsman. Structural Steel, done it since school. As with our hobby that we all share I have always loved Engineering in one form or another.

Let me tell you working as a Detailer is actually pretty boring, but it pays the bills and you get to see your family every night, so hey it has its plus side.

But before I worked as a Detailer I actually served my time as Rigger. Then as a Surveyor, through to the boring desk job.

Now I have to admit there are days I wish I was back on the iron, you do get a bit of kick sitting up there waiting for the next beam to come along.

Apart from getting a kick at heights, the winters were freezing, you were always away from home and securing life insurance is almost impossible, but hey we didn't need life insurance because we weren't planning on falling off.

So working as Rigger this job of course went hand in hand with cranes, whether on the iron waiting for steel, or in the cab pulling levers, I was in my element.

Every six to twelve months you were at a new project, not only did that present the next challenge but it came with a view of the city that people paid millions to have. For almost 14 years I got to view London from a different angle, in the Summer Winter months. Middle of Winter, a building with no "skin" and a good breeze blowing over from the River Thames, cold gets a new meaning. But you got used to it and carried on.



Erecting a Wolff 500B tower crane with 600 tonne mobile. The 500B was good for 45t on 3 winds of cable, this was configured on a single drop so 15t for this job.

Crane leg in the front is a 160B, so 16t max on 4 winds of cable.

The 500B has its jib added that is seen lying on the floor in the previous picture.

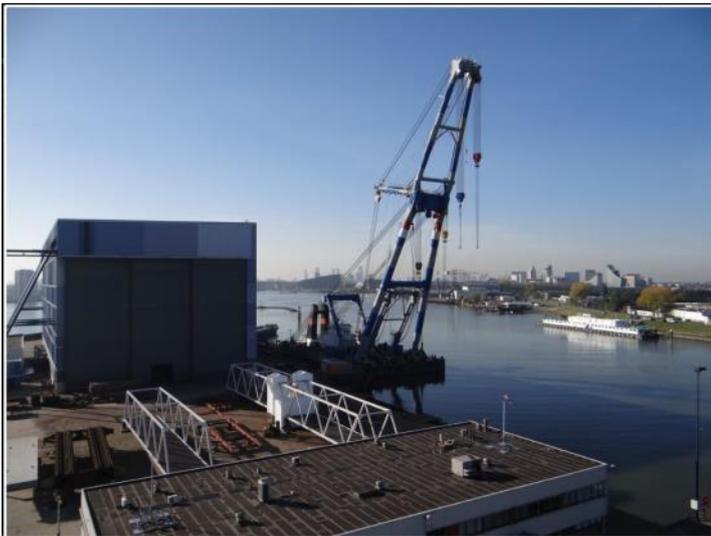




This is the view from the 500B looking back at the 160B, it shows the single drop of cable I mentioned earlier, the extra wheel in the block would take the extra loops of cable to rate the tonnage up. At the time the 500B was the new kid on the block and was awesome to driver, not like the tired 160B. Smooth and as it was a single cable and not 4 loops like the 160B you could fire the steel up to the top in no time.

These are fixed counter weight cranes, there are Comadil's models which had weights that could adjust for your load and balance the crane out, but no such luxuries here.

So why am I mentioning this? Well cranes look kind of straight, but of course they are not, far from it and that certainly takes some getting used to. When there is no load on the hook the counter weight pulls the cab back if that's the way to describe it, just like giving your kids a piggy back ride. You look through the cab floor and you are above the main mast, looking almost into a banana. As you take your load up it starts to tip forward and the banana goes in reverse, one minute your looking at the leg, next you are looking at nothing, that was a bit of a stomach turner. But I was no crane driver, I used to love sneaking up there for a quick go on the controls, my mates down on the iron, they would look up at the cab and go "Oh God, he's at the controls again, I should have got that life insurance after all"



I worked for a company called Hollandia and yep you guessed it, they were Dutch based in Rotterdam. Along with Victor Buyck from Belgium they made and shipped steel all over the world.

This is one of Hollandia's workshops in Rotterdam, the steel has to be barged out.



To give you an idea of how big the workshop is, there is a man seen under the bridge in the picture.

So Hollandia had two divisions, the regular structural steel and special projects. Special projects did all the bridges and of course made the London Eye which you all may or may not have had a ride on by now. Half the London Eye was made here and the rest at ZNS, translated as South Netherlands Steelworks. The pods were made in France and cables in Italy.



So back to buildings, this is Manual and I around 2001 getting to the top of the Citigroup building, Canary Wharf, London, 47 floors and no that beam is not on the floor before you ask, its right up the top.

Where this building steps in there are transfer beams, these are big enough to take the next column that is stepped in from the front of the building.

These were 22t each and would be the heaviest beams in Europe to reach this height. Standing taller than me, the chains required for the Safe Working Load had links which overall were thicker than my arms, you did not want to get your fingers involved in that lot. With the cranes maxed out at their limit there were a lot of nervous inspectors about, they all had something to say but still I don't remember any of them offering to help wrap on the chains or take the radio and bank the crane. Anyway thankfully it all went well and all eight made it up there without a hitch.



We all got on with our lives working away and then that same year 9/11 happened, that changed the world in many ways including engineering. Nobody in London wanted Skyscrapers anymore, it was high risk. Canary Wharf needed to keep luring the banking sector in so they had to make a plan. Barclays Bank was set to do a build but cancelled, Canary Wharf offered to contribute cash to the first aeroplane proof building in the world which was built by Victor Buyck / Hollandia.

Well there is steel and then there's steel. The two basement columns we had to install were only one story high and weighted in at 22t, the baseplates were 5t each. I never took measurements but it was a slab of steel about 2000mm x 2000mm x 200mm in size, that wasn't ever going to go missing.



This building wasn't just about big steel, but the design itself. It had 3 independent stair cores so if there was fire you could always go to the other side to get out.

And then this, slotted holes in the columns with 4 bars passed through. Bolted to the beams to form a continuous chain along the length of the beams. The theory was when a plane hit and sliced of up to two columns

the chain system would kick in and hold it all up. Ill take their word for it, but I certainly wouldn't want to see it tested!



Last of all is this one, the Gherkin, also know by many other names which I wont repeat here. Another VBH job.

I finished Barclays Bank and took this over 3/4 of the way up as my mate was moving to Denmark. A new VBH management crew was on this one as the Barclays Bank was still on going with roof top steel-work.

Sitting in the canteen one day the new Belgian lads didn't know me and decided to discuss the newbie and his performance after the last Jason had just left.

20 minutes later after evaluating me they decided to strike up a conversation, 'How are you doing?' 'How are finding the project?' Etc etc.

The one decides to say "So where in Australia are you from"

"Um I'm not Australian, I'm from South Africa"

Well the faces.....

"So you speak Afrikaans.....?" Aka, Kitchen Dutch / Flemish

"I do indeed."





The Gherkin rising. This is two buildings in one, the central core and the diamond / lattice ring around the outside. Now of course as the days sun moves along it heats one side of the building causing the circle to expand, but this expansion also works its way around the building as the day moves on. Therefore the radial floor beams are on Stainless / Teflon pads to allow for the movement. If you are ever in London on a hot summers day you can hear the creaking as the pads move slowly backwards and forwards to allow for this, pretty eerie.

My ugly mug on the Theodolite nearing the top. An office with a view that cannot be beaten.

I went to see my Doctor, she said do you do any exercise to keep fit? Apart from walk 10-15 flights of stairs and ladders all day, no.



**Jason Flannery**

Next time—Raising the London Eye



# Important Information

14th August 2020

## TMMEC Covid Level 2 modus operandi.

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## Under Covid Level 2 NO public rides will be offered.

The club will still hold maintenance Tuesdays and Tuesday evening engineering nights, as numbers are usually low enough to maintain 1 metre “Social Distancing”, however the monthly “General Club Meeting” attracts about 25 members and the Committee feel that these shall cease immediately until **Covid Level 1** is again back in force.

Club Play-days will continue under **Covid Level 2**, with prior registration by any visitors, so as to manage the total number to a manageable number.

ALL Club members and ALL Visitors must sign into the Attendance Register, including any accompanying persons such as family, and on Play-day report to the Duty Operator so he/she is informed of your attendance.

If the Government raises the **Covid Level to 3** all club activities will cease immediately – except for one person to carry out security checks as and if required.

To reiterate, unless we are at **Covid Level 1** or lower, Club activities are restricted or curtailed until further notice.

**Committee TMMEC**

