The MICROMETER

AUCKLAND SOCIETY OF MODEL ENGINEERS INCORPORATED

PO Box 14570, Panmure, Auckland 1072, NEW ZEALAND

Club House: Peterson Reserve, off Peterson Road, Mt Wellington, Auckland 1060

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Number 693

September 2023

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REGISTERED NEW ZEALAND PUBLICATION

Having completed nearly 30 years of continuous service without fail, the EC locomotive completes a final run before being sent for a complete overhaul. A true testament to the skill of engineers at ASME!

President's Report September 2023

Hello everyone

I am pleased to report that after an extensive overhaul, the EC locomotive is back in service ready for renewed operations. I'd like to personally thank Grant, Timothy and Dave for their truly phenomenal work on this. The work they have done is to an extremely professional standard and you can read all about their work in a piece written by Grant deeper within this months Micrometer.

Looking ahead, we are currently planning to install the first set of points on the 2nd of September and then starting construction on the track going back to the shed. If anyone would be available to come and help, it would be greatly appreciated! As work progresses and tests have been carried out on the first set of points, we will look into installing the second set at the engine shed and can finally retire the sheet of red metal we have been using to get locomotives on and off the tracks.

Finally, a reminder that the annual luncheon will be coming up on the 2nd of December, so it would be ideal if everyone could pencil it in their diaries. The committee will be sending a request for bookings and providing details for payment next month.

Thanks

Philip Dowdeswell

ASME is an active member of MEANZ

Members should keep a lookout on the website too, www.meanz.org.nz. It is a good place to find other clubs.

When you are travelling, just like us, our friends nationwide always welcome visitors.

SEPTEMBER CALENDAR

Tuesday, September 5th 7.30 pm - General Meeting (Clubhouse)
Tuesday, September 12th 7.30 pm - Workshop Night (Clubhouse)
Tuesday, September 19th 7.30 pm - Committee Meeting

Train Roster

ASME DUTY ROSTER

Date	Electric Driver	Electric Driver	Steam Driver	Train Controller	Station / Guard	Station / Guard
3-Sep-23	R Reichardt	I Ashley	Voluntary	**B Aickin**	**R Crook***	R Copeland
10-Sep-23	A Bailey	D Housley	Voluntary	**P Dowdeswell**	**M Luxton***	H Dando
17-Sep-23	J Lankow	M Plant	Voluntary	**T Lawrence**	**K Ryan***	R Mascarehas
24-Sep-23	M Moore	C Whitisie	Voluntary	**S Meikle**	**R Souter***	S Watson
1-Oct-23	R Reichardt	B Matchett	Voluntary	**D Russell**	**D Wilson***	A Tolstykh
8-Oct-23	I Ashley	A Bailey	Voluntary	**G Wills**	**R Crook***	R Copeland
15-Oct-23	D Housley	J Lankow	Voluntary	**B Aickin**	**M Luxton***	H Dando
22-Oct-23	R Shearer	M Moore	Voluntary	**P Dowdeswell**	**K Ryan***	R Mascarehas
29-Oct-23	M Vickers	C Whitisie	Voluntary	**T Lawrence**	**R Souter***	A van Zon

Please Note:

If for some reason you are unable to attend on your rostered date, you are respectfully reminded that it is your responsibility to find a replacement member to fill the gap – please don't let the rest of the team for the day be left short-handed. Note: the Train Controllers for both affected days must be informed of the swap in advance. It is the responsibility of the person who initiated the swap to do this. Also advise Bob Aickin who is keeping track of the number of duties each of us perform during the year.

The details of the swap should be noted in the Run Book. Also, please ensure the member you arrange a swap with is one who is rostered to undertake the same role to ensure we always have members with the appropriate training and experience on the day.

Club Notices

The annual ASME Club Lunch is confirmed for;

Saturday December 2nd, at Waipuna Hotel.

ASME has an extensive range of Model Engineering Journals (ME and MEW) in the library, managed by Mark Luxton. The collection goes back to the first editions. However as new copies arrive binding takes a while.

If you would like to read the latest edition they are free to borrow electronically from Auckland Public Libraries. The easiest way to borrow them is using the LIBBY app. This gives access to an ME and MEW e-sub. If you encounter difficulties take your device (an iPad is ideal) into any Auckland Library branch.

Beejax Castings

One of our new members – Stephen Watson needs a new project.

He is just finishing a Stationary Steam engine.

He maybe interested building a loco.

Does anyone have any of the Geth Creagh castings for the Bjax loco?

Please contact Greville or the secretary (Dave)

Closure of the Jubilee Bridge

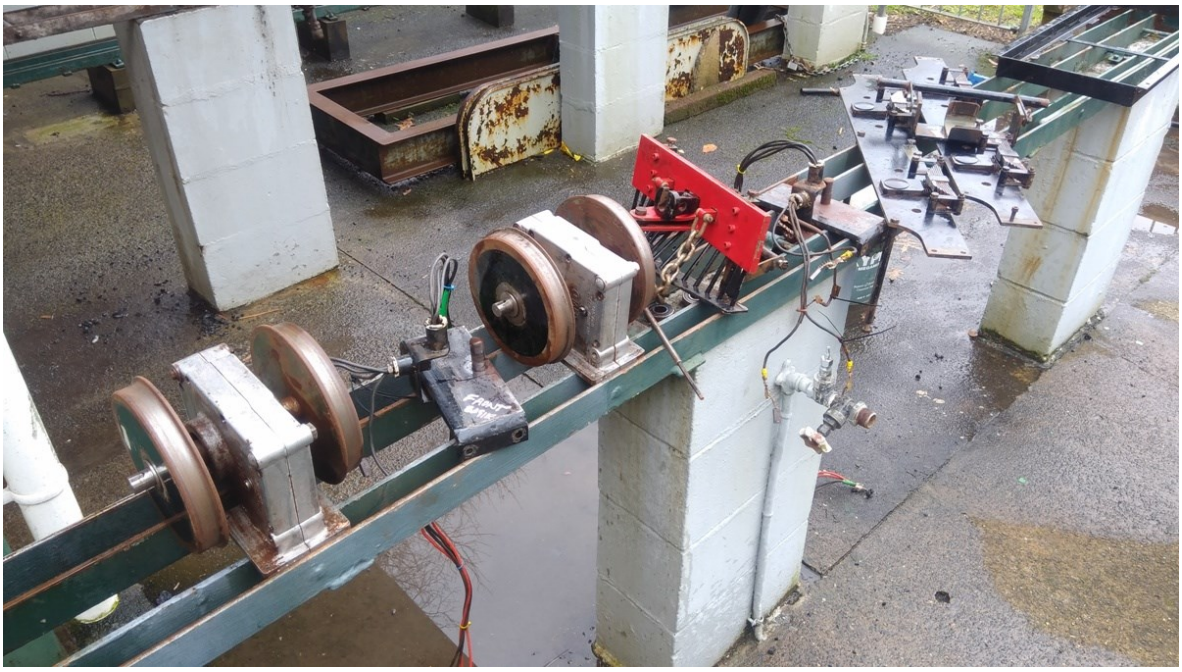
At notice from the Maungakiekie-Tāmaki Local Board, the Jubilee walking bridge that crosses the entrance to the Panmure basin has been closed. Although the council has worked to keep the bridge open in recent years, it has reached a point where safety is not guaranteed. Funding for a new bridge has been secured and will be occur in 2025.

Please be aware that this means you will no longer be able to complete a circuit of the Panmure Basin through the typical walking course. This does not affect our rail operations.

EC Birthday—Part One

Prompted by the need to re-gauge the wheels of the Club's Ec electric loco to enable use of the trial set of points now built and ready for installation, a small team (Timothy Robinson, Dave Housley and Grant Anderson) set to work at the Saturday working bee on 22 July 2023. The Ec was broken down into its main components - carbody, chassis and the two bogies complete with motor units.

The original intention was to machine off the flanges and regenerate the wheel profile 2.5mm further out on each 25mm thick wheel to get the correct back to back (B2B) measurement for 5"guage track (119mm). However it was noted after removal of the bogies and when viewed on the steaming bays that this would lead to the gearboxes becoming very close to the rails (due to reduction in wheel diameter) and at risk of further damage in the event of any derailments – there were already signs of some gouges on the aluminium gear cases. Putting tyres on the loco was considered (this was done to the Dsc loco by a contractor in 2019 to correct its B2B) but the large amount of machining required would seriously delay the planned 2 week work schedule.

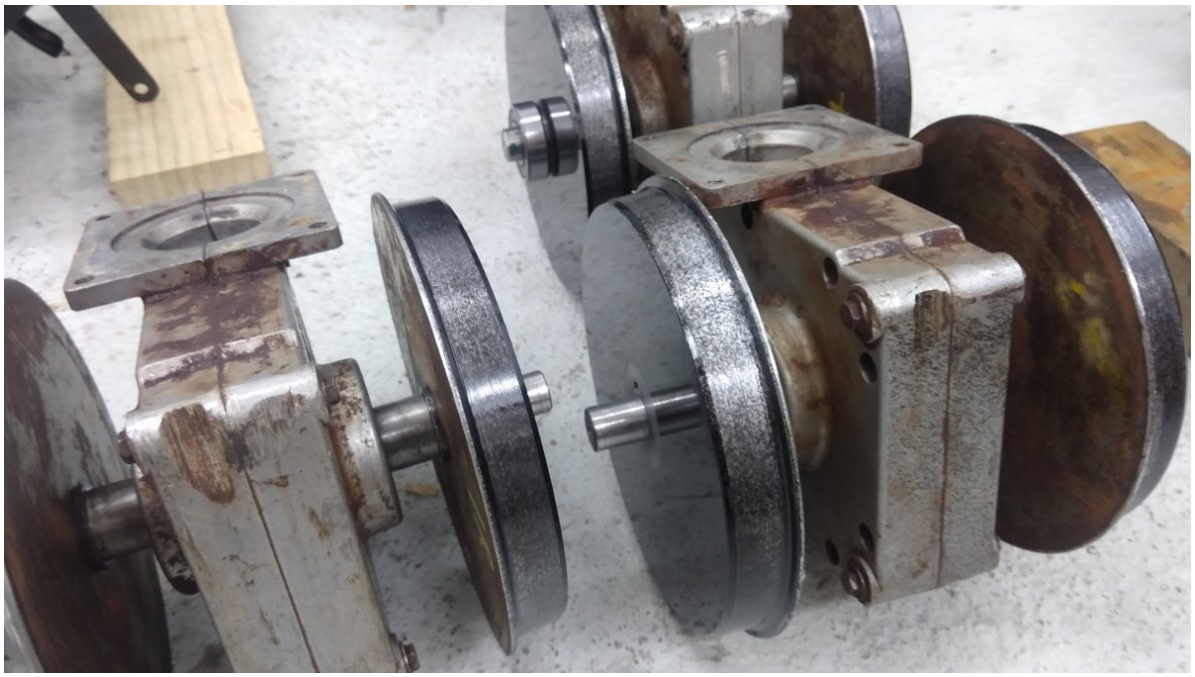


Some of the disassembled components

After some thought, Dave Housley suggested taking the wheel sets into his work and seeing if the wheels could be pressed off the axles. This would enable the wheel blank to be thinned by 2.5mm and spacers made up to position the wheels further out on the axle. The bogies were moved up to the basement and there disassembled to free up the four axle/gearbox/motor assemblies. The electric motors were removed from the gearboxes and Dave headed off with the parts to his work. Using the press, and with some difficulty arranging support due to the closeness of the wheels to the gearboxes, he did succeed in pressing all wheels off the axles, requiring up to 5 tonne of force. He then set about making the spacer washers and centre drilling all axles to assist later with the lathe work needed to re-profile the wheels. Timothy & Grant started to clean

EC Birthday—Part One

The next day (Sunday 23/07), the wheels were put up on the Club's "new" lathe and Timothy machined 2.5mm off the face of each one – the lathe worked a treat and it was great to have such machinery on hand once again at the Club. The spacers were slotted to clear the keys in the axles. After cleaning the remains of all loctite, the spacers and wheels were loose fitted to the axles, so the new B2B measurement could be checked. The bearings (6203) where removed from the axle boxes and found to be getting a bit rough and of Russian manufacture, so had to be replaced! Meanwhile out on the track, Mike Banks ran his Beejax and Bruce Cooper his Ajax steamer to fill in for the Ec and assist the Dsc on a busy day giving rides to the public.



The gouges from contact with the rails on the gearbox cases

During the following week, new bearings, loctite and paint were acquired. Two night shift working bees in the basement were held, as well as work at home to progress matters. This included machining up bushes for two axle journals which were worn undersize and loctiting these in place. A start was made on machining the tread profile to remove wear from almost 30 years of operation (on the Club lathe) with only 0.6mm needing to be removed from the diameter. The freshly machined outer surface of the wheels were sanded and etch primed. All the 16 springs and 4 of the axle boxes were cleaned & painted – and a start made on sanding down 2 of the 4 bogie chassis rails and painting with Killrust epoxy enamel paint. Timothy came up with the idea of resetting the position of the 2 electric motors to the horizontal (the centre one on each bogie showing the gearbox contact gouges) to maximise the clearance of the gearboxes above the rails – albeit this would require raising each bogie bolster frame and its support cross-member in the chassis, so as to maintain a similar height of the carbody on reassembly.

EC Birthday—Part One

At the next Saturday working bee (on 29/07/2023), Dave completed the wheel tread re-profiling and Grant completed the painting of the wheels outer surfaces and the remaining bogie chassis rails in gloss black; then sanded down the derail bars, front headstock assembly and tube cross-members ready for new paint. Timothy started on the changes to the bolsters, fabricating new parts where necessary. During the day, the step daughter of the late Jim Yearn called in to collect his 5” gauge Maid of Kent which has been residing in the basement for the past 18 months.

Mockup of the motor reposition

The next day (Sunday 30/07), Timothy completed the first of the remodelled bolster bars. The wheels were loctited (609) in place on the axles (after fitting the new spacers) and the B2Bs rechecked – all OK. Some of the new bearings were loctited onto the axles. The remaining axleboxes were painted gloss black. It was becoming clear that with all the extra work being tackled that the original timing of two weeks out of service might have to be extended. Meanwhile out on the track, Allan Bailey ran his Polly and Bruce Cooper his LMS steamer to fill in for the Ec and assist the Dsc on another busy day.

P.S. The Club’s first battery powered loco (the “Ec”) was first mooted by the Committee in July 1993 and entered service in February 1994.

(To be continued.)

Travelling by Rail to West Franklin

(First Published in the West Franklin Breeze, July 2023)

David Black

In the early 1850s engineers commissioned by the Auckland Provincial Council investigated the feasibility of a canal between the Waikato River and the Manukau Harbour via Waiuku and the Awaroa River. The idea was soon abandoned, and in its place, the engineers proposed building a tramway (light railway) between the Tahiki River near Mokau and Tekiki, later named Camerontown on the Waikato. The route was surveyed, not built, although later revived in 1862 by Governor Sir George Grey considering the use of the corridor as a military supply route from the Waikato to the Packington Township on the Mauku River. In 1863 the Auckland Provincial Council briefly reconsidered developing the route but, soon lost interest in favour of building a heavy, English standard gauge (4’8½”) railway, south from Auckland. One prominent Mauku settler, Mr J. Crispe, continued to support the proposal at least until 1866 in a letter to the Daily Southern Cross in December of that year. For this project the Council passed an act empowering the appointment of a railway commission and allocated £100,000 to build the railway from Auckland to Drury with the branch to the Manukau port at Onehunga.

From the beginning there were problems and by 1866 after the expenditure of £98,500 only a few miles of rails had been laid. The project was taken out of the hands of the railway commissioners and placed under direct control of the council, but for a further six years there was no progress, only protracted disputes between the counsellors, the engineers, and the contractors. Finally, in 1872, central government took over the project, insisting that it was built to the new government standard (3’6”) gauge and signed a contract with an English firm, Brogden and Sons, to complete the line to Mercer by 1875 with the branch to Onehunga. The Onehunga branch was opened on Christmas Eve 1873, and the main line, later to become the North Island Main Trunk Railway to Mercer was completed in May 1875. It was now possible to catch a train from Auckland to Onehunga and a boat to Waiuku.

In the late 1890’s the private Auckland Tramway Company operating the horse drawn trams in Auckland was purchased by the British Electric Traction Company (BET). The Auckland Electric Tramways Company (AET) was formed in 1899, and under the conditions of the Tramways Act (1894), and with technology from BET quickly built a network which extended to Onehunga Wharf by 1903. It was now possible to catch a tram from Auckland for the boat from Onehunga to Waiuku. When the first tram was driven by Mayor Sir John Logan Campbell he said, “may the trams never cease to run in the streets of Auckland”. AET had a fractious relation-ship with Auckland City, ending with the takeover by the Council in 1919, ultimately to become the Auckland Transport Board, now part of Auckland Transport (AT).

Travelling by Rail to West Franklin

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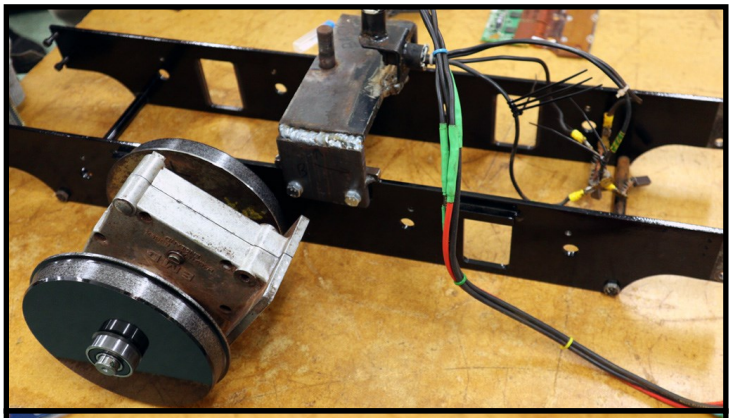
David Black

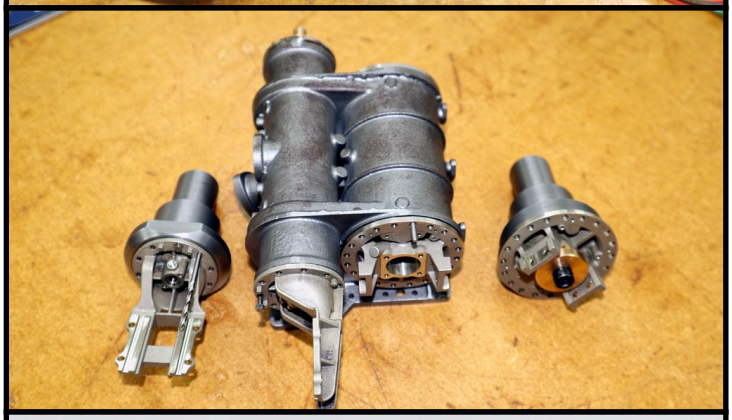
The trams were extended until the early 1930's and were more popular and well patronised into the 1950s. Less than half a century after Sir John's speech they were torn up, for no better given reason that they were "holding up the traffic". Meanwhile the NIMT had passed Drury, the initially intended suburban terminus, and a branch line to Waiuku was proposed.

It was 1918 before the Waiuku Branch reached Mauku and eventually Waiuku by 1922. Passenger use of the line was limited to slow "with-car goods" (mixed) trains which, in 1948 were replaced with railway buses. These are now run by AT. Plans to bring trams back to Auckland have been discussed ever since they were removed. The current version, which has been taken over by the central government, seems to be a hybrid of trams and a metropolitan railway running alongside, but completely incompatible with the existing electrified suburban railway. Meanwhile the massive restoration of the railway south from Drury and the renewal of the rail access to the, now, Mission Bush Branch provides a compelling opportunity to extend the suburban network into West Franklin. I suspect Mr J. Crispe would have preferred that anyway if he could have imagined it, perhaps his descendants can tell us!

Bits & Pieces



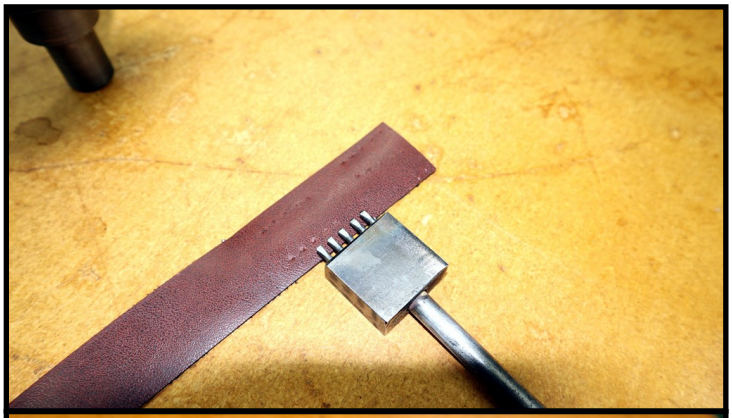
This is one of the bogies from the club EC locomotive, the unit was out of service while machining and alterations are done to correct the wheel back to back distances. When finished the wheel measurements will be as per "Traincraft" specs and compatible with the soon to be installed points on the club track.
This job was been done by Tim Robinson, Grant Anderson and Dave Housley.



Mike Jack brought along one of the cylinders with end covers for his Class 3 project to show how jigs are used to hold the covers for machining.

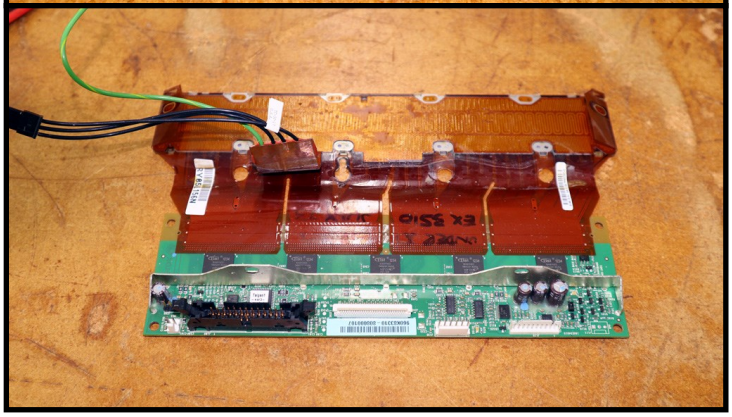
Mike also showed a 2.5mm thread milling cutter as used on the cylinders mentioned above.
By using the cutter instead of a regular tap threads can be machined right to the bottom of a hole. There is one big problem, if you were to consider using a similar cutter, a cnc mill is required to sync the depth and rotation of the cutter.

Bits & Pieces



This multi-hole punch was made by Murray Hollis after his good lady asked if he could repair a favourite bag, the punch enables stitching holes to be pre-punched prior to stitching ensuring even spacing and making stitching easier.

Can you spot what is wrong in this picture?, the combination lever on right should actually be straight. Bruce Cooper was driving his LMS 2-6-4T steamer on the club track and on crossing the bridge the loco stopped due to the pictured item breaking off at the top where it joins with the valve rod. The resulting damage was the rod getting bent.



This circuit board is the business end from Mike Jack's wax 3D printer, it has failed after many years of service. The local agents quoted NZ$20,000 for a replacement, as you would he said "I don't think so" and after some research found a supplier in the US where he bought a replacement for US$600.00. Just goes to show the extortion dished out if you are not wary.

Bits & Pieces

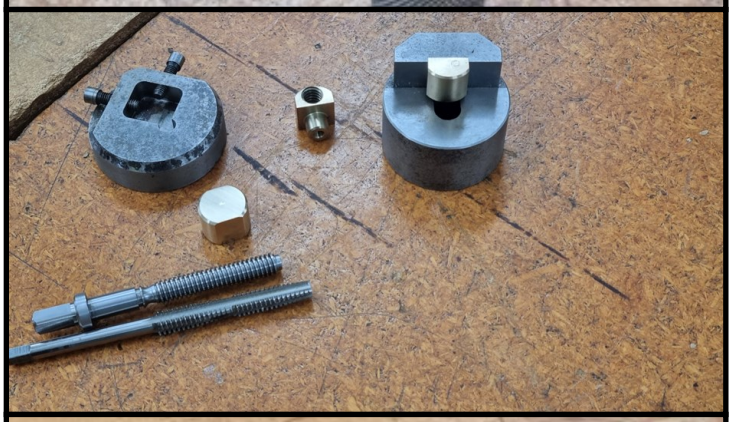
Dave Housley brought in this old Hand Vice, bought at an auction he says it is one of the most handy tools and uses it frequently to hold items.

Dave has also been working on some self draining cylinder steam cocks for his Beejax locomotive, the one shown here is a test item to ensure the principle works before making the four required for the locomotive. Dave says "so far so good, they work".

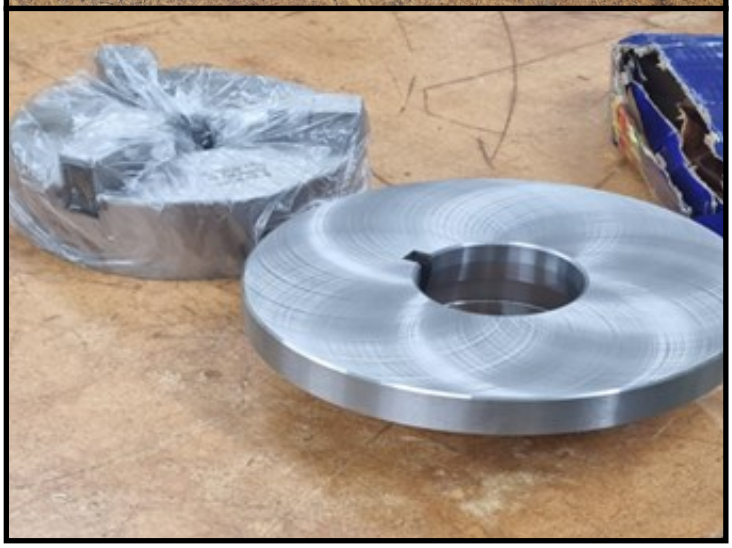
The last item tonight was a knife made by myself (Dave Russell) at a one day knife making course I recently attended. I chose a weekday to attend and had a very enjoyable one on one day with a master knife maker. https://www.kiwiblade.co.nz/

Workshop Night

Roger Shearer brought in a deburring tool with an aluminium handle that he made to display his improving skills



Mike jack displayed fixtures he has developed to aid the manufacture of the Bronze lead nuts for his design of the machine vice that he reckons that he has produces around 250 of. Also the acme tap he had to make for the tapped hole for the vice screw is in the foreground. He described the various stage of production of the bronze nut from raw rod to finished nut.



Our newest member Cameron Billiau showed off a new back plate and chuck that he will fit to his lathe

Workshop Night

Martin Plant is making progress with his loco showing his safety valves of Gordon Smith design these are the pop type valve shown in the photo are the internals also

Finally Murry Hollis brought his contribution to the table. The first was nothing to do with modelling but he found fascinating was a potato peeler that had a ceramic ball that when you closed the guard it sharpened the blade. From his frequent visits to the 2$ shop he found these small containers ideal for dispensing oil through fine nozzles but the trick is to superglue brass bushes around them to prevent the nozzle being pushed into the container. The water pump is from his tich garden engine and he unfortunately broke a tap in it and was able to erode it out using Alum (Aluminium Sulphate) in a boiling solution. I hope he can explain the method to the members at the next general meeting. Shown in the picture is a buffing wheel he made to hone the internal surface to his wood gouges.