



This locust is one of a kind!

LOCUSTS are well-known in Australia for their propensity to swarm and cause havoc, particularly in agricultural regions. But not this one – it is almost one of a kind!

This is a Stu Martin creation and one of the “stars” at the Sandgroppers Gathering at Balcatta on November 11 and 12.

“Doc Martyn” is pictured (right) giving his usual cheeky smile and wave as he takes Clive Chapman for a spin.

Stu built his Locust in 2008 and then wrote a yarn about the build, “Start of a Plague”, which was published in the Australian Model Engineer magazine in 2010.

“It was an effort to inspire other builders to have a go at knocking up a replica road vehicle,” he said.

“The Locust construction was based roughly on the original steam powered Locomobile, first built in 1896 by the Stanley twins in the U.S.A.”

Stu had previously built a replica 1904 C4 Stanley steamer (in 2004) and a working model of Henry Ford’s first car, the “Quad”, followed by “Locust”.

Space prevents us from delving deeper into Stu’s vintage car production line in this issue of Steam Lines, but we will do so in a future edition during 2018.



Living a dream! 86-year-old Fred Hacking (SWMEA) fired and drove Black 5s when he was at Rose Grove shed in the UK and he has waited a long time to drive the miniature version. Here he is pictured driving Tom Winterbourn’s Black 5 at Sandgroppers.

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More pictures and a report on the Sandgroppers Gathering are on pages 8 and 9.

Don't forget to nominate for the new committee!

I HOPE you all had an enjoyable festive season. As I write this report, Christmas is done and dusted for another year and New Year is almost upon us. And with the New Year, we will hit the ground running, with the first of our three school holiday runs on January 9.

This is my last report as president, as I will not be seeking re-election to this position at the AGM to be held on February 9. Time for regeneration!

Deadline for committee nominations to be received by the secretary is on January 12, so I urge you all to consider “stepping up” and playing your part in the running of the society.

The past two months since the last edition of Steam Lines has again seen some changes, for the better I hope. At last we have the new storage shed in the picnic grounds erected, although the concrete floor has yet to be laid. This will provide space for our new ride-on-mower sweeper and extra space for tables and chairs. Thanks to the “construction team” in putting the shed up. There were a couple of lessons learnt in the process!

The other side of the tunnel top has been transformed by terracing and shrubs masterminded by Pete Maschette and assisted by Scott Andrews. Many favourable comments were made by visitors to Sandgropers on November 11 and 12.

Sandgropers was also a very enjoyable affair, with strong support, particularly from our own members, and visitors from every AALS-affiliated club in WA with the exception of Esperance — see report on pages 8 and 9. The only disappointing aspect was the low number of visiting locos.

But on the plus side, we had 10 traction engines in steam and over 50 people sat down to an excellent meal under the new extended patio awning on the Saturday night.

Then, just before Christmas, the patio was packed again for the visit of members of the adjacent Stirling Men's Shed — see page 12.

The Boiler Group has continued to meet at the home of Ron Collins, although the level of boiler construction has eased somewhat after the hectic activity earlier in the year. The past 12 months has seen the total rise to almost 30 boilers constructed.

Our society also seems to be the venue of choice for visitors from the UK, with our latest return visitor being David Barlow from Barrow-in-Furness, on England's north-west coast.

President's Report



by Tom Winterbourn

Another recent visitor was Jerry Jones, brother of recently deceased club stalwart Tony Jones. Jerry has promised to drop in from time to time, although unlike his brother, Jerry's interests lie in restoring classic cars — Jaguars for instance!

The garden railway is now a going concern after much hard work getting it “off the ground”. A meeting was held in the clubhouse just before Christmas to look at the future direction of this new branch of the society.

This meeting decided to again try to get a sub-committee operating to oversee the garden railway operations and to report back to the main committee. Members for this new garden railway sub-committee will be elected at the January 12 members' meeting.

As previously mentioned, the awning outside the clubhouse has been extended and now covers the full length of the patio. It has proved extremely beneficial on both running and work days and again for our Sandgropers dinner.

Track improvements continue to be made, with Ken and Andy about to lay a new set of points at the exit from the station. They have already replaced the damaged track near the workshop/carriage shed and the new storage line at the approach to the station has proved extremely beneficial on public run days.

The signalling system continues to be improved by Ron Casotti, with the toggle post controlling both the first set of points out of the station and the second set when the back straight is brought into use, now repositioned adjacent to where the locos stop on public run days.

Thanks also to the dedicated grounds maintenance boys for the excellent state of our grounds, both trackside and in the picnic grounds.

The next big event is the AALS Convention at Bunbury, which we are hosting with SWMEA. Please support this event by registering on the interactive website:

2018aalsconvention.com

On a personal note, it's great to have my Black 5 back in action — and running better than ever. Thanks to Phill Gibbons, Noel Outram, Ron Collins and Clive Jarman for their support in this project — see photo on page 3.

Looking to the future, Steve Briggs has already started on the two new riding carriages, for which we have already bought the braked bogies.

Plans for the new bridge from the station to the picnic grounds are progressing, thanks again to Ron Collins, while the other Ron (Casotti) continues with the new signalling system, including making and positioning new colour aspect signals.

Tom Winterbourn

NDMES Christmas function

THE Christmas function was held on Sunday 10 December — it was another particularly hot day, which saw the early enthusiasm for steaming somewhat curtailed in the afternoon, after a substantial lunch.

The patio roof extension yet again proved its worth and a considerable number of the world's problems were solved by members and guests while relaxing in its shade.

Here are a few photos from the day:



Left: Doug Pitney enjoying the warm weather and sharing a laugh with Andy Davies on his return from Canada.



Left: The Chief Elf is hard at work in Santa's cave...

Right: Relaxing under the patio roof before lunch.

All photos:
Jim Clark



It will go better now!



Tom Winterbourn (centre) gets a surprise commissioning test of his refurbished Black 5 at a Boiler Group day in November. Also present are Bill Walker, Phill Gibbons, Noel Outram and Ron Collins.

AALS Convention

With the AALS Convention in Bunbury only a couple of months away, now is a good time to make your plans for what you'd like to do and see there.

If you are bringing a loco, don't leave those maintenance or finishing jobs you have been meaning to do until the last minute! There are still a couple of Club run days when you could do some track tests.

NDMES will be hosting two post-Convention run days after Easter, on Tuesday 4 and Wednesday 5 April, at the Balcatta track site. If you can help out on those days or want to run your engines then, please do try and come along.

Don't forget there will also be run days hosted by other WA societies both before and after Easter, all the way through to Sunday 8 April. You might like to take the opportunity to attend one of those clubs and perhaps run your engine there too.

Join in, support the hobby and have some fun — conventions don't come to WA very often!

Lubrication — oils ain't just oils!

LUBRICATION seems simple enough, but in reality not many get it right — cylinders get vegetable oil, bearings get mineral oil, and so on. You can use mineral oil in your cylinders, but it foams, so stick to tried and proven practice.

We use what is available which is a 600 grade oil. This, in fact, is much too thick for us and recently I and others have been thinning it down with a little olive oil. You used to get 400 and 150 grade steam oil, but no demand means no supply. I still have a little of these left if anyone is interested in seeing them.

Soluble oil is the choice when cleaning down your loco for storage as it will mix with any water left over in the cylinders and make it inert.



Engineering Matters
with boiler inspector
Phill Gibbons

For your bearings you should be using mineral oil. Car engine oil is my choice — don't buy expensive stuff, the cheapest oil on the market is fine. 10W-40 is my choice as I have a little left over from most car oil changes that I do.

If you want your steam engines to run sweetly don't use too thick an oil, as it is an energy sapper with very little benefit in the wear department.

How does one tell steam oil from mineral oil? Why, taste of course: mineral oil is bitter and steam oil tastes like butter, not too bad at all!

Now let's see who is first to take the taste test to see if I'm right...

Phill Gibbons

Calendar of Forthcoming Events

General Meeting	Friday	12 January 2018	7:30 pm	
Club Run Day	Sunday	14 January	9:00 am — 2:00 pm	
School Holiday Run Days	Tuesdays:	9 January,	16 January, and	23 January
Public Run Day	Sunday	28 January	10:00 am — 2:00 pm	
Annual General Meeting	Friday	9 February	7:30 pm	<i>Followed by General Meeting</i>
Club Run Day	Sunday	11 February	9:00 am — 2:00 pm	
Public Run Day	Sunday	25 February	10:00 am — 2:00 pm	
General Meeting	Friday	9 March	7:30 pm	

Know your Society

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	Steve Reeves	9354 1395	
	Noel Outram	9525 1234	
Librarian	John Martin	9300 2180	
Birthday Bookings	Paul Costall	9572 1385	
Driver Training	Phill Gibbons	9390 4390	
Safety Compliance Officer	David Naeser	9276 8709	
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Society On-site Phone Number	9349 0693		
Society Grounds and Track Site	Vasto Place (off Balcatta Road), Balcatta		
Postal Address	NDMES, PO Box 681, Balcatta 6914, Western Australia		

An enjoyable day out

Paul Costall and Ron Collins made their annual pilgrimage to the Sport Aircraft Builders Club open day at the Serpentine Airfield in November.

The initial trip to the Serpentine Airfield resulted in one of the traction engines pulling an aircraft up to the administration terminus, blowing off steam and the whistle, much to the amusement of the assembled public.

It is an eclectic situation where modern aeroplanes are flying around whilst old steam technology is quietly steaming up and down the taxi ways.

Occasionally there is a bit of excitement as a noisy nasty fan-bearing aircraft bears down the taxi way — at this point quiet steaming gives way to rapid abandonment of the taxi way!

It is a great day with aircraft on display and flying around, vintage cars and bikes on display and, of course, Steam Traction engines.

Ron Collins



Paul (above) and Ron (below) preparing their engines at Serpentine. *Photos: Keith de Grauw*



Wombat II at Bunbury



ONE of the write-ups I am doing for AME on the Wombat series is how to care for your Wombat.

Ron very kindly allowed me to take the engine to the South West Society of Model Engineers' site at Forrest Park, Bunbury, and run it at its November run day, so that I could take some photographs for the article.

The engine astonished the natives, as it can pull a one tonne load easily. Not bad for a small engine! It ran for three hours straight and performed faultlessly.

I nearly didn't get to bring the engine home as they wanted it to stay!

Tanya Macarthur took this pic of the engine in action.

Steve Reeves

Garpen seats



If you are thinking of making or refurbishing a seat for your driving car or loco tender, an excellent range of small forklift/truck seats is available from Garpen Pty Ltd, located at 200 Collier Road, Bayswater.

Most seats have a padded base and a backrest or lumbar support, and have some fore-and-aft adjustment on rails.

They also have available some tractor-style plastic seats that might suit traction engine riding cars or wagons.

The prices are very reasonable and I decided that the time saving alone beats designing and making my own frame and then getting it upholstered.

All the seat models are on display in their showroom, so you can try before you buy. Check out their full range at: www.garpen.com.au/truckseats.html



Jim Clark

Notes from the Boiler Group

CROSSHEADS — these are usually a bit of a pain to make, and worse to fit. I have been putting them off on the new loco I'm building, trying to think of an easier way.

Lo and behold, on a visit to the Parkerville hillbilly hideout, I spotted a new crosshead on the bench and it gave me some ideas. With a little change the job became quick, cheap and easy to make, so here we go.

For a 7 $\frac{1}{4}$ " loco you will need around 250mm of 20mm square bright mild steel bar, available from the Steel Store Beete Street, Welshpool, for the princely sum of \$5.00 (Note: they have a minimum invoice amount, so buy it together with other material that you or a friend need).

Cut the 20mm bar into 4 pieces 50mm long and face the ends. On two of them, turn one end down to 19mm dia. by 10mm long. Coat these two with marking dye and on two consecutive sides scribe centre lines, on the opposite ends to the turned end. Mark a cross line on one side 20mm up, on the next side mark a cross line 10mm up, and centre pop where the lines intersect. Drill the one 20mm up to 13mm dia. Drill the one 10mm up 1/4" dia. right through, then counter drill halfway through to 3/8" dia.

Now on the 13mm hole side, scribe two lines taking the hole to the end of the block to make the slot, which should be 12mm wide. Cut it out with a bandsaw or mill it out.

Clean up all four blocks, flux up one side on two of them and flux the side with the counterbored hole horizontal on the other two. Fit one of each type together, heat and silver solder them to produce a completed crosshead, as shown in the photos at top right and centre right.

When cool, pickle and polish and they are finished.

For fitting to slide bars you will need two top pieces of 20x10mm rectangular steel bar 50mm long, plus four pieces of 3mm plate cut out to 50x40mm for side plates.

Of course you will also need two lengths of 20x10mm for the slide bars, cut to the required length for your loco.

Clamp the top piece plus a slide bar plus a crosshead together one way. Next clamp two side plates the other way and drill 4 off 5mm dia. holes 5mm downwards and 5mm inwards in each corner of the side plate.

Fit 4 off 5mm bolts and nuts, tighten, remove the clamps and you should be left with a nice looking crosshead made in no time. Refer to the photos if this seems difficult to follow.

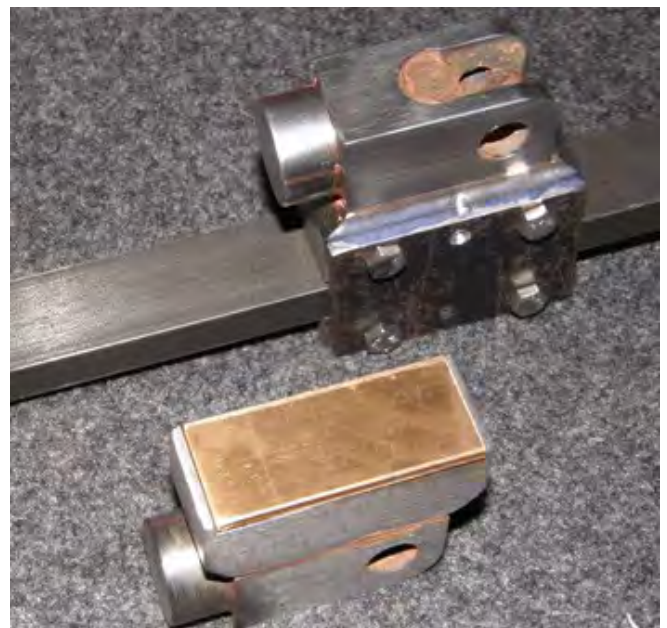
You may also want to fit a wear slipper which can be a piece of bronze or copper plate, as shown in the photos. Make sure you make it captive by milling a recess in the top face of the crosshead, as shown in the top photo, lower left corner, and in the centre photo lower half.

You only need to fit a wear slipper on this face of the crosshead, as this is the face that takes most of the sideways forces when the loco is running forwards. The other face only wears when running in reverse, and we don't do that very often!

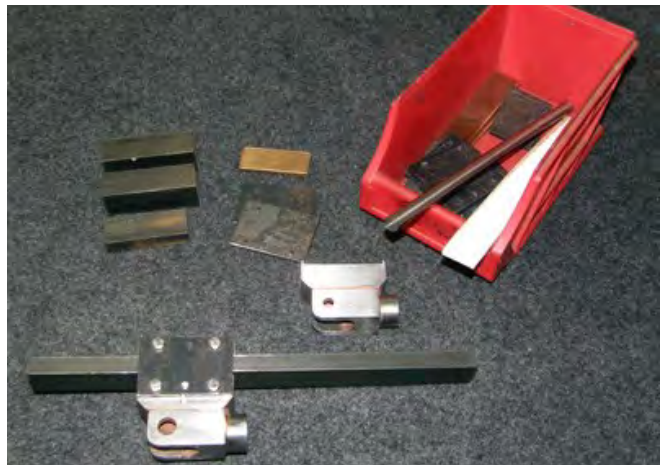
Phill Gibbons



The component parts (at top) needed to make one crosshead, shown completed at bottom left of this photo.



Above: close-ups of the crosshead and completed assembly. Below: Raw materials and a completed unit. Photos: Jim Clark



October and November public run days

DUE to sunny weather we had excellent days at both the public run days, with good crowds. Here are some photos from the run days.



David Naiser took a turn on Phil's Irma at the October run — he may never run an elevated railway train again!
Photo: Steve Reeves



Suzanne Smith gets some hours up driving Dave Robinson's diesel. Suzanne is reaching out to change the points — note the new position of the toggle post, which was installed two days before the run by Ron Casotti.
Photo: Tom Winterbourn



Noel Outram driving son Damien's battery loco.



A busy scene in the station as Phill Gibbons takes the through road driving the president's Black 5 while UK visitor Dave Barlow gets ready to depart with a new load of passengers behind Phil's Irma. *Photo: Tom Winterbourn*



Left: New members Peter and Suzanne Smith obtained their drivers licences at the last club day and their newly purchased loco from the UK has passed its mechanical tests. Here is Suzanne on her P plates with the new engine named 'Sues' at the end of the October run day with her daughter-in-law as passenger.

Right: Official load test with Tom's newly overhauled Black 5 at its first public outing in November. *Photos: Steve Reeves*



Feeling the heat at Sandgropers

THANK God for the extended patio roof! For without it, the 100 or so delegates to the Sandgropers Gathering on November 11 and 12 would have been sheltering from the intense sun under a much smaller area of the patio.

The mercury hit the old 100 mark (38°C) on the Saturday – Perth's hottest spring day of the year to that date. Sunday was a much cooler 30°C day.

The patio roof extension was completed less than two weeks before the event.

But despite the intense heat, the weekend was a success, with representatives from every AALS-affiliated club in WA except Esperance attending.

In addition to the locos, there was an excellent representation of 10 steam traction engines plus the ex-Andrew Manning Foden steam truck (now owned by Steve Dewars from Batavia Coast MR at Geraldton) operating at the rear of the club grounds and on to the adjacent Delawney Reserve. This area was also graced by Stu Martin's replica of "Locomobile" dating back to 1896 and which he built in 2008.

Highlight of the weekend was the dinner on the covered patio in front of the clubhouse, attended by over 50 delegates. The professionally catered meal received high praise.

Delegates attended from the Batavia Coast Miniature Railway (Geraldton), South-West Model Engineers' Association (Bunbury), Castledare Miniature Railway, Katanning Miniature Railway, Toodyay Miniature Railway and Diamond Valley Railway (Victoria) through a locally-based member.

This annual WA mini-convention is held in alternate years at Bunbury and Balcatta, and so will be held at Bunbury next year – just over six months after the AALS Easter convention, which is being jointly hosted by SWMEA and NDMES.

Tom Winterbourn

Photos by Tom Winterbourn and Jim Clark



Above: Busy scenes in the steaming bay at the start of the day.
Below: Ed Brown steaming up his WAGR Es. Unfortunately it had a few problems this time, so not a good run day for Mr Ed!



Jim Clark switches from traction engine to loco, here seen driving Ron Collins' Wombat, with Ron in tow.

Geraldton invasion: Steve Dewars (BCMR) drives his ex-Andrew Manning Foden steam truck while son Alex has charge of his traction engine.

Sandgropers 2017 (cont...)



VIP tram ride: Guests of honour, City of Stirling councillor Dr Andrew Guilfoyle and wife Rina, are taken on a tour of the railway in Scott Andrews' new tram, driven by Steve Reeves.



Ron Collins tries out something smaller than his usual Fowler — this time driving Jim Clark's 3" scale Allchin.



Lindsay Lockhart (SWMEA) flying along very nicely on his Rainhill.



Phill Gibbons (left) talks to Peter Smith in front of his two recently completed 7 1/4" locos, O&K 'Irma' and a Juliet.



Delegates relaxing and taking advantage of the shade under the recently extended patio roof.



Who did a good job then? Sandgropers co-ordinator Tom Winterbourn takes a well-earned break with Bill Walker.

Photo: Jim Clark

Keith's wooden clock

NOW for something different. At a recent NDMES club night meeting Keith De Graauw displayed a wooden clock he had made. The clock is based on Brian Law's number one design. The plans were purchased for about \$32 from:

<http://www.woodenclocks.co.uk>. The clock took about 18 months to complete, being worked on as a side project.

A set of scale CAD DWG drawings was provided with the set of clock plans, which was used to produce the CNC G code that was used to cut out the gears and a range of components on a 6040 CNC router. The gears were cut from 9mm rouse plywood and most other parts from Jarrah. The clock face was made from Tasmanian Oak, cut into twelve segments and then glued together.

Keith found it an enjoyable challenge to machine a range of components using the CNC router. However it did prove to be quite time consuming to produce all of the CNC G code with the correct cutting speeds, feeds, tool selection, etc. He particularly wanted to get a good finish for the gear teeth mating surfaces to minimise friction.

Also a challenge at times was setting up the CNC router to ensure sufficient clearances and clamping arrangements. Keith did experience the usual spills and thrills as an amateur CNC operator: snapping cutting bits, generating smoke due to excessively fast spindle speed, shaft holes not being centrally drilled in gears (reason still unknown), cutting bits just missing the support clamps, etc. He feels that should he build another wooden clock he will cut the gears and components by hand using a good quality scroll saw.

Small ball bearings were inserted into the rear of the vertical supports where the gear shafts would rotate. Keith explained that the ball bearings were not used for the purpose of a rotating bearing, however the inside race machined hole is used as a bearing surface allowing a slightly undersize brass shaft to rotate on it. Thus the brass gear shaft actually rotates within the ball bearing inner race surface. This is a trick sometimes used by wooden clock makers to help reduce the friction of gear shaft bearing surfaces, noting the very slow RPM involved.

Keith also machined a number of the wooden components to size using his metal lathe (which he acknowledged as not being a good practice, as a lot of cleaning is required to remove oil-soaked sawdust from the lathe ways, etc.!).

Finished Jarrah components were given two coats of Bondall "Monocel Jarrah Stain and Varnish" and all other components received two coats of Bondall "Monocel Cedar Stain and Varnish". Care was taken to not have any varnish on the tooth surface of the gears, as this can add friction to the sliding faces of the gears over time and can cause the clock to stop.

The clock is now pleasantly ticking away in Mornington, Victoria, as Keith made it as a gift for his parents' 60th wedding anniversary.

Story and photos by Keith de Graauw

The completed wooden clock.



Right: Cutting out parts on the CNC router.



Below: The set of machined parts ready to assemble into the clock.



Right: Aaargh! What's that w-w-wood doing all over my metal lathe?



Steve Reeves — the ‘Peter Pan’ of model engineering!

Member profile No 4, Steve Reeves

A HORNBY train set given to him by his parents over 40 years ago when he was just 13 years old was the catalyst for a life-long interest in anything railways for Steve Reeves.

Since then he’s been the classic “Peter Pan” of WA’s model engineering fraternity. He still has that first HO scale loco, a UK Hymek Bo-Bo diesel.

Steve has designed and built many locos in all the popular gauges, he is a “go-to” man when advice is sought and he has been a boiler inspector for many years.

Oh, and he was also a foundation member of NDMES, being present at that inaugural meeting in 1985. He has been involved in all aspects of the club, he was the inaugural secretary and has served on the committee at various times.

His “day jobs” have covered several diverse areas. He started as an electrical fitter and installer (working for Telecom for 23 years) and then gained a Diploma in Electronic Engineering and a Certificate in Transport Logistics, which allows him to pursue his current occupation of seven years, a bus driver for TransPerth.

While Steve maintains NDMES is his home club, he has also been a continual member of SWMEA at Bunbury since 1981, a member of CMR from 1976 to 1978 and from 1988 to 1999, and Cohuna Park Railway from 1978 to 1988, during which time he operated trains and maintained the railway with a group of volunteers. He is currently a boiler inspector at both NDMES and SWMEA.

Steve was a founder member of the WA Model Engineering Club. He recalls that NDMES was founded because the WA Model Engineering Club did not want a permanent site with track.

The NDMES’s first year was spent mainly on the constitution, AALS membership and insurance and the building and operation of a portable track, similar in design to the existing elevated track we have now.

Steve ran his loco ‘Helen’ on the portable track to help raise funds. The loco averaged 110 running hours per year for five years straight.

After getting married and starting to raise a family, Steve took a back seat during the construction of facilities phase at the club, although, he said, he was always hanging around “being the usual nuisance that I am still known for today!”

After landscaping the NDMES site, the tunnel was built, followed by the steaming bays and the elevated track, which Steve designed from a sketch given to him on the back of an envelope.



Steve Reeves with the 3” scale Ruston & Proctor traction engine he now owns. This photo was taken at the AMRA exhibition in 2016.

Photo: Tom Winterbourn

Today, Steve has a fully equipped workshop and spends about 15 hours a week building and maintaining many projects.

His list of accomplishments include stationary steam plants, a portable engine, a 3½” gauge ‘Tich’ and a 7¼” gauge Rainhill.

He is currently building a 7¼” 2-6-0 + 0-6-2 freelance Garrett designed by himself.

Projects he has taken over include a 7¼” Bo-Bo vertical boiler loco ‘Curly’, a WAGR Pmr Class 5” gauge 4-6-2 tender loco ‘Helen’ and a 7¼” sit-in Mountaineer ‘Evyazel’ (just say it out loud a couple of times...) He has also bought and operated a 3” scale Ruston & Proctor road traction engine (built by Ron Collins) and a 45 mm gauge 4-6-0PT Baldwin WW1 loco and carriage.

Projects undertaken with other people include a 5” gauge 0-4-0T Blowfly NSA and a 7¼” 0-4-0ST LBSC ‘Juliet’ No. 2, which is now about 80% complete.

Steve has represented NDMES at many functions, including AALS conventions in all states except Tasmania, creating many friendships in the process.

He has previously written a construction series on a vertical boiler small steam plant for Australian Model Engineer magazine and is now writing the construction series on Wombat II currently being published in AME.

Steve has thrown his hat into the ring at the AALS AGM next Easter, seeking election as the WA state representative.

Tom Winterbourn

'Old' birds of a feather come together!

MEMBERS of the Stirling Men's Shed joined the Tuesday crew for a pre-Christmas morning tea on December 12, continuing a "tradition" which started two years ago.

About 60 members of both clubs enjoyed a range of hot and cold food provided by NDMES members.

During short speeches by NDMES president Tom Winterbourn and Men's Shed co-ordinator Alan Robson, it was suggested closer ties should be pursued. The Men's Shed will host next year's Christmas morning tea, but other joint get-togethers are under consideration.



Fitting a DRO to a lathe

QUITE a few years ago I fitted a DRO (digital read-out) to my RF-30 mill, and found that the efficiency and accuracy of my work improved dramatically.

I'm not sure why it has taken me so long to get around to doing the same thing for my lathe, but the Hare & Forbes sale finally got me motivated when I saw the Sino 2-axis DRO package being offered for \$440.

I chose a "compact" style scale for the Y axis, which fitted neatly on to the back of my cross-slide. A "standard" scale suited the main bed, where there is plenty of room.

Right: The X scale on the back of the bed.

Below: The compact Y scale located on the cross-slide.



The readout fitted neatly on the splashguard using the supplied bracket (photo above).

I borrowed a right-angle drill to do the fixing holes on the back of the bed so that I didn't need to move the lathe away from the wall. Apart from that, it was quite straightforward — a couple of hours' work and I already don't know how I lived without it!

Jim Clark



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