Sydney Live Steam Locomotive Society

Anthony Road, West Ryde, N.S.W.

'Newsletter'

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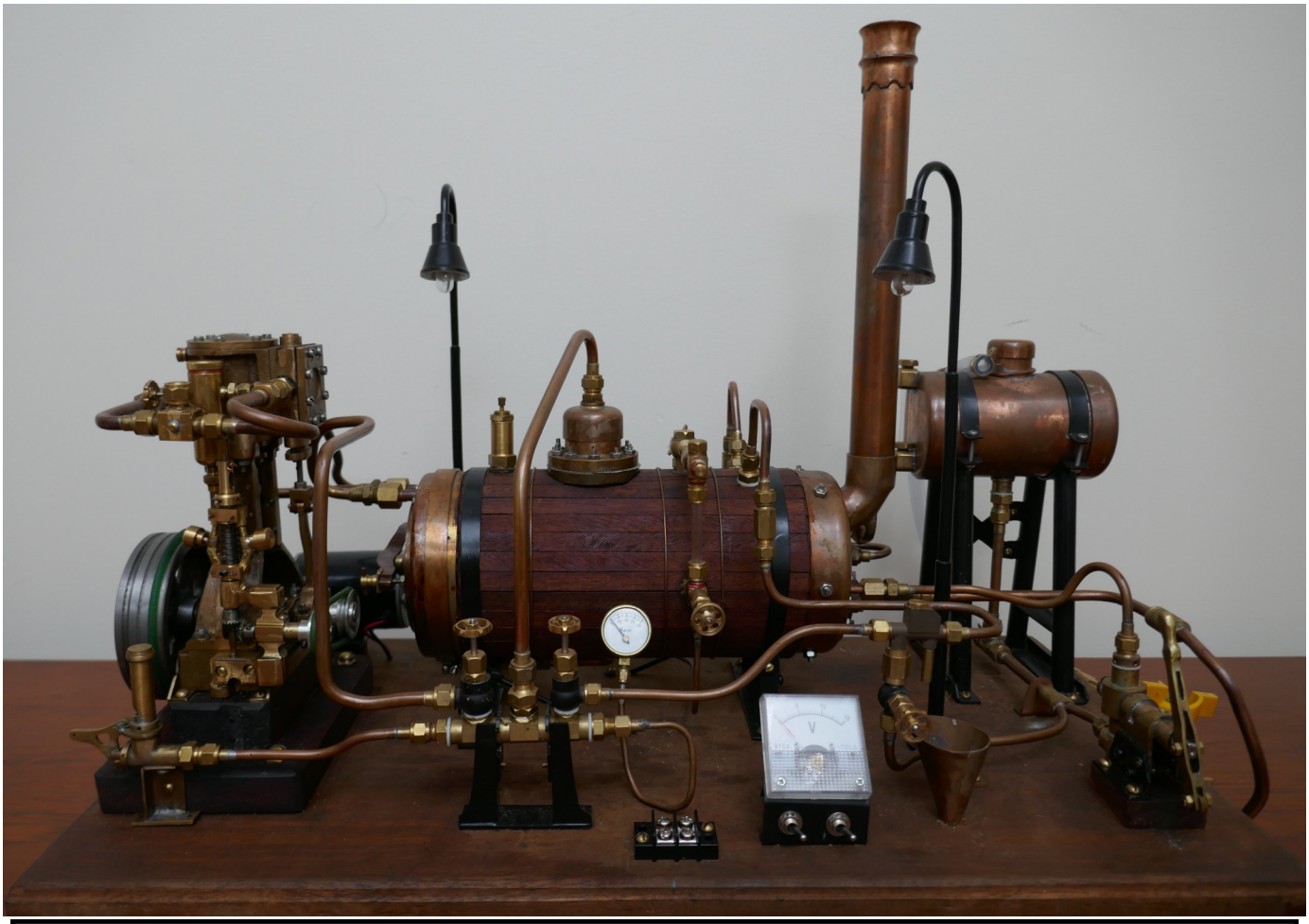


Chris Denton's stationary steam plant. See the full story on page 13.

April 2021 Running Day

Our first public running day after the easing of the pandemic controls was going to be March. Mick had finalised our Covid Safe plan. Ross and Audrey had previously used a pressure washer to clean the green slime off some of the concrete and all the walking surfaces across the bridge and around the grounds as an additional job for the usual garden maintenance. In fact there was an extra special effort before March to clean up the entrance and grounds. Previously in February we had a trial run to test the arrangements.

Its all history now, but that March weekend we had some of the highest rainfall ever. This resulted in that day being called off. Even though restrictions had been further eased, because all the planning had been done, the arrangements were carried over to April. This included most of the March bookings who elected to transfer them to April. All this booking management was handled by Treasurer John behind the scenes.

Now to April and it was a bit of a gloomy day with grey skies but no rain and it did brighten up at times. The team had set up the operations to be Covid-safe with one way operation and plenty of marshalls and sanitisers on hand. There was a good roll up of members. Signage which had been arranged by Ross had been put out as was some bunting to direct the one way movement of groups.
The flags were at half mast due to the 8 days of mourning for the Duke of Edinburgh, whose funeral was to be held

David Thomas on the footplate of V1224 and David Lee as guard on the inner main as Guard Bernie vanishes down the Outer Main.

later that day.

An earlier start was arranged and the gathering in loco was well in hand for that. Of note were the very bright yellow boiler bands which John H had applied to the 4-8-2. They certainly make it look rather flash. There was a fair bit of running light and talking around as we waited for the first passengers.

John H had the Fletcher Alco diesel as standby which was stabled in an inner siding. As well David L had his GMs in loco but again these were not required. It was good to see Bernie back on a running day too.

Dennis O 'B did quite a lot of carriage cleaning during the course of the day. He even cleaned the drivers seat!

First train out on the inner was Ross B and Toneya. He had some friends from ILS present and gave them a tour of the facilities as well as a drive. Ross's guard was David J but changed during the day. Graham T and David L did a turn as guard as well. The other inner train was Warwick and V1224 with Geoff H as guard. David T was relief driver and drove most of the latter part of the afternoon. David L was also guard at one point.

On the outer main we had Arthur and the 4-8-2 with yellow bands and John H as guard. The other train was Brian K and his 45 class leading Graeme K and 2401 with Bernie as guard. Paul T experienced driving the 45 at one stage.

All trains ran well and without incident. The loading was quite light, being single family groups arranged via on line bookings. There were some small loadings of 4 people (2 adults, 2 kids), and there could have been smaller ones, and the largest was 16 people, all well within the train capacity. As a result the running was fairly easy and trouble free.

In the signal box we had Mike D and Mark G and the operations were quite smooth as they worked their abacus beads to keep track of the trains on three laps. On the inner main station we had Chris D experiencing his first running day, and Carol L. On the outer there appeared to be a large crew of Tony K, Greg C, Neal, Craig D, Paul T, Peter D and Jim M, Garry B, and Bill P. Eddie did a sterling job supervising the lavatories while Jo and Peter W checked the arrivals in at the gate and escorted the groups into the grounds. Mick kept watch over the activities and seemed pleased with the overall result at the end of the day. Gai was in the kitchen serving us afternoon teas and prospective member James kept an eye on proceedings from the signal box.

David Judex concentrating intently on being a guard. Photo G Hague.

Editorial

By the time this Newsletter is published we are about to embark on a running day moving closer to how things use to be. We still have to accept that we need to be Covid Safe with limited numbers and a closely controlled operating procedure. Mick and the executive have spent much thought and time dealing with the regulations and the constant changes that have taken place over the last fifteen months and we should all offer our thanks for their efforts on our behalf.

It is also pleasing to have seen what we have achieved since the pandemic started to rule our lives. The western retaining wall is as good as complete and components for the elevated track replacement are now almost complete to continue on from the initial trial section to the middle of the bottom curve. We also have a CCTV system operating that will give good coverage of the whole of the grounds. Moving forward we still need a good effort from all members to continue to make the Society the best it can be.

Fill in Editor. John Lyons

Ross Bishop and Toneya with Graham Tindale as guard drift down grade on the inner main.

There was some empty running at times while waiting for the next group and overall an easy and pleaant day. Next month we hope to be back to something closer to normal!
Running day photos thanks to David Judex.

Works Reports

Work has steadily progressed on the western retaining wall. The works team led by Neal had developed a methodology and with a systematic approach the team knew exactly what was to be done. Excavation, hole digging, cementing in posts, some more digging, then placing the timbers and backfilling were carried. The last of the concrete was poured on 24 April and by the time you read this it should be substantially complete.
The elevated track rebuild has also progressed with channel sections being made and more track lengths welded up. Bill P and John L have been leading the pier production with a consistent 3 piers each week. We now have enough piers to reach the bottom of the grounds. There is still plenty to do but we are getting closer. We need to finish the expansion joints, roll the channels, manufacture various holding down clamps, install rubber on the piers and coat the piers with cement sealer. The next

Eddie on rest room duty.

Brian Kilgour and his 45 class lead Graeme Kirkby and 2401 up the outer main.

change out is expected to be the track behind the signal box down to the end of the eastern straight, probably done in two 3 week changeovers in time for the Small Gauge Festival.

Tony K, Peter D and Paul B have been replacing sleepers on the ground level track (stainless ones replacing any badly corroded ones) and correcting alignment defects.

David L and Peter W have been busy cabling and wiring up some more ground level signalling infrastructure. This has branched to providing some ethernet connections for the new ground video cameras which have been installed by Mick and Scott and have reached an advanced state of installation.

Tony has been progressively repairing and keeping the mowers in good order while John H has overhauled the whipper snipper heads. Warwick and Wendy have performed the testing and tagging of the portable electrical appliances.

Above: Neal, Craig and Mike at work on the wall. John and Chris are also regulars on this job.
Below: David Judex practices his welding skills on an elevated track panel.
Left: Craig, Paul, Tony and Peter at work on a ground level track panel.

Post Non-Convention runs or 3800km and 3 play days in SA (Part 1)

David Lee

The year of 2020 followed by the postponement and then cancellation of the 2021 Adelaide convention was not going to spoil my Easter break. I contacted some of the 5" clubs in South Australia either by email or Facebook and asked if they were considering having a play day even though the convention had been cancelled. Penfield who were supposed to host the convention had no plans, but SASMEE in Millswood, AMSRS at Prospect & PAMES at Port Augusta were happy to have me over to play trains. I especially wished to go back to the Adelaide tracks as I haven't been there for 14 years and to run around Port Augusta as that's where the Trans Australia originated from.

First stop was SASMEE on Sunday. My visit coincided with their public running day and unfortunately their 3 ½"/5" track is having major works so I didn't get the GMs and consist out. They are running a pre-booked ticketed event with separate entry and exit points, as are we, but have kept their canteen running with hot pies and chips. The 7 ¼"/5" track is still operational with passengers loading at the station and after a lap and a half unloading near the exit point which is also next to their canteen.

Trains were only 2 cars so no guard was required with 4 or 5 trains circulating, all 7¼" running around nose to tail similar to our elevated setup. I had a play on one of the diesels, of course, before taking a CliShay for a few laps prior to public running beginning. Discussions about fuels and signalling as well as general chit chat filled the rest of the day. They have been using Matador Premium Charcoal Briquettes which 'are made from 100% natural, responsibly sourced hardwood', quoted from the Bunnings website. Their crusher has been modified to take the logs and the guys appear to be happy with the results. The lack of smell and smoke from the steamers was a let-down and some coal thrown into the mix would have added to the atmosphere. They have been able to leave the locos for smoko and bring the fire back quite quickly.

Easter Monday was the next stop at AMSRS Pros-

CliShay waiting to get into the station whilst the Black 5 runs around on the mainline.

Left: The Trans Australia consist sneaking past the roundhouse at Mile End. Photo from Facebook. Right: 720 on the main with the GMs waiting to leave the station loop. Below right: A beautiful 2-4-0 while the driver is at smoko. Below left: The GMs and consist waiting at Wilford Junction whilst 523 passes with a goods train in tow.

pect and the next day. This is a 5" only track with plenty of sidings and a few passing loops. They have quite a storage of scale rolling stock on site and some scale buildings including a roundhouse. Last time I was there GM9 was still missing some trim and the louvre van was my only rolling stock.

There were about 6 or 8 trains with rolling stock and a few running light engine, making for a pleasant day on the track without overcrowding. There was a bit of talk about the old days at Port Augusta as the GMs grumbled away, obviously the right noises coming from the locos.

NEXT ISSUE Part 2—Port Augusta and the MUSEUMS & more pictures!

Diary

29 May	Interclub at Wascoe Siding (Blaxland)
5 June	AGM
12-14 June	Hot Pot Run at ILS Wollongong
19 June	Public Running Day
18-20 June	Tamworth Birthday Run
17 July	Public Running Day
31 July	SLSLS Interclub.
6-8 August	Track n Tent QSMEE Brisbane
21 August	Public Running Day
17-19 September	CSMEE Invitation Run.
18 September	Public Running Day
16 October	Public Running Day
30-31 October	Small Gauge Festival SLSLS

2605 over the pit at Cripple Creek cooling down after a run. See story next page.

A Gauge 1 NSWGR 26 Class

Andrew Allison

After the success of Ellie the simple steam tram Brian Carter had asked me if I would consider writing another construction series for Australian Model Engineering Magazine. I sent him a shortlist of possible candidates from which he selected a Gauge 1 ROD loco. This was to be coal fired, slip eccentric and to a scale of 10mm/foot. Having a mainline prototype loco would make a change from the predominately freelance narrow gauge 0-4-0 locos that were the usual construction articles in AME.

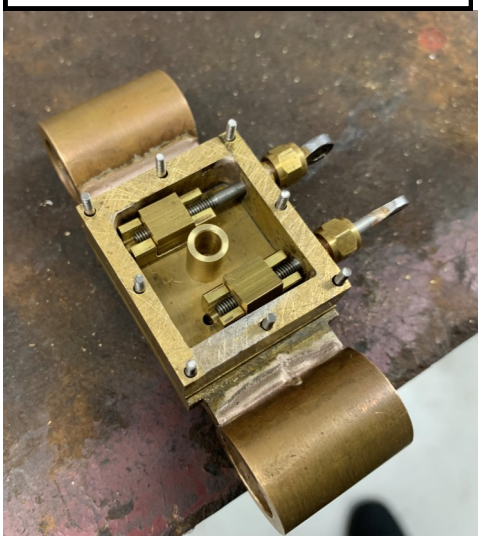
Construction started as design progressed with tender chassis and driving wheelsets completed and boiler commenced. 10mm scale had been chosen as it was the traditional gauge 1 scale and there were some useful detailing castings available from the UK. However I started becoming dissatisfied with this scale. At the time, I was also churning out 1:32 scale NSWGR wagons and Accucraft UK had announced that one of their forthcoming models would be a WW1 loco – which I suspected would be a 1:32 scale ROD. (I was wrong – it turned out to be the 2' gauge 4-6-0 WD Hunslet.)

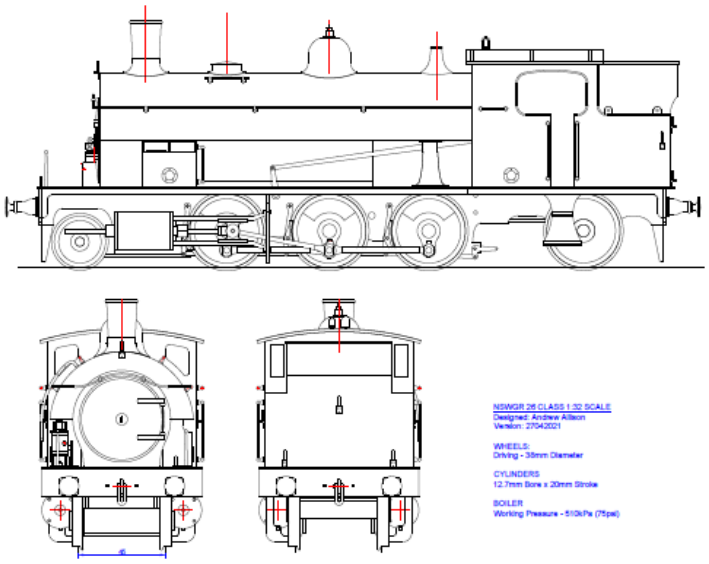
With the perceived imminent arrival of a commercially available 1:32 scale ROD, proceeding with the design didn't seem like a worthwhile pursuit. I considered other options for a standard gauge prototype loco. It didn't take long to decide on a NSWGR 26 class in 1:32 scale.

The 26 class had been one of my favourite locos since I was a child. 2605 had worked at Portland cement works until the early 1980s, after which it went to Lithgow for preservation. At this time it was located out on the Lithgow State Mine branch line surrounded by an easily penetrable chain-link fence. Many times I would have asked Dad if he could take us the see 'the black tank engine at Lithgow' – and many times he obliged for a Sunday afternoon excursion until one day, it was gone, having been moved up into the State Mine yard proper.

For a gauge 1 model, the 26 had lots to recommend it. First, the very distinctive, yet simple shape, makes it easier than most locos to make it look just right with no compromises needed. Second, being a smaller loco, making it suitable for 2 metre radius curves was possible. Typically 1:32 mainline prototypes really need 3m minimum radius and this usually makes it outside the scope of many backyards. Butane firing, with slip eccentrics and scope for radio control on the regulator completed the specifications.

Cylinder monoblock showing common steamchest.





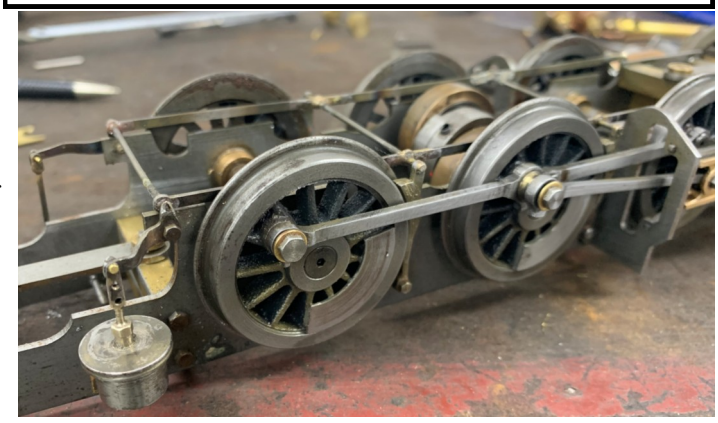
Unlike most NSWGR locos, lots of rivets are not a distinctive feature of 26 class. Forming scale 1:32 rivet heads (usually with a press/embossing tool) is very difficult to get right, and even when done well, can end up looking too obvious. The only method I think suitable would be to get these items commercially etched, however that was beyond what I wanted to get involved in, and decided early on I would not attempt to replicate rivet detail.

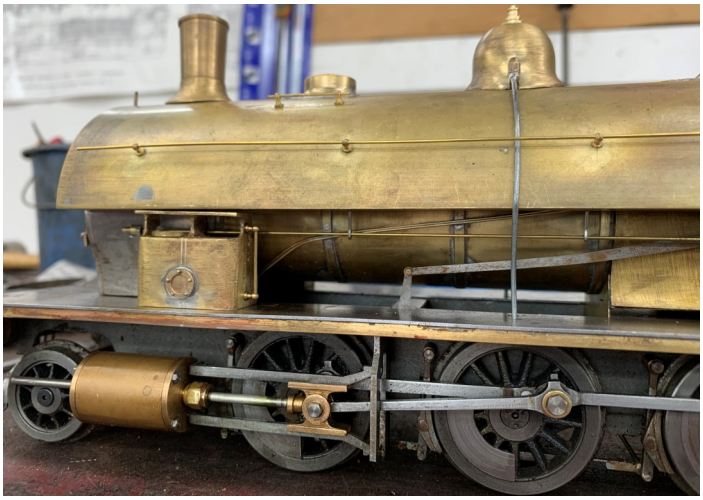
As it was to be a published design, considerable time was spend on design and drafting, trying to do a thorough job and optimise and ensure it was as practical as possible to build and would not cause builders any undue stress. A lot of care was taken developing files for laser cutting to try and ensure maximum effect was gained from this method. The Frames, buffer beams, rods, footplate, cab and bunker were all laser cut profiles, with all holes either spotted for opening out or cut to correct diameter, simply requiring tapping or reaming.

Some of the other parts that would be difficult to make were 3D modelled for printing in wax and lost wax casting in bronze. These items include the crossheads, whistles, lamp irons, sandbox hatches, air compressor, buffer stocks and distinctive saddle tank support pillars. Some people might suggest producing all these items by more modern manufacturing techniques is cheating. All I will say is that they have probably never done it!

The wheels posed a bit of a problem as no suitable castings

Underside showing brake gear details and large eccentrics.





Almost complete. Blower valve with control rod, lubrication lines and sandbox.

existed, nor did I know of any foundry locally that would be able to do something as fine as I wanted. I approached Walsall model industries in the UK and asked if they would produce suitable wheels. To my surprise and delight they agreed. They supplied their wheels as either raw castings or machined. They are machined like Romford HO wheels with a square machined in and a countersunk screw to secure the wheel onto the square ended axle, making quartering automatic. Needless to say I was very impressed.

The valve gear and cylinders was almost exactly the same as what I had previously developed for the ROD design. The cylinders are unusual in that the valves are horizontal, in a common steam chest between the cylinders rather than vertical like the prototype. The cylinders and valve face are all bronze and silver soldered together into one monoblock. This method is potentially slightly more complex to construct however the benefit is it reduces components and makes valve setting much easier. The eccentrics are as large as possible to maximise bearing area and the valves have long lap and long travel. The design provides 75% cut-off.

The boiler is of little significance being nothing more than a tube with a single 19mm flue inside and bushes in the appropriate positions. I made 4 or 5 different gas burners trying to work out a suitable arrangement. While all worked to some degree none worked that well. I ended up simply copying a roundhouse engineering burner and that worked brilliantly, but I must admit I don't understand the difference between my first attempts and the roundhouse burner!

The cab, saddle tank and other fine details were made in brass and steel. The chimney, dome and safety valve shroud were all machined, and hand shaped from brass. For anybody who thinks 3D modelling is the easy way out, try 3D modelling a chimney base. For me at least, the file and block of brass were the easy way out!

The large rear bunker was big enough to house the gas tank, RC gear and batteries, and these items are concealed from view with a dummy coal load. The cab also houses the displacement lubricator. A ½" diameter pressure gauge is in the cab and a Goodall water filling valve is located under the saddle tank water filler.

Brake gear, air tanks, ladders and other details were added to try and make sure that all the main shapes were represented. The regulator is the same as an Ellie, and the handle is arranged so the arm from a servo can easily be sprung on or off for manual or radio control. I must say that I don't really like radio control because it removes the tactile sensation of running a loco and there is more hassle with having to ensure batteries are charged before you want to run, not to mention electrical equipment in a steam loco environment is pretty vulnerable. Having said that, anyone who has ever experienced just how fast these little locos can take off will appreciate the benefits of RC.

Painting complete and reassembled. Coal load added to cover gas tank and electrics.

Painting was quick and easy using Rustguard satin black from a pressure pack. The numbers are actually 7mm scale decals from Stephen Johnson models. Lithgow depot had a tendency to paint their numerals quite small, and these appear just the right size when compared with photos of 2605 in the 1950s.

The loco has had a few hours of running with heavy trains and the only modification required has been to the pony trucks. The loco was set up as a 0-6-0 with the pony trucks just for show. Initial tests showed on sharp radius corners with a heavy train bunker first the rear truck tended to lift the inside wheels, which had the potential to cause a problem. Some sprung plungers were added to the trucks and this has cured that problem.

The demise of AME is certainly disappointing and am still considering what to do with the design that was being prepared. However I am happy that I now have my own little 'black tank engine at Lithgow'.

2605 on the state mine branch in 1989 with Michael (2) and Andrew (4).

The Ploughing Engine

Ross Bishop

Components of my ¼ size Ploughing Engine model have occasionally featured in Show and Tell at the club with pictures appearing in the Saturday Steamview Reports. After 5 years of concentrated effort, the engine is within a stone's throw of being finished; possibly even before the year 2021 is out…maybe!

In its present state, I am unlikely to bring it to the club again before completion so I thought it might be of interest to see where I'm at, at least in pictures. The task conceived in 2015 has been to create an authentic model 16hp Single Cylinder Ploughing Engine as produced by the Steam Plough Works, Leeds, England circa 1880.

To reiterate the origins of the model, I purchased a crate of castings & materials from UK which contained the beginnings of two identical engines of a type described by John Haining in Model Engineer in 1984. Haining's designs were 2" scale – these materials were for 3" scale engines which are much larger being roughly 6ft long x 4ft high and weighing around ½ a ton each. (1.8m x 1.2m x 500kgs).

I expected the job to be challenging. That is the point after all! And it certainly has been. Without drawings to work to or even a prototype to see up close. However, with the internet these days, an amazing amount of historical material can be referenced and people with all kinds of knowledge willingly contribute. This aspect of the task has been extremely rewarding and has lead me off on many interesting avenues of enquiry.

I have been building one of the engines and Jim Mullholland has been making progress with the second set of parts.

On analysis of quality and suitability the gears & shafts, including the crankshafts, were discarded and remade. The greatest items of the acquisition were the wheel rims which were machined from heavy wall pipe. They were nice and round and all the same dimension, which is nearly impossible by fabrication and really helped the repetition work with the benefit of jigs.

Jim and I worked together on the wheels with it taking eight months to build up the 4 rear wheels! With 1152 rivets (3/16" steel) to drill, bolt, hammer etc, I estimate almost 10000 individual operations were required! Majestic pieces when finished but, goodness, what a lot of work!

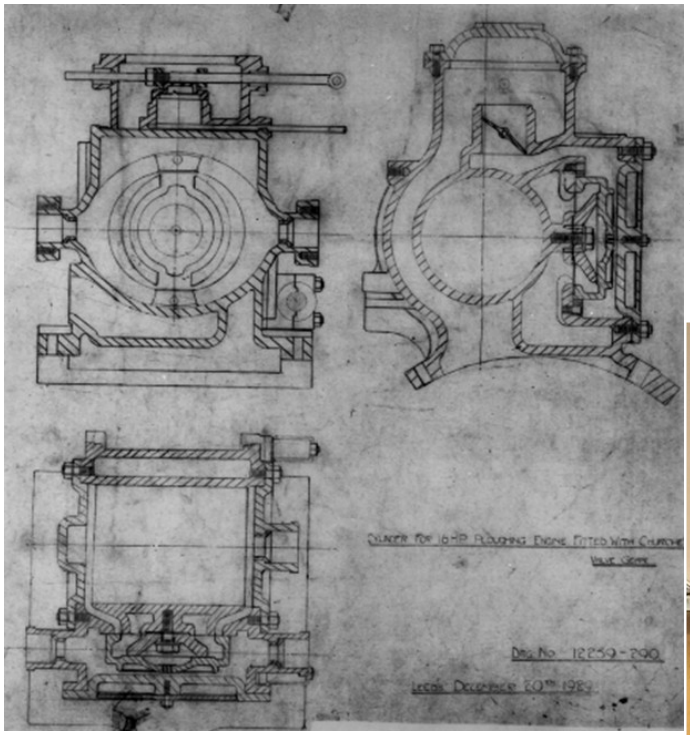
Perhaps the most prominent feature is the circular steam chest which housed a W C Church Patented Slide Valve which was in fact, a balanced slide valve, almost circular, working across crescent shaped ports.

With no discernible advantage in the Church Valve, and only ONE cylinder casting available to me in the entire world, I chose the conservative route and used a conventional valve instead!

Walter Charles Church evidently was obsessed with 'improved slide valves' having featured in the magazine "The Engineer" in 1876, convinced John Fowler& Co to use yet another patent design for a decade at least, as well as obtaining Patents with British, French, Belgian, Italian, Austrian – Hungarian and US Patent Offices (1892) for an

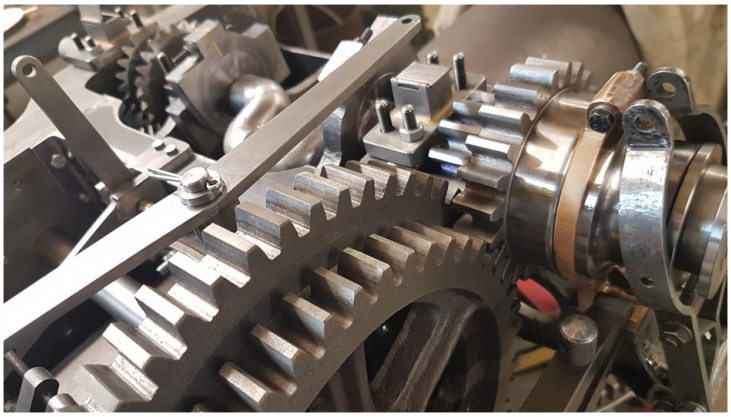
inside admission slide valve. The advent of piston valves probably spelled the end for Mr Church's inventiveness.

The pictures show the two speed selections for the gear train to drive the wheels – the straight cut spur gears - and to drive the winding drum under the boiler - the bevel gears. The pair of levers are to select high or low range and to engage the clutch for the drum when the cable is to be hauled in. Special attention was given to the look and feel of the levers and catch triggers.

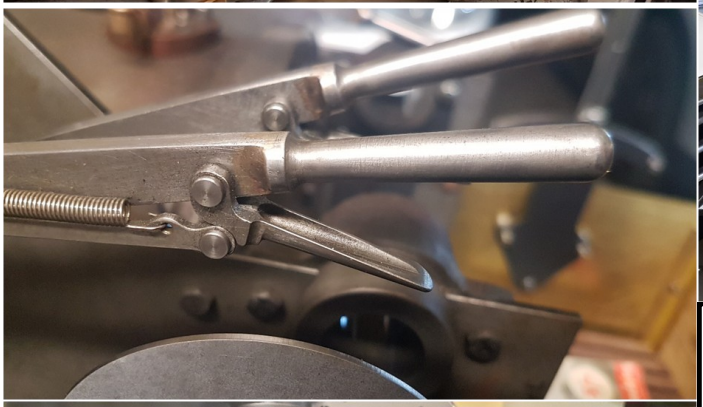


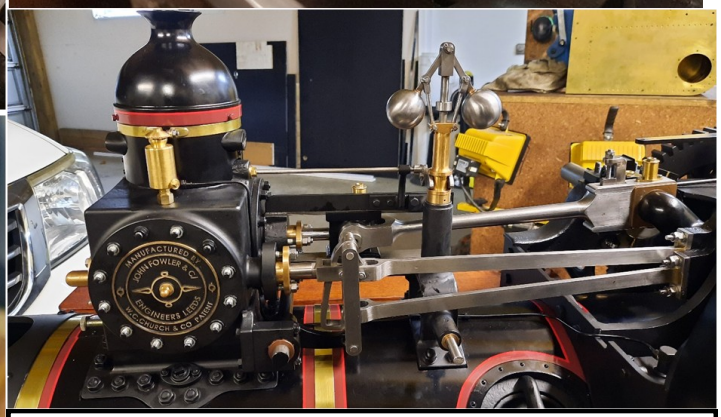
There's so much more! As of April 2021, almost all the machinery for my engine has been completed. It has had a quick spin with compressed air without any surprises. The remaining work consists of the tender tank at the rear, plumbing including making a 'special' injector, some gear covers and painting the wheels etc.

Thanks to correspondents abroad who supplied photographs and dimensions, I have been able to reproduce a scale replica of "the Oxford Column" – a water gauge fitting made by the "Oxfordshire Steam Ploughing Company" who rebuilt a number of the older engines in the early 1900's. Engines so treated were immediately recognisable from their "Oxford Fittings". Apart from capturing yet another piece of history in the model, the gauge is ideally suited to the small space available behind the third transmission shaft for which the location of one bearing housing can be seen to the right.

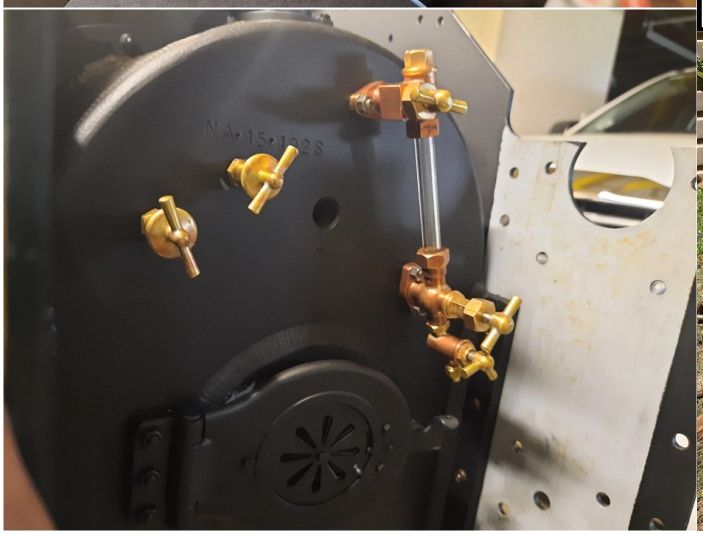


Another very visible component is the water pump which I have been able to faithfully reproduce by reference to a similar engine stored in the Powerhouse Museum Discovery Centre at Castle Hill. The pump was fabricated from bronze with quite a collection of shapes held in a special jig for silver soldering.





Left & above: More photos of Ross's ploughing engine components;
Below: The start of James' Yeoval depot turntable.



Turntable Construction

James Sanders

A scheme that I had toyed with in our move into the house we purchased included the relocation of my 5" gauge ground level track, as well as the potential for an elevated loco area, which included a turntable. At our previous residence, each time I wished to run I would have to lug boxes and lower them onto the track and steam up on the ground. This wasn't such an issue with little engines that you could pick up, but the larger ones turned out to be a bit of a challenge, not to mention somewhat hazardous. With our move, I had the opportunity to not only make the track more interesting, but construct something to make playing trains at home a little easier and more convenient.

The workshop space to be converted from an "outdoor entertaining space" into something a little more useful, required some windows. The one, which was intended to be near the turntable was put 900mm off the floor (a height which I thought acceptable for turntable roads) as well as being a similar height to the tray of my ute. I am sure you can see where my train of thought was going… This height turned out to be about right once I got to the turntable several months later.

Following laying the ground level track, making more straight lengths and then constructing a set of points,

thought was turned to how to get from the workshop to the track. Initially I roughly worked out where I wanted the centre of the turntable was to be, then welded up "track" to get from the 10 x 25mm ground level track up a ramp made from 8 x 50mm flat bar. The lengths of steel were roughly bent to radius, welded up in approximately 3m lengths and then laid out on the ground. From this I located where I wanted my posts to go in the ground, dug these and then concreted them in. The ramp track was in turn adjusted to height (with clamps and cross bars) and then welded to each of the posts. It is fairly crude, but does the trick. A spirit level was used to check superelevation (or lack thereof). Once I had the ramp, which terminated in the vicinity of the turntable, progress halted as I pondered what to do about the turntable. This I thought would be a fairly challenging job. Initially I intended on drawing up a NSW railways turntable and getting the parts laser cut, then welding together. Andrew Allison had a better idea, using a pair of universal beams cut with an angle grinder and then welded together in the outline of the turntable. He did some sketches and material was sourced from a steel shop in Orange.

My friendly neighbour happened to be in Orange just when the steel was ready and he brought it back in time for the Easter long weekend. I made a start on Thursday night, marking and cutting out the bottom shape with a 4" angle grinder and 1mm cut off discs. I think I went through 10 – 12 in cutting both beams, which is less than I thought I would use. I am not skilled with oxy cutting and didn't entertain the thought. Welding proceeded after church on Good Friday, with the top being completed by the afternoon. The UB Beam made it very quick indeed.

The post which "telescopes" with the one that is bolted to the concrete slab was welded direct to the turntable after careful checking with a builders square and a few tacks to hold it, after being sure it was in the right spot.

I stood the table up after the centre post was welded on to the deck and it seemed to balance ok. I dug out the vicinity of where I was planning to concrete the base in and used reo to make a spiders web and tacked it all together prior to concreting. The centre part is also attached to 4 all threaded rods to which the base post was bolted following concreting. To put the turntable in place I dragged the welded deck and post over to where it had to go. Upside down, I dropped the stainless steel centring ball in with some grease and then slid the post that attached to the slab in to the deck post. A bit of duct tape and 4 M8 bolts (which later acted as bottom bearings to accurately centre the deck) held the bottom bit in while I carefully lined it up with the thread all rod and then picked up the table and then tilted and dropped into place. No injuries were sustained thankfully.

The rails were welded on after the table was in place and I had levelled it with the bottom M8 bolts, which have since been replaced with "plunger springs" – a much easier alternative than a proper bearing at the base.

The other turntable roads were "lined up" from the turntable and a simple locking arrangement made like a mortise and tenon from 10 x 20 mm MS flat bar.

The concrete footings tieing in the roads to the central footing. Below: The sides cut from I beams. Is anyone surprised this photo was taken at night?

The finished article has made playing trains at home a very enjoyable exercise, steaming up and packing up are easier than ever. No lifting is required and it also means that I am able to work on things outside and leave the mess, outside.

Some Scenes from the recent

NSWGR Scale Day

at

Orange Model Engineers.

Opening of Bolton Scale Models Showroom.

E & J Winter has now opened a showroom and shop front in Unit 6, 11 Corporation Avenue, Robin Hill (Bathurst). These spacious new premises allow the full range of fittings and parts for the live steam hobby to be displayed to advantage. Proprieter Ben de Gabriel has worked hard to build the business and this will allow a proper consolidation in business premises so his home can become his home again! Visitors are by appointment to make sure they are there to greet you! Contact details are on the E & J Winter website at: https://ejwinter.com.au/pages/contact-us

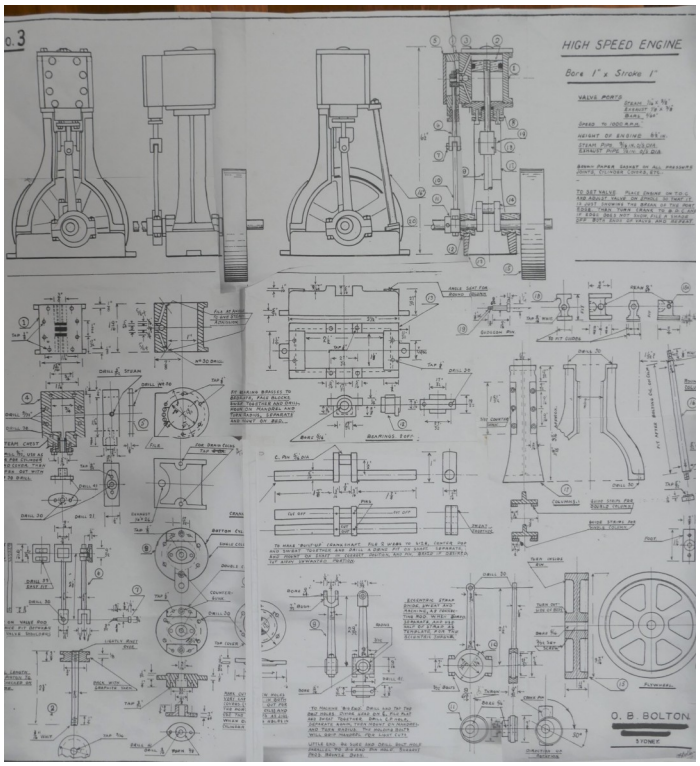
Garry Buttel & Warwick Allison were pleased to be able to attend the recent official opening on 26 March 2021.

Evolution of an Industrial Plant
Chris Denton

I have always had an interest in steam engines, probably going back to my school days when the 3.45pm train along the Cabramatta line was pulled by a steam locomotive (may have been the last one in suburban use?) For those silly enough to stay on the open platform at either end of the carriages meant getting covered in smoke and ash but it was something I remember with nostalgia. My other distractions including long work hours, woodwork, stained glass, bonsai, old motorbikes, travel, etc. meant steam "stuff" was pushed down the priority list. However, retirement opened up new opportunities.

Somehow, sometime in 2017 I stumbled onto the E. J. Winter website and a 1" x 1" vertical steam engine kit took my fancy. A quick transfer of funds saw a Bolton No.3 land on my doorstep. It was subsequently moved out to the shed and took up valuable bench space for several months.

Having a tempting project in-hand prompted me to "tool-up". In short time I purchased a second-hand lathe from a local tool merchant, a business loaded with old world character, and substantial amounts of my money. The lathe was an impulse buy and I could have done better but it did take away the main reason for not progressing on the engine. I have always been handy with tools but I am not a fitter or machinist so I figured a steep learning curve was ahead of

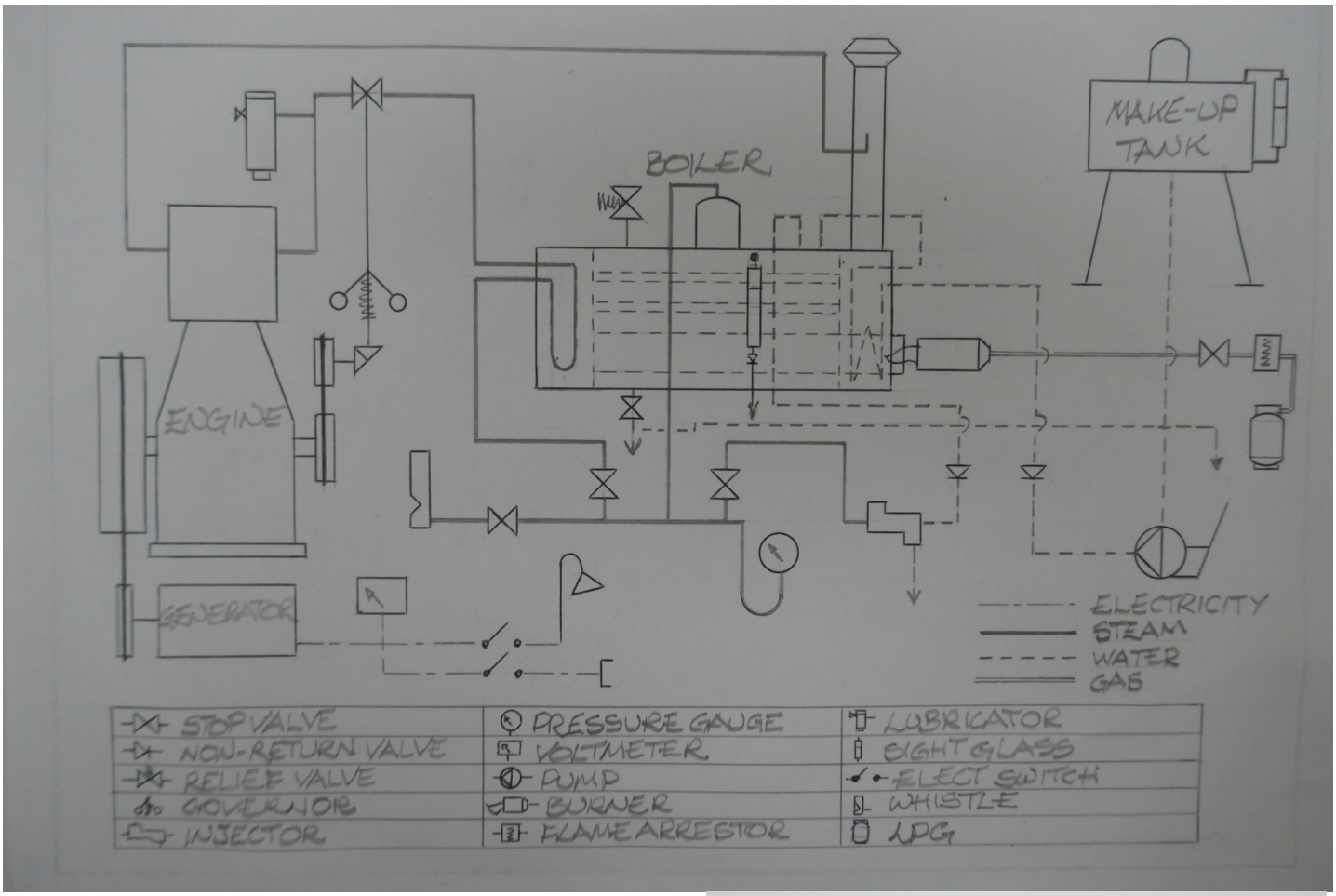


me. My deficiencies in the metal trades was apparent and I did what many in my position do, dived into the web and purchased more tools, including a new drill-mill.

The drawing with the kit was basic, sometimes illegible, and in imperial units. It is reproduced above. Luckily I was born into the imperial system and converted to metric during my mechanical engineering degree studies. The crankshaft (no parts supplied in the kit!) used pressed-together construction and it took three attempts to get it right (enough). Never-the-less I showed fair progress until I got to the crank-end, cylinder cover. The complex casting was completely wrong. I contacted the supplier and he supplied me with a chunk of bronze round bar and hearty encouragement. There is something strangely satisfying turning a piece of solid matter into handfuls of shavings.

After several months of shaving-making therapy and many trips to the tool merchant, the Bolton No.3 was ready for a bench test, pretty much as per the attached picture which includes a governor that was a later addition. I connected it up to my trusty compressor after first taking the precaution of installing a displacement lubricator in the "steam" line. It did not seem to supply much oil so a bit of investigation enlightened me on how the lubricator was supposed to work. Obviously I was not yet at the top of the learning curve. The engine "fired" up on the first attempt. I can't ever remember something working first-time before! I now had an operational engine.

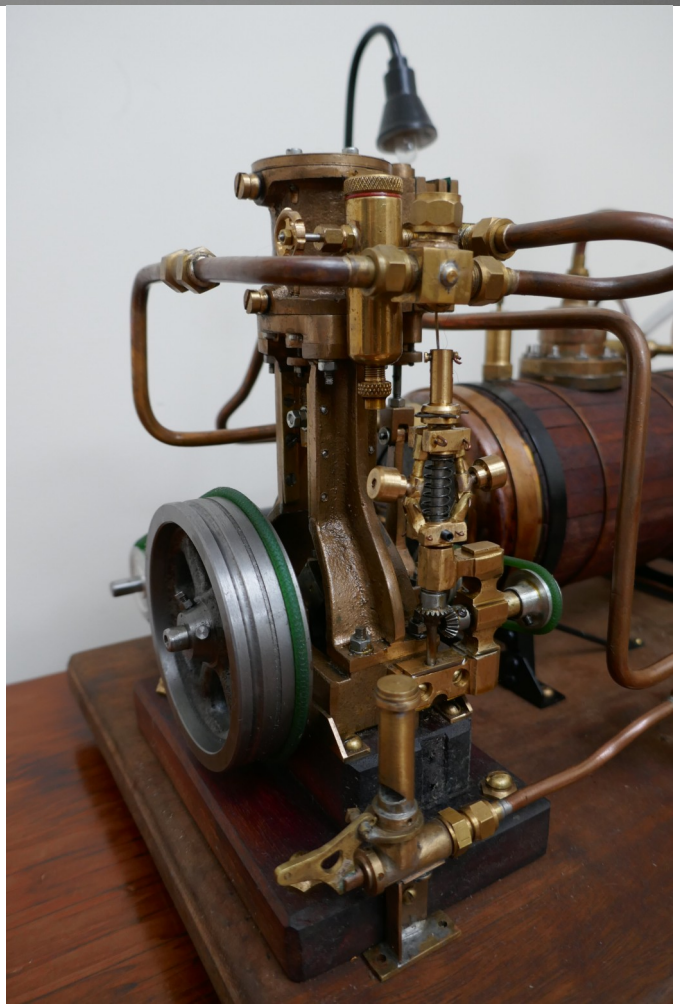
About this time it occurred to me that I needed something to run the engine, other than my compressor. It was time for a boiler. Sadly I knew less about boilers than I did about steam engines but never being one to shirk from a challenge, I set out to remedy that situation. Fortunately, I found a 1970's version of a book on model steam boilers (Model Boilers and Boilermaking by K. N. Harris) in a



second hand bookshop – one problem solved. I prepared a design based on 100PSI @ 500RPM engine speed. This was later down rated to 70PSI due to the availability (or more accurately the affordability) of materials. The drawings said the Bolton No.3 was good for 1000RPM but did not say for how long! I obtained a copy of the relevant Code for the boiler and became acquainted with the boiler inspection requirements. Seemed like I needed a boiler inspector. Where would I find one of them?

Obviously where there were steam engines. I first went to the Sydney Society of Model Engineers out at Luddenham and had a talk to people out there but I did not impress them and they did not impress me - and they charged me $15 to get into the place. Back to the web and I discovered SLSLS, not too far from my residence. So with my very basic concept design drawings I trotted off an open day and met Andrew Allison. He set me on the right path and the admission fee was waived. Awesome, two wins in one day!

I collected all the bits and pieces I needed and progressed the design and construction with assistance from Andrew and David Thomas. David put me onto oxy-LPG for the silver soldering. For ease of construction, and possible use in enclosed (ventilated) structures, I decided to also fire the boiler with LPG. More things to learn about, purchase and play with! After a few mishaps, including melting a 6mm thick flange, I eventually got all the boiler together and started the fit-out according to a design shown on the



attached sketch.

No-one told me how expensive this undertaking would be! The fit-out included a DC generator to provide a purpose for the engine and to run some lights and a power outlet. The whole lot was mounted on a sturdy piece of Spotted Gum left over from another project.

Eventually all was ready for a trial run and the boiler was fired up. The burner made a lot of noise, the boiler made a lot of steam (from a multitude of places) and the generator produced a healthy 6V as expected. However, there was a still some work to get all the bits and pieces to work correctly. Anyone handy with steam injectors? Obviously the previous first-time start-up was an aberration. After a bit of fiddling around the boiler was presented for its final inspection which it passed and now wears its certification number NA.20.227 with pride. Incidentally, during one of the trial "runs" the engine was recorded spinning over at 1450RPM at which point the boiler ran out of steam (sorry - could not resist the pun).

It was called an "Industrial Plant" in the register which is a fair description but somehow looks out of place with the more glamorous locos' descriptors.
All-in-all it was an interesting project and I have learnt a lot and become acquainted with a bevy of interesting characters at the SLSLS. I have decided to step-up and have another go and chose a traction engine as I thought a loco would be beyond my technical skills at this stage. I am now realising that was a mistake. I suspect the 80HP J. I. Case traction engine chosen, with its gear trains, clutch, differential, suspension, etc. is at least the equal in complexity to a loco. Time will tell.

Duty Roster.

June: John Hurst, John Lyons, Matthew Lee, Jim Mulholland, Martin Yule, Warwick Allison, Tony Kidson, Nigel Woolley, Bill Perrin, Eddie Jones.

July: Ross Bishop/ Neal Bates, Tony Eyre, Jo-Anne Topp, Ray Lee, Peter Wagner, Paul Taffa, John Tulloch, John Simpson, David Judex

August: Mick Murray, Andrew Allison, Mark Gibbons, Wayne Fletcher, Graeme Kirkby, John Noller, Ian Tomlinson, Glen Scott, Chris Denton, Warwick Reinhardt.

September: Evan Lister, Simon Collier, Garry Buttel, Barry Millner, Scott Murray, Graham Tindale, Paul Brotchie, Mike Dumble, Deven Shirke, Craig Deacon.

October: David Thomas. Bernard Courtenay, Greg Croudace. Stuart Larkin. Shaun Sorensen. David Lee. Brad Wilkinson. Geoff Hague. Martin Dewhurst, Ken Baker, David Coulshed.

Gate Roster and Track Superintendents: To be advised.

Two pictures of our April Running Day. Above: Warwick and V1224 on the inner main and below Arthur and John behind the heritage 4-8-2 heading up hill on the outer main. Both photos David Judex.

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Telephone: (02) 9874 8696. **Postal Address:** The Secretary, PO Box 453, West Ryde, NSW, 1685
Web Page Address: ***http://www.slsls.asn.au***
Public Running Day is the **THIRD** Saturday in each month from 1.30pm. Entry is $5 adults, $2.50 children. Rides are $2.50 each.
To ride on the trains, enclosed footwear must be worn.