



NORTHERN DISTRICTS MODEL ENGINEERING SOCIETY (PERTH) INC.

March — April 2009

Convention Day at NDMES by Nigel Sales

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After the fun weekend at Castledare with the 2009 AALS Convention, myself and my wife got up early on Easter Monday morning to get to the NDMES track and help with the arrival of Convention members for a day at our club track.

When we arrived we found Andrew Manning and John Shugg busy setting up the club room and Tony Jones in the tea

Above: Part of the line-up of visiting drivers and locos at the Station. Photo: Nigel Sales

room ready to welcome our guests, so Pauline and I decided to walk the track and clear any leaves and twigs and sweep up the club areas so our guests would get a clean and tidy reception.

(Continued on page 3)

CALENDAR OF EVENTS

General Meeting	Club Meeting Room Vasto PI, Balcatta	8:00 pm	Friday 8 May
Public Run Day	Club Track Site Vasto PI, Balcatta	11:00 am—3:00 pm	Sunday 31 May (to be confirmed)
AMRA	Claremont Showgrounds	Daily	Saturday 30 May to Monday 1 June
General Meeting	Club Meeting Room Vasto PI, Balcatta	8:00 pm	Friday 12 June

March General Meeting

The March General Meeting was held on Friday 13 March 2008 at the Society's meeting room commencing at 8:00pm, chaired by Milton Smith.

The full Minutes of Meeting are enclosed with Steamlines as a separate Supplement for members. Some highlights of general interest are reproduced here.

Resignation of President:

Milton Smith advised the meeting that he was moving to South Australia at the beginning of April. He wished to resign from the position of President and Committee member effective from the end of the March meeting.

Members accepted his resignation with regret and wished Milton and Jill all the best in the future. Appreciation for Milton's contribution to the Society as a founding member was expressed by members by a loud approbation.

Clive Chapman moved that *"the Society bestow life membership of the Society on Milton Smith in*

recognition of his long term contribution to the Society". Seconded by Ken Austin, the motion was carried unanimously.

Model Engineering:

Ron Collins outlined the various machining processes necessary to manufacture a 75mm shell carrier for Royal Australian Navy.

Andrew Manning showed the Rosebud grate for his rebuilt Springbok locomotive. It comprised 360 3.3mm holes. Three drilling operations were required to complete each hole.

The formal meeting closed at 9:15pm, and supper and a chat followed.

Note: As the AALS Convention was held at Castledare over Easter, there was no April General Meeting. The next General Meeting will be held on Friday 8 May.

Andrew Manning, Secretary

Acting President's Report for April

by Ken Austin

On behalf of all the members I would like to thank Milton Smith for all the excellent work he has done for the Society, particularly during his time as President. We wish Milton and his wife Jill all the best in their move to South Australia. We hope to see them back here in Perth from time to time, and perhaps we will see Milton's locomotive "Andrew G Trigg" when it is completed.

As Acting President, I will continue with the direction that Milton had set for the Society in his time as President. However, I am working full time and I have many other commitments, so I am unable to take on the position of President myself. I simply do not have the time available to give the position the attention it needs.

We have now called for nominations for a new President either at or before the next AGM.

If you would like to get more involved with the running and direction of the Society, please consider nominating for President. It would be useful if you have the time to participate in the Society's activities during weekdays.

To help spread the workload, we would like a member to volunteer to look after party bookings and enquiries, which is a good fund raiser that Milton was promoting.

Also, we would like a member who would be prepared to look after our advertising and chase up sponsorships for the Society. If you can help please contact myself or one of the Committee members.

As you are all aware, the AALS Convention was held at

Castledare over Easter, and our track site was open to Convention delegates on Easter Monday. We had a good turnout of visitors and members, and I received many very positive comments from visitors about our Society and our facilities, including compliments from outgoing AALS President Barry Glover.

I think everyone should be proud of what has been achieved by the Society and at our track site through the dedicated efforts of many members over the years.

If you are not a regular attendee at Society meetings, run days, working bees and other events, I urge you to get involved and to enjoy the facilities and the club fellowship that we have in the NDMES.

Ken Austin, Acting President

POSITIONS VACANT

Working Bees — Every Tuesday morning and Saturday morning there are members working at the grounds on various projects from leaf raking to earth moving and fence painting. Come along and get involved. Help is particularly required on the Saturday immediately prior to the Public Run days.

Ground Level Track — Assistance is needed from some of the stronger, younger and/or more able-bodied members to assist Tony Jones with laying sleepers and ballasting the sections of 7 $\frac{1}{4}$ " and 5" dual gauge ground level track currently being laid. See report on page 7.

2009 AALS Convention Day at NDMES (cont)...

by Nigel Sales

(Continued from page 1)

Not long after we arrived the steady flow of other members and Convention guests arrived, all intent on having a good steam running day.

Well, I am happy to report that the numbers kept growing with more and more visiting locos and attending crews busy unloading and steaming up their charges in the steaming bays. All the attending club members were thrilled as most of the steaming bays were in use and soon the track came alive with the sound of steam locos and visitors having a great time. Some members brought some items to show our guests including a part built Fowler traction engine by Paul Costall and Ron Collins, a collection of model engineering projects from Clive Jarman, and my own 3¹/₂" Hornby Rocket to add to the general show.



Above: Visitor Hugh Elsol had his 3¹/₂" gauge "Juliet" performing well around the NDMES track. Photos: Jim Clark

During the morning the tea and coffee with accompanying cakes flowed freely and a warm and friendly atmosphere was felt by all.

Then Andrew lit the barbie and a sausage sizzle was soon on offer to those who dared Andrew's cooking!! The comment was heard "How much are the sausages?" The reply was "Nothing". A further comment was heard "What a friendly club". The day continued with many happy people steaming up and enjoying a ride on the club track. Many drivers swapped locos just for the fun of it. Then the sky opened its doors and supplied us with some water but this only slowed the day, it did not stop it. As soon as the rain stopped the day again became alive with friendly talk and banter about engines and the like.

This was a most enjoyable day for all that attended and many nice comments were heard spoken amongst the visitors about the club's friendly atmosphere and our members, so WELL DONE THE NDMES! This proved to be another highlight in a packed weekend of steam fun.

Nigel Sales

Right:
Shane Ferris from
Queensland enjoying
a drive.



Below:
So, what are these
two likely lads doing
in charge of a steam
loco? Where's the
steering wheel, Ron?



NEW NDMES WEB SITE

The Society has a new Web site at www.ndmes.net.

This will provide a public face for the Society where people can find out a bit about us, see where we are, what we do and what's happening at our track site.

If you have any comments on the new Web site, or thoughts about what should appear there for the world to see, please contact me by email at:

jimclark@hardwareandsoftware.com.au

or you can contact me by phone (evenings): 9446 5870.

Thanks to Kevin Bradney for hosting temporary web pages for the NDMES on his personal Web site for the past few years.

Fowler—the “King” of Traction Engines

by Ron Collins

This is a short dissertation on the selection and building of a pair of Fowler Traction Engines which are currently under construction by Ron Collins and Paul Costall.

A Historical (and just slightly biased—Ed) Overview:

At the end of the nineteenth century and the beginning of the twentieth century traction engines and traction engine building was at its zenith.

There were many inferior manufacturers producing a large selection of mediocre traction engines.

The principal mediocre manufactures were Burrell of Thetford, Allchin of Northampton (*what?!! - Ed*), Foden of Sandbach, of course there was the Ransomes Sims & Jeffery, (sounds like it was manufactured by three different companies), and a large group of other run-of-the-mill companies.

Fortunately, amongst the mediocre traction engine manufacturers there was a shining star, the John Fowler & Co Ltd Steam Plough Works of Leeds, who designed and manufactured a complete range of distinctive, elegant and hard-working majestic traction engines.

As Hills dwellers of some distinction, Paul and I decided that only the best will do so naturally we selected the designs of John Fowler. The multitude of marvellous designs and attributes were narrowed down to a pair of 4” scale ($\frac{1}{3}$ full size) models of the traction engines designed and manufactured by John Fowler & Co Ltd.

Paul is constructing a 7NHP Class R.3 B.6 Fowler Compound Showman’s Road Locomotive, while I am building a 7NHP Class R.3 B.6 Fowler Compound Road Locomotive. The build specifications are similar, as the following table shows, however the end results will look very different.

Construction Progress:

The models were commenced about 4 years ago and both models are being built simultaneously. Progress to date has been slow but steady — unfortunately work keeps interfering with the hobby.

Smokebox and Front End:

The front wheels, axle and smokebox complete with chimney were commenced and completed first. The front end assembly is probably the easiest part of the traction engine and quickly provides a completed part of the engine to display – and admire?



Photos: Ron Collins/Paul Costall

The smokebox was machined from a length of heavy wall pipe and the tapered chimney was rolled from stainless tube.

4” Scale Model Specifications:

	Showman’s Engine		Road Locomotive	
Length	2235mm	(7’ 4”)	1980mm	(6’ 6”)
Width	762mm	(2’ 6”)	762mm	(2’ 6”)
Height	1143mm	(3’ 9”)	1143mm	(3’ 9”)
Approximate Weight	650 kg	(1430 lbs)	610 kg	(1340 lbs)
Working Pressure	700 kPa	(100 psi)	700 kPa	(100 psi)
Cylinder Bores	70mm (2.75”) dia. HP and 102mm (4”) dia. LP (compound)			
Stroke	102mm	(4”)	102mm	(4”)
Flywheel Diameter	457mm	(1’ 6”)	457mm	(1’ 6”)
Rear Wheel Diameter	710mm	(2’ 4”)	710mm	(2’ 4”)
Front Wheel Diameter	457mm	(1’ 6”)	457mm	(1’ 6”)
Number of Speeds	3 Speed, 4 Shafts		3 Speed, 4 Shafts	
Boiler Type	Steel Locomotive Type built to AMBSC Code			
Boiler Diameter	229mm	(9”) dia.	229mm	(9”) dia.
Boiler Length	967mm	(3’ 2”)	967mm	(3’ 2”)

Fowler — “King” of Traction Engines (cont...)

by Ron Collins

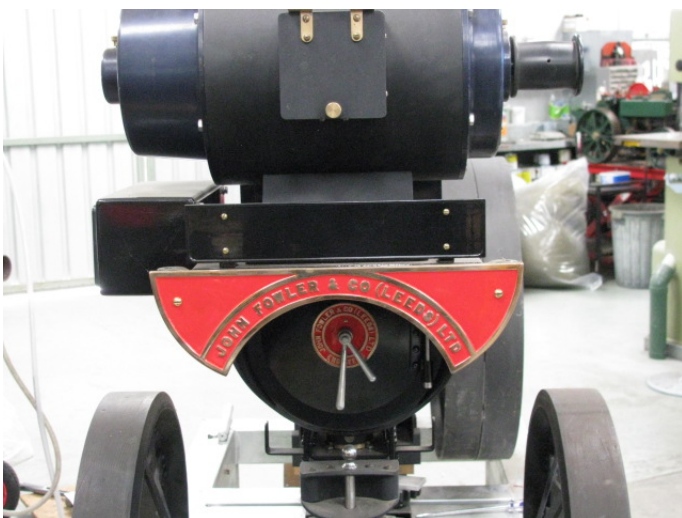
(Continued from page 4)

The application of heat resistant paint that slowly peels off and requires constant renewing was deemed unacceptable. Research was conducted and we decided to have a thin layer of a ceramic coating applied internally to protect the smokebox and chimney. The ceramic coating is designed to handle high temperatures and provide an insulating hard coating to the surfaces.

The external surfaces were coated with high temperature Black Satin Teflon coating to provide the corrosion protection and provide the necessary aesthetic appeal.

The front wheels were straight forward rolled flat bars with a ring welded in the centre and the weld ground smooth and flush. Spokes were laser cut and riveted onto the rim by conventional hammering and swearing. After that we decided the 320 rivets in the rear wheels were not going to be installed in the same manner!

The axle, hubs, perch bracket, smokebox door and miscellaneous components did not represent any great challenges. The smokebox on the Showman's engine was extended to provide the platform for the generator.



The generator housing ends were machined from solid 250mm diameter aluminium and the centre was machined from a length of steel pipe. The generator is a Ford alternator mounted inside the pipe with room for a small battery. The alternator will provide sufficient power for the canopy lights.

Boiler Construction:

The boiler represented a different set of challenges—we had never constructed a steel boiler before. The AMBSC Code was consulted and a complete set of construction drawings were prepared.

The drawings provide a guide for weld preparation and construction as well as providing the necessary details

for our Boiler Inspector Phil Gibbons to view and approve.

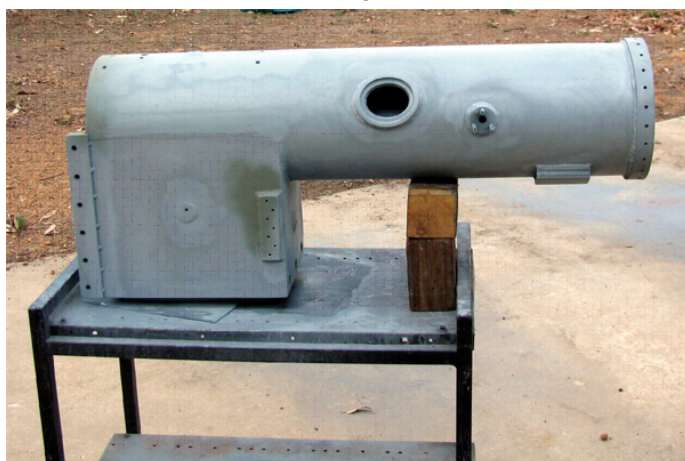
The boiler shell is 228.6 (9”) OD and this represented a problem as there is no standard seamless tube of that diameter. We decided to purchase a couple of lengths of low carbon hollow bar and machine the external diameter and bore out the centre to the 10mm wall thickness.



A considerable amount of swarf was generated, however the end result was a smooth external barrel of the correct size.

The boiler plates were laser cut and all the necessary weld preps were either machined or ground on the plates. The prepared plates and barrels were shown to Phil Gibbons and approval was obtained to continue.

The boilers were tacked up and prepared for welding. Dimensional checks were made as the boiler is really the whole chassis of a traction engine.



The boilers were fully welded prior to expanding the copper tubes into the tube plates. Then the completed boilers were plugged ready for pressure testing.

(To be continued next issue)

Ron Collins

The Foundry — Johnston & Wells Part 2 by Andrew Manning

A description of Andrew Manning's experiences as a boy in a general engineering works — continued from the January-February issue.

Whenever I had no work allocated in the machine shop I used to go out to the foundry to watch the moulders and talk to them. There was a constant banter going on between the moulders and they seemed happy to include me and answer my questions.

The foundry was a wooden structure of two bays. The right hand bay was the moulding floor — all black sand and moulds laid out on the floor. The cupola was at the machine shop end and the pit furnaces for bronze and aluminum at the other.

This bay was serviced by a hand-operated overhead crane. To traverse the crane up and down the shop there was a hand chain drive next to the right wall. The lift was by a standard chain block and cross travel required the hook and/or the load to be pushed across.

The left hand bay contained the core making area and the core oven, the moulding box storage and the casting fettling area. Between the two bays was the pan mill for preparing the moulding and core sands. Most of the moulding was done on the floor in moulding boxes, or for very big castings they were often moulded directly into the floor.

The process was quite well organised, with iron casting once a week. Casting was done in the afternoon. On the morning following the moulders and fettlers would work down each row of moulding boxes knocking the castings out, leaving them to cool and stacking the boxes in the storage area.

Once this was done, and the castings were moved to the fettling area, the used sand was heaped into rows and wet down slightly, as sometimes it was still very hot. The moulders were always keen to see any unusual or complex castings as soon as they were knocked out and scratched at them with their trowels.

A riddle—a sieve suspended below an electric motor spinning an eccentric and shaken by it—would be slung from the crane and positioned to move along the rows of heaped sand. The sand was shovelled into the sieve to remove the bits of metal and hard lumps of sand.

This process would progress over the next couple of days. The sieved sand would be damped down and mixed, two moulders would work together, one each side of the sand row, turning and mixing the sand as they progressed down the row to get a uniform moisture content.

This sand would be used as backing sand in the new moulds. The face sand was prepared in the pan mill and comprised a portion of the sand off the floor, fat yellow sand, coal dust, water and bentonite.

This was milled in the pan mill, the rotating pan taking the sand under a large roller and past spreaders that moved the sand across the pan to ensure uniform mixing and milling. Water was added until a handful of the mix could be firmly squeezed in the hand and it would hold the impressed shape when the hand was opened, without any trace of real moisture.

The person mixing the sand, and it was me during the latter times, would need to assist the mixing by positioning the shovel at the exit to the roller and scooping the sand from the wall of the mixer into the centre of the mill. I needed to brace myself and keep a strong grip on the shovel, but be ready to let go if it got away from me. The pan mill was unloaded using a shovel whilst the pan continued to rotate. The face sand was passed through a fine sieve and it was ready for use.

The face sand was placed against the mould and lightly tamped down, then backing sand was used to fill the box. The sand was tamped down using the handle of a shovel.

Once the pattern had been removed from the mould, the surface was dusted with a mix of coal dust and graphite as fine as baby powder. The surface of the mould was then very carefully tooled to give a very smooth and shiny surface. The runner and riser was cut as required and the mould closed up. The coal dust turned into gas when the hot metal entered the mould and helped to give a good surface finish to the casting.

I was allowed to do some moulding, starting on simple plates and pulley blanks and graduating to more complex cored patterns. Generally the moulds were made on the floor in the position they would be poured.

The types of things we cast varied from all sorts of pipes, straights, bends, tees etc. generally in 4" bore for sewer work, through to machine components, cast iron fireplace liners, and wheels. The biggest casting I saw was a new rim for the rear wheel of a steam roller. It was moulded in the floor using a trammel arrangement to scrape the circular outer face. The inner face was formed by an annular core. Flat sand-filled moulding boxes closed off the top.

(To be continued in the next issue)

Andrew Manning

7¹/₄" Rail Construction Report

by Tony Jones

The last week in February was a bit of trial and error for me as we tried to connect the curve from the turntable to the first points by the southern fence line, only to end up with a kinky tight curve to the points. It was far from satisfactory, so we left it a week to sink in and discuss it and come up with a better solution.

The conclusion was that we cut out the kinky bit plus some of the existing 15m curve and make up a transition piece that blended in much better. This was achieved by curving a single rail slightly, putting it on the jig and welding on all the ties so that when it is flexed and placed into position the ties arrange themselves radially to take the second and third rail. It is of course difficult to get down on my old knees and weld it all in place but I had good help from Ken and Ian.

We already set most of the rails on top of bricks to enable the placing of sleepers underneath. Once we were sure of the two curves coming together smoothly we rushed in the following session and placed two straight rails down next to the steaming bay. At that end of the curve we fitted the first of our telescopic connections, but did not cut it yet until the sleepers are in place.

The next session we retrieved the second set of points from where we had placed it to see how connecting up with the tunnel would look. It was only out in one light shower and had started to go rusty. The idea when we retrieved it and got it back in the steaming shed to complete the mechanism was that we would have something to do when the wetter weather arrived. So far the weather has been kind.

Ray gave us a hand by disassembling the first set of points as they had suffered from the damp coming from

watering of the playing fields. The moving blades were all removed and polished and greased properly and taped up to protect them from the weather. I scrounged some stronger springs from Boings (sounds like springs) and these were fitted to improve the motion. 200 hundred hot dip galvanised nuts and washers were purchased ready for the 7¹/₄" guys to come and bolt up the sleepers. They are ¹/₄" Whitworth.

This last session, 14 April, we have fitted the second set of points with stainless studs welded in place to improve on lost motion, which is always a problem. The links are mainly made from offcuts that I pick up from the bin at Di Lena Metal Sales.

As we all know the Convention was a great success and many guys said the 7¹/₄" track looked good, thereby creating interest for future use and an increase in members.

On Easter Monday I approached some of you working gentlemen and asked if you could come in on a Saturday or Sunday to lay a batch of sleepers. If you only come once a month and in twos or fours we would be very grateful for your help. Just give me a ring when you want to come and I will be there. There is plenty to do. Thanks.

Tony Jones



Above: Some of the new dual gauge ground level trackwork in place awaiting sleepers.



Left: Points in place in the south-east corner of the grounds.

Photos: John Shugg



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AALS Convention 2009 at Castledare



Above: Ken Austin
driving John
Wakefield's
magnificent SAR 15F
around the
Castledare track.

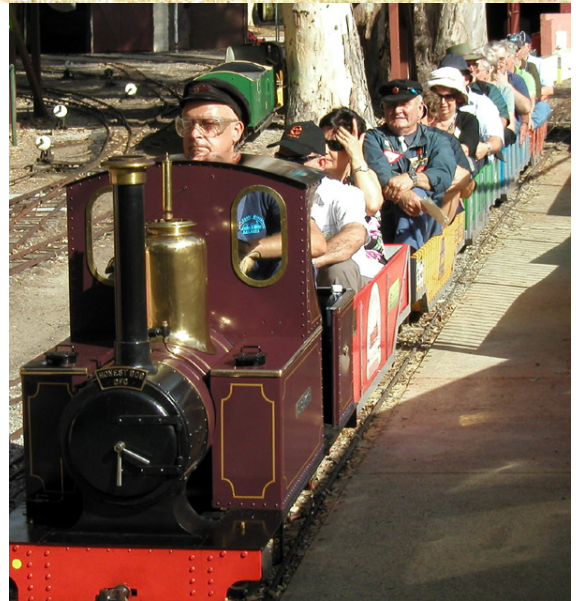
Photo: Jim Clark



Left: Nigel and
Pauline Sales with
Bridget at Castledare.

Right: The official
Grand Parade train
returns to the station.

Photos: John Shugg



NEWS ITEMS WANTED

As always, I need more items for Steamlines. Don't leave it all up to a few stalwart correspondents — surely you have seen something, been somewhere or done something of interest to other Model Engineers recently?

How about a few words and photos showing your current project, or an article about somewhere you've been? Or a short article on how you solved some workshop problem?

Remember, this newsletter can only be as good as the contributions that you, the members, make to it. So if you enjoy reading it, why not contribute to its content?

Please email your material to:

jimclark@hardwareandsoftware.com.au

or post c/o Secretary, PO Box 681, Balcatta, WA 6914

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