



# STEAMLINES

**Northern Districts Model  
Engineering Society  
(Perth, WA) Inc.**



**PO Box 681, Balcatta, Western Australia, 6914 Track site phone: 9349 0693**

**MAY 2006**

## Welcome to another edition of STEAMLINES

Again, there has been lots of activity on the model engineering front over the last month or so. The big feature, of course, was the 50th Australian Association of Live Steamers Convention, held at the Sydney Society of Model Engineers site in Luddenham, a western suburb of Sydney, close to Penrith on the Nepean River.

2006 is also the 100th anniversary of the founding of the Sydney Society of Model Engineers. Congratulations to the SSME on this remarkable achievement; only the second Society in the World to achieve this milestone, I believe. The Convention was a great event, attended by a significant (15%) proportion of NDMES Members. More on this later.

The southern palisade perimeter fence around our site was

penetrated last week: three palisades were levered off, probably by teenagers wanting to ride on the BMX track.

This raises a couple of issues. Firstly, we have many good levers in the form of lengths of pipe lying around on our site, and secondly, we no longer have a complete fence between our site and the BMX site. Both situations need fixing with some urgency.

The Inventors Association of Western Australia met in our Society rooms on Thursday 4 May 2006, on a trial basis. A Member of the NDMES Committee was present throughout this meeting to ensure that all went well. This Association is very keen to continue meeting on our site. It is likely that their close contact with the NDMES will be of considerable benefit to us. This will be discussed at our next General Meeting on Friday 12 May.

Your President, Dick Langford spoke to the Inventors Association Members present about the history of the

### NDMES - CALENDAR OF COMING EVENTS

General Meeting	Society Site, Vasto Place, Balcatta	8.00 pm	Friday 12 May 2006
Club Run Day	Society Site, Vasto Place, Balcatta	9.30 am to 4.00 pm	Sunday 14 May 2006
Birthday Party	Society Site, Vasto Place, Balcatta	10.00 am to 12.00 pm	Sunday 21 May 2006
Public Run Day	Society Site, Vasto Place, Balcatta	9.30 am to 4.00 pm	Sunday 28 May 2006
AMRA Exhibition	Claremont Showgrounds	See article on page 2	Friday 2 to Monday 5 June 2006
General Meeting	Society Site, Vasto Place, Balcatta	8.00 pm	Friday 9 June 2006
Club Run Day	Society Site, Vasto Place, Balcatta	9.30 am to 4.00 pm	Sunday 11 June 2006
Public Run Day	Society Site, Vasto Place, Balcatta	9.30 am to 4.00 pm	Sunday 25 June 2006

## Your Management Committee and other Society Officers



NDMES Secretary, Milton Smith (with oil can) and NDMES President, Dick Langford talking about steam engines to students at St Stephens School

<b>President</b> Dick Langford	9408 0081	<b>Vice President</b> Steve Reeves	9354 1395
<b>Secretary</b> Milton Smith	9444 9183	<b>Treasurer</b> John Shugg	9246 9549
Phil Gibbons	9390 4390	Paul James	9457 7175
Andrew Manning	9446 4825	<b>Position vacant</b>	
<b>AALS Competent Person</b> Andrew Manning	9446 4825	<b>Librarian</b> John Martin	9448 8843
<b>Publicity and Events</b> John Shugg	9246 9549	<b>Steamlines Editor</b> Dick Langford	9408 0081

Northern Districts Model Engineering Society and the Centre of Excellence in Model Engineering that you contribute to at Balcatta. His presentation included pictures of our site and models and some comments on our affiliation with the AALS and the history of model engineering in general.

### Australian Model Railway Association Exhibition

Over the holiday weekend next month, your Society will be participating in the Australian Model Railway Association Exhibition at the Claremont Showgrounds. The program for this event is:

<b>Friday 2 June: Set up exhibition</b>	<b>4.00 pm to 7.00 pm.</b>
<b>Saturday 3 June: Display &amp; rides</b>	<b>9.00 am to 6.00 pm.</b>
<b>Sunday 4 June: Display &amp; rides</b>	<b>9.00 am to 6.00 pm.</b>
<b>Monday 5 June: Display and rides</b>	<b>9.00 am to 6.00 pm</b>
<b>Monday 5 June: Pack up</b>	<b>6.00 pm to 9.00 pm</b>

This is a major fund raising activity for the Society and your help will be greatly appreciated. Steve Reeves is arranging a roster so that Members are organized to help at times that suit you. He will be working on this at our General Meeting on Friday 12 May 2006, or you can phone him to discuss a time to help that fits in with your other engagements and commitments.

As a helper on our display and ride, you are given free entry to the exhibition and we will make sure you have time to wander around and check out the electric mice in their various forms. There should also be some steam mice ready for inspection on their tracks. This is a great exhibition to take part in so please come along and help your Society. Our participation in this exhibition also introduces us to lots of families who eventually come along and enjoy our public run days at Balcatta.

### Private parties and other private functions & events arranged by Members at your Society's site

Society Members are very welcome to arrange family birthday parties and other private events at the Society's Vasto Place site. However, it is essential that these events be run in accordance with the requirements of the AALS *Code of Practice for the Operation of Miniature Railways*.

Your Society President and Secretary have signed an AALS document stating that this will happen and your Committee has developed a more controlled approach to approving these events. A form detailing the nature of the event and those Members and other people who will be attending must now be completed by a Member wishing to hold a private event and signed by the Society's Secretary, President or Publicity and Events Officer prior to the event

Private events include such things as taking a locomotive or miniature road vehicle to the site for a trial run. At these events, there must always be at least two adult people present on the site. Your Society is acutely aware of its duty of care responsibilities to you and your friends and family and is very keen to ensure that all events which take place at its Vasto Place facility occur in a safe manner.

Full details of this new procedure and application forms are available from Members of your Committee.

For family parties, and similar events, the Society expects a Member to make a financial contribution for use of the site. For trials and tests on models and the like, the site is available free. Keys to the site will be available from a Committee Member.

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## The Australian Heritage Festival

This annual event is held at the Jondaryan Woolshed, in southern Queensland about 45 kilometres west of Toowoomba. This year the festival's special feature is "Steaming under the Southern Cross". The organisers state that they intend to have as much steam operated machinery operating on the site as possible. The festival will run from 26 August to 3 September 2006. They are keen to have a good display of steam powered models performing in addition to the full size machinery.

If you want a holiday in Queensland where they say it is perfect one day and better the next (or something along those lines), program your trip around this festival, but be prepared for some chilly nights in Toowoomba!

## 50th AALS Convention



NDMES Vice President, Steve Reeves in paradise, driving John Hughes' magnificent 7 1/4 inch gauge model of a New South Wales Government Railways C38 Class locomotive at the 2006 AALS Convention

This convention was a very interesting event. The Northern Districts Model Engineering Society was well represented by Ken Austin and his wife Pat, Doug Baker, Bob the king of boiler makers Brown, Clive Jarman and his partner Linda Jennings, Ernie Redford, Steve Reeves and your President Dick Langford and his wife Noelene.

## 50th AALS Convention (cont)

The Convention was held at "Model Park", the track site of the Sydney Society of Model Engineers, a Society that was established in 1906. The 25 acre "Model Park" site was purchased by the Society in 1970 and now provides excellent facilities for miniature trains and road vehicles, model boats, cars and aircraft.

Over 150 miniature locomotives and steam powered road vehicles were registered at the convention and operated over the four days of the Easter holiday break. The locomotives ranged in size from small 1 3/4 inch gauge garden railway models to large narrow gauge prototype 7 1/4 inch gauge machines.

One interesting and different model was a railcar powered by an unmodified battery drill. The drill chuck was tightened on the railcar drive shaft and away it went when the drill trigger was squeezed!

For sheer size and beauty, Bob Nash's big American Southern Railway K4 prototype locomotive stands alone. From an intricate detail aspect, the little Shay engines on the garden railway were fascinating. A Hagans Patent locomotive, the prototype of which operated on the west coast of Tasmania was another interesting model. Some of the top action was on the elevated track where motion work on some 3 1/2 inch gauge locomotives was moving so fast it appeared as a blur.

Diesel outline locomotives covered a wide range of prototypes and standards of finish. Some look great, with fully lined and detailed paintwork and fittings whilst others were very plain. I suppose this happens to some degree in full size too.

The convention meals were interesting. My convention and conference experience suggests that the most remembered feature is usually the quality of the meals. I am sure that the 50th AALS Convention will long be remembered for its evening meals, but not because they were good. Lunches and morning and afternoon teas were excellent, but the two evening meals I received were not of a quality that I expected. The caterers let our SSME hosts down, I feel.

Barry Glover (NSW) continues as AALS President with John Wakefield (SA) as Vice President. Hugh Elsol (Qld) is Secretary and Ross Walker (Vic) is Treasurer. As Doug Baker remains Chairman of the AALS Safety Committee, only Tasmania is not represented on the AALS Board.

You may have heard that there is some unrest over insurance and Code of Practice compliance with some AALS Member societies. Where this will finish I do not know, but I believe that both the AALS Management and the dissatisfied societies need to raise the quality of their communications.

## Wanted to buy

Terry Kain is keen to buy a 4 inch 3 jaw and a 6 inch 4 jaw chucks for a Myford lathe. If you can help Terry, please phone him on 9582 3880

## Castings for sale

Castings set and drawings for a 7 1/4 inch gauge LMS Royal Scott locomotive available at a very reasonable price from Jeff Clifton (SWMEA, Bunbury). Phone Jeff on 9725 1994 for more details.

## Power hacksaw for sale

Your Society has an old, solid power hacksaw for sale. It needs a bit of maintenance and all new electrics, including motor. Talk to Dick Langford if you are interested in buying this machine.



## More photos from the 2006 AALS Convention at the SSME Model Park, Luddenham

Above: Part of the tender and cab of John Hughes' NSWGR C38 Class locomotive, 3806. Note the neatly fitted bicycle speedometer which indicates speed and can record maximum and average speeds, distance travelled and time run for each individual run and cumulatively. All our locomotives should be fitted with these electronic wizards. Their sensor system comprises a magnet fitted to an axle with a static pick up located close to the path of the rotating magnet.



Left: More fun in paradise with NDMES Member Clive Jarman and Linda Jennings enjoying a train ride on the extensive ground level track.

Below: A nice sunny day, a cup of coffee, a good book plus lots of interesting action to watch in the steaming bays provide a relaxing environment at the convention for Pat Austin (left) and Noelene Langford. What else do you need to have a good time?

## Arrangements for our 2006 Annual General Meeting

You may recall last year some Members showed some concern that other Members who were not financial could vote in the election of Office Bearers and the Committee. To manage this possible situation, your Committee has resolved that the following arrangements will apply in 2006.

Fees for the 2006-2007 financial year will be set by Members at the August General Meeting and will become due on 1 September and should be paid by 31 October. The AGM will be held in November, with only



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## Arrangements for our 2006 Annual General Meeting (cont)

financial Members being entitled to vote. A Member who has made alternative written arrangements with the NDMES Secretary to pay his or her fees in installments will be deemed to be financial and be entitled to vote. This arrangement meets the requirements of the NDMES Rules of Association so these rules do not need to be changed, as was originally thought necessary.

### A Useful Addition to the Lathe Article & photos by Bruce Weir Smith

I have recently purchased a Hercus 260 RT bench lathe to replace my aging Taiwan lathe, that despite all of the criticism of such lathes, has served me well over the last 20 years. This time around though, I was determined to finish off all of the small extras that you need before I started back on building my locomotive.

With Ernie Redford giving me a Hercus draw bar and Doug Baker providing the appropriate adapter to fit the spindle nose, I can now use my collet chucks. I purchased the collet chucks more than 3 years ago.

In addition to making a saddle stop (that Doug suggested was absolutely essential several years ago) and which I never quite got around to making before, I have always had difficulty in machining to close tolerances. If I took a measurement with a micrometer, I would invariably remove more than what I required. I put this down to the backlash associated with the compound slide on the saddle and the difficulty of bringing the tool back to the zero point before adjusting it to remove the additional material.

There was an article in *Model Engineer* last month where the author used a dial test indicator to reset the tool to zero and then adjusted the tool further for the next cut. I tried it out and it certainly worked giving consistent results. However, it was too clumsy to leave permanently attached to the lathe. While this strategy is nothing new, I then had a look at a digital caliper that had been given to me some time ago. The readout on the digital display was  $\pm 0.0005$  inches and the graduations on the lathe cross slide are 0.001 inch which meant that I should be able to achieve the same accuracy in a repeatable way.

Modifying the caliper was the interesting part of the exercise. Originally, I thought I was just dealing with stainless steel and I didn't appreciate that the things are hardened. The other concern was the nature of the transducer used to convert the linear measurement into the



Digital readout. Transducers that I have dealt with in the past used some form of mechanical interface, usually in the form of a slotted wheel or similar. My concern was that with the constant use, the thing would wear and create substantial errors.



On the practical side, to attach the device to the lathe required two holes to be drilled in the calliper, as shown in the photographs. The first hole is in the main body of the device which was achieved with a specially ground carbide tipped drill. The other hole is drilled in the moving leg. The heat from the hole drilled in the body of the caliper burnt the glue on the scale and as a result, it peeled back exposing the fact that I had just drilled through what appeared to be some form of printed circuit. The battery had long failed so I could not try the device and I held little hope of it working again. Not being backward in regard to pulling things apart, I disassembled the device to see what made it work. This is now the crux of this article. The devices do not have any moving parts. The etched cir-

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## A Useful Addition to the Lathe (cont)

Article & photos by Bruce Weir Smith

on the main slide provides accurate magnetic graduations (some form of rare earth) and is not an electrical circuit. So drilling through it did not create a problem. The type of transducer was not clear and the suggestion in a follow up article in *Model Engineer* suggesting the use of excited coils and measuring phase shift doesn't look right either. I will take a guess here and suggest that the transducer could use something like a series of "Hall Effect" devices or similar that react to magnetic fields. Their geometry would then allow the device to detect very small changes (phase shift) in the linear movement.

The calliper jaws were then trimmed down using a small 1.5 mm thick cut off saw and the calliper was attached via

a small bracket to the lathe using the bolt holes for the taper turning attachment. Testing would suggest that I have about 3 thou of backlash but I can now consistently make a cut accurately.

I am sure that the old hands at this game shudder in their boots at having people resort to such devices and I know 1 thou can be easily tested with a roll your own cigarette paper, but for those who only dabble on the weekend and do not have the benefit of 30 or more years of continuous experience, it does provide a useful aid to accurate machining.

My two photographs show how the device is fitted to my Hercus lathe.

(Thankyou, Bruce for an interesting article. Ed.).

## Another photo from the 2006 AALS Convention at the SSME "Model Park" at Luddenham in Sydney

All Convention photos in this issue of *STEAMLINES* are by Dick Langford

This photograph shows a fine 5 inch gauge model of the 2-6-4-0 Hagans Patent articulated locomotive which operated on the 2 foot gauge North East Dundas Tramway in western Tasmania. The prototype locomotive weighed 41 tons and had a tractive effort of 19 340 pounds. For comparison, the 3 foot 6 inch gauge WAGR G class locomotives had a tractive effort of 13 800 pounds and the WAGR P class 4-6-2 pacifics



were rated at 23 600 pounds. So, the Hagans J Class locomotive was very powerful for 2 foot gauge, as is the 5 inch gauge version which is close to 1/5 full size. The two rear axles of the locomotive were carried in a bogie whilst the three front driving axles were carried in the rigid main frames of the locomotive. A complicated system of connecting rods and swivelling links transferred the drive from the two cylinders mounted conventionally in the locomotive frames to the rear bogie mounted driving wheels. Both the main frames of the locomotive and the bogie side frames were located outside the wheels so each of the five driving axles carried flycranks. The locomotive was fitted with slide valves operated by Walschaerts valve gear.

Only one Hagans locomotive was ordered by the Tasmanian Government. Its first trial in Tasmania was in July 1901.

The North East Dundas Tramway was 28.3 kilometres long and wound its way from Zeehan, over Confidence

Saddle to Williamsford. Loaded ore trains had to be hauled up grades of 1 in 25 with 30 metre radius curves for about 6 kilometres .

One of the most notable features of the line was the beautiful curved trestle bridge across the Montezuma River. This bridge crossed the river a few metres beyond the base of the 104 metres high Montezuma Falls, so trains were regularly covered in spray as they crossed the bridge. The bridge was 50 metres long and the track was 15 metres above the river and was curved to a 40 metre radius. No handrails were fitted to the bridge deck which was only 2.4 metres wide, so anyone who got out of a passenger train crossing the bridge had only a few seconds to ponder their future!

The North East Dundas Tramway was also the home of the first two Garratt locomotives. These K class 0-4-0+0-4-0 wheel arrangement locomotives commenced service in 1910 and had a tractive effort of 17 900 pounds, about 7% less than the Hagans locomotive's tractive effort.