



Newsletter of THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC

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January 2005
No 297

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TRACK RUNNING

This is held on the FIRST and THIRD Sunday of each month, from 1 pm to 4 pm Summer and 1 pm to 3 pm during the Winter. All club members are welcome to attend and help out with loco coaling, watering and passenger marshalling - none of the tasks being at all onerous.

Visiting club members too, are always welcome at the track, at the monthly meeting, or if just visiting and wishing to make contact with members, please phone one of the above office bearers.

Sender:- PNMEC
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This Months Featured Model



Chris Rogers 7.25" gauge model of the Adams Radial 4-4-2 Tank Locomotive

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REPORT of the NOVEMBER MEETING

This was the End of Year dinner at the Cloverlea Tavern. A good turn out of members and their partners enjoyed a pleasant evening with lots of chatter and a very nice roast dinner, just like the ones that 'Mum' used to make.



JANUARY MEETING.

Will be held on the 27 January 2005 at 7.30 pm SHARP, in the Hearing Association Rooms, Church Street, Palmerston North.

The theme for the evening will be,

“What I did over the holiday break”.

Your talk is to be backed up by your model or project, under construction or completed, and presented on the table for us to see.

COMING EVENTS

Sunday Running Day at Marriner Reserve Railway:

6 February 1 – 4 pm
20 February 1 – 4 pm

Mid Week run at Marriner Reserve Railway:

Tuesday 25 January 10 - 2 pm
Tuesday 22 February 10 - 2 pm

Please contact Doug Chambers
beforehand.

OPEN WEEKENDS

Whakatane Open Weekend

29–30–31 January 2005

Auckland Open Weekend

26–27 February 2005

Palm Nth Model Engineers

Locomotion 2005

5-6 March 2005

FOR SALE

Check the Buy Sell Exchange
page on the club website

www.pnmec.org.nz

A note from the Editor

Each year the Editor and Typesetter have altered **The Generator's** layout to make improvements. You will note it has quite a different layout this year.

If you like it, or find it difficult to read, please tell us and we will attempt to make the appropriate changes in the next issue.

The closing date for the next issue of The Generator is Friday 11 February

HAWKES BAY RAMBLES

By Doug Chambers

Most of you are aware that your editor and several other members of the PNMEC are enthusiastic motorcyclists. Jim Curtis and myself have spent many hours touring the back roads of the Hawkes Bay, Wairarapa, Manawatu and Rangitikei.

Saturday 27 November saw Jim and myself heading for Napier along highway 50 through Onga Onga and Tikokino. The purpose of our visit to Napier was to locate and view a steam locomotive and a diesel shunter both being restored by different groups.

We set about finding Napier Engineering Ltd where a Barclay 0-4-0 tank loco is being restored. Our directions were not very clear and Jim went into a hot bread shop to get directions. It turned out that the shop was patronised by the engineering staff and Napier Engineering Ltd was just down the road and along a side street. We found the workshop and although it was just after mid day there was one chap still working. He showed us the 'Barclay' and told us that a new boiler was being made for it. We inspected the locomotive and the outer shell of the new boiler. The barrel was about two feet, (600mm) in diameter and the boiler was about six feet (2 metres) long. The new boiler is steel of course and all welded construction.

Unfortunately the little Barclay No 531, was not in a position where it could be photographed.

When we thanked the staff member for letting us have a look at the loco, he told us that out the back was a triple expansion marine engine that had been in one of the Wellington Harbour Board tugs. Jim and I followed his directions and soon found it. Sadly the cylinder block had been removed from the engine and was lying on the ground beside the crankshaft bed. I estimate that the height of the engine when in one piece would be about twelve feet. Some years ago I built a model of a triple expansion engine (it was O.B.Bolton's design) and the one in Napier Engineering's yard closely resembles it.

Next to Napier Engineering Ltd is a scrap metal

yard and I noted an ex NZR Tr at the rear of the yard.

With the first part of our trip over it was time for a late lunch. Our sandwiches and tea or coffee were dealt with beside the Napier fishing boat marina while watching children catching small fish off the wharf.

After lunch we headed off down Marine Parade towards Awatoto. Before reaching Awatoto we turned off and eventually located Chris Sullivan's home. We found that Chris was away but his wife Cheryl was only too happy to show us around but only after she had given us afternoon tea !!

Chris has a collection of NZR signal equipment but the prime item of interest in his collection was the 0-4-0 NZR Tr. Of particular interest was that the Tr had started off as an EB (Electric Battery) loco.

It was later fitted with an AEC diesel engine driving a generator. Later on the AEC was replaced with a GM diesel. When Chris acquired the Tr it had a broken wheel. Fortunately he was able to track down another wheel. Restoration has started from the 'ground up' as at present the axles are out and the bearings are receiving attention. We were told that there are several others who are assisting with the overhaul.

Also on the property is an NZR goods shed, ex Napier yard. This had been moved by Brittons house movers in three sections. All the outside was examined for rotten timber and once that had been replaced the whole building was repainted.

I mentioned that I had seen a Tr in the scrap yard near Napier Engineering Ltd and Cheryl told us that she believed that it had come from the Ravensdown Superphosphate Works at Awatoto. It had apparently broken a wheel and when Jim and I rode past we saw that there was an NZR Dsb doing the shunting in the yard.

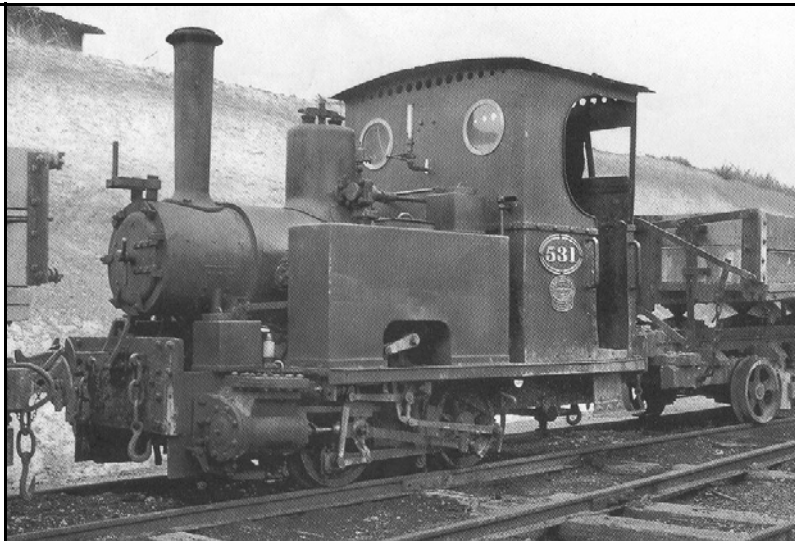
A successful day out, we were lucky to be able to track down both our targets.

PWD BARCLAY No 531

This tiny (7.5 ton) tank locomotive was built in Kilmarnock, Scotland in 1921. Built to an order from the Public Works Department No 531 was to see service in several different places around the North Island. The type of work the Barclay was involved in was track formation and later the realignment of track in the Auckland area. The cab was only 8 foot 6 inches high (2.55 metres) and the driving wheels were only 22 inches (550 mm) in diameter. The loco has Walschaert's valve gear.

Now owned by the Hawkes Bay Steam Society the Barclay is to be restored to full working order. Cab and running gear is almost completed, leaving the biggest hurdle, a new boiler till last. Funding has been achieved and Napier Engineering Ltd is making the new boiler.

It will certainly be good to see the engine back in steam with some track to run on.



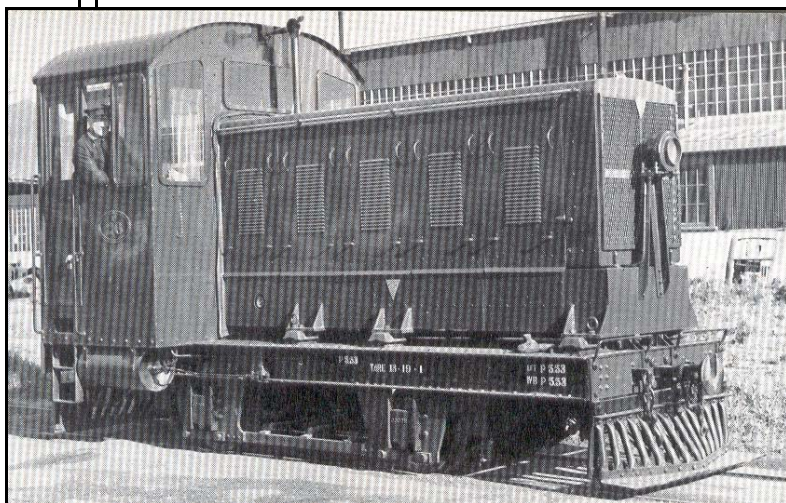
After 20 years during which continual problems were experienced with the batteries it was decided to convert all five Eb's to Tr's. The original electric motors were retained and a diesel generator set powered by an AEC 9.6 litre high-speed engine de-rated to 65 hp at 1000 rpm.

In some cases the AEC diesel was replaced

THE EB class (later converted to TR)

Five battery electric shunting locos were built by Goodman Manufacturing Company in Chicago in 1930 for light shunting duties in the NZR workshops at Otahuhu, Hutt Valley, Addington and Hillside.

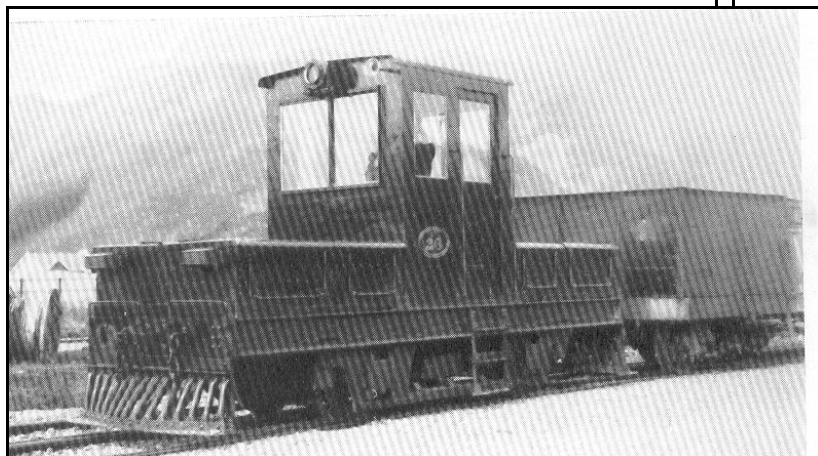
The photo below shows Eb 26 shunting at Hutt workshops.



by a GM or Gardner diesel.

Although not used on the mainline these were the first locally produced diesel-electric locomotives. Although only weighing 14 tons, one was known to have hauled a 140 ton steam loco in the workshop limits.

The above photo shows Eb 26 after conversion to a Tr.



THE ADAMS RADIAL TANK 4-4-2

by Doug Chambers

William Bridges Adams 1797 - 1872 was one of the most significant designers of the Victorian period.

After he left school he was apprenticed to John Farey, a steam engine builder. Poor health forced him to go to Chile to recover and while there he altered his vocation to that of railway engineer. Perhaps because he was bringing a 'fresh' mind to railway locomotive design, he was able to approach problems from a different line. He returned to England in 1837 and by 1843 he had founded the Fairfield Works at Bow, London. He designed several steam railcars but is best known for his design of radial axlebox. His first designs were tested on a 2-4-2 tank built by Cross and Co of St Helens for the St Helens Railway.

His idea was to allow a lot of side movement in the hornblocks. Side thrust springs were used to get the axle to self-centre in the frames. This eased the loco around curves, improving ride and reducing wear on wheel flanges and rails. Sir Nigel Gresley's A1-A3 class of which the "Flying Scotsman" is the best known, were fitted with a Cartozzi axle under the cab. This was Adams' Radial axle taken to the ultimate. The axleboxes were radiused so that the axle was effectively steering while the

locomotive was negotiating curves.

Next he turned to the 4-4-0 tanks of the North London Railway. Adams fitted one of these with a bogie having sideways movement. Side control springs consisting of rubber blocks were soon replaced with steel springs and this formed the basic design for the locomotive bogie through to the demise of steam!!

It is said that to convince his fellow and rival engineers of the superior ride capabilities of his bogie design, he had crude seating placed on the front buffer beam. With no doubt, one hand holding on to the engine and the other holding on to the 'top hat' these brave engineers perched on the buffer, while Adams had the loco driven as fast as practical over the tracks near the Fairfield Works. The superior riding qualities of the locomotive was evident right from the beginning and other designers followed Adams' lead. Other 4-4-0's of that time were all inside cylindered. Adams designed a 4-4-0 with outside cylinders and very large valve chests. In the smokebox was an annular blastpipe arranged so that the hollow centre of the blast cone drew air through the lower tubes of the boiler. This ensured that the lower tubes remained clear of ash, and a problem that had plagued locomotive crews was radically improved. For as the lower tubes became blocked with ash, steaming



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ability of the boiler was reduced. Long after his retirement, Adams' locomotives remained the finest in England.

In 1880 the London and South Western Railway approached Beyer Peacock with regard to building a 4-4-2 tank for London suburban services. The drawings came from W. Adams and by 1885 all 71 were in service being built by Beyer Peacock, Neilson and Co, R. Stephenson and Dubs and Co. They were known as the 0415 class. In the 1900's the suburban services required more powerful engines and the 0415's were gradually displaced to country regions on duties more suiting their power. Drummond was now chief engineer of the LSWR but the 0415's were not in need of modification or improvement. He did however have the original stovepipe chimney replaced with a lipped variety of his own design. In 1903 the LSWR had found the "Radial Tank" ideal for working the line from Axminster to Lyme Regis. The tight radius of the curves and steep gradients had taken a severe toll on other classes tried on the line. Stroudley "Terriers" and 02 class 0-4-4 tanks were among those tried out and found wanting. They suffered severe wear on their wheel flanges and inflicted high rates of wear on the rails. The Adams designed 0415's with their bogie in front of relatively short-coupled drivers and the trailing radial axle proved ideal for the line. Two of the class worked the line for the next 30 years and in 1946 the Southern Railway bought another 0415 from the East Kent Railway for 150 pounds. The locomotive had been idle for about seven years and it cost

Southern Railway 1500 pounds to get the engine back into running order.

The three 0415's worked for a further 15 years before being retired in 1960 after a working life of 75 years.

One, No. 488 was saved for preservation and is currently in storage at the Bluebell Railway.

What is truly remarkable is that these three 0415s had very little changes made to their original design during their long working life. Even when they were fitted with new boilers the original design was used.

As can be seen in the photo the Adams 4-4-2 tank was a typically handsome design, similar to most locomotives built in the Victorian era.

7 ¼" gauge ADAMS RADIAL Built by CHRIS ROGERS

About 18 months ago Chris was looking for another project having just completed a 5" gauge NER 0-4-0 shunting loco. The lines and size of the Adams appealed to Chris and plans were available. Chris had his own business in England as a professional model engineer, and he made rapid progress through the various stages. It wasn't long before the classic lines of the locomotive began to appear. A couple of months ago the loco looked magnificent almost completed in brass. However after a test run it was dismantled for painting. Now reassembled and it is resplendent in the LSWR green with black and white lining, Chris is keen to get it on to the track and get on with the next project.



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