

## JUNE THIRD SUNDAY RUNNING

One of the coldest mornings this year but the sun was shining and we soon warmed up.

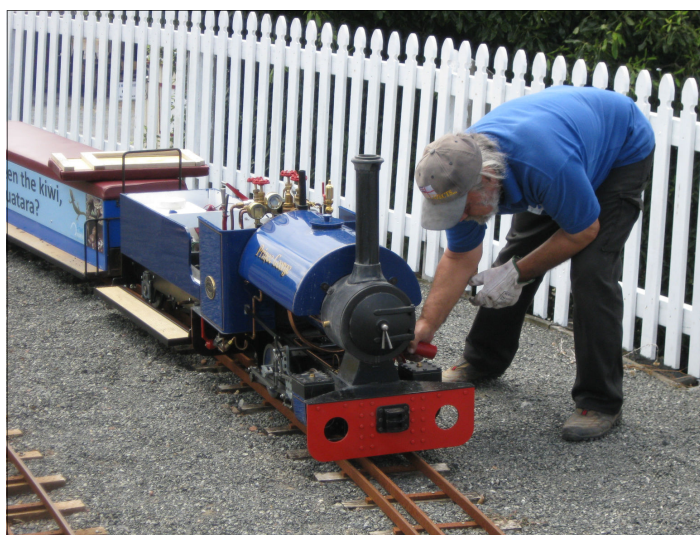
People looking for rides were there early and it caught us a bit on the hop because at 10 am we only had the Santa Fe in operation but that was soon rectified with the arrival of the DG on station.

There was plenty of smoke coming from the steam-up bay as Lloyd and Rodney prepared their steeds for the day ahead.

By about 11 am the crowd on the platform was well stretched out and was like that until about 12.30 pm when it died but came to life again about 1.30 pm for another hour. The sausage-sizzle was a sell-out, but I suppose it is better to sell out than have sausages that we would otherwise have to freeze and thaw out again in a month's time. They are always fresh this way.

Rodney has been working on "Prince George" and has apparently cured the safety valve problem. The loco went very well, working almost non-stop for about four hours.

Pictured below are some shots of "Prince George" in service and getting a squirt of oil in the right places.



Middle age starts when you think about how long a car will last rather than how fast it will go.

## CLUB NOTICES

Next General Meeting: Thursday, July 17, 2014.

Clubrooms, Western Hills, 6 pm [Clubrooms open at 5.30 for coffee]

3rd Sunday Running — July 20, 2014.

Mid-week Workdays — Mostly Every Wednesday.

Extra Running Days This Month:

**NONE ADVISED**

THESE WORK IN WITH  
MUSEUM "LIVE" DAYS AND  
OTHER EVENTS

## QUIZ — What is it?

For answer see Page 4.



## MAY THIRD SUNDAY RUNNING

This would have to have been one of the best Running Days on record.

Activities in the immediate area were a gymkhana at Barge Park which seemed to be very well attended and there was an oldies “bionic walk” event, and these two events must have had some bearing on our takings for the day. I also suspect that there was another fairly large group in the grounds.

The “bionic walk” is organised every year for “oldies” and others who have had hips and knees, etc, replaced.

There was a queue of people nearly the length of the platform for all of the morning and into the early afternoon and this necessitated the use of a big chunk of our available motive power and manpower. Both Rankin

and Lloyd had their steamers in action and Rodney had *Prince George* out for a trot to see if he had overcome the problem he has been having with safety valves. The problem, although a little better, still exists.

The DG and Santa Fe ran flawlessly for the day and the sausage department sold out because we unfortunately cannot see into the future.



A view overlooking the station and showing people waiting for rides.



And still they kept coming! Not that we were complaining though.

And the new seat opposite the station (although not finished yet) had its first customers and the hexagonal seat a bit further away was in use nearly all the time. Some of the loads that “Brad” was pulling had to be seen to be believed. At one stage I counted no less than 14 passengers whose weight would not have been under 16-stone each.

One of our members brought his extended family along to celebrate the birthday of one of their youngest.

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**Website:** wmec.org.nz





# Wednesday Workdays — By The Editor



Work has commenced on the viewing area just opposite the station and it is also proposed to install a small table and a seat where people can sit down and view the proceedings.

The construction involved the clearing of an area shrubbery and the digging out of the soil to form the area to erect the seat, etc. Concrete was not used in the foundations for



the fence, instead the soil was well-compacted around the posts instead.

The real workers in this little venture were Colin and John who I'm sure were glad to see the last shovel of soil thrown on the trailer. Then Lloyd and Tony the "fencers" moved in and nailed the pickets in place (*Oh no! not more pickets*), and this time round they were pre-painted, but none-the-less required a little touch-up here and there. I already had the paint out as I was still busy painting all the other fence pickets (still ~~150~~ 130 110 to go).

The club has recently won a whole heap of native plants, etc, from one of the local nurseries. So Rankin and Dave G went and picked them up. These will be used in the re-planting of some of the land over the tunnel. There is quite a lot of work involved in this project and if it is at all possible I will stay well clear because gardening and "things of the soil" are right at the bottom of my preference list.



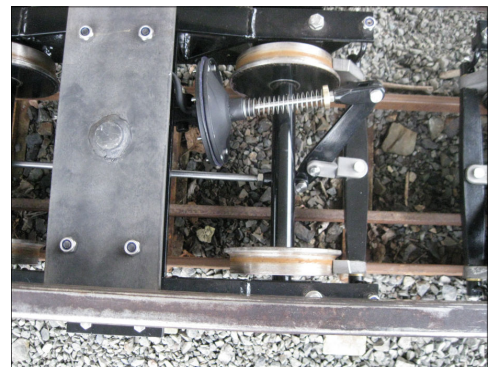
Rodney brought *Prince George* in to give a reworked safety valve a try out as in the past when it lifted it did not shut off soon enough and was almost emptying the boiler of water before closing. The test was not all that successful and the valve will have to be looked at further. During my absence the Wednesday Workers have planted approximately 150 shrubs, etc, on top of the tunnel in an effort to tidy the area up.

The wild weather early in June did not affect the track or the buildings (unlike in Auckland).

The last Wednesday in June proved to be a "fizzer" with frequent light rain and fairly cold. Some work was achieved in between showers. Colin had a go at building a block wall at the back of the new viewing area. It looked OK when it was time to leave but here's hoping that the rain didn't get to the mortar overnight. Hopefully the viewing area will be finished within two weeks.

Rankin brought the driver's ride wagon of his new locomotive in for a bit of a test push around the track to see if things were tracking OK. It would appear that they are.

Dave Gould also brought in an uncompleted small boiler he is constructing to run the engines he has made [see previous issues]. ■



## Other Club's Events:

**Eastern Bay of Plenty Model Engineers:** Annual Open Weekend, July 13-14, 2014

**Hamilton Model Engineers:** Mini Truck Show + Night Run, September 27th, 2014

**Havelock North Live Steamers:** Open Weekend, 24-27 October, 2014.





# ANSWER TO QUIZ ON PAGE 2:

## AN ELECTRICALLY POWERED STEAM LOCOMOTIVE

### *Electro-Steam Locomotives.*

ACCORDING to the statements of a Continental contemporary, which may presumably be taken seriously, experiments are being conducted in Switzerland to utilise electricity for raising steam in the locomotives employed on the railway systems of that country. A natural dearth of coal and wealth of water power suggests that the latter be turned to advantage, and as high speeds are neither feasible or desirable any elaborate system of accelerated traction is not needed. The superabundance of water power also would permit of the introduction of a system whose efficiency was below the

recognized standard, while any reduction of the initial outlay would be correspondingly welcome. Hence the proposed use of electrically-heated steam locomotives. The old types would require little modification, and beyond the generation and transmission systems little else would be needed. From the scanty details given it is difficult to conjecture what are the commercial possibilities of the scheme, but superficially it should appeal to railway men, as the old staff could readily be trained to the new conditions and either of the standard generating systems, alternating or direct current, could be used. Again, the cost of conversion could be gradually spread over the entire existing rolling stock.

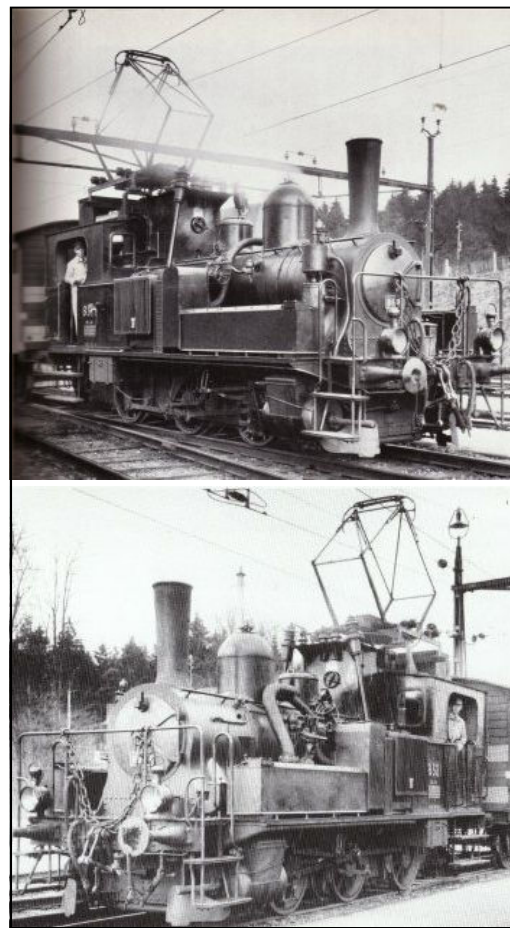
The Swiss Federal Railways had a highly electrified system during the Second World War, but retained little 0-6-0 tank engines for shunting. Due to war conditions coal was in short supply, but hydro-electricity remained plentiful. Therefore some of these small steam locomotives were converted to raise steam by electric heating. Power was taken at 15 kV, 16.6 Hz from overhead lines by a pantograph, and fed to resistance heating elements in the boiler, via two transformers rated together at 480 kW. Water feed was by normal steam injectors. These unique locomotives also retained the capability of being fired by coal in the usual way. Weight was increased by 7 tons to 42 tonnes so new springs were fitted. The savings were 700 to 1200kg coal a day. 300kg steam at 12 bars per hour could be generated. The heaters were the two boxes on the frame ahead of the coal bunker. The water was pumped from the boiler low point through the heaters and back into the boiler. Start-up from cold took only 1 hour, as a small coal fire was kept going. The costs for the conversion was 100,000 Swiss Franks per Engine. Electric lighting was fitted, with a battery charged from the overhead wire.

It was strange that power was distributed at such a low frequency; one obvious objection to 16.6 Hz distribution is that all the transformers would be three times the size of those for a conventional 50

Hz system. The answer is that due to the state of electric motor technology at the time, electric locomotives used serial wound commutator motors as traction motors. They were essentially DC motors running on AC. Without using electronics, it is difficult to control the speed of an AC induction motor. About 18Hz is the highest frequency where sturdy-built DC electric motors can be run safely with minor modifications. There will be occasional sparks and arcs at the commutators, but it is tolerable. Go over 20 Hz and you will have frequent circular-fire shorts on the current feed brushes, quickly destroying the motor." ■



**ABOVE:** One of the little 0-6-0 locomotives has been preserved but without the electric heating equipment.



**Both-side views of the general arrangement of the electric heater equipment.**

In the latter half of May and early June my wife and I paid a visit to Australia for our step-son's 21st birthday. The parents were two of the thousands of Kiwis that descended on Queensland to get well-paid employment in the mining industry. The 21st birthday was not the sole reason for the visit as there were other sights and things of interest to us.

The aforementioned function was a three-day event held at Noosa on the Sunshine Coast (Noosa is far from being my favourite area of Queensland). But we actually stayed in Noosaville, a much more friendly atmosphere that isn't wall-to-wall high-priced rag/perfume shops and eateries.

The family actually live at Tannum Sands which could be classified as a suburb of Gladstone about 25km down the coast and is about a day's drive north of Noosa where Jeff, our son, is employed as an engineer at a large manufacturing plant on the outskirts of Gladstone.

This time I hoped to be able to have a look at the local model engineers club, the site of which is at Calliope about 20km west of civilisation. Last time I was in the vicinity the entrance to the site was blocked off because of major roadworks in the area.

For those who might ask "did you have a good time?" then the straight cold answer is NO!!

A week or so before leaving I contracted a head/chest cold and it was touch and go whether we would cancel the whole deal. But things appeared to come right a couple of days before the flight. I still wasn't feeling all that bright when we boarded the flight at Auckland and about 20 minutes into the flight "pop" and I went totally deaf for the entire flight (the quietest flight I have ever made across the Tasman).

My hearing cleared slightly as we lost altitude on the approach the Brisbane, but it was still a pain the you know what. After picking up a near new rental car at the Airport we headed for Noosa Heads. We arrived at the designated accommodation but found the rest of the family hadn't yet arrived, so we went for a small tour of the township. It was at a coffee break the hearing in one ear suddenly returned, but it took until the next day for the other to come right.

In the duration of the stay on the Sunshine Coast two of the party booked the Friday for a skydiving jump (not me ... I'm a very big chicken). We went to Caloundra Airport with them for the briefing and then headed off for the jump landing site about four miles or so to the north and found that the weather was closing in. We could hear the aircraft circling above, obviously waiting for a break in the clouds. But it wasn't to be and the jump was rescheduled for the following Sunday. The would-be parachuters were very glad to touch terra firma again because all that going round and round and with abundant exhaust fumes entering the fuselage via the open door in the side of the aircraft.

The jump on the Sunday was in the finest of weather and both reckon they would do it again.

Then on up to Tannum Sands for the next 12 days. I spent almost nine days sleeping and coughing but managed to survive a trip to the local ME track at Calliope (paragraph 4). This time I was in luck as all the roadworks were finished and access was easy.

The track is set up in the grounds of the Calliope River Village Society. The site is quite large and borders on a main highway and the Calliope River. Exhibits on the site are well spaced out and the maintenance in some cases leaves a lot to be desired, however, I can understand their problem ... it's mostly the same in this sort of display everywhere ... lack of people keen enough to look after things and notwithstanding the fact that the average age of members is in the late 60s and early 70s, plus the age-old problem of not much money.

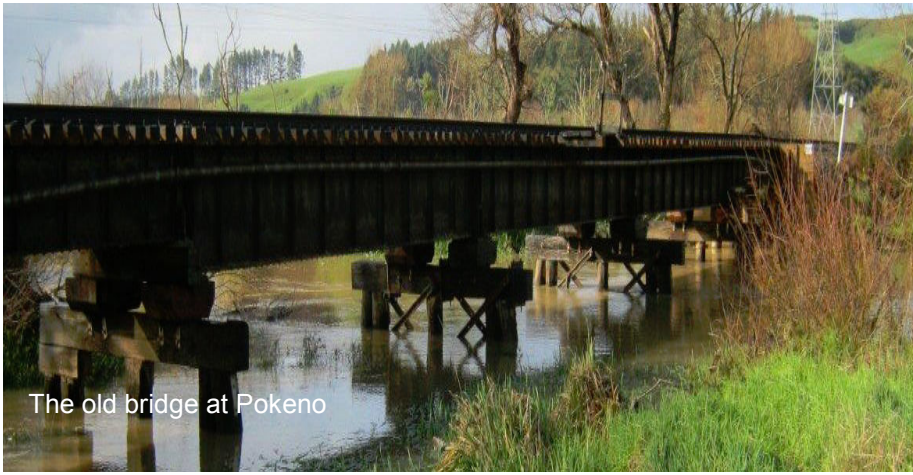
The venue is used for functions and can cater for quite large crowds and once a month they have a market day which apparently is very popular and attracts large crowds. During my visit an outside catering company was busy setting up tables, etc, for a function that evening.

I tried to ring someone who was connected with the ME track but to no avail. I wandered around and through the site. Track length would be, at a guess, about 350m long and oval, it has two gauges 5" and 7¼" and has a concrete base to carry the rail, this in turn is concreted to within about ¾ of an inch of the railhead — it must be quite a noisy ride. The whole area is fenced off from the general public.

Back to Tannum Sands. The Gladstone Regional Council (or whatever they call themselves) deserve a pat on the back for the effort that goes into the maintenance of the foreshore. There are covered areas that mostly have gas barbeques that are free, the odd one or two that are not gas have ready chopped wood supplied. The walkways are first class with a boardwalk in some instances. These facilities are also available at Lake Awoonga which is the water supply for Gladstone and the surrounding area. The dam at the outlet has just been raised another 10m to give added water storage and that has made the lake very large, the lake also contains abundant supplies of barramundi to keep the local anglers happy, although I'm told that barramundi that haven't been to sea are not a patch on those that have. They grow to humongous sizes.

**GEOGRAPHY:** For those not familiar with the Gladstone area, Gladstone is situated on the Central Queensland coast, a good day's drive north of Brisbane. It is a large coal exporting port that can handle four large bulk carriers at once and it's a good bet that at any given time there will from 8 to 18 bulk carriers anchored in the bay waiting to load for overseas. Busy, busy, busy. They are building large natural gas facilities on Curtis Island at the entrance to the harbour.





The old bridge at Pokeno

# Innovation drives bridge renewals

The use of new design concepts and weathering steel has the potential to drive down the cost and speed up the pace of KiwiRail's bridge renewal programme.

The new concept has been successfully applied to four single span bridges — two located at Pokeno and

the others at Pukekohe and Papakura. We had to find a more cost effective way of replacing existing bridges reliant on deteriorating timber piers. The four bridges included in the project show that this can be done by employing new designs and new construction materials, says the manager KiwiRail Structures Engineering.

The new approach involves three innovations — the use of weathering steel for spans and pier caps, the use of a Ballasted Through Plate Girder for the span design and the application of a waterproofing deck membrane. Weathering steel has been used for bridges since 1964 and has since been adopted throughout North America, Japan and Europe. It has significant advantages. It is a high strength alloy steel with very low maintenance costs as there is no painting required. In spite of this, there is no effective decrease in fatigue performance. This is, however, the first time it has been used for railway bridges in New Zealand.

The Ballasted Through Plate Girder (BTPG) is a concept design from North American Class 1 lines. A design was needed that could be modularised and installed quickly, but also had a high strength-to-weight ratio. The BTPG has all of those qualities and can be installed in 12 hours or less, with minimal disruption to train movements. A feature of the design is that the key elements are standardised and transportable. They can be fully assembled on site and then lifted or launched into position.

The waterproofing membrane used is a high performance product first developed by Stirling Lloyd with British Rail in the 1970's

It is a tough, flexible, seamless membrane that can be easily applied and cures within one hour of loading and is an airless spray application, which is also good from a health and safety perspective, and has excellent chemical and abrasion resistance. So there are lots of benefits here too. The ballast tray incorporated into the girder design is shallow and this provides for both improved height clearance and low maintenance costs.

This is an important design feature because it reduces online formation and renewal costs. It also makes future maintenance easier and less costly. Maintenance costs are a significant component of KiwiRail's budget and reducing these in the longer term is a key business objective."

Although weathering steel cannot be used in chemically charged environments, such as areas with heavy sea spray, or, continually wet sites, it is applicable in most situations.

The steel is strong, highly durable and requires minimal maintenance. "The renewed bridges have the capacity to handle train loadings that are increasing in axle weight and frequency. Yet they are more affordable than traditional construction methods and have reduced whole-of-life costs. It has been a very successful trial project and the new bridge concept could prove very valuable to KiwiRail.

The project was undertaken by engineering company Novare Design Ltd, contractors Albert Smith Industries NZ and steel fabricator Culham Engineering of Whangarei.

*theEXPRESS — KiwiRail.*



The new bridge at Pokeno.



# General Pics from Around the Site



## PHOTOS ABOVE:

1. Always lay the job out first and count things up.
2. Colin and John digging out the soil from the site of the new viewing point. Tony and Lloyd making a start on the fence.
3. Making sure that things are even.
4. Almost finished. Only two battens to go
5. I just happen to have a little paint left in the bucket so there is no use wasting it.

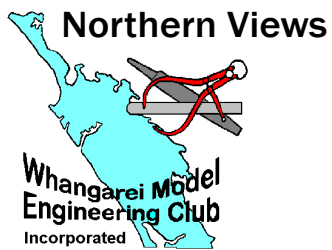
## BEHOLD ... A NEW SPONSOR

Donovan's Engineering Supplies of Port Road, Whangarei, have just become a sponsor of one of the new trollies that the club has built to increase our passenger carrying capacity.

The advertising is on both sides of the trolley and looks very smart indeed.

**A BIG THANK YOU TO  
DONOVANS**





IF UNDELIVERED PLEASE RETURN TO:—

Whangarei Model Engineering Club Inc,  
P.O. Box 10233, Te Mai, Whangarei 0143.