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# LIGHT RAILWAYS

## Australia's Magazine of Industrial & Narrow Gauge Railways


Light Railway Research Society of Australia Inc.

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**Imperial to metric conversions:**

| | |
|---|---|
| 1 inch (in) | 25.40 millimetres |
| 1 foot (ft) | 0.30 metre |
| 1 yard (yd) | 0.91 metre |
| 1 chain | 20.11 metres |
| 1 mile | 1.60 kilometres |
| 1 ton | 1.01 tonnes |
| 1 pound (lb) | 0.454 kilogram |
| 1 acre | 0.4 hectare |
| 1 horsepower (hp) | 746 Watts |
| 1 gallon | 4.536 litres |
| 1 cubic yard | 0.765 cubic metres |
| 1 super foot (sawn timber) | 0.00236 cubic metre |

# LIGHT RAILWAYS

**Australia's Magazine of Industrial & Narrow Gauge Railways**

**No 239 October 2014**

## Contents



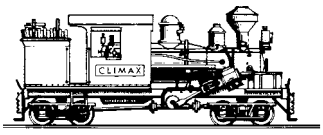
## Editorial

Long time readers may be aware this is the 100th issue since *Light Railways* transformed from a small black and white publication to the A4 format that we know today. Originally published with 32 pages, the magazine has grown to 40 pages with more colour – the constant factor being high quality articles on light and industrial railways. Where will the next 100 issues take us?

Continual, often subtle change has occurred in the production of *Light Railways* over the years and another change will be introduced, commencing with this issue. Regardless of how they are presented on the locomotive, names will now be in title case, and italics. This decision by council brings *Light Railways* into line with the style used across other LRRSA publications, and the Australian Government style manual.

As previously seen in LR 234, the LRRSA has established the JLN Southern award to recognize and encourage quality research and writing of articles on light railways. Turn to page 21 to see who the inaugural winner was. *Scott Gould*

***Front Cover:*** *The Metropolitan Brickworks Pty Ltd at Maylands, Perth was the last in Western Australia to use rail to convey clay from the pit to the plant. The two foot gauge line was originally worked by FC Hibberd 'Planet' locomotives, until these were replaced in about 1960 by three locomotives built on site. Lindsay Watson photographed one of the 'Planet' inspired locos in May 1980, five months before the operation came to a close.*




**Light Railway Research Society of Australia Inc. A14384U**
PO Box 21 Surrey Hills Vic 3127
**www.lrrsa.org.au**

The Light Railway Research Society of Australia Inc. was formed in 1961 and caters for those interested in all facets of industrial, private, tourist and narrow gauge railways in this country and its offshore territories, past and present.

Members are actively involved in researching light railways in libraries and archives, interviewing knowledgeable first-hand participants and undertaking field work at industrial sites and in forests.

Light Railways is the official publication of the Society.  Material submitted is subject to editing, and publication is at the discretion of the Editor.

Articles, letters and photographs of historical and current interest are welcome. Contributions should be double spaced if typed or written. Electronic formats accepted in the common standards.

Material is accepted for publication in *Light Railways* on the proviso that the Society has the right to reprint, with acknowledgement, any material published in Light Railways, or include this material in other Society publications.

# Transport & Industrial Index locomotives

*by John Browning*

In '*Built by Baldwin*' Craig Wilson tells a little of the story of the brokerage and agency company Transport & Industrial Index. Arthur Esgate, an Englishman resident in South Africa was recruited by Tulloch Ltd in 1956 to take charge of the company's new Traction Division.[1] Esgate left Tullochs under unhappy circumstances three years later. He was a complex character, intelligent and an excellent musician, but he was also boastful and prone to exaggeration. Unfortunately, his claims about his past do not always pass muster when closely examined, and there is much more to be written about his colourful career.[2] After leaving Tullochs, Esgate purchased a newsagency at Westmead, but soon became involved in a new venture, a brokerage and agency business dealing in machinery.[3] Bruce Macdonald, whose name would be known to many readers, initially suggested the name 'Index' to go with 'Transport & Industrial' during one of his visits to Esgate at his newsagency.[4] This new business quickly met with a degree of success, and Bruce Macdonald joined Esgate as an employee in 1961 to handle liaison with customers.

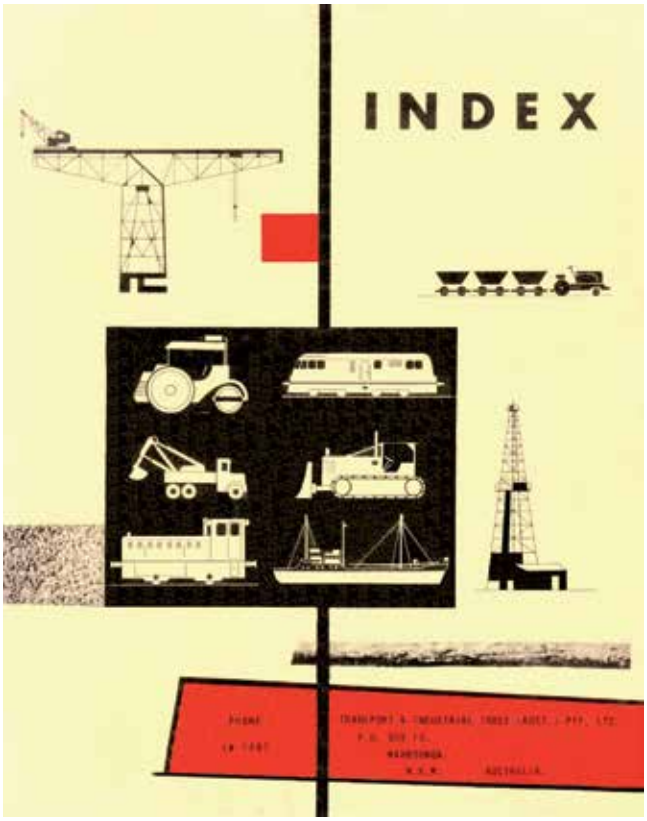
*Arthur Esgate in South Africa. Photo: courtesy Bruce Macdonald*

## The Index catalogues

The Index business was based above a shop at 8 Railway Avenue, Wahroonga, in Sydney. An innovative aspect of the business was that a catalogue was put out monthly from mid-1960, and some years ago the writer was delighted to receive from Bill Henderson a run of these from July 1960 (Vo.1 No.2) to November 1961 (Vol.2 No.10), with only the August 1960 issue missing. The catalogue listed a variety of plant offered for sale. It was folded foolscap size and consisted of a printed card cover within which were stapled pages printed by Esgate himself, using a Gestetner or similar process.[5]

Initially, the catalogues gave the company's name as Transport and Industrial Index (Australia) Pty Ltd, but from October 1961, it was Transport and Industrial Index (Brokers) Pty Ltd. It is understood that the reason for this change was that Esgate was concerned about possible legal action threatened by Bingera Mill in Queensland over three Ruston & Hornsby Model 48DL locomotives he had sold them that had been imported from southern Africa. Their condition did not meet the description that had been given and they were rejected. Two locomotives from this consignment ended up at Gin Gin Mill.[6]

The 'terms of business' that came to be included in the catalogues stated that advertising was free of charge, that Index did not represent themselves as sole agents, that a brokerage fee of 5% must be included in any purchase price, and that




*Cover of the December 1960 issue of* Index.

any plant advertised in *Index* must be purchased through the company (possibly a little hard to enforce!). Finance and leasing facilities were soon offered. The categories of plant for sale included boilers, cranes, compressors, diesel engines, dock and harbour equipment, electrical equipment, earth moving plant, materials handling equipment, mining and quarrying equipment, machine tools and locomotives.

Esgate presented Index as a highly experienced operation with significant market penetration. The second issue of the catalogue misleadingly implied that Index had recently entered the Australian market as a sequel to extensive successful activity in overseas countries. It was claimed that the first issue of the catalogue had been sent to 3800 companies in Australia and that the second would reach 5000 organisations.

There were other business practices used that might also be seen as a little questionable today but apparently were then commonplace among machinery dealers. Index did not always have approval to advertise the goods offered for sale. Some items listed were known to be for sale by competitors, some were listed even though not for sale, and some items were simply faked to round out the range and attract the interest of buyers.[7] Within the trade, machinery merchants co-operated on sales and wants, and if the sale of an item was secured other than by the principal agent, the commission was shared between the principal and secondary agent, providing a mutual benefit.[8]

If there was an enquiry for a non-existent item, Esgate would then try to locate something similar somewhere. If this proved impossible, he could claim that the advertised item had already been sold. It was the same for "wanted" items. If an offer of such an item was received, the potential vendor would be told that the enquiry had already been met but *Index* would run the item "For Sale" in the next issue, thus building up the listings.[9] Bruce Macdonald found it difficult to accept Esgate's approach to business, and before long went out on his own (as Industrial, Mechanical & Contracting Equipment) from August 1962 until returning to his previous engineering employer at the end of 1963.[10]

In December 1960, it was claimed that Index were agents for MaK (Maschinenbau Kiel) for diesel-hydraulic locomotives and Linke Hoffman Busche for diesel railcars and rolling stock. In April 1961, FC Hibberd 'Planet' diesel locomotives up to 180hp were added, with MaK for diesel-hydraulic locomotives from 200hp. In June 1961, the agency for John Fowler was also claimed, for diesel locomotives of 150 to 250hp. The quoted available power ranges of the other manufacturers were adjusted to suit.

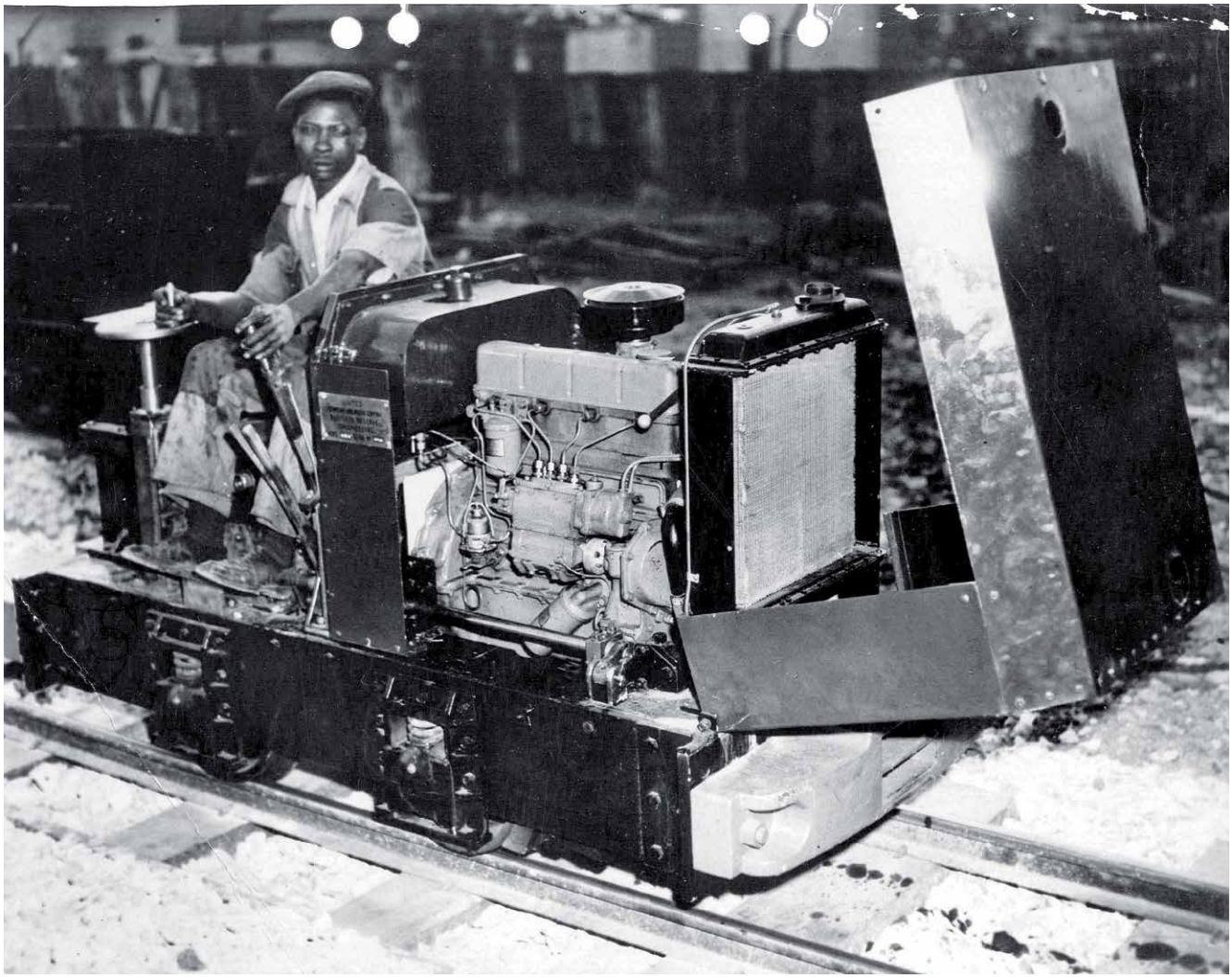
The November 1961 catalogue contained an offset printed centre section showing photographs of equipment for which it was claimed Index were agents, distributors or manufacturers. These included Simon hydraulic elevating platforms, mining vibrating screens, electric hoists and travelling cranes, a seagoing tug (supplied to Utah Australia) and the 'Bulldog' range of diesel industrial locomotives. It was claimed that Bulldog locomotives were manufactured and distributed by Index although designed and developed by United Locomotive & Wagon Co Pty Ltd,

28. PHONE: JW. 1887.

LOCOMOTIVES - DIESEL AND ELECTRIC.

| Reference. | Description. |
|---|---|
| L4-1235. | One only RUSTON AND HORNSBY 3ft 6 inch Gauge Diesel Locomotive of 30 h.p. 4½ ton Model LBT. Fitted with Three speeds to both forward and reverse running. Tropical cooling equipment and double roofed Drivers Cab. This Unit is only THREE YEARS OLD and has had almost no use, being retained as a 'Standby Unit' on a project. Available at £1775. Inspection FREEMANTLE. W.AUST. |
| L4-1254. | One only RUSTON AND HORNSBY Standard gauge (4ft 8½ inches) Diesel Locomotive. Model 48 D.S. Shunting Locomotive. fitted with 48/55 h.p. Ruston Mark 4. VRO Engine and Transmission providing for Three speeds to each direction of travel. 8 tons weight and in absolutely first class warranted condition throughout. As will be well known, it is only on very rare occasions that a Standard Gauge Diesel Loco becomes available, and the above is offered ex ENGLAND at £2,575 (Australian) Landed Sydney duty paid. |
| L4-1253. | Two only RUSTON AND HORNSBY Model 48 DL. An opportunity exists here to obtain a very useful pair of Diesel Locomotives with gauge adjustable from 24" to 3' 6". Powered by Four cylinder RUSTON Engine Mark 4 VRHL. Three speeds to each direction of travel. £925 each. Inspection MELBOURNE. |
| L4-1237. | One only MALCOLM MOORE New and unused 3 ft gauge Diesel Locomotive. Powered by a GARDNER 6 LW Engine, with a Wilson Drewry re-selective R8B-4 speed epicyclic transmission gear. Four coupled with Jackshaft drive. Adhesive weight 9½ tons. Westinghouse air Brakes. THIS LOCOMOTIVE WHICH IS UNUSED FROM NEW is offered at one third of new price £4,000. Inspection SYDNEY. |
| L4-1238. | Two only MALCOLM MOORE 3ft gauge Diesel Locomotives of the same specification as Ref L4-1237 above, but which have been used, and are therefore in very good used condition. Available at £2500 or nearest. Inspection SYDNEY. |
| L4-1245. | One only ENGLISH ELECTRIC Battery Locomotive 24" gauge. BRAND NEW AND UNUSED, but excluding Batteries or Charger. This Locomotive is a 1950 Model and is available at £600. WEST AUSTRALIA. |
| L4-1246. | Two only JEFFREY 3ft 6 inch gauge 8 ton Electric Locomotives, fully flameproofed to Dept of Mines approval. Also one open type. Complete with Mercury Arc Rectifier 150 KW including supply transformer. Two JEFFREY 8 ton Trolley wire cable Reel Loco's of 80 h.p. each which can be arranged for 30" or 42" gauge. Offered ex WEST AUSTRALIA. |

*Page 28 of the Index catalogue for December 1960.*



*The South African 'Bulldog' locomotive as illustrated in the November 1961* Index.

Johannesburg, described as '*our South African Associate Company*'. Illustrated were a 2ft gauge 40hp diesel supplied to Anglo American Corporation for use in the South African mining industry, and a 3ft 6ins gauge diesel supplied for dock use in Mozambique. Unfortunately, it has not been possible to find any information about the United Locomotive & Wagon Co Pty Ltd of Booysens Reserve, Johannesburg.

The catalogue claimed that Bulldog locomotives could be supplied ex works in Sydney with 8 to 10 weeks delivery. Around this time, Index received the order from South Johnstone Mill for what was to be EM Baldwin's first locomotive. Craig Wilson recounted the somewhat comical efforts by Esgate to retain control of the design drawings during construction.[11] There is a clear family resemblance shared by the 2ft gauge South African Bulldog locomotive, the Tulloch locomotive built for the Lake Margaret Tramway in Tasmania, and the EM Baldwin locomotive for South Johnstone.

Many of the locomotives advertised in the Index catalogue were not in Australia. They were advertised as 'ex import' or 'landed Sydney duty paid'. Many of these were for sale second-hand in the UK. However, there were also locomotives that were advertised as available for inspection here in Australia and this article will examine and comment on them.

Not included are a number of ex-Western Australian Government Railways locomotives that were also offered for disposal. It is not surprising that, given Esgate's business practices, not all the locomotives advertised in Australia can definitively be identified, but many can, utilising the reasonably complete lists that exist of new locomotives supplied to Australian customers. However, it is clear that we do not have the details of all second-hand locomotives supplied to Australia, so there may be some surprising discoveries still to be made.

The advertisements did not appear identically in every edition, so those appearing below are the earliest available version used for each item.

## Locomotives for sale

### L4-2012 (July 1960)

HIBBERD 'PLANET' Diesel Locomotive 30 inch gauge, fitted with NATIONAL Three cylinder Diesel Engine and complete with Electric Start, headlights and new heavy duty Traction type Battery. 36 h.p. Tractive Effort 3560lbs Two speed transmission to both forward and reverse running. £1,150 QLD.

No 2ft 6in gauge locomotive with a National 3-cylinder engine can be located in the FC Hibberd builder's list.[12] The only 2ft 6in gauge Planet locomotives known in Australia were a pair built in 1950 (3475 & 3476) for D'Arcy Exploration Co Ltd, apparently used by Australian Petroleum Co Pty Ltd,[13] Wama, Papua New Guinea.[14] These had a Lister 18/2 diesel engine of approximately 20hp[15] and were later used on the surface at Lithgow State Coal Mine before ending up on Brampton Island.[16] It is probable that the advertisement refers to them.

### L4-1222 (July 1960–November 1961)

RUSTON AND HORNSBY 24" gauge UNDERGROUND DIESEL MINING LOCOMOTIVE 30 h.p. Model 30 DLG 4½ tons weight. This Unit is fully flameproofed with Exhaust Gas scrubbers, and fitted with 3 speed transmission to both forward and Reverse running. Total height from rail level 4 ft 10 inches. This Locomotive is BRAND NEW being as yet still in its original crating. Offered at £3,200. and available for inspection QUEENSLAND.

This most likely refers to a locomotive from Queensland's WR Black colliery empire. The only Ruston & Hornsby Model 30DLG flameproofed locomotive that could have approximated to this description is 385901 of 1956. It was a 19½ inch gauge locomotive that worked underground at Smithfield Colliery at Thagoona, west of Ipswich. The more likely candidate is 339196 of 1952, also a 19½ inch gauge locomotive, but a 30DLU with exhaust conditioner. It is believed to have been stored unused at Tivoli Collieries Pty Ltd, Haigmore Extended Colliery, North Ipswich, from new, with its fate unknown. (A photograph of 2ft gauge 20DLU 354040 of 1955 at Haigmore, still attached to its packing materials, was published on p.11 of LR 59, but this is believed to have gone to Invicta Mill in 1958.)

### L4-1226 (July 1960)
### L4-1227 (July 1960)

ONE HUNSLET 24 inch gauge STEAM LOCOMOTIVE. Weight 10½ tons. Type 0-4-2 Four coupled. Cylinder dimensions 7" dia. x 12" stroke, with Working pressure 160 lbs p.s.i. Wheel diameter 24 inches. The Boiler tubes and lagging were removed during 1956, the Boiler cleaned internally and externally and was inspected by Boiler Inspector. New Tubes were fitted, and a welded firebox by Bundaberg Foundry. This Locomotive has completed only ONE MONTHS WORK since the above work was carried out. It has been inspected each year, and is currently certified for 160 lbs working pressure. Ths Loco is available including a highly valuable quantity of NEW SPARES at a suggested price of £1,100 F.O.R. QUEENSLAND, but near offers will be submitted to our client.

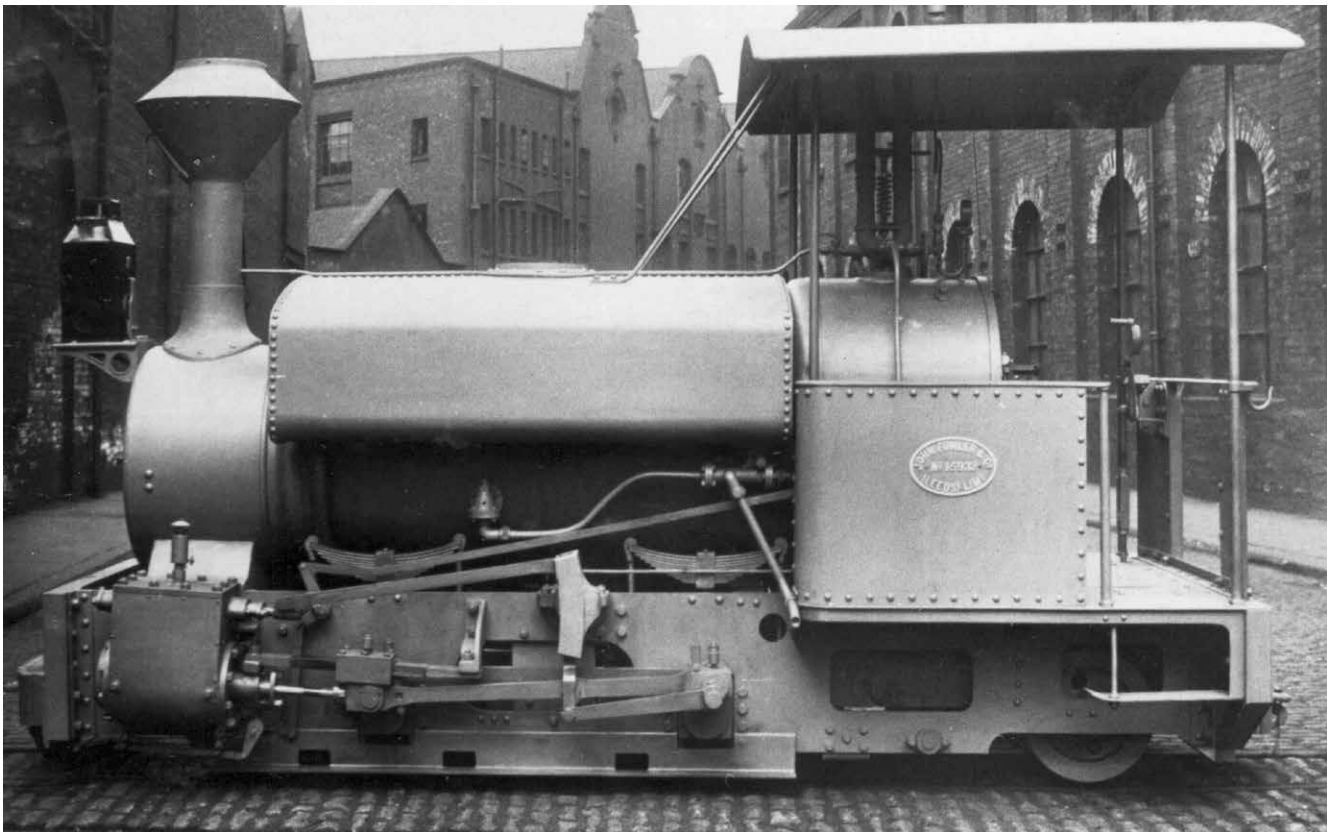
ONE 'FOWLER' 24 inch gauge STEAM LOCOMOTIVE. Weight 11 tons 15 cwt. Type Four Coupled 0-4-2. Cylinder dimensions 8½" x 12" stroke. Working Boiler pressure 180 lbs p.s.i. Wheel diameter 24 inches. The Boiler tubes and lagging were removed 1957, Boiler cleaned internally and externally and inspected by Boiler Inspector. New tubes were fitted and cracks in the riveted Firebox joints were welded. The Locomotive has operated each crushing season since the above work was carried out. It was last inspected on 4-2-60. and passed as satisfactory with 180 p.s.i. The Unit is from the same Mill as 1226 and again available with NEW SPARES at a suggested inclusive price of £1,100 F.O.R. QUEENSLAND.

The mill here appears to be Pleystowe, with the Hunslet being 0-4-2T 1026 of 1910, 7 *SEAFORTH*. The Fowler is 0-4-2ST 15932 of 1922, the mill's number 2. Neither was sold. The Fowler became a playground item at Mackay Outer Harbour and was later scrapped after succumbing to the effects of the salt air. The Hunslet, originally supplied to Kalamia Mill, was put on display in the mill grounds and still survives in private ownership in the Mackay district.

### L4-1234 (July 1960)
### L4-1235 (September 1960 – June 1961)

RUSTON & HORNSBY 3ft 6 inch gauge DIESEL LOCOMOTIVE 30 h.p. 4½ ton Model LBT. Fitted Three speed gears to both forward and reverse running. Tropical radiator, and double roofed canopy. Tractive Effort in first speed 2520 at 3 m.p.h. This Unit is only THREE YEARS OLD and has had very little work. £1,175. F.O.B. WEST AUSTRALIA.

RUSTON & HORNSBY 3 ft 6 inch gauge DIESEL LOCOMOTIVE of 30 h.p. 4½ ton Model LBT. Fitted Three speeds to both forward and reverse gears. Tropical cooling equipment and double roofed Drivers Canopy. Tractive Effort in First gear 2520 lbs at 3 m.p.h. This Unit is only THREE YEARS OLD and has hardly been used, being kept mainly as a standby. It is identical to Ref L4-1234 listed in a previous issue of 'Index' (which has been sold) but has very much less operating hours. £1,775. F.O.B. FREMANTLE. Inspection PERTH or complete warranted inspection report available for Inter-State purchase.



*Builder's photo of Pleystowe Mill's number 2, John Fowler 15932 of 1922.* *Photo: courtesy Richard Horne*

*Builder's photo of Malcolm Moore Model 10-102 for the Victorian State Electricity Commission.* *Photo: Author's collection*

These two must be Ruston & Hornsby 404981 and 404982 of 1957, used by contractors Christiani & Neilsen on the Perth Narrows Bridge construction project. Esgate had contact with dealers Midalia & Benn and Krasnostein in WA so they may have been involved.[17] Both locomotives were both eventually sold to timber interests in WA. 404982 is now at Whiteman Park converted to 610mm gauge.

**L4-1235A (September 1960–November 1961)**
**L4-1236 (September 1960–October 1961)**
**L4-1237 (September 1960–August 1961)**
**L4-1238 (September 1960–May 1961)**

5A THREE ONLY 3 ft gauge GIBSON BATTLE Battery Electric Locomotives, complete with Batteries but Batteries suspect. £600 each or offer SYDNEY.

6 THREE ONLY 3 ft gauge JEFFREY Battery Electric Locomotives with suspect Batteries. £600 each or offer. SYDNEY.

7 ONE ONLY 'MALCOLM MOORE' UNUSED 3 ft gauge Diesel Locomotive fitted with Gardner 6 LW Engine and Wilson Drewry preselective R8B-4 speed epicyclic gearbox. Type four coupled. Weight 9½ tons. Westinghouse Air Brakes. £4,000 SYDNEY.

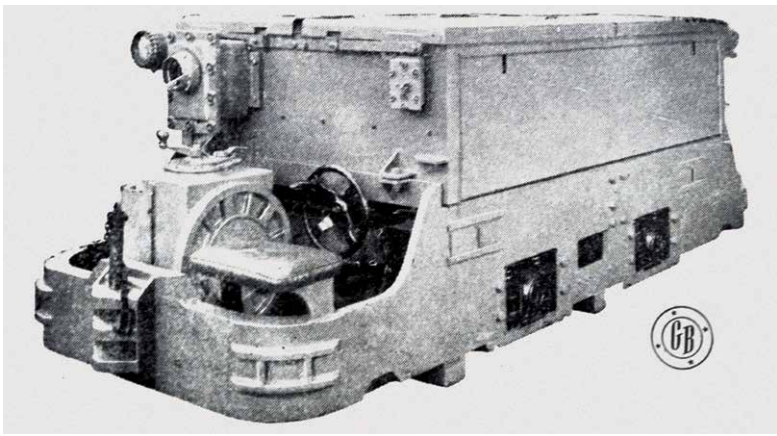
8 TWO ONLY 3 ft gauge MALCOLM MOORE Diesel Locomotives as above but second hand and in good operating condition £2,500 or offers. SYDNEY.

These locomotives appear to have originated with the State Electricity Commission of Victoria's Kiewa scheme,[18] but were most likely advertised for sale following the completion of a Snowy Mountains Scheme contract. It is interesting that they were all reportedly situated in Sydney and I think that this claim should be treated with some scepticism.

The Malcolm Moores were part of an order of 20 0-4-0DM Model 10-102 locomotives built in 1950-1. Most were no longer required by 1953 but had cost a significant amount so they were retained in the hope that they could be sold at a reasonable price over time.[19] Some of this type ended up becoming members of the Tasmanian Government Railways 'U' class, some were shipped to Thailand under an overseas aid scheme, and others were used for a variety of construction and industrial purposes in Australia.

In about 1961, Bruce Macdonald travelled to Cooma, where Thiess Brothers had surplus equipment stored, in relation to dealings for a sale of some (probably three) Malcolm Moore locomotives to AG Webster in Hobart, so it is likely that the advertisement refers to these.[20] Thiess had obtained builder's numbers 22, 24, 31, 34 & 35 in 1958-9 for their Tooma-Tumut tunnel job.

There are believed to have been large numbers of Jeffrey type battery locomotives built for the Kiewa Scheme, including some built in the USA and some built under licence in Australia by Gibson Battle (and possibly also by A.Goninan).[21] It is likely that some were sold to Thiess along with the Malcolm Moore diesels and that, given the likely association between the advertisements, these were also being offered for disposal on the completion of the Tooma-Tumut job.



*Gibson Battle battery-electric locomotive.* *Photo: Author's collection*

### L4-1239 (September 1960–July 1961)

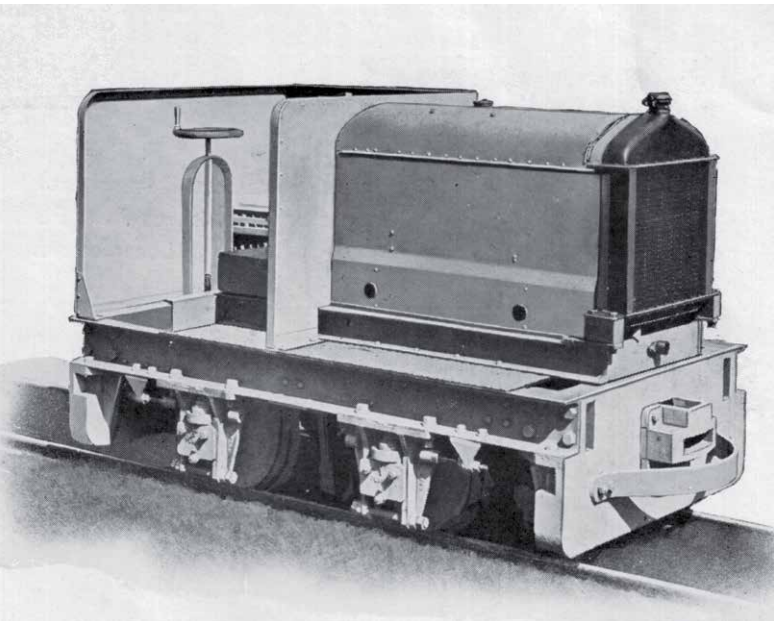
ONE RUSTON & HORNSBY Standard gauge (4 ft 8½") Diesel Locomotive Model DL20. This Unit has been converted from narrow to standard gauge and is offered at £550. SYDNEY.

Assuming that it is correctly designated as a 20DL, this Ruston & Hornsby locomotive is 235681 of 1945, which was built for the British Ministry of Supply, returned unused to the maker, and shipped to Australia in 1946 on 2ft gauge for the NSW Public Works Department. As PWD number 1, it was later recorded as having been converted to standard gauge. Although this change is not unprecedented, the result must have looked very strange. No further trace is known.

### L4-1249 (September 1960–July 1961)

ONE ONLY HIBBERD PLANET 24" gauge Diesel Locomotive fitted with Ford Petrol Engine. Two speeds to both forward and reverse running. This is a sound little Unit, simply convertable to Diesel Engine and offered as is at £225. Inspection SYDNEY.

A mystery here. A Planet locomotive fitted with a Ford petrol engine would most likely be a Type Y which was fitted with this type of engine, not a diesel engine. One such locomotive was 3490 of 1950, ordered by Dangar, Gedye and Malloch, Sydney.[22] This may well be the unit that was offered for sale in 1952 as new in the Grafton district, NSW,[23] and in 1953 unused from a yard in NSW by agents A & R Goldsmith. An unidentified locomotive of this type was later photographed at Tully Mill.



*FC Hibberd 'Y' type petrol locomotive.* *Photo: Author's collection*

### L4-1245 (September 1960–November 1961)

One Only ENGLISH ELECTRIC Battery Electric Locomotive 24" gauge NEW AND UNUSED, but excluding Batteries and Charger. This Loco is a 1950 Model capable of hauling 16 tons against a ½% grade. Available at £600. W.A.

English Electric battery locomotives were quite rare beasts and there is no record of any English Electric battery electric being built in 1950. However five did operate before this at Wiluna Gold Mines in Western Australia, 769 to 771 of 1930, 888 of 1933 and 937 of 1936.[24] One of these was later at Australian Blue Asbestos, Wittenoom. The Wiluna Gold Mines plant was auctioned in 1952, and presumably this locomotive originated there.


*English Electric battery locomotive W.G.M.LTD. No.2, (770 of 1930) ordered by Consolidated Goldfields, for Wiluna Gold Mines.*
*Photo: courtesy Richard Horne*

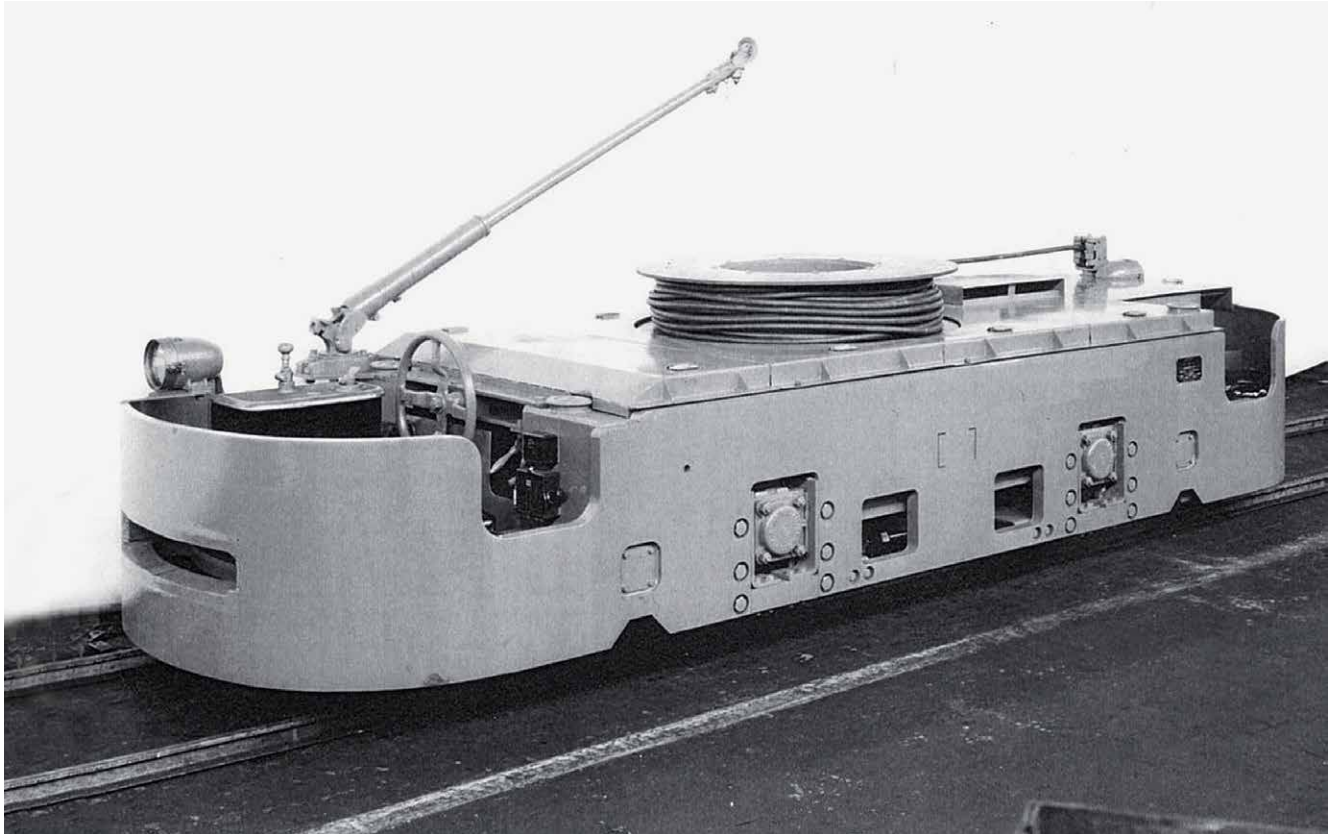
### L4-1246 (September 1960–November 1961)

TWO JEFFREY 3 ft 6 inch gauge 8 ton Locomotives, fully flameproofed, also one an open type, complete with Mercury Arc Rectifier 150 KW including supply transformer. Two 'Jeffrey' 8 ton trolley wire Cable Reel Locomotives of 80 h.p. each, these are 250 volts D.C. and can be arranged for either 32" or 42" gauge. These Locomotives are the subject of offer on an "as is, where is" basis. WEST AUSTRALIA.

It appears that this is equipment from Amalgamated Collieries at Collie, which ceased operations in 1960, closing a number of underground mines. Six 8-ton Jeffrey electric locomotives were delivered in 1951 (8809, 8810, 8861, 8862, 8868 & 8869), each fitted with a trolley pole and a 500ft cable reel. The first two were 2ft 8in gauge while the others were fitted with axles for 2ft 8in and 3ft 6in gauge, but all would easily have been convertible.[25] The advertisement possibly attempts to offer a prospective purchaser all possible options even though it seems that the locomotives on offer were practically identical!

Later versions of the advertisement stated that the flameproofing was to Department of Mines approval. This may well have rebounded on RW Miller & Co, who purchased at least two Jeffrey flameproofed locomotives from Collie for their Northern (Rhondda) Colliery in NSW. The company redeveloped an old colliery holding behind Belmont Hospital


*Ruston & Hornsby photograph of a 20DLU locomotive at work underground in the UK.*
*Photo: Phil Robinson Collection, Moseley Railway Trust*



*Jeffrey 8 ton gathering locomotive 8809 of 1951 ordered by Perrot Vance & Sons, Perth.* *Photo: Ross Mainwaring collection*

in about 1964. This new drift mine was known as Belmont Colliery. One of the ex Collie Jeffrey locomotives, number 11, worked underground on materials transport there, but one day the Mines Inspector saw it on his tour of inspection and prohibited its further use. It was then probably returned to Rhondda colliery. The locomotives were not allowed to be used subsequently as they did not meet NSW flameproofing standards, and they were dumped on the surface.[26]

### L4-1247 (September 1960–July 1961)

RUSTON & HORNSBY Model 20 DL. APPROXIMATELY £500 worth of BRAND NEW SPARES mainly transmission spares available for purchase ex MELBOURNE for £200 Full list together with part numbers available from this Office.

If situated in Melbourne, this material must have originated with the Melbourne & Metropolitan Board of Works, which operated nine 2ft gauge Ruston & Hornsby 20DLU locomotives on various construction projects from about 1947 onwards.

### L4-1253 (October 1960–November 1961)

Two only RUSTON AND HORNSBY Model 48 DL. An opportunity exists here to obtain a very useful pair of Diesel Locomotives with gauge adjustable from 24" to 3' 6", Powered by Four cylinder RUSTON Engine Mark 4 VRHL. Three speeds to each direction of travel. £925 each. Inspection MELBOURNE.

The State Electricity Commission of Victoria had eleven 3ft gauge Ruston & Hornsby Model 48DL locomotives on its Kiewa scheme (296059 to 296063 and 296066 to 296070 of 1950).[27] They were numbered (but not in order) 11 E 11 to 11-E-21. One is still to be found on the Bogong Creek Tramway while the most well known has been transformed into NRT1 at Puffing Billy. Four were stored surplus to requirements at the Salmon Street Depot, Port Melbourne by 1955, so these two were probably among them.[28]

### L-1282 (October 1961–November 1961)

One only 3'6" gauge UNDERGROUND MINING LOCOMOTIVE. 15 tons, powered by Mercedes Benz Diesel Engine of 120 h.p. Two speed Mechanical transmission to both forward and reverse directions. Fitted with Drivers Cab at both ends of the Loco. Exhaust Gas Conditioning Equipment, and all Electrical Wiring fully flameproofed for underground working in a gaseous mine. Four coupled, Sanding Gear, Electric Lighting. This Locomotive has seen little or no use since new and is surplus to requirements. Available with supply of New Spares and Tools at £5,000. Inspection N.S.W.

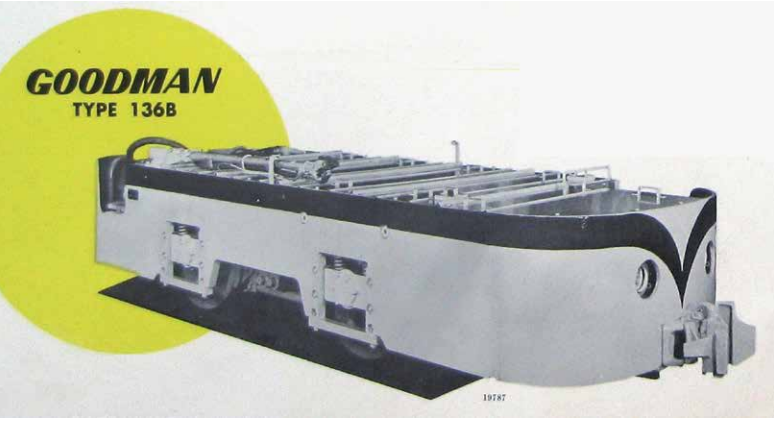
This was the first locomotive that had been produced for an outside customer under Esgate by Tulloch Ltd (002 of 1957). It was not successful and was not accepted by the customer, The Coal Cliff Collieries Pty Ltd, and was subsequently stored at the Tulloch factory. It was later rebuilt in 1962 at Esgate's instigation by EM Baldwin for surface use at Millaquin Mill, where it was hardly any more successful.[29]

### LBE-108 (November 1961)
### LBE-109 (November 1961)

Seven only GOODMAN MINE LOCOMOTIVES, battery operated, 10 ton, type 136B/42/66B, and 0-4-0 type, 150 hp (2 x 75 hp) two motors, new 1955/56, first class condition, not flameproofed. Price £6825. 0. 0. each. Inspection N.S.W.

Three only GOODMAN MINE LOCOMOTIVES, battery operated, 20 ton, type 81/A/42/921, and 0-4-0 type, 240 hp (2 x 120 hp) two motors, new 1955/56, first class condition, not flameproofed. Price £11,600. 0. 0. each. Inspection N.S.W.

It appears that these were all 3ft 6in gauge locomotives used on Snowy Mountains Scheme tunnelling consortia led by Kaiser Engineering. The three large units were Goodman 6408 to 6410 of 1954, later used by Thiess Brothers and photographic evidence indicated they came equipped with trolley poles, with batteries possibly added later. The smaller units were battery locomotives from the batches 6395 & 6396, 6400 & 6401, 6404 & 6405, and 6412 to 6414, all of 1954. It is believed that they also passed to Thiess Brothers. Presumably these locomotives were used on the Thiess Snowy-Geehi and Murray 1 Pressure Tunnel contracts.[30]




*Trolley pole equipped version of the Goodman Type 136B locomotive. Photo: Ross Mainwaring collection.*

### LDI-111 (November 1961)

One only Standard gauge 4'8½" DIESEL SHUNTING LOCOMOTIVE, 120 hp. 15 ton. Four coupled 0-4-0 wheel formation. Powered by MERCEDES BENZ Four cylinder Diesel Engine, with Electric Starting and automatic shut-down and audible warning system for low oil pressure and high cooling water temperature. Two speed mechanical Transmission with maximum speed of 12 mph. Automatic Couplers, Mechanical Braking, Sanding to all four wheels. MANUFACTURE 1959 and NOW SURPLUS TO REQUIREMENTS. Inspection SYDNEY at£8,500. 0. 0. AN ABSOLUTE GIFT!

This was Esgate's first product at Tulloch, 001 of 1957, a neat 0-4-0DM surface shunter that was used at the Rhodes works.[31] As far as I know it continued to be used there until 1973 when it passed to AG Sims for shunting their scrapyards at Mascot and later Dunheved. It became well-known subsequently as the shunter at Skitube's Bullocks Flat depot, adorned with a Thomas-like livery and numeral '1'.

## Locomotives wanted

These are presented without comment. It would be interesting if any readers have any ideas about the forthcoming contracts that were referred to, assuming they were not simply imaginary.

### LW-403 (July 1960)

WANTED. TWO ONLY 3 ft gauge Electric Locomotives. Either Overhead Trolley wire, or Battery type required and suitable for underground working. In the event of Electric Units not being available, a suitable 3ft gauge Diesel Loco would be considered, but must be fitted with Exhaust Gas Scrubbers and Exhaust Flame traps. These are required for Contract work in N.S.W. New Units could be considered here also, and offers are invited accordingly.

### LW-405 (July 1960)
### LW-406 (July 1960)

WANTED 24" gauge STEAM LOCOMOTIVE - MUST BE CHEAP. This Unit is required for operation as a tourist attraction in the season, and must be fully reliable, with sound Boiler and main frames. As a tourist attraction , it will be appreciated that the more archaic the appearance the better..... Diamond Stack, Cow Catcher, enormous Steam Dome - the kitchen Sink - in other words THE WORKS! Have you such an animal in a well preserved state of captivity?

WANTED 18" gauge Diesel Locomotive. We have been asked by our client to ascertain the availability of One or more of these Units, the use of which is envisaged in a forthcoming major Contract. N.S.W.

### LW-407 (September 1960)

DIESEL LOCOMOTIVE WANTED. 3 ft 6 inch gauge of approximately 100 h.p. or larger. This Unit is required for an important Civil Engineering project and a sound reliable Unit will very quickly be sold. Details would also be appreciated of spares available with Units offered.

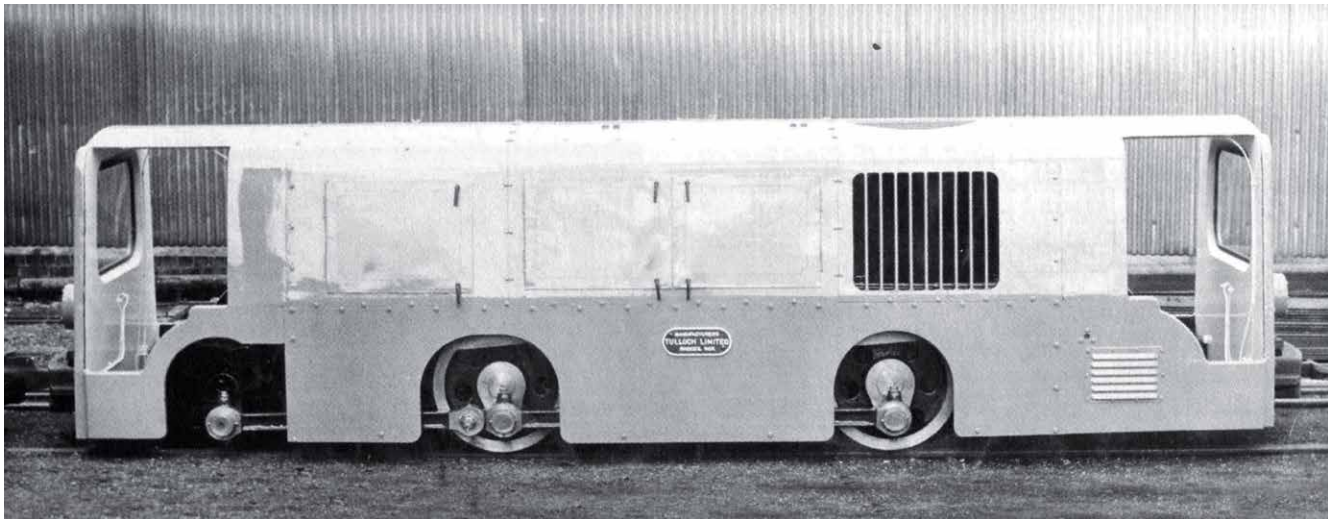
## Agencies available

### AA-205 (July 1960)

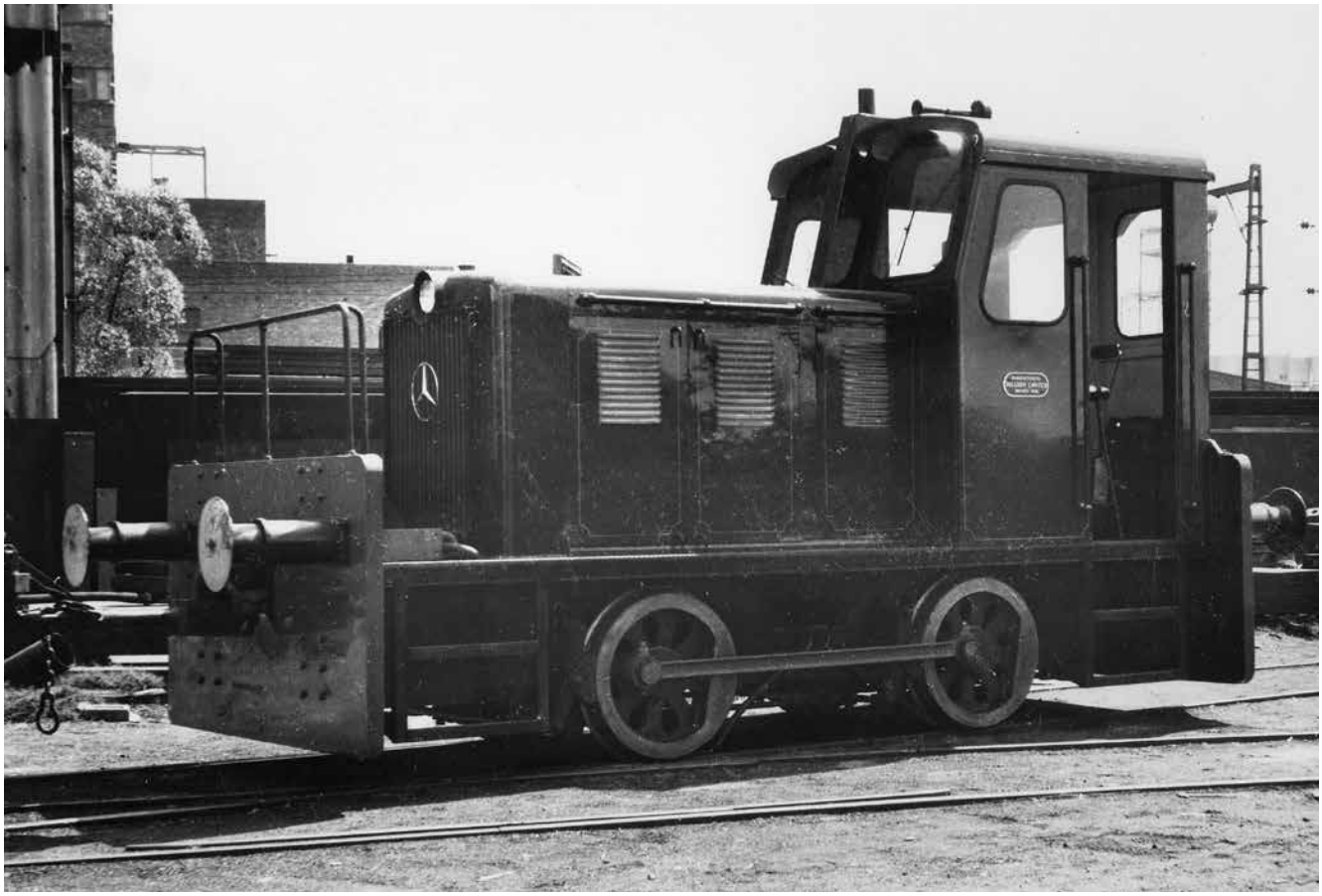
GERMAN manufacturer of small DIESEL LOCOMOTIVES of up to 150 h.p. for the Mining and Canefields markets, requires an agreement for manufacture in Australia with a Company firmly established in the Railway field. Good export market available to near Australian Countries. Our Overseas principal will be in Australia during September to discuss details with interested Companies.

The most likely candidates here would probably be the rival (and closely related) German manufacturers Schöma and Diema of Diepholz in north-west Germany, who both supplied plenty of locomotives to Indonesia, with Schöma dominating in this market.

One wonders if there was any interest from the German end, or if Esgate simply saw this as an opportunity to profit as a middleman from finding an interested party in Australia and then approaching the Germans. Perhaps knowledge of Esgate among those Australian companies '*firmly established in the Railway field*' would have been enough to render this advertisement futile.



*Tulloch 4wDM 002, built in 1957 for Coal Cliff Colliery.* *Photo: Craig Wilson collection*



*Esgate's first product at Tulloch was 001 of 1957, a Mercedes-powered 0-4-0DM. Photo: ARHSnsw Railway Resource Centre 041004*

## Conclusion and acknowledgements

It is understood that Esgate continued to operate the Index business up to his death in March 1976, or at least until ill health intervened. Index Industrial Brokers still trades, now based in Brisbane.

Esgate's name lives on, not just as a locomotive designer or entrepreneur, or the original inspiration for EM Baldwin locomotives, but as a very talented and internationally celebrated cinema organist, a former professional in the field. The huge theatre organ in the main auditorium at the Dallas Brooks Centre in Melbourne is based around a massive instrument he was in the course of building at his home up to its sale at the end of 1972.[32] If you search the internet you can even listen to a recording of Arthur Esgate playing.[33]

My thanks are due to Bruce Macdonald for generously providing me with comments based on his personal experiences as part of the story, to the late Craig Wilson who began to document it, and to Keith McDonald, Ross Mainwaring, Colin Harvey, and many others who over the years have freely shared information about locomotives that operated in Australia. Thanks also to English researcher Phil Robinson for help with photographs. Any further details about the locomotives advertised in these or other issues of Index would be greatly welcomed.

We can expect to learn more about Esgate's career at Tullochs as a result of the work being done on that company by David Jehan, and subsequently I hope to publish more about Esgate's life and exploits in the UK and South Africa.

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*Side view on 26 April 2011 of the Munday Brook bridge on the Mason Bird Heritage Trail. It is reputed to still have elements of the original Mason & Bird tramway bridge in its foundations but has been substantially rebuilt. Munday Brook was dammed to form the Victoria Reservoir.*
*Photo: David Whiteford*

# Rails for Perth's water supplies – the 1890s

*by David Whiteford*

In Western Australia, water, or more particularly the lack of it, has always been a central issue for human settlement. This article explores the moves to provide the growing city of Perth with a reliable water supply in the 1890s and provides a history of two light railways constructed by the Metropolitan Water Works Board (MWWB) to facilitate the task, namely the Canning tramway and Mount Eliza tramway.

### The Canning Tramway: the early history

Mason, Bird & Company operated a timber mill in the Darling Range near Bickley Brook and its associated 3ft gauge wooden railed horse drawn tramway of about 9 miles to the Canning Landing from 1872–1882 (a brief article appeared in *Light Railways* 44). Advertisements for the sale of plant, tramway, etc. appeared in *The West Australian* of 14 March 1882 and in many subsequent issues. A month earlier there had been a bushfire which burnt out about three miles of the tramway but it is unclear if this was the main line to the Landing or the extension into the forest, and there was no newspaper report of repairs.

Joseph Shaw had supplied money to keep the timber station open and with no buyer eventually took over operations as mortgagee. He reported to the Commissioner for Lands that he had expended considerable funds to put the tramway and milling equipment in fair working order. On 24 November 1882, however, he advertised the sale by tender, closing on 19 December 1882, of the entire timber concession, mill, tramway and Canning Landing. No sale occurred as in March 1883 it was reported that '*the clearing of the proposed new site of the timber station belonging to Mr Joseph Shaw is progressing apace… Mr Shaw has been successful in obtaining a splendid route for the laying down of the new line [into the forest].*

Shaw's works were again advertised for sale in The West Australian from 17 January 1884 when he was disposing of considerable business interests as he intended to leave for Europe later in the year. Tramways and tramway rights, buildings, machinery, about 875 acres of freehold and 100,000 acres of timber concession granted for 40 years were included.

On 1 October 1885, '*a large assemblage*' collected at the Mechanics' Institute in Perth in response to the announcement that the Canning Timber Station was to be offered for auction without reserve. The station, tramway, timber rights, etc. were sold to Ernest Howard for £5900. The nine miles of tramway were said to be in good working order and from 31 January 1886 to 27 February 1886, Stevens & Atkins of the Canning Timber Station advertised in *The West Australian* for horse teams for hauling sawn timber on its tramway or on the road from the landing to Perth. So the timber operations continued, and there was even a mention in the *Sydney Morning Herald* of 20 February 1886 in a letter from Wesley Maley, Government Valuator, Perth, who wrote, '*The Canning River is navigable… & much used by the Canning Timber Co., whose tramway connects with the river at Cannington.*'

The opening in 1891 of the Canning Jarrah Timber Company (CJTCo) line from Midland Junction to Canning Mills, including a famous zig-zag, finally ended any timber industry need for the tramway to Canning Landing,

## The first Perth water supply project

Western Australia's *Water Works Act* of 1889 gave the Perth City Council the power to provide domestic reticulated water within its boundaries either through its own scheme or by private enterprise. The census of April 1891 reported a population within the City Council area of 8447 and the water supply was from wells, tanks and a bore near the Perth railway station. In 1887 Henry John Saunders and James Barratt, consulting engineers, had proposed a reticulated scheme to service 25,000 persons. The proposal went so far as being studied by a Select Committee of the colonial government's Legislative Council but was never adopted. Saunders had arrived in Western Australia in 1884 as chief engineer of the Midland Railway Company, which was building the land grant scheme railway from what became Midland Junction east of Guildford to Walkaway, near Geraldton.

City of Perth ratepayers voted in a referendum on 13 March 1889 for the adoption of a water scheme for the city, resulting in the council seeking submissions for suitable schemes. Two were received, one from Edward Keane, representing Neil McNeil & Company of Melbourne, and the other from Messrs Watson & Company. A City of Perth request for colonial government funding was refused and the council eventually decided to enter into further negotiations with Edward Keane on behalf of Neil McNeil and Company.

Neil McNeil and Company had purchased the Saunders and Barratt design and plans, and was chosen by Perth City Council to advance the proposed water scheme. Keane, the attorney for the company, was already known in WA as a railway contractor (Guildford – Chidlow's Well – York; Perth Racecourse branch and others) and he also was heavily involved in the Midland Railway Company. One of Keane's other business interests was the Canning Jarrah Timber Company, which had the former Mason & Bird timber concessions in the Darling Ranges, south of Kalamunda.

Agreement between Neil McNeil & Company, operating as The Perth Water Company, and the City Council was signed on 21 October 1889 and ratified by the Act noted above. Saunders & Barratt's plans formed the basis for the work which consisted of the 200 million gallon Victoria Reservoir on Munday Brook, a tributary of Bickley Brook, a 17 mile 12-inch trunk main pipe from the reservoir to a 784,000 gallon service reservoir on Mount Eliza, overlooking the city, and reticulation to homes and businesses in Perth and its immediately adjacent suburbs. Construction of the reservoir began in February 1890 with construction materials barged to the Canning Landing and the former timber tramway used for onward transit to the worksite. In *The West Australian* of 4 February 1890 there was a notice of tender for the lighterage of 5000 casks of cement (the first consignment of 15,000) ex ship *Pallas*, expected to arrive at Fremantle at the end of March or early April, to be delivered at the Canning Landing.

There are surprisingly few mentions of this great undertaking in the Perth press and only a couple of visits were reported throughout the whole construction period. The *Inquirer* newspaper's '*own correspondent*' reported on 10 October 1890 on his visit to the reservoir and said, '*There are about 2 miles of 12 inch iron pipes laid along the tramway up the Range*'. A visit arranged by Mr McNeil was reported in *The Western Mail* of 13 December 1890. The party left Perth shortly before 10am in four vehicles and drove along the Canning Road and through the Racecourse until it reached the place where the old timber tramway began to ascend the hills. Here the party dismounted and was accommodated in three tramway trucks which had been improvised into travelling carriages for the occasion by the addition of bags of chaff. The remainder of the journey took over an hour. The opening ceremony was held on 5 October 1891. Keane's CJTCo had opened its line from Midland to Canning Mills on 25 July 1891 and a special train took guests as close as possible to the reservoir for the opening ceremony. On 20 November 1891 James Morrison, under instruction of Neil McNeil & Company, sold by public auction at the Canning Landing the contractor's plant used in the construction of the Perth Waterworks, including tramway trucks and rails.

The laying of the government's South Western Railway (SWR) through Cannington in 1892 rendered the line useless as a through route but it is possible that at least the section between the Landing and the SWR was still intact. Advertisements for property in Cannington promoted them as *having frontage to Perth-Albany Road and the Canning Tramway.* Such advertisements appeared in many issues of *The West Australian* between 20 November 1891 and October 1893. One example, on 26 August 1892 (page 8) for the Sevenoaks Estate farming blocks subdivision included 'Timber tramway frontage.' Whether some or all of the range side of the line was still intact after 1892 is conjecture, but most remains on the coastal plain would have been removed during the next phase of the tram route in 1896.

## Murky politics

The Perth Water Company became the City of Perth Waterworks Company in 1891 and in the five years from the opening of the scheme there was considerable agitation at all levels over the conduct of the company, the quality of the water, infrastructure, contamination of the reservoir from the CJTCo settlement and other matters. Through all this an almost incestuous relationship existed between company, local and colonial government and other businesses. HJ Saunders was a Perth City councillor (1888–1893) and was Mayor from 1893 to 1895. Saunders was on the City Council when it agreed to the project and used the plans he had recently sold. He became a Member of the Legislative Council in 1894. Edward Keane was Mayor of Perth in 1891 to March 1892 and a member of the Legislative Council (1886–1890) and again in 1904 (dying in office). He was on the 1887 Select Committee that studied the Saunders & Barratt water scheme and was then a member of the Legislative Assembly from December 1890 to December 1891. The company's difficulties resulted in legislation to create the government's Metropolitan Water Works Board in 1896, which took over and operated its assets. Edward Keane was the Board's first Chairman. All this (and more) was to culminate in an 1898 political investigation detailed later.

After only five years, the water scheme was already failing to meet the needs of the city. The press referred to a 'Great water famine'. Corrosion of the water main and its lack of strength to operate at possible full pressure resulted in the new Board arranging for new pipes to provide for a second main between 'Break Pressure Tank 1', about one mile from the Victoria Reservoir, and Mount Eliza. An additional reservoir on Mt Eliza was also planned. On 22 October 1896 a written application was made by the Board for the consent of the Governor to the purchase of eight miles of pipes for the Canning main, 2000 tons for the Perth mains, and six miles of railway material. Consent was received by letter from the Under Treasurer dated 23 November 1896, although the Board had already been ordering material and the first cast iron pipes from England were being landed at Fremantle on 16 November 1896. The Board had called tenders for tramway

construction in October. The first Australian manufactured cast and steel pipes for the scheme were shipped per the SS *Indianapolis* out of Sydney around the same date. It was the intention of the Board to begin laying the pipes down immediately they arrived in the city. *The West Australian* of 23 December 1896 reported that '*by nearly every intercolonial steamer fresh shipments of pipes are being received. The work is being pushed on with all possible haste and the Board expects to commence laying down the pipes in the principal streets within a week.*'

## Delivering the pipes: the new Canning Tramway

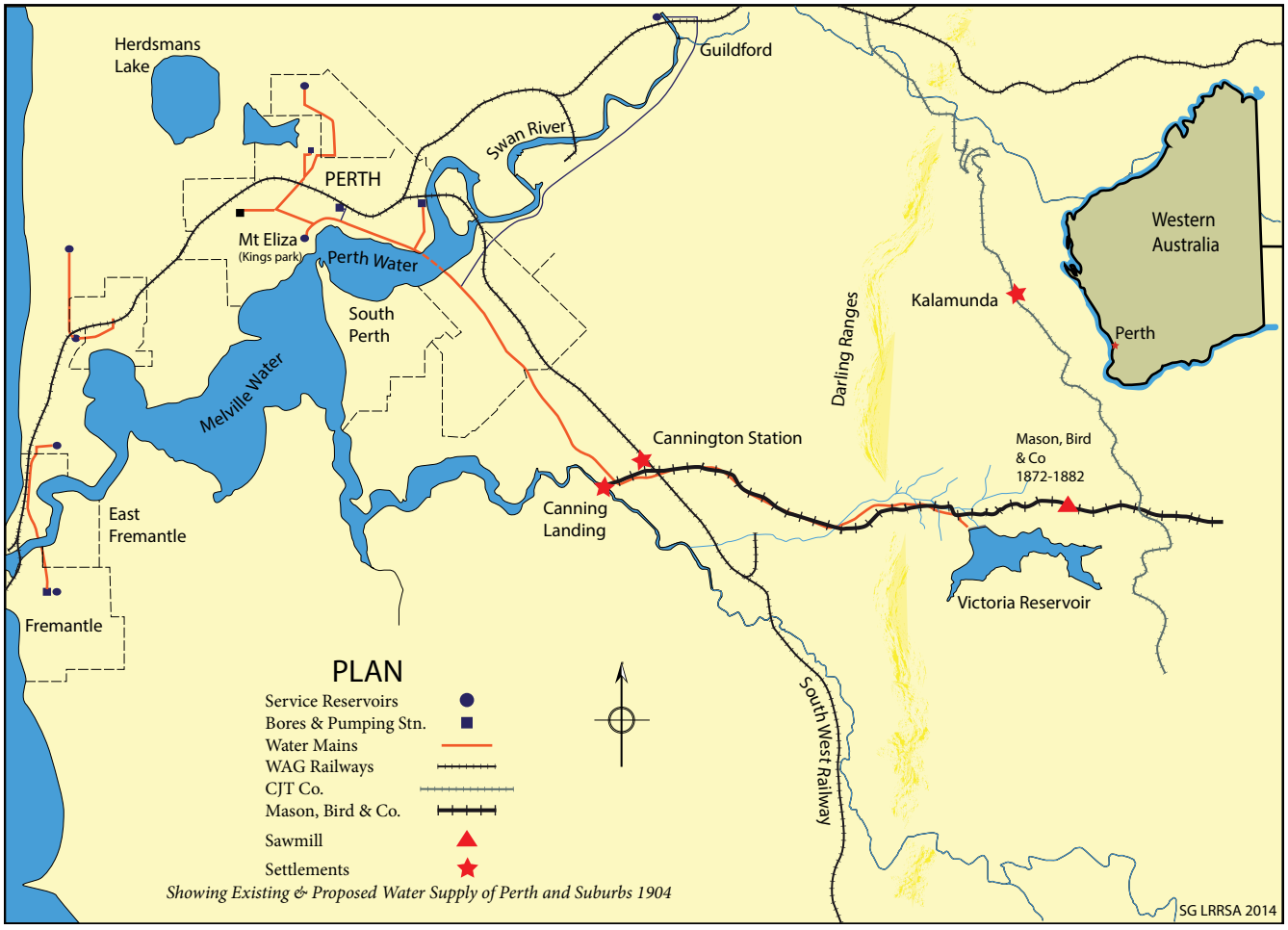
The task of laying down the duplicate main, however, was meeting difficulties. The Board was constructing a tramway from the Canning River to the ranges, the route being that of the earlier Mason & Bird line following the pipeline from the Victoria Reservoir. The Canning Landing could have permitted pipes to be barged to a construction depot, possibly avoiding later delivery problems, but this method of transport was not used, although it was the preferred method for materials during construction of the reservoir. A schedule of materials required to lay eight miles of water main dated 6 October 1896 specified delivery to the Cannington railway station. The tramway was to convey the pipes through soft sandy country, unsuitable for heavy road traffic, to where they were to be laid. *The West Australian* of 19 October 1896 carried a tender notice for '*Grubbing and clearing the tramway road from S W railway to White's Gate, half chain wide, for a distance of about 4½ miles*'.

The major obstacle to completion of the tramway was the government's South Western Railway (SWR) that had been built since the last use of the Mason & Bird line. Tenders for construction of the SWR closed on 16 November 1891. After the contract with Atkins & Law for the East Perth to Jarrahdale (Mundijong) section was signed, work began quickly, with platelaying having passed the Canning by 1 November 1892. The official opening of the entire SWR between Perth and Bunbury was on 22 May 1893. By 14 January 1897 laying of the Water Board line had already begun but a diamond crossing of the single track SWR by the tramway was required at a site which is now Beckenham station. *The West Australian* of that date reported the Board's weekly meeting of the previous day. Chairman Keane said:

'*I don't wish to blame the Government for the present state of things, but still it has not given us all the facilities we asked for. It is 3 months since we asked the Government [for] a diamond crossing over the South Western Railway, so that we could lay our tramway over it, and we have not got it yet. It would not take more than two or three days to make*'.

When a Mr Hardwick raised the question of trucks, Keane said '*If we go to them* [Western Australian Railways] *about trucks for the conveyance of our pipes, they say they can't let us have them in preference to anyone else.*' By then there were 3000 tons (or 17 miles) of pipes at Fremantle with eight miles being for the duplicate main, and the trenches were ready for pipe laying to begin.

The Commissioner for Railways, Mr FH Piesse, responded to the Board as reported in the same issue of the newspaper by advising that the Railway Department would do all it could to help the Board and that the diamond crossing would be put in on '*Saturday next*' (probably meaning 23 January) after the responsible officer had finished his commitments on completion of the Bayswater to Belmont branch. The line was completed soon after and was 3ft 6in gauge laid with 45lb rail and wooden sleepers. The MWWB *Report of Works to 30.6.1901* put the construction cost at £1795 18s 8d and maintenance at £67 3s 5d between 1896 and 1900.



Pipe laying work was underway by 21 January as *The West Australian* reported one gang at Bentley's Hill, about six miles from Perth, where 1½ miles of steel pipes were being laid. Near the Cannington Hotel the second gang was located at a siding from the SWR (presumably at Cannington station) and a large number of cast iron pipes were on the ground. From the neighbourhood of the hotel to the foot of the hills, cast iron pipes weighing 32 cwt were being laid and the heavy weight (as against 18 cwt for steel) meant they were to be transported along the tramway which had already been laid some distance, though, as mentioned earlier, without its diamond crossing. A third gang would work on the section to the foothills.

The WA Government Railways' *Weekly Notice* 5, 1897 (week ending 5.2.1897) advised that:

'*A line of railway has been laid in for the Metropolitan Water Supply Board, crossing the S.W. line at right angles ½ mile south of Cannington*'.

Distant signals, worked from levers situated at the crossing, were erected 600 yards either side, and a Porter placed in charge between 6am & 6pm daily. All trains were to approach with caution, prepare to stop, and the speed over the crossing wasn't to exceed 4 miles per hour.

However the problem of trucking the pipes from Fremantle remained and slowed work considerably. *The West Australian* of 28 January reported that the railways were delivering 50 pipes a week, whereas the Board hoped for at least 50 a day. But within a week 1581 pipes were being loaded for delivery in Perth and 156 for Cannington. In total there would be 11 miles of 21-inch steel main, 2½ miles of 20-inch cast iron main and 2½ miles of 18-inch cast iron main laid. It is unclear if the MWWBs railway ran into Cannington station goods yard, which was on the river side of the SWR. If not, then it appears all material was transported from the station to the River Landing where a works depot had been established.

The WA Railways then rose to the challenge - and pressure - and from Saturday 13 February it arranged a regular weekend special pipe train operation from Fremantle to Cannington. On the 13th one train delivered to Perth while the next day three trains went to Cannington. The Water Supply staff or contractors were to unload immediately allowing the wagons of the first two trains to be returned empty that day. Every available empty wagon was to be worked to Fremantle by 2pm on Saturday for loading, with the first Sunday departure to Cannington being at 5.15am. From the next Sunday, 21 February, a regular special goods timetable was prepared with three trains from Fremantle to Cannington scheduled each Sunday and no further special Saturday train. This arrangement was in place until 9 May and if all trains ran over the thirteen Sundays there were 39 pipe trains to Cannington from 14 February to 9 May inclusive. The Weekly notices repeated the schedule each week but with a proviso, '*In the event of these trains not being required, District Superintendent to cancel and advise all concerned.*'

By June pipe laying was well underway, the tramway operating to its terminus at the foothills, and some of the new water main was already in use to avoid the sections of the old main most seriously encrusted. *Weekly Notice* 24 (12-18 June) contained the following:

'*The instructions laid down in w/n 5 are being disregarded. I find trains are running over the diamond crossing at 20m 40ch SWR at a speed of from 15 to 20 mph. Drivers and others are again notified that the speed of trains must not exceed 4 mph when running over the crossing mentioned.*'

But more severe instructions were issued via Weekly Notice 31 (week ending 6/8/1897):



## EASTERN AND SOUTH-WESTERN LINE.

### Special Train Arrangements.

ON SATURDAY and SUNDAY, 13TH and 14TH FEBRUARY, SPECIAL GOODS TRAINS will be run between Fremantle, Perth and Cannington as under:—

| UP] STATIONS | SATURDAY. | SUNDAY. | | | | | |
|---|---|---|---|---|---|---|---|
| | A1 | A3 | A5 | A7 | A9 | A11 | A13 |
| FREMANTLE ...dep | p m 11 30 | a m 2 45 | a m 5 15 | a m 6 30 | p m 12 25 | p m 1 25 | p m 5 50 |
| N. Fremantle „ | 88 11 38 | ... | ... | ... | ... | 72 1 38 | ... |
| Cottesloe ... „ | ... | 40 3 5 | ... | ... | ... | ... | 78 6 12 |
| Claremont arr | ... | ... | ... | ... | ... | ... | ... |
| Claremont dep | 122 12 10 | ... | ... | ... | B22 & 72 | ... | |
| Subiaco ... „ | 62 12 25 | 64 3 30 | ... | 7 15 | 1 20 | 90 2 5 | T24 6 35 |
| West Perth ... „ | ... | ... | ... | ... | ... | 2 17 | ... |
| Perth arr | 12 40 | 3 42 | 6 0 | 7 30 | 1 35 | 2 20 | 6 50 |
| Perth dep | ... | ... | 6 20 | 7 50 | ... To North'm | 2 30 | ... |
| East Perth ... „ | ... | ... | ... | ... | | ... | ... |
| Burswood ... „ | ... | ... | ... | ... | For Continuation See † | 2 45 | ... |
| CANNINGTON ... arr | ... | ... | 6 50 | 8 15 | | 3 0 | ... |

† A9 departs Perth 1.55 p.m., Midland Junction 2.40, Parkerville 3.30, Chidlow's Well 4.10, 4.20; Spencer's Brook, 6.20, 6.25; Northam arrive 6.50 p.m.

A5, A7 & A11 convey pipes for Cannington. Wagons will be unloaded by Water Supply Company immediately.

No. 24B Ballast to wait back at Subiaco to cross A13.

| DOWN] STATIONS | SATURDAY. | SUNDAY. | | | | | |
|---|---|---|---|---|---|---|---|
| | B2 Empty Trucks. | B2½ Empty Trucks. | B4 Empty Trucks. | B6 Empty Trucks. | B8 Empty Trucks. | B10 Empty Trucks. | B12 Empty Trucks. |
| | p m | a m | a m | a m | a m | p m | p m |
| Cannington ... dep. | ... | ... | ... | 7 5 | 8 45 | 3 10 | ... |
| Burswood ... „ | ... | ... | ... | ... | ... | 3 25 | ... |
| East Perth ... „ | ... | ... | ... | ... | ... | ... | ... |
| Perth ... arr. | ... | ... | ... | 7 35 | 9 10 | 3 40 | ... |
| Perth ... dep. | 105 12 50 | 1 20 | 4 5 | 8 5 | 9 40 | 3 45 | 7 20 |
| West Perth ... „ | 25 12 55 | 117 1 40 | ... | ... | 67 ... | 75 ... 4 0 | ... |
| Subiaco ... „ | 1 5 | ... | ... | ... | 10 18 | ... | ... |
| Claremont ... „ | ... | ... | ... | ... | ... | ... | ... |
| Cottesloe ... „ | ... | ... | ... | ... | ... | 9587 | ... |
| N. Fremantle ... „ | 27 1 35 | ... | ... | ... | ... | 4 45 | ... |
| Fremantle ... arr. | 1 42 | 2 15 | 4 45 | 8 50 | 10 40 | 4 55 | 8 5 |

Engine of B2 returns to Perth attached to No. 31.

B6 will pick up load of empties at Perth.

B8 and B10 will pick up load of empties at Cannington.

Station Master, Cannington, to see wagons arriving by A5 and A7 are unloaded in time for B8 and B10.

Every effort must be made to run the above trains to time, but Passenger Trains must not be delayed.

Ballast Trains must work clear of Special Goods Trains.

S.M., Perth, to supply Guard for B2 Special. S.M., Fremantle, the remainder.

G.A. and Pier Master to advise this office by 10 a.m. Monday number of Pipes and Tonnage of Goods Loaded.

**It is most important that every available empty be worked down to Fremantle by 2.0 p.m. on Saturday.**

Dis. Supt. to arrange.

'*TRAINS CROSSING OVER THE WATER WORKS LINE AT CANNINGTON. Commencing at once all engines & trains must be brought to a stand, and before crossing over the Water Works line at Cannington drivers must satisfy themselves that no train is approaching from either direction on the Branch line mentioned. This cancels the instructions contained in Weekly notices 5 & 24.*'

There was no indication if a porter was still in charge or even if the distant signals were still operational but it seems likely that they were not. This instruction was only in force for a few weeks as Weekly Notice 37 of 1897 (11-17 September) reported that the MWWB crossing had been taken out and drivers could now pass that place at the usual rate of speed. The work of laying the pipes between the ranges and Cannington had been completed and soon after, on 12 October, a ceremony to open the complete new 21-inch main to Perth was performed. The original 12-inch pipe was used to service residents along the Albany Road (now Albany Highway) and remained as a fall back if required to service the Mount Eliza Reservoir. The new pipe was capable of discharging 4½ million gallons of water over 24 hours compared to the old corroded 12-inch line's capacity of 650,000 gallons and Perth's water demand in summer was expected to be met by regular replenishment of the Mount Eliza reservoir in Perth Park (now Kings Park) provided that the Victoria Reservoir supply held out.

Plans were already underway to build a large dam across the Canning River further into the hills, and to build a second reservoir in Perth Park to ensure that sufficient water was available for at least one extreme summer day if there was a break in the pipeline from Victoria Reservoir. It was to be many years before such a large dam was completed, but work on the second Mount Eliza reservoir had been expected to begin in June 1897. Construction materials would be moved by a tramway from Subiaco Station and preparations to lay it had already been made by 10 June. *The West Australian* of 3 November 1898 reported that the tramway to the proposed new Mt Eliza reservoir had been laid for over 12 months but ressrvoir construction had not started. Further details on this tramway are provided below.

The Canning tramway was pulled up by August 1898 and the rails stacked at the Canning but it was still a major reference point in the district. For example, the Canning Roads Board advertised in *The West Australian* of 9 August 1897 its intention to construct an extension of Welshpool Road, and a connecting road '*from the tramway, along the north-west boundary of Canning Location 50, through Loc 13 to the SW corner of Loc 84.*'

An official Metropolitan Water Works Board visit to Victoria Reservoir occurred on 29 September 1903. The men traversed the pipe track from Cannington following the Bickley Brook to the reservoir and it was noted that '*here and there along the route were decaying relics of the old Canning Mills tramway, with its wooden rails and rough, uneven track, long since fallen into disuse. These silent memorials of the early days produced in Mr Traylen a reminiscent mood, and he regaled the party with the history of the reservoir.*' Traylen was the Board Chairman and had been a member of the Perth City Council when the work commenced on the scheme.

## The Select Committee

The completion of the duplicate main was not, however, the end of matters. A Select Committee of the Legislative Assembly was appointed to inquire into the Perth water supply and the administration of the Metropolitan Water Works Board. Its report was completed on 4 October 1898 and printed as Paper A19 of 1898.

The Committee examined several witnesses, including the Mayor of Perth, the Chairman, Superintendent and one other member of the Board. Its conclusion was that while the Board showed a considerable amount of energy in dealing with the increase of the city's water supply, in doing so it was not economical - overall costing nearly double what could have been expected. The main contention was the substitution of five miles of cast iron pipes for steel pipes thus incurring an extra expenditure of some £17,000. The Board had purchased cast iron pipes to expedite the work but even this was not achieved. The Committee recommended, with reluctance, that the present Board should not continue in control of the Metropolitan Water Works but that it should be carried on as a Government Department, or by a Board presided over by the Engineer-in-Chief, or be vested in the Perth City Council. The Committee also regretted that the law was not observed by the Board in regard to obtaining the Governor's approval to expenditure and in the payment of interest as contained in the *Metropolitan Water Works Act*, 1896. The Committee was of the opinion that the present water supply from the Victoria Reservoir and the artesian bores would be sufficient for '*another year at any rate*' and they deferred making any recommendations for an extension of works during the ensuing year. It also recommended, however, that the second reservoir on Mount Eliza be provided as soon as possible in connection with the pumping of water from the bores to such reservoir.

## James Faulkner's evidence

The use of iron pipes instead of steel was examined at some length by the Committee. The Board had wanted eight miles of steel pipes supplied within three months but was unable to procure these and five miles of cast iron were promised instead. James Faulkner, Superintendent of the MWWB, in answer to the question, '*You built a railway to carry these pipes?*' said that '*there would have been no occasion if we had had steel pipes, but as the Board determined to have cast iron pipes, we had to build this railway.*' (Each 20-inch cast iron pipe weighed 32 cwt).

James' evidence was presented on 30 August 1898 and he gave the value of the remaining railway equipment as £2463 – sleepers, rails, fastenings and a locomotive. The locomotive came from Midland Junction and was bought from Mr Frank Wilson for £300, with another £150 having been spent on repairs to it.

Mr Faulkner said he had intended to work the tramway with horses, but Mr White, acting as Surveyor to the Board and looking after work generally when Faulkner was absent '*complained he could not get along with horses, and he mentioned there was a locomotive at Midland Junction and I asked the chairman if we should hire the locomotive. When the first account came in for [its hire], £140 it was so exorbitant that the Board thought it would be cheaper to buy the locomotive.*

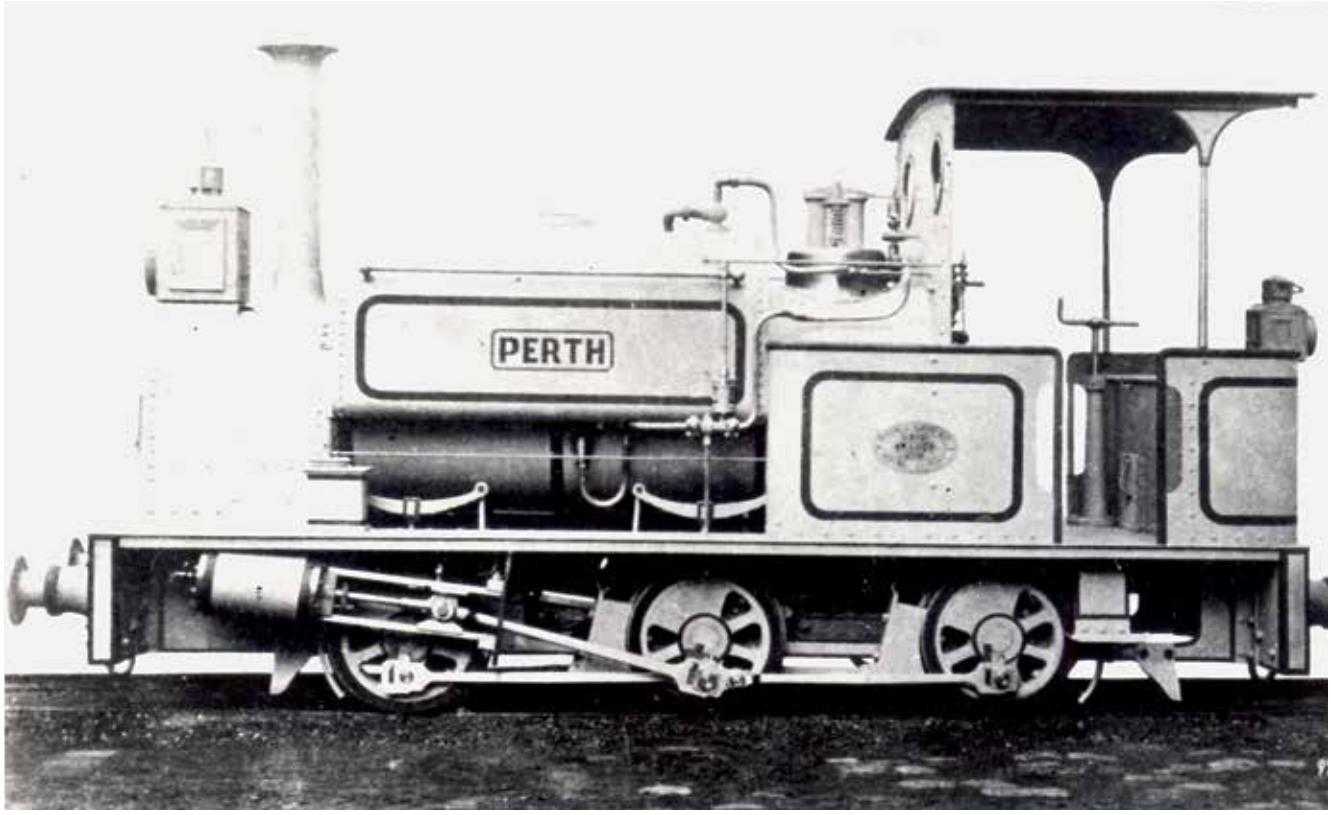
*"Did you not try to borrow an old locomotive from the government?" It would not have been suitable. "Beyond question the locomotive was bought from the Midland Company?" Mr Frank Wilson sold it to the Board.*

*"Was Mr Wilson the owner or Mr Keane?" I do not know.*

*"Did it belong to the Canning Jarrah Company?" It was one which Mr Keane used on the Midland Railway.*'

Of interest is that Frank Wilson had also been an agent for one of the companies supplying pipes (Associated Pipe Manufacturers of Melbourne) and was Managing Director of the CJTCo.

Faulkner was recalled on 27 September and said that there were ten tip trucks at Midland (Keane said six), that cost £250, plus the locomotive which had gone there for repairs, but there had been no further use for it. From later evidence the tip trucks were for the light Mount Eliza tramway.




*Builder's photograph of Hudswell Clark's 380 of 1891 prior to delivery to the Midland Railway Company of Western Australia.*
*Photo: Lindsay G Watson collection*

## Edward Keane's evidence

Keane was asked, '*Would there have been any necessity to build the railway if you had had the steel pipes?*' His response was, '*I do not think it would have been necessary at all, but still, at that time, to have done the work with horses would have taken, well, I would be sorry to say how long.*'

Later he said he was sure that the tramway would have been required, and cheaper, even if all steel pipes were used.

The exchange about the locomotive went as follows: '*Where did you get it [the small locomotive] from? From Parker & Parker, the agents for Messrs Hudswell Clarke & Co., through Mr Wilson.*

*'Did you buy it from the Midland Junction?' It was stacked there…in the Midland Junction yard there. The way it belonged to Parker & Parker was that the original owners, Hudswell Clarke & Co., were foreclosed on by Parker & Parker. Parker & Parker got paid for it through Frank Wilson, their attorney.*'

The sum of £300 or £350 was paid for the locomotive and when asked if he had any interest in it Keane said, '*none, not in the slightest*'. In answer to a question about a steam navvy, used for pipe laying along the railway, Keane said, '*Hedges bought the navvy from the National Bank, and we bought it from Hedges*.'

The steam navvy had been used on the Midland Railway at Gingin, and Keane again stressed that he had no interest in either the navvy or in the six tip trucks. Under severe questioning, he eventually admitted to the Board buying the navvy for £500 just three days after Hedges had paid £300 for it which was credited to '*the Bank*' which had foreclosed on everything Keane owned, he (as well as the Midland Railway Company) being in considerable financial difficulty at the time.

The Select Committee had asked Mr Keane about possible further use of the line if the new Canning reservoir were to be built, but Keane responded that the reservoir would be too far removed from it.

## The locomotive and steam navvy

Edward Keane was appointed contractor for the Midland Railway in 1886. Despite financial difficulties, changes to the company, and stops and starts to construction, Keane ordered four 0-6-0 saddle tank engines on 28 November 1890 from Hudswell, Clarke & Company. The locomotives (builder's numbers 377 to 380 of 1891) were dispatched to Western Australia with two going to the Geraldton end of construction and two to the Guildford (Perth) end. Three were sold in 1895 to Baxter & Prince and had varied careers in the timber and railway construction industries. B/n 380, named *PERTH*, was sold to the Perth Metropolitan Water Works Board for the 1897 pipeline duplication work. Keane's evidence would seem to have been pulling the wool over the eyes of the Select Committee regarding the purchase of the locomotive, but he was never censured for it. After its brief time on the Canning Tramway the locomotive was out of use for some years, with the MWWB inviting tenders for its purchase in May 1901. Initially the tender closed on 9 May but in *The West Australian* of 10 May the tender was repeated, now closing on the 16th. Unfortunately minutes of the Board meetings have not survived, but it is known that in September 1901 the loco was sold to Henrickson & Knutsen and shipped to Tasmania for constructing a breakwater at East Devonport. After a varied career including conversion to a 0-6-0DM, it was eventually dismantled and the frame later preserved at Marrawah Hall, Marrawah with the boiler of a Baldwin loco *Spider*. However the remains were removed to the Marrawah rubbish dump in the 1980s.

A steam navvy was used to lift the heavy cast iron pipes into the trench. It had arrived in Fremantle from England on the SS *Fifeshire* on 6 December 1890 and a few days later, Keane shipped it to Geraldton for excavation work at that end of the Midland Railway line. It must have been moved to Gingin before being sold to the Water Works Board for £500

(and £104 repairs). The navvy was also intended for reservoir construction work on Mount Eliza and was bought by Hedges from the National Bank, this purchase also being of a suspicious nature but without any direct consequences from the Select Committee Inquiry.

## More recent years

A former telecommunications surveyor recalls that Postmaster General engineers cursed the pipeline as it was still in-situ in the south-eastern suburbs and it took considerable care to work around it when installing telephone conduits in the 1970s.

Victoria Reservoir was drained to aid major repair work in 1990 and the opportunity was taken to do a major archaeological study in the area. Of note was Mason, Bird & Company's tramway, now part of the Hardinge Road reserve, with a bridge over Munday Brook believed to contain elements of the original tramway bridge. Sleepers are thought to remain buried under the road surface and one or two have been recovered over the years. No evidence of a spur line along Munday Brook was found though the study was not specifically looking for such remains.

The tramway route of the tramway from Canning (Mason's) Landing to the mill site can easily be followed, starting at Mason's Landing Park alongside the Canning River near the intersection of Albany Highway and Nicholson Road, Cannington. First travel along River Road (formerly part of Bickley Road) then onto Bickley Road, both being largely on the old tramway alignment although as it nears Beckenham station Bickley Road has been slightly deviated to the south east in more recent years.

The route bisects Beckenham station and continues along Bickley Road curving south-east then north east until the intersection of Maddington Road which the tram route then follows north east until it joins Hardinge Road and continues past Bickley Brook Reservoir. Hardinge Road used to be declared right through to Masonmill Road, Carmel, but just beyond Bickley Brook Reservoir it now ends and the former road reserve is the Mason and Bird Heritage Trail. This trail also forms part of the longer Kardamordo Heritage Trail that links the Mason & Bird tramway, the Upper Darling Range Railway (Canning Jarrah Timber Co), Port & Honey's horse drawn tramway that ran south west from Mundaring Weir, and finally the Mundaring to Mundaring Weir government railway. The bridge over Munday Brook described above is about 1.3 kilometres along the heritage trail from the end of the road and a replica timber railed tramway has been laid on its new decking.

## The Mount Eliza tramway

Mount Eliza, overlooking the city of Perth, was a natural choice for water supply reservoirs. It was a part of the Perth Park (sometimes also called National Park), which is now Kings Park, and still contains reservoirs for Perth's water supply. Construction of the original reservoir (1890–91) used road transport, tenders having been called on 17 June 1890 for the carting of bricks from Perth Railway Station, and cement from Smith & Harwood's old brewery to the reservoir site.

The initial need for a new reservoir on Mount Eliza was to store the growing volume of bore water being raised for Perth's water supply. There was then no means of aerating it. If it were pumped into the reservoir and over a cataract so that the water was aerated in pouring into a big tank, its quality would be greatly improved. The second reservoir would also be required for extra water supplied from Victoria Reservoir and any future additional water source. The Perth Park Board approved construction of a tramway within the Park from the corner of Brooking and Thomas Streets at a meeting in early May 1897 - provided that the tramway was laid so as to cause

*Looking along the route of the former Mason, Bird & Company tramway from the Canning Landing to Mason's Mill on 26 April 2011. The route is crossing Munday Brook by a substantially rebuilt bridge which now has 'replica' wooden tramline on the new decking. Photo: David Whiteford*


*At the Victoria Reservoir a sample of the old water pipeline is used to help divide car parking. 25 August 2011. Photo: Lindsay G Watson*

no permanent disfigurement to the park, and the MWWB was to be asked to allow material for the building of the Park Lodge to be conveyed over the line.

The tramway of light rail and steel sleepers, 2½ miles long, was put down from Subiaco to Mt Eliza and an additional 600 yards of rail was stacked. The gauge has not been stated in sourced records, but as a 1900 surveyors drawing shows the tramway coming off a WAGR siding and is presumed to be of 3ft 6in and light construction. Six or ten tip trucks were bought for £250 but were unlikely to have been delivered to the line for all were still on rails at Midland Junction in August 1898. Together with the steam navvy and steam winding gear, they were intended for the reservoir construction instead of taking the spoil out with horses and carts on the heavy deep sand. The tip trucks, like the navvy, were from the Midland Railway, but Mr Keane in his Select Committee evidence said he had no interest at all in any of this equipment. When questioned about the cost of the equipment, Keane said if the work had gone ahead it would have paid for itself without any difficulty.

The tramway still existed in 1899 and '*Western Subiacoite*' had a letter published in *The West Australian* of 9 June 1899 calling for it to be used as a passenger tramway to meet the new electric tramway.

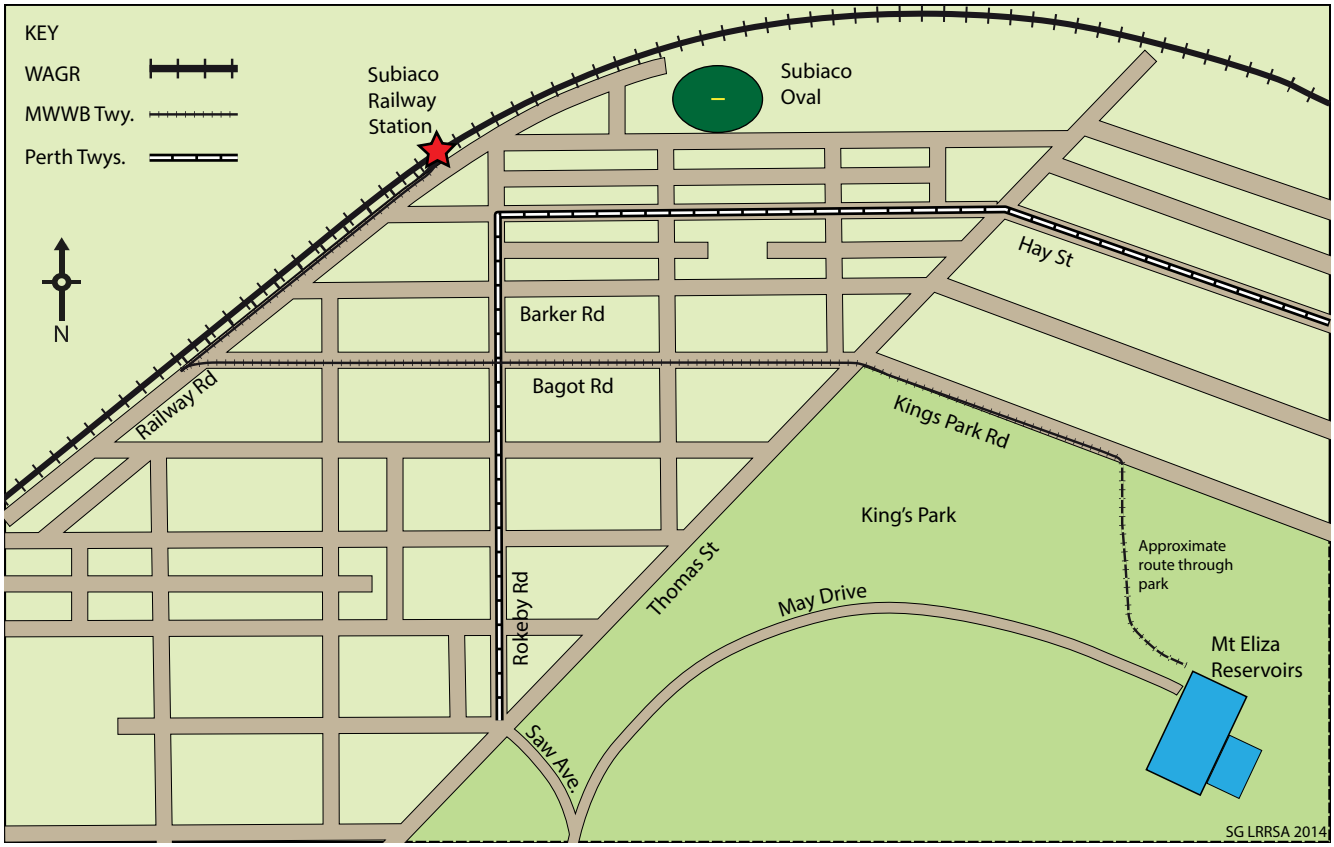
'*It may not be generally known that in one of the most picturesque parts of our National Park, and also through the residential part of Subiaco, there is a light tramway line laid . . . having never been used even for the purpose for which it was originally intended. To me it is a surprise that there has not been one enterprising man in our midst to purchase or lease this tramline from the Waterworks board, for I think the outlay of ballasting the line where it at present lies would not be a very expensive one, while its being used would serve the convenience of those dissatisfied with our present 'bus route. . . . if the present line . . . was connected with the Hay Street line terminus by, say a small horse tram, charging a reasonable round fare, very many persons would avail themselves of a ride through our beautiful park. . . . The rails and sleepers needed to connect the Hay Street end with the park line might be found in that portion at present lying in sections leading from the railway crossing at Broome Road and running some distance along Railway Road Subiaco*.'

## Route and use of the Mt Eliza line

Surveyors field maps show the tramway started from a siding on the eastern side of the WAGR Subiaco railway station, and ran along Railway Road to a dead end at the Bagot Road intersection. Reversing direction the tramway entered Bagot Road, then via Thomas Street and into Kings Park, roughly paralleling Kings Park Road until it reached the reservoirs.

The tramway received some press mentions in 1897. *The Suburban Standard* of 11/9/1897 reported the Subiaco Council meeting of 8 September at which Council decided that Barker and Bagot Roads were to be brought under notice of the Government for consideration in the next estimates with special emphasis on Bagot Road now that the tramline was laid along it enabling the material to be laid down at less cost. *The West Australian* of 25 October 1897 reported the discovery of a man's body in scrub at the end of the line in Park Road. The death was thought to have been over a week previously and was apparently suicide.

Eventually the tramway seems to have been used for its original intended purpose when construction of the second Mount Eliza reservoir began early in 1900, but even then the line courted controversy. At the Subiaco Municipal Council meeting of 2 May 1900, a letter from the Metropolitan Sewerage & Water Supply was read out informing Council that if Council was to start road making in Bagot Road the MSWS would move the tramway at the places where it was in a position to interfere with road making. Construction of Bagot Road by day labour was to commence on Monday 16 July 1900 but the tender was deferred and at a Subiaco Council meeting of 3 October it was reported that council was unsuccessful in getting a £5,000 government grant for the road.




The Mt Eliza tramway was again in *The West Australian* on 7 February 1901, which reported the latest Subiaco Municipal Council meeting. The Metropolitan Water Works Board had written to the council pointing out that if the Board agreed to carry out the Council's proposed alterations to the reservoir tramway, it would lead to the suspension of the construction of the Mt Eliza Reservoir. It was further urged that as the Board was pushing forward this work as rapidly as possible, the Council should assist by not insisting on the tramway being altered until the reservoir was completed. Nevertheless, the council unanimously agreed to insist that the alterations be effected immediately, although its meeting of 20 February 1901 heard notification from the Board that they would finish with the Bagot Road tramway by 14 March. Mr D Feakes of the Perth Park Board was present and asked that the tram line remain to assist the Board construct a new road from the end of Rokeby Road to the new circular road through the park now being completed. Council approved this, but by the meeting of 17 April the Park Board had sent a letter denying that Mr Feakes had made any such promise to connect Rokeby Road with the park drive in consideration of the tram line remaining. Council then agreed to advise the Water Works Board that it was its intention to take up the tram line at the end of the present week.

This proposal presents a puzzle, as it appears to be relating to what is now Saw Avenue which connects the Rokeby Road/Thomas Street intersection (the then electric tramway terminus) with May Drive, part of the park's circular drive. However, the MWWB tramway is not thought to have been closer to that site than the intersection of Bagot and Rokeby Roads, more than half a mile away, unless it had been re-laid to follow and move around the electric line at its new terminus. The new Perth electric tramway from the city along Hay Street to the Rokeby Road intersection opened on 8 January 1900, and the extension to Kings Park Gates opened on 29 January 1900, cutting the MWWB tramway at Bagot and Rokeby Roads. It is extremely doubtful that any crossing of the electric tramway would have been provided, and a March 1900 survey shows the MWWB line severed by the electric tramway. The MWWB was not finished with the Bagot Road line until March 1901, so how was this worked? With neither early Subiaco, or Water Works minutes surviving, and despite frequent reporting of council minutes in the press, the full story of the line is unlikely to be known. Archived Park Board letters only refer to the line when initial approval was given to build it through the Park.

In the MWWB *Report of works to 30.6.1901* the Mt Eliza tram had cost £457 17s 10d in construction and £339 1s 9d in wages, but there had been no maintenance expenditure to 30 June 1901. In the same tender notices as those for the locomotive, the MWB had a quantity of '*tram rails and sleepers*' and one set of points and crossings for sale. The first two notices (*The West Australian* 2 & 6 May) listed 120 chains of rails but the renewed tender in the issue of 10 May had about 280 chains of rails and sleepers, tenders quoted to be for quantities of not less than half mile. This is likely to have been the Mt Eliza track.

## Acknowlegements

Research assistance from John Browning, Adrian Gunzburg and Jeff Austin has been appreciated.

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# J.L.N. SOUTHERN AWARD

## For excellence in published research of light railway subjects

*Ian McNeil, winner of the inaugural, 2013, JLN Southern Award, receives his certificate from LRRSA President Bill Hanks. Photo: Bronwyn Hanks*

As set out in *Light Railways* number 234, the LRRSA Council wishes to provide encouragement to, and recognize the efforts of researchers, and reward the production of high quality articles published in the *Light Railways* magazine, or in other publications. The JLN Southern award is made annually for the best article covering research of light railways in general for the previous calendar year. The inaugural award covers the 2013 year.

The Judging Panel comprised three highly qualified people in the field of light railway research. Bob McKillop was previously one of the Editors of *Light Railways* magazine and is currently the Editor of *Australian Railway History* magazine and brings a wealth of experience to the Panel. Roderick Smith is a former President and Treasurer of the LRRSA. Roderick is founder and Editor of *Rail News Victoria* and also brings a strong background in the field of publishing railway related articles. Dr Ruth Kerr is an eminent historian based in Queensland and is the President of the Federation of Australian Historical Societies Inc. Dr Kerr is an experienced historian in mining, regional, economic and company history, and has written a number of books on these subjects.

The judges have assessed each article on the basis of original research, presentation, readability, referencing and the appropriate use of maps, diagrams and photographs.

The Panel selected eight articles published in *Light Railways* during 2013 that were considered worthy of in-depth consideration. The Panel considered that Mike McCarthy's 'Wonthaggi Brickworks' and Ian McNeil's 'Rhodes Timber Company' to be worthy of consideration. It also agreed that Chris Wurr's 'Oldea Firewood Tramway' was a contender by a first-time contributor. It also ranked Jim Stokes' article on the Mt Lyell Locomotives, Graham Black's in-depth study of the Mersey tank locos on the Richmond Vale Railway, and John Shoebridge's 'fractures and failures' highly.

After full consideration, the Panel made the following recommendations to Council, which have subsequently been approved:

1. The winner of the JLN Southern Award is Ian McNeil for his comprehensive article 'The Rhodes Timber Company, Mount George, NSW' published in the October and December 2013 issues of *Light Railways*. This article is a substantial contribution to Australian light railway research and brings together an in-depth analysis of a subject previously only the subject of a superficial article in the ARHS *Bulletin* many years ago, shown by Ian's impressively researched article to contain many errors.
2. We recommend to Council that the articles 'Wonthaggi Brickworks' by Mike McCarthy and 'Oldea Timber Tramway' by Chris Wurr be acknowledged as 'Highly Commended'.

The LRRSA Council would like all members of the Society to join them in congratulating Ian for this major achievement.

Nominations of non-LR material (all LR articles are automatically included) for the 2014 calendar year are invited and may be forwarded to the Hon Secretary, Light Railway Research Society of Australia Inc., PO Box 21, Surrey Hills Vic. 3127


# *Jack* back in steam

*by Ian McNeil*

Lake Macquarie Light Rail (LMLR) has completed an extensive 5-year restoration of the heritage Krauss steam locomotive 0-4-0T *Jack* (6063 of 1908).

*Jack* was one of four 11¾ ton Krauss locomotives imported from Germany by the NSW Public Works Department for the construction of the Burrinjuck Dam in southern NSW. During the 20-year construction period these diminutive locomotives hauled countless thousands of tons of construction materials over the 27-mile Goondah – Burrinjuck line. In 1928 *Jack* was acquired by the Farleigh Co-operative Sugar Mill in North Queensland and roamed the cane fields until the mill dieselised in the early 1960s. It was rescued by the NSW Rail Transport Museum and for over 30 years greeted visitors at the entrance of the Museum at Thirlemere.

In late 2008 LMLR acquired *Jack* under a long-term lease from the Museum on the understanding that it would be restored to operating condition in as close as possible to original condition. For many years *Jack* was believed to be ex-Burrinjuck sister locomotive *Archie* (Krauss 5945 of 1907). Its true identity was confirmed at LMLR when *Jack*'s builder's number – 6063 – was found stamped on major components.

A detailed restoration plan was developed which involved stripping *Jack* down to bare bones and restoring each component part. A volunteer draughtsman took on the task of measuring up every part to create a full set of Krauss engineering drawings. LMLR was able to obtain a grant from the NSW Department of Planning and Heritage to assist with the project.

There were quite a few challenges to overcome during the lengthy restoration. *Jack* had not steamed or turned a wheel in over 50 years, consequently the pistons had frozen inside the cylinders, and wheel journals had rusted inside the axle boxes. Expansive rust had damaged the fabric of the locomotive cab. Past shunting mishaps had left the rear of the cab out of square, and a hole had been punched in the wall of the front well tank by the coupling bar.

*Jack* had been re-boilered in Queensland in 1942. The boiler was basically sound but the tube plates needed attention as did some external pitting caused by moisture trapped under the boiler cladding. Specialist repairs were carried out by Ken Ainsworth Engineering of Goulburn, one of the few accredited firms in this field. Back at LMLR the boiler was hydrostatically tested to 205psi and passed by the boiler inspector for operation at its original 175psi, more than adequate for LMLR's 150psi operating policy.

While every attempt was made to restore Jack's original components, some were judged to be beyond repair. Among the parts replaced were the fireman's and driver's side lower cab assemblies, both side tanks, cab floor, ashpan, smokebox barrel and boiler cladding. Steam and water lines were re-plumbed in copper and configured to the original Krauss configuration. Replicas were fabricated to replace non-original parts added at Burrinjuck and in Queensland, including a Krauss funnel, spark arrestor, smokebox door and period headlight.

Restoring *Jack*'s Stephenson link motion was another challenge. On arrival at LMLR many of the parts were in poor condition. New slide bars, pins and bushes were made, and the die blocks were re-metalled, machined, draw-filed and lapped into the expansion links. All the motion as well as the side and connecting rods were draw-filed and polished smooth by hand. Wheel journals required pad-weld repairs, turning and linishing, and the brass bearings were re-metalled.

Steam trials in late 2013 were successful with the performance exceeding all expectations. After many rounds of sanding and painting, the locomotive was finished out with red buffer beams, black smokebox and underframes and a gloss black finish with a 'blood-and-custard' pin stripe lining on the bodywork. Official celebrations took place on 23rd April 2014. After some 4,500 man-hours of effort *Jack* was deemed to be fully restored.

***Above:*** *Unloading* Jack *– still wearing* Archie *nameplates – at LMLR in September 2008. Locked wheels meant the locomotive had to be skidded an inch at a time into the engine shed on greased rails.*
***Right:*** *Early in the restoration process* Jack *had progressed to a mobile frame with repairs completed to the frame, wheels, axle boxes, well tanks, front buffer beam and coupler pocket.*
***Below right:*** *With the boiler away under repair at Goulburn, installation of the fully rebuilt cab and trial fitting of replacement side tanks took place. The refurbished cab roof features a replacement cypress pine wooden lining.*
***Above left*** *(page 22): The fully restored* Jack *in steam during the official celebrations at LMLR in May 2014.*
*All photos: Ian McNeil*

# Industrial Railway NEWS

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**Special thanks to contributors to the *Sugar Cane Trains/Navvy Pics* 2ft Facebook page.**

## NEW SOUTH WALES

**BLUESCOPE STEEL,**
**Port Kembla Steelworks**
1435mm gauge
This site's rail operator, Pacific National, is replacing its fleet of English Electric locomotives with seven new Multi Engine N-ViroMotive locomotives from US-based National Railway Equipment Company (NRE). These 1600 hp Bo-Bo DE units are powered by two Cummins QSK19 motors. The first two, numbered PB1 and PB2, arrived at Port Kembla and were unloaded in mid July. Following some days roaming the Sydney surburban system, PB1 entered the BlueScope site at Port Kembla on 24 July. PB2 was on site by 8 August and these two locos are expected to enter operation during August.
www.railwaygazette.com/news/traction-rolling-stock/single-view/view/pacific-national-takes-delivery-of-locomotives.html; www.logisticsmagazine.com.au/news/pacific-national-welcomes-new-n-viromotive-locomot; www.railpage.com.au/news/article-12817; www.railpage.com.au/f-t11377889.htm; Matty Allen 7/14

## QUEENSLAND

**BUNDABERG SUGAR LTD, Bingera Mill**
(see LR 238 p.24)
610mm gauge
This mill made a delayed start to the crushing on 21 July following fire damage in May. Bingera crushes most of the cane on the north side of the Burnett River with a small amount being road hauled to the company's Millaquin Mill.
EM Baldwin 4w-2DH *Beetle* (4529.4 12.72 of 1972 rebuilt EM Baldwin 1979 rebuilt Millaquin Mill 1980) was scrapped earlier this year.
*News Mail* 2/8/2014; Geoff Driver 7/14

**BUNDABERG SUGAR LTD, Millaquin Mill**
(LR 238 p.24)
610mm gauge
The turbo reversing transmission on Bundaberg Foundry B-B DH *Elliott* (002 of 1991) failed to retard while approaching the mill yard at Alexandra Street East on 25 July. The loco and its load of full bins could not be slowed down sufficiently and ran into a rake of full bins in one of the lines in the full yard. The loco and many bins were derailed.
An unexpected reason for the activation of the flashing lights at the FE Walker Street level crossing in Bundaberg occurred on 14 August. Haulout vehicles at the nearby siding were incorrectly reversing over the line at the activation point for the lights, causing them to come on without a train being present.
*NewsMail* 25/7/2014, 15/8/2014; OHS News 28/7/2014; Mitch Zunker 7/14; Lincoln Driver 8/14

**MACKAY SUGAR CO-OPERATIVE ASSOCIATION, Mossman Mill**
(see LR 238 p.25)
610mm gauge
Ex Mackay mills Com-Eng 0-6-0DH *Cattle Creek* (B1724 of 1957) was seen here on 10 June, up on blocks and less its running gear. Obviously a spare parts reservoir for the mill's other Com-Eng locos.
A derailment involving two bins about three kilometres north of Port Douglas at 10 PM on 30 June resulted in a loco on its side and the two crew members with minor injuries. Another derailment occurred near the South Mossman River bridge on 22 July.
At least one grower on the Atherton Tableland has won a court battle to send his cane to the MSF Sugar Ltd. mill there rather than Mossman on the coast which he was contracted to. This may result in a slightly shorter crushing season for Mossman.
*The Cairns Post* 2/7/2014; *OHS News* 3/7/2014, 28/7/2014; ABC Rural 10/7/2014; John Browning 6/14

**MSF SUGAR LTD, Mulgrave Mill**
(see LR 237 p.19)
610mm gauge
Early in August, Com-Eng 0-6-0DM 3 (A1003 of 1955) was being fitted with a Cummins motor. Clyde 0-6-0DH 23 *Behana* (55-56 of 1955) and 24 *Pyramid* (56-90 of 1956) have been set aside. Other stored locos that have been noted here recently are Com-Eng 0-6-0DM 2 (A1001 of 1955) and 5 (A1005 of 1955), Com-Eng 0-6-0DH 7 (B1010 of 1956), EM Baldwin 4wDM 10 (6/881.1 6.64 of

*Doing a cross at Howells Loop on 20 June are Farleigh Mill's Walkers B-B DH* Tannalo *(705 of 1972 rebuilt Bundaberg Foundry 1995) with the fulls and* Walkerston *(672 of 1971 rebuilt Pleystowe Mill 1994) with the empties. Photo: Scott Jesser*

***Top:*** *Bingera Mill Walkers B-B DH* Kolan *(633 of 1969 rebuilt Bundaberg Foundry 1996) at Pitts Hill on 7 August. Photo: Lincoln Driver* ***Centre:*** *Mulgrave Mill Clyde 0-6-0DH 16* Kamma *(56-96 of 1956) at the end of the full yard at the mill on 24 August. Photo: James Chuang.* ***Above:*** *Racecourse Mill's Clyde 0-6-0DH 14* Alexandra *(61-235 of 1961) at Racecourse 8 on 4 July. Photo: Scott Jesser*

1964) and Clyde 0-6-0DH 14 (56-86 of 1956). On 13 June, Com-Eng 0-6-0DM 4 (A1004 of 1955) was seen to be frames only with Clyde 0-6-0DH 15 (58-190 of 1958), a cabless and gutted hulk.
A derailment of full bins on the bridge over Byrnes Creek, north of Babinda, on 18 August caused enough damage that the bridge was expected to be closed for from one to three weeks. Cane south of this bridge that normally goes to Mulgrave was diverted to the company's South Johnstone Mill.
Chris Stephens 8/14; John Browning 6/14; Carl Millington 7/14; Andrew Sues 8/14 Luke Horniblow 8/14; Erik D'Urso 8/14

**MSF SUGAR LTD, South Johnstone Mill**
The bogie rail vehicles previously used for transporting road-hauled cane within the South Johnstone mill yard were seen in storage at the Goondi Mill site during June.
John Browning 6/14

**WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills**
(see LR 238 p.26)
610mm gauge
At some time between 1 and 3 July, EM Baldwin B-B DH *Darwin* (6171.1 9.75 of 1975) with its Clyde brakewagon returned to Macknade Mill from Victoria Mill and vice versa for Clyde 0-6-0DH *Perth* (69-682 of 1969). Victoria Mill's Clyde 0-6-0DH *Canberra* (Clyde 65-433 of 1965) was sent to Macknade Mill on 21 July so that Macknade had an extra loco in the roster and one could thus be available at any time for the bridge gang to do some deflection tests on the Herbert River bridge. It eventually returned to Victoria on 19 August and had also been used to cover for loco breakdowns at Macknade. It wasn't gone for long, returning to Macknade on 21 August in a swap for the Darwin and its Clyde brakewagon. This was owing to a loco shortage at Victoria. These two locos were swapped back, Canberra to Victoria and Darwin to Macknade on 23 August.
Late in July, the brakewagons of Macknade Mill's EM Baldwin B-B DH 19 (7070.3 4.77 of 1977) and EM Baldwin 0-6-0DH 14 (6/2490.1 7.68 of 1968) were swapped over to give 19 the better performing EM Baldwin 6-wheeled BVAN 2 (7065.5 6.77 of 1977). 14 now has the disc braked Clyde 6-wheeled BV5 (CQ3477-1 of 1976).
On 2 August, Hudswell Clarke 0-6-0 *Homebush* (1067 of 1914) hauled passenger trains on the Nyanza line for the annual Italian Festival.
A man has been convicted and fined for riding on cane bins in Ingham on 6 July.
Editor 7/14, 8/14; *Herbert River Express* 16/8/2014

**WILMAR SUGAR PTY LTD, Burdekin Mills**
(610mm and 1067mm gauge)
The EV alert system used in locos in this district has been removed as it used old analogue technology, has become outdated and cannot be repaired or replaced. This system transmitted a signal to vehicles nearby, altering them to the presence of the train. Wilmar is looking into a replacement system.
ABC Rural 24/7/2014

**WILMAR SUGAR PTY LTD, Inkerman Mill, Home Hill**
(see LR 237 p.20)
610mm gauge
EM Baldwin 0-6-0DH *Carstairs* (6/2715.1 9.68 of 1968) has become spare loco at this mill.
Luke Horniblow 8/14

**WILMAR SUGAR (INVICTA) PTY LTD, Invicta Mill, Giru**
**WILMAR SUGAR (KALAMIA) PTY LTD, Kalamia Mill**
(see LR 238 p27)
610mm gauge
Invicta Mill's Tamper ballast tamping machine (built in 1993) was on loan to Proserpine Mill for a period of time, mid year.
Invicta Mill's Com-Eng 0-6-0DH *Northcote* (AH4091 of 1965) appears to have been on loan to Kalamia Mill for a period during August. It was on a working heading towards Kalamia on the weekend of 9 and 10 August and was back at Invicta by 17 August.
Luke Horniblow 7/14, 8/14; Carl Millington 7/14; Hayden Quabba 7/14

**WILMAR SUGAR (PLANE CREEK) PTY LTD, Plane Creek Mill, Sarina**
(see LR 238 p.27)
610mm gauge
As well as a new motor and transmission, Com-Eng 0-6-0DH 7 (FC3776 of 1964) was fitted with a new radiator and chunky housing during the slack. This has changed the frontal appearance of the loco and looks similar to that fitted to the Clyde 0-6-0DH at Penang Mill in Fiji.
The Tamper ballast tamping machine (559 of 1975) was on loan to Proserpine Mill from mid July.
On 25 July, Clyde 0-6-0DH D1 (56-101 of 1956) was loaded onto road transport at the mill, for transport to the outer section of the Plane Creek line where it services several sidings beyond a weak bridge over Plane Creek. This bridge can no longer support the weight of a loco and the bins have to be pushed over for collection by a loco on the mill side.
Luke Axiak 7/14; Luke Horniblow 7/14; Scott Jesser 8/14

**WILMAR SUGAR (PROSERPINE) PTY LTD, Proserpine Mill**
(see LR 238 p27)
610mm gauge
The mill's Plasser Australia ballast tamping machine (413 of 1995) broke down mid year and Invicta Mill's Tamper ballast tamping machine (built in 1993) was borrowed for a while. Around mid July, Plane Creek Mill's Tamper ballast tamping machine (559 of 1975) was also borrowed.
During the first half of July, Walkers B-B DH 14 (701 of 1972 rebuilt Bundaberg Foundry 1998) hit a cow and required repairs.
Walkers B-B DH 11 (628 of 1969 rebuilt Walkers 1996) derailed when a rail broke on a curve and ended up on its side in the lineside ditch next to Strathdickie Road on 23 July. The loco was rerailed and the track repaired the next day.
Clyde 0-6-0DH 6 (62-272 of 1962) and 8 (65-443

***Top:*** *Proserpine Mill's Walkers B-B DH 11 (628 of 1969 rebuilt Walkers 1996) at Blair siding on 20 July. Photo: Scott Jesser.* ***Centre:*** *With its new radiator housing plainly obvious is Plane Creek Mill's Com-Eng 0-6-0DH 7 (FC3776 of 1964) at 5 Main Line on 7 August. Photo: Scott Jesser.* ***Above:*** *South Johnstone Mill EM Baldwin B-B DH 32* Liverpool *(10385.1 8.82 of 1982) on Fishers Creek bridge near the end of the Nerada line on August. Photo: James Chuang*

of 1965) are out of use and derelict, including the absence of motors and convertors in both locos.
Luke Horniblow 7/14; Carl Millington 7/14; Hayden Quabba 7/14; Tom Badger 8/14; *Whitsunday Times* 31/7/2014

## TASMANIA

### COPPER MINES OF TASMANIA PTY LTD, Mount Lyell mine, Queenstown

The Mount Lyell mine was shut down and put into care and maintenance on 9 July 2014, following a rockfall affecting the mine's ventilation system, suspension of operations since a fatality in January 2014, and two fatalities in December 2013. This brings to an end nearly 120 years of operation, with a brief interruption after Copper Mines of Tasmania Pty Ltd purchased the leases from The Mount Lyell Mining and Railway Co Ltd in late 1994. Copper and gold ore was mined in twelve separate ore bodies, the largest being the Prince Lyell which was mined in the West Lyell open cut and more recently from underground.

From the start of full scale copper production in 1896 underground and open pit rail haulage at the Iron Blow ore body was by hand trucking. At the North Lyell ore body this included box trucks on 18in gauge tracks underground. Horse haulage of side tipping trucks on 2ft gauge tracks brought ore from the shaft to the surface at North Lyell until the North Lyell tunnel was completed in 1928. This 7,000 foot tunnel connected the base of the ore body to the tunnel yard near the treatment plant and smelter. English Electric trolleywire locomotives and 10 ton capacity bogie ore trucks inaugurated haulage. Fordson petrol locomotives and side tipping trucks on 2 ft gauge worked in a quarry for underground mine backfill at North Lyell from the 1920s to the mid-1930s. Horses initially hauled West Lyell open cut ore underground when mining commenced in 1935, but this was soon taken over by rubber tyred trucks delivering to ore passes, through which ore dropped to the North Lyell tunnel 600 feet below.

The electric rail system was expanded when the West Lyell tunnel, ore passes and a new crusher were commissioned in 1959. The end of the West Lyell open cut was in view by the mid-1960s and battery locomotives were used to develop a new underground mine at Crown Lyell. Battery locomotives and large Hagglund rail shuttle cars were also purchased for rapid tunnelling advance to other ore bodies. The North Lyell and the West Lyell tunnels were connected to allow haulage of ore from underground mining of the Prince Lyell ore body below the West Lyell open cut. Another tunnel was developed from the North Lyell tunnel to the Cape Horn ore body and a new fleet of ASEA and Gemco electric locomotives and bottom dump ore trucks purchased. The West Lyell open cut operations ceased in 1972.

The North Lyell and West Lyell tunnels were about 195 m above sea level but deeper haulage levels were required as mining progressed, and accessed from the new 650m deep Prince Lyell shaft. Haulage on 2ft gauge tracks from the Prince Lyell and Cape Horn ore bodies was planned at about 15 m below sea level, and on 900 mm gauge tracks from Prince Lyell at 220 metres below sea level. A new fleet of 900mm gauge electric locomotives was supplied by Siemens for haulage of 15 tonne capacity bottom dump rail trucks.

Increasing mining costs in the mid-1970s led to curtailment of the underground mine development and a decision not to equip the two deeper rail haulage levels. For a time rubber tyred diesel trucks hauled ore up to where the trains were loaded. Rail haulage from the Prince Lyell ore body ceased in 1980 after new 50 tonne capacity rubber tyred trucks were commissioned to haul ore direct to surface. Final rail haulage of ore at Mount Lyell, from the Cape Horn ore body, occurred in 1987. There were no rail operations underground when Copper Mines of Tasmania Pty Ltd took over in 1994 although the tracks remained in the North Lyell and Cape Horn tunnels, and a rail flat truck sat abandoned half way along the North Lyell tunnel. Mining in the Prince Lyell ore body recently reached approximately 700 m below sea level, or 900 m below the former North Lyell and West Lyell tunnels.

http://www.vedantaresources.com/media/166009/cmt_media_release_090714.pdf; company annual reports; mines department annual reports; operation descriptions; AusIMM Proceedings and AusIMM Underground Operators' Conference proceedings; Tony Weston 8/14

## OVERSEAS

### FIJI SUGAR CORPORATION

(see LR 238 p.27)

610mm gauge

The repairs to the damaged Navisa rail and road bridge on Koronubu Road on the Rarawai Mill system were completed by the end of July with heavy vehicles once again able to use it. About 50,000 tonnes of cane is in the area beyond the bridge and a diversion had been built to enable lorries to cart this cane in the meanwhile.

On the Lautoka Mill system, farmers on the Kavanagasau side of the Sigatoka River who abandoned cane farming for other crops are waiting for the rail bridge to be fixed.

Mechanical cane harvesters have been reintroduced this year and have resulted in an improved cane supply to mills in the Western Division.

The Commissioner Western's Office has engaged in discussions with the Fiji Sugar Corporation and the Ministry of Transport on nationalising the former's railway system. There is a long term plan to upgrade the system and make greater use of it. Other uses include molasses, minerals and wood chips as well as carting more cane.

*The Fiji Times Online* 2/7/2014, 5/7/2014, 19/7/2014, 5/8/2014, 16/8/2014; *The Jet* 29/7/2014

*Racecourse Mill's cow and calf, Clyde 0-6-0DH Habana (60-215 of 1960) and Marian-11 (56-104 of 1956) at Bakers Creek loop on 31 July. Photo: Steven Jesser*

# LETTERS

Please send letters to:
Editor: Scott Gould
PO Box 21, Williamstown, Vic 3016
e-mail: editor@lrrsa.org.au

Dear Sir,

**Price salt works tramway**

Whilst researching the tramway connecting the town of Price and its salt works with the wharf on Wills Creek, I have found that the caption on the photograph in page 7 of the late Arnold Lockyer's article 'Jetty and Wharf Tramways of South Australia' (LR 142) is incorrectly dated. The photograph showing the Fordson powered TACL locomotive was captioned as being circa 1956, but when searching on Trove I discovered the photograph appeared in the October 15, 1927, edition of *The Register*. The article can be viewed here: http://nla.gov.au/nla.news-article56517445 The article in the newspaper seemed to be written to publicise the conversion from horse to locomotive traction.

Les Howard of the Society's SA Group has supplied me with a scan of the photograph from Arnold's collection, which makes me believe that other aspects of the caption in LR 142 is also incorrect. It is not obvious in the photograph as printed in either LR or *The Register* that the locomotive is running past a set of trailing points. Based on the diagram in LR 120, the trailing turnout and the proximity of the buildings in the background suggest to me that the train has just left Price, rather than approaching the wharf as described. The most likely turnouts are for the branch to the salt works, so it would be expected that the loading on the train would be bagged grain.

In Norm Houghton's article 'The Cheetham Chronicles: Part V – Price' (LR120) he lists two Malcolm Moore Fordson tractors running on the wharf tramway, one built in 1940, and another built in 1926, however LR69 has that older locomotive not being transferred to Price until 1964. This then raises the question: what is the identity of the TACL in the photograph, operating at Price in 1927?

The photograph was taken approximately 30 years earlier than stated, the load is most likely bagged grain, not salt, and the location is about one mile away from that in the caption.

John Dennis
Mitcham, Vic.

Dear Sir,

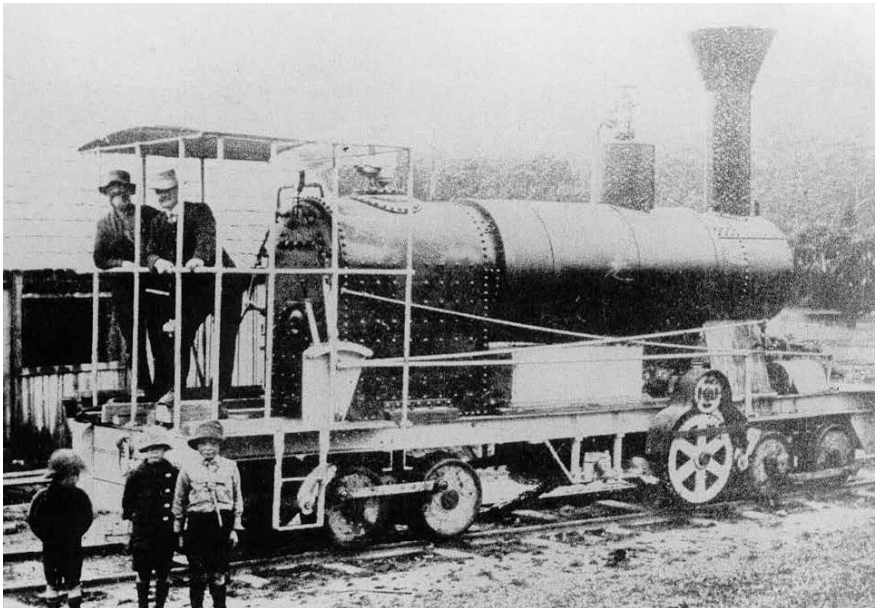
**Locomotive at Florentine, Tasmania, (LR 237 & 238)**

The letter from Tony Parnell on page 28 of LR 238 about the mystery of the origin of the locomotive on display at Florentine, and pictured at the bottom of page 31 of LR 237, had me rather intrigued. So I looked back to my article "*Old wheelsets and their stories*" from LR 211 (February 2010), as well as to the suggested web address www.australiansteam.com/Byers.htm to check things out.

In my article, there is a schedule of data regarding eighteen wheelsets (or pairs of wheelsets) that, with the exception of the sixth, I came across on various field trips etc. between October 2003 and July 2009. These data include descriptions of wheel types, dimensions (where measurable), locations, sources (where known), general notes etc. The wheelsets that are possibly relevant to solving (or not solving?) this mystery are the tenth and eleventh in the schedule. The article also included a series of photographs (many with insets), that I took over those years, as well as some by others. The relevant photos are the bottom two on page 23.

The web address came up with what has become the standard photograph of the Raminea *Byers,* from the *Weekly Courier* of 29 May 1913, and a brief summary of that locomotive's history, including the later history of its bogies, generally as described in the article. It also came up with a photograph that had clearly been scanned from the one at right bottom of page 23 of the article, complete with the inset showing the bogie's bevel gearing.

While there have been some anecdotal reports attributable to the late Jim Casey that the *Byers* was hard on wheels, and that there needed to be spare sets available (notes from Wayne Chenowyth, Ken Milbourne and others), I would doubt that any of these would have been markedly different from the original 1912 sets as shown in



*This photograph is of the* Byers *locomotive that was new to Raminea in 1912, and shows the rod linkages that were then fitted. It was the only steam locomotive to work on the system, doing so up until the late 1930s. It was then dismantled with parts of it being used elsewhere. However, many other parts were used in the construction of the* Caterpillar, *the third of a series of eccentric locomotives at the mill. One of the bogies was used as the leading bogie on the new locomotive, and the other as a trailing powered log bogie.*
Weekly Courier, *29 May 1912*

*Malcolm Moore TACL petrol locomotive at Price, probably in 1927. Photo: Arnold Lockyer collection, courtesy NRM*

the unfortunately poor *Byers* photograph. Certainly, the ones shown in my photographs are strikingly similar, including being solid, other than having the holes I attribute to the original rod linkages. In neither case did the wheels show any embossing, or indicate any maker's name. The minimum diameters of these wheels (across the outer face of the barrels) were measured as 23¼ inches (591 mm), and the maximum diameters (across the flanges) as 27½ inches (699 mm): refer to the tenth wheelset in the schedule.

Note that the eleventh wheelset(s) are those shown in the background of the photo at bottom right on page 23, and although this was the other bogie that had been under the display log outside the Dover Mill, they may have been, but were probably not directly related to the *Byers* itself. Again, these wheels show no embossing. A photograph of the *Byers*' successor at Raminea, the less than successful *Caterpillar*, shows that this had a leading 4-wheel bogie with a *single* wheelset at its rear, and *then* the driven log bogie, although this is partly obscured. But significantly, this is followed by three log bogies with wheelsets that are very similar, I would even suggest identical, to the eleventh ones scheduled, and they certainly do not have holes for linkages. Nevertheless, they are of similar, but of smaller diameters than the original *Byers* wheels: 19¼/23¼ inches versus 23¼/27½ inches.

The wheel shown in the photo on page 28 of LR 238, being from the bogie trailing the subject locomotive, would appear to be much smaller again than these dimensions. Further, (a) the key is very prominent, while any on the *Byers*' wheels are all but invisible, and (b) there are clearly embossed maker's and other markings as opposed to none on the *Byers*.

*The* Caterpillar *had an unusual wheel arrangement, with a leading 4-wheeled bogie, a single rear wheelset, and a linked powered 4-wheeled log bogie. It is unclear which of the five axles were powered, but most likely all but the single rear wheelset. The two bogies were from the old* Byers*, but they had lost their rod linkages and gained chain linkages. The wheelsets on the following three log bogies were of a different pattern, and matched those of the background bogie shown in the colour photograph. Original unknown, from W Chenowyth collection*

*This composite photograph appeared on page 23 of LR 211, and shows one of the original* Byers *bogies reconfigured as the powered log bogie used behind the* Caterpillar. *The rod linkages had been removed, but the former holes are evident. The bogie was, for a time, displayed under the front of a log outside Clennett's Dover Mill, but the photo was taken after it had all been taken into the mill site. The bogie in the background was that at the rear of the display, and its wheels appear identical to those in the bogies shown behind the* Caterpillar. *Photos: JS Clennett, August 2006*

In short, and despite the similar profile, I do not think that the wheel shown, and thus those in the bogie behind the logging locomotive in the bottom photo on page 31 of LR 237, are related to the *Byers.*

However, the wheels of the subject locomotive itself are interesting: although the photograph has been taken skew to the wheels, they appear to have a solid basic disc core, stiffened by six "spokes". This is not a style I have recorded, and may offer a clue to the origin of the unit.

Scott Clennett
Bellerive, Tasmania

Dear Sir,

Stuart Thyer, in his LR 238 editorial, commented that his concerns of being able to come up with new and interesting material as Research Editor proved unfounded. *Light Railways* is a magazine I can guarantee to read cover to cover, and I've been receiving it since the 1970s. I've also contributed articles, news and notes. In my professional librarian/archivist roles with the JS Battye Library of West Australian History (State Library of WA) and the State Records Office of WA. I've been fortunate to have access to a wealth of tantalising light railway information. I have a long list of potential articles! There is scope for many researchers to work on WA light rail history without duplication or producing articles on very similar operations. Take your pick of the following themes: jetties; gold mines; quarantine stations; agricultural tramways (see LR 238 pp34-35); brickworks; road construction; lighthouses (including an island monorail!); timber industry (especially non-locomotive operations not covered by the excellent *Rails through the Bush* book); coal mines, salt and gypsum mining; other industries (e.g. lime); infrastructure construction (e.g. Narrows Bridge; Ord River dam; sewerage works); and many more. There were rail operations in Western Australia from Wyndham to Eucla and if anyone is fired up to start research, I'm happy to share any references I have and to help with guidance to archival resources.

Stuart's concern 'that there is little left to discover' is 'completely fatuous' as he says – at least in Western Australia. What about the other states and territories?

David Whiteford
Belmont, Western Australia

## ERRATUM

**BATCo Part 1 Coffs Harbour.** The photograph on page 8 of LR 238 showing navvies excavating a tramway cutting, is not on the BATCo's line. Instead it is on one of the Coffs Harbour Timber Company's two timber tramways south of Coffs Harbour – probably the Boambee line. [Source - *Melbourne Leader,* 20 June 1914, pp31-32]. Recently discovered, the photo feature on the CHTCo, although very poorly preserved, is clear enough to identify the error.

# Field Reports

Please send any contributions, large or small, to fieldreports@lrrsa.org.au or to P.O. Box 21, Surrey Hills, Vic 3127.

**Beachport (SA) update**

1067mm gauge

In the Field Reports for LR 238 there was a page devoted to the Beachport jetty tramway and associated SAR lines in South Australia. Further to Ian Bevege's most interesting field notes within that report, Phil Rickard reports that "beautification" works in early 2013 had unfortunately removed all traces of the jetty tram across Beach Road at the jetty base. As it was blowing a gale when Phil was there, he admits not searching behind the various stores, a deficiency he will certainly rectify on his next journey! (Phil also mentions that virtually every picture viewed on Flickr, plus the Google street view are out of date.) One can only conclude that the SA Department of Planning, Transport and Infrastructure is conducting a "jetty tramway eradication" programme, so get your photos now!

John Dennis and Geof Pearson report that the northern set of points mentioned was most likely the lead point for a loop siding in the goods yard, which was located between the jetty and station yard. A 1912 diagram shows the triangle connection having a separate turnout closer to the jetty, although the drawing in the September 2004 ARHS *Bulletin* showing Beachport in 1956 shows the jetty end of the triangle coming off the loop siding. John and Geof also add some details on how the jetty line was worked. Loco working (apart from the little SAR Y-class) seems to have been restricted to a privately-owned Kitson locomotive (0-4-0WT, T97 of 1884, ex Port Germein) operated by S J Stuckey & Son (and shown working on the Beachport Jetty at the top of page 9 of LR142). It seems likely that most shunting to and from the jetty was carried out by horses. The SAR 1910 *Appendix to the Working Time Tables and Rule Book* restricted the type of vehicles which could run onto French & Son's private siding at the jetty end of the goods shed. No engines, carriages, bogie brakevans or six-wheeled vehicles were allowed. It also stated that: *Except in connection with the loading and discharging of vessels working over-time, trucks most not remain on the jetty at night, but brought to station and placed inside locked stopblocks by 6.00pm. Trucks not further required during the day must be returned at once to station. All trucks standing on the jetty must have the brakes pinned down.*

The 1948 SAR *General Appendix says Four-wheeled open freight cars only are permitted to work on Stuckey and Co.'s private siding at the jetty end of the freight shed.* (Presumably French & Son became Stuckey and Co). The 1948 GA repeated the rules about vehicles on the jetty, but also added:

*Permission has been given to fishermen to hand-shunt trollies between-*

*(1) The jetty and No. 2 line to opposite the freight shed;*

*(2) The jetty and the bond store on the triangle; and Guards must see, before commencing a shunting movement, that the lines are clear of hand trollies.*

Normal Position of Switches

*Switches No. 2 and No. 3 at the jetty end of the yard are to be left unlocked to give access to No.2 line and the triangle,*

*Switches No. 4 must be normally set and locked for the triangle.*

*Switches No. 5 must be normally set and locked for No. 2 freight line.*

So, no mention of any locomotion but, in 1948, hand-trollies were allowed from the Beachport jetty to two locations in the Beachport SAR station area.

Collated from contributions by Phil Rickard, John Dennis and Geoff Pearson 08/2014

**Brett's wharf, Kingsford Smith Drive, Brisbane, Queensland**

610mm gauge

A set of rails had been noticed going into the Brisbane River near the City Cat Terminal at Brett's Wharf. The use to which the rails were put is currently unknown. However, in the early 1950s, the "Hamilton Syphon" was built under the Brisbane River from Bulimba to Hamilton. This was a tunnel used to transfer sewage from the Southside to a pump station at Hamilton (over Kingsford Smith Drive from the rails). Photos in the Brisbane City Council library collection (available on line) show that narrow gauge railways were used in its construction. It may be that these rails are part of the temporary works associated with that project. However, at this stage, that is pure speculation. It is highly probable that the rails will be lost when Kingsford Smith Drive is widened, so there is some urgency to record the site and learn its history.

Greg Stephenson and Ken McHugh via the LRRSA Yahoo Group, 06/14

**Laheys' Canungra Tramway, Queensland**

1067mm gauge

Those with a copy of the LRRSA publication *Laheys' Canungra Tramway* by Robert K. Morgan (revised by Frank Stamford in 2000) will have noticed the map on page 10 contains a puzzle, as the DJ Smith Memorial Park on the corner of Christie and Kidston streets has a railway line marked as going through the war memorial site. I have been able to resolve this puzzle, as the Canungra war memorial was not unveiled until Anzac Day 25 April 1938 (Source: *The Courier Mail*, 9 March 1938 - see http://trove.nla.gov.au/ndp/del/article/39739008). The tramway was being dismantled in 1933 according to page 19 of *Laheys' Canungra Tramway*, so the area of the war memorial structure was vacant and available in 1938. Thus one more piece of the Canungra jigsaw slots into place!

The section of the park at the top of the QR turning fork is in the southern end of that park, so that section of the memorial park with the toilet block and car park must have been constructed after 1955 when the QR line closed.

Peter Cokley via LRRSA Yahoo Group 07/2014

**Cape Jaffa Jetty Tramway, SA**

762mm gauge (see LR177, 236 and 238)

Further to my brief notes in LR236, a return visit was made to Cape Jaffa in July 2014. Alas, the tramway previously noted here (LR177) is effectively gone. The inner rail has been

*The rails in the bank near Brett's Wharf.* *Photo: Ken McHugh*

removed for the full length of the jetty – its former position is obvious, whilst the outer rail has been left as an edging. A search around the site found no other rail-related infrastructure, which supports my theory that the 762mm gauge jetty trucks that are now at Beachport jetty foreshore (masquerading as picnic tables on rails) came from this site.
Phil Rickard 07/2013

**'Old' Napoleon mine, Bendigo VIC**
Gauge 610mm?
The 'Old' Napoleon mine site is located in Golden Square, Bendigo, at 36 46 44.9S 144 15 39.8E (just north of today's Golden Square Community Activity Centre). Extant at the site is a short length of tramway track probably used for side-tracking mine skips for repairs by the mine blacksmith (a task fairly common at mine sites). The 3.6m long section of track is laid using street tramway (grooved) rail. Measurements were taken of 585mm between the inner rail-heads, probably indicating a nominal gauge of 610mm [2ft]. Nearby are the concrete winder foundations, which have been reinforced using tramway-weight fishplates. The site was noted, but not assessed as being of significance in the *Eaglehawk and Bendigo Heritage Study* carried out by Graeme Butler & Associates in 1993.
The first of the Bendigo quartz mining companies to bear the name 'Napoleon' was registered in October 1871.[1] This was followed by the 'Napoleon United' in October 1879.[2] Both companies appear to have worked in parallel for a few years until late 1883, after which only the Napoleon United Company seems to have survived until late 1892, when it too was wound up.[3] A 'Napoleon Gold Mining Company NL' was in operation at Bendigo sometime early in 1907,[4] and a new company with the same name was formally registered in December 1910 with a capital of £16,000 in 32,000 shares of ten shillings, all of which were subscribed, mostly with strong local support. (There were only a smattering of Melbourne investors, but they included the infamous John Wren of racecourse and boxing stadium fame).[5] This Company seems to have been fairly short-lived. The aggregate work done by these early companies on the Napoleon Reef created a shaft 1080ft deep from which highly payable stone was obtained from the 420ft level. Fifteen hundred ounces of gold were obtained from 1810 tons of stone crushed.
In 1934, Napoleon (BML) Mines NL was formed with 340,000 shares, of which 170,000 were held by Bendigo Mines Limited (the latter company playing a major part in the 1930s revival of Bendigo mining, spurred on by an increase in the price of gold). The new Company sank a fresh four-compartment shaft which had been taken down 970ft by 1936. (This new shaft was located 1700ft south of the 'Old' Napoleon shaft). At the 700ft level in the new shaft, a crosscut struck a vein of quartz eight feet wide showing the colour of gold. The 'Old' Napoleon shaft however was cleaned out and re-equipped and, at the 500ft level, a lens of ore averaged one ounce to the ton. Much of the equipment for both shafts was to be electrically worked with power supplied by the State Electricity Commission.[6] Bendigo Mines Limited was liquidated and delisted in May 1940,[7] so it would appear likely that the tramway and winder-foundation remains are from the period 1934-1940. (Bendigo Mines received 5 new 2ft gauge Greenwood & Batley battery locomotives in 1935-6.)
Field Report by Chris Wurr 08/2014
Historical research by Peter Evans

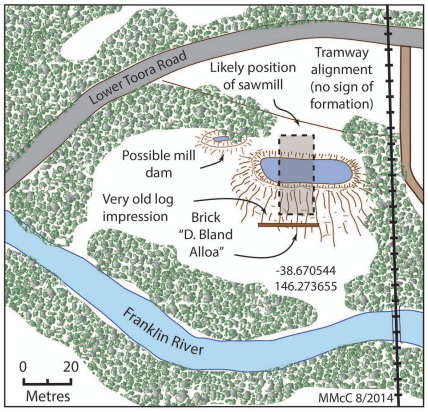
*The jetty at Cape Jaffa in July 2014.* *Photo: Phil Rickard*

*The extant track at the 'Old' Napoleon mine in the foreground with the winder foundations in the background.* *Photo: Chris Wurr*

**References**

1. *Victorian Government Gazette* (*VGG*), Gazette 68, Friday, 27 October 1871, page 1887.
2. *VGG*, Gazette 94, Friday, 3 October 1879, page 2393. Note that a 'New Napoleon' company and a 'Napoleon Deep Leads' company were subsequently formed, but both were located in Ballarat.
3. *VGG*, Gazette 105, Friday, 12 August 1892, page 3323.
4. *VGG*, Gazette 18, Wednesday, 6 February, page 824.
5. *VGG*, Gazette 159, Wednesday, 14 December 1910, page 5538.
6. Anon. (1936). *Bendigo Goldfield*. Mines Department Victoria, Issued by George Brown, Secretary for Mines; *The Argus*, Friday 22 June 1934, page 4; Monday 20 August 1934, page 6.
7. http://www.delisted.com.au/company/bendigo-mines-nl accessed 27 August 2014.


**Foster Field Trip (Gippsland, VIC)**
Gauges various
As part of a project to record the story of a number of early sawmill and tramway operations in the South Gippsland region a field survey was undertaken on 20 August 2014 by John Dennis, Peter Evans, Colin Harvey Phil Rickard and myself. The aim was to cover five sites in the one day. This was deemed possible because the actual sites had been pinpointed by research activity and because of good road access to all locations.




The day began at our headquarters (Koonwarra General Store) for coffee and briefing/planning session. We reached our first destination around 11.00am. The objective was to find some "on-the-ground" evidence that this was indeed the site of Septimus Martin's 1853 Franklyn River Sawmill. With the land sloping down to the Franklin River it looked promising when we arrived, although the attentions of an extremely friendly horse in the paddock were a bit distracting! It had been suggested in earlier writings that the site had been excavated for the sawmill. First impression was that, if this was the site, it hadn't been excavated; the flat close to the river being a natural feature. A hunt around the paddock revealed a dam had been built on the upper section of the land in about the spot that a sawmill might be placed to take advantage of gravity when moving timber through the milling process. This was disappointing. However, on checking a blackberry patch on the side of the dam, we found a long depression that had clearly been formed by a log foundation of some sort. The log had long disappeared, but what was encouraging was the discovery of half a firebrick next to the log impression. The Brick was stamped "A. Bald, Alloa". Subsequent follow up work tells us that the brick came from Alloa in Clackmannanshire, Scotland and the brickworks were in operation in the 1850s. The mill had been imported from Scotland, so this was good evidence supporting the view that this was the site of the sawmill. Another smaller and much older dam was discovered on a higher portion of the block. This may have been associated with the sawmill.

Our second stop of the day was the site of railway contractor O'Keefe's engine shed alongside of the railway to the west of Foster near Stockyard Creek. Sadly, nothing remains to show the location of the shed or its associated water tanks except a slight widening of the railway formation.

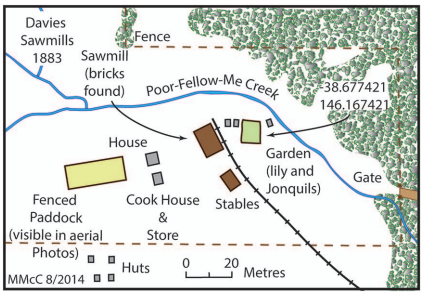
The third stop (and also lunch stop) was at Stockyard Creek Landing, not far from where the creek enters Corner Inlet. This was the terminus of the 1872 Stockyard Creek tramway and also later tramways servicing Davies's sawmills. No evidence of the former lines was discernible, but we were able to accurately position a couple of wood cut images of the day that showed the former wharf etc. A short length of two-feet gauge tramway exists here that has in the past

*This 10m section of 610mm gauge track was clearly once used for launching fishing boats at Stockyard Creek. Judging from the heavy corrosion on the rails, it has been in situ for quite some time:* *Photo: Peter Evans*

been used for placing boats in the creek. It was an interesting and pleasant spot for lunch however, despite the attentions of a curious cow!

The fourth stop was the site of Davies's 1883 Poor-Fellow-Me Creek sawmill 4.2 kilometres south west of Foster. This very waterlogged site proved interesting despite not finding evidence of the tramway. Bricks were found which marked the location of hut sites, and Mrs Davies's garden was easily found through the growth of a very healthy lily in the paddock surrounded by a scattering of jonquils. The garden is marked on a contemporary survey, so its discovery helped pinpoint the location of the other structures. It is remarkable that it is still there, as the mill ceased operating in 1890 and the structures were destroyed in the February 1898 bushfire.

The fifth and final stop was the site of Davies Siding on the former Great Southern Railway.




The siding was located 800 metres east of Hoddle Station. It is marked today by a broadening of the formation between two cuttings on the railway as it commenced its descent down onto the Corner Inlet plains. Some formation evidence was found at the site, but past efforts in bulldozing a fire break and an access track have destroyed anything more substantial. The major learning was in the form of narrowing down the direction that Davies's tram must have approached the siding. This, in turn, has assisted the work in determining the location of Davies's Hoddle sawmill.

The day ended back at our Koonwarra headquarters for another coffee and debriefing discussion. It was an interesting and fun day even if a little light-on in terms of concrete findings. There was enough found to enlighten us about aspects of the various operations inspected. In particular, the remains at the two mill sites were significant findings that add to our understanding.

Mike McCarthy 08/2014

*Davies' sawmill site. Four of the field survey team (from L-R: Peter Evans, Mike McCarthy, John Dennis and Colin Harvey) consult contemporary mapping while Mrs Davies' Arum Lilies (Zantedeschia aethiopica) celebrate a long survival from their origin in South Africa and 130 years growing in this particular Australian paddock.* *Photo: Phil Rickard*


# Reviews

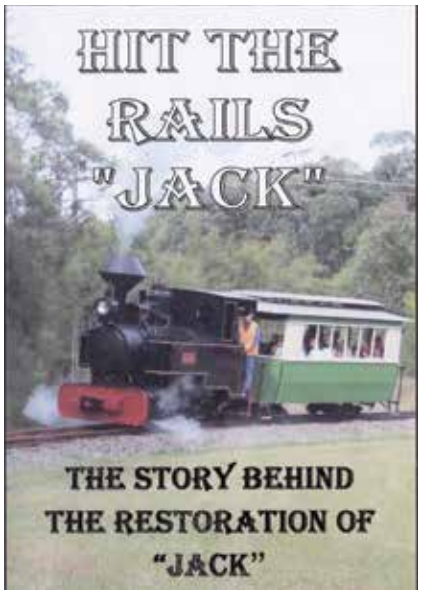
## HIT THE RAILS "JACK" – the story behind the restoration of "Jack"

***by Graham Black, 'A' Class Films***

Running time 95 minutes. Available from G and W Black at "A" Class Films, 39 Sugarloaf Avenue, West Wallsend, NSW, 2286 for $40.00 including postage. Email wenbl@bigpond.com or call 02 4955 1904.

In September 1908 the German Manufacturing firm of Krauss and Co located in Munich completed a small 610mm gauge 0-4-0 side and well tank steam engine. It and three sister engines worked on the construction of the Burrinjuck Dam in the southern highlands of NSW. With the completion of the dam in the late 1920's the four engines went their separate ways. Builder's No 6063 worked at the Farleigh Sugar Mill in Queensland before being donated to the NSW Rail Transport Museum in 1966. In September 2008, 6063 was moved to the Lake Macquarie Light Rail near Toronto where it was returned to steam in May 2014.

The DVD starts with some still photos of the locomotive in use on the construction of the Burrinjuck Dam in NSW. The details of the restoration of the locomotive at the Lake Macquarie Light Rail are then set out in some detail. Upon arrival at Lake Macquarie the locomotive had not seen any use for about 50 years and so was in no condition to be moved of its own accord. The DVD then records how each component was removed and then restored, starting with the wheels, axles and bearings and making it possible to move the locomotive on tracks for the first time in 50 years. The tanks and then the boiler were removed and the DVD gives details of how it was dismantled, what its issues were, and how it was all restored.




When it was finally completed the first movement has been recorded and amidst lots of squeaking wheels and steam emanating from all the right places the locomotive moves around the tracks with ease. As all of the final adjustments were made it was gradually given one then two carriages to haul – all achieved without any issues.

The DVD is well produced with a full commentary and gives a step-by-step description of what had to be done to fully restore the locomotive.

The DVD will appeal to anyone who is interested in how to restore a locomotive, or indeed anyone who just wants to understand how a locomotive has been constructed and how it works.

*Richard Warwick*

## The History of Thomas Green & Son Ltd

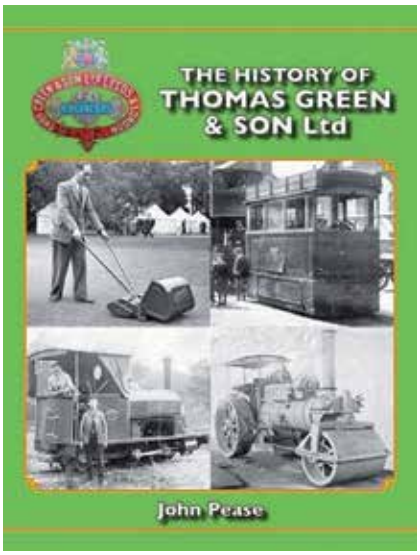
***by John Pease***

152 pages. 275mm x 215mm. Printed on gloss art paper with laminated board covers. 144 black and white photographs and 37 maps, diagrams and catalogue drawings. Published 2014 by Lightmoor Press, Lydney, England..

This attractively-presented book deals with the history of a Leeds firm that operated for 140 years. Commencing with wire working, the company progressed through a wide variety of products including ornamental ironwork, food manufacturing and washing machines, lawnmowers and garden rollers, boilers and stationary engines, tramway and railway locomotives, portable and traction engines, and steam and motor road rollers. Lawn mowers were a staple product for 125 years from 1850, and motor rollers for 74 years from 1906, following on from the production of steam rollers from 1874. Steam tramway engines were a very important part of the business from 1883 to 1901 and the manufacture of railway locomotives derived from this trade. Thirty-eight locomotives, mostly narrow gauge and industrial types, were built between 1883 and 1920, with three coming to Australia.

The author documents the origins and development of a family engineering company that became very successful through excellence in niche products, and with a diversified manufacturing base that provided trading resilience. It highlights some of the difficulties of succession in a family company, and the involvement of a variety of local commercial interests in providing capital and management expertise. The innovative nature of product development is shown by the number of patents taken out.

Although only a small part of Green's production history, tram engines and railway locomotives take up a significant and richly illustrated part of the book. JS Lee, sawmiller of north-western Tasmania, was born in Leeds and purchased the first two Green locomotives to be built. The third Australian locomotive worked at Proserpine Mill in Queensland. Lee's second locomotive survives at Margaret River in Western Australia, the cane locomotive was purchased for preservation by a Victorian in 1974, and there is a report suggesting that the derelict chassis of Lee's first locomotive may have been taken to Victoria in 1986.




The book is a fascinating insight into manufacturing history in England in the last two centuries, and there is much of value for those with an interest in steam, machinery and vehicles as well as railway and tramway locomotives.

It can be obtained using credit card through Black Dwarf, Lightmoor's online bookshop for £18 plus postage http://lightmoor.co.uk/view_book.php?ref=L9815 For those who are patient, stocks will probably be available in Australia in due course from retailers specialising in steam, railway and tramway history.

*John Browning*

## WDLR Album

***A unique record of British 60cm Gauge Railways on the Western Front, March 1918***

Available from the LRRSA Sales department are a limited number of Roy C Link's "WDLR Album".

The book is hard backed landscape format, 256 pages containing 212 photographs, 71 plans, maps, drawings and diagrams. A review copy has not been sighted, however it is receiving very good feedback on line.

The books will be available at $75.00 (10% less for members)+ P&H, a considerable saving on the cost of importing a single copy from the UK. For details see the sales list in this issue, or visit the LRRSA online shop http://www.lrrsa.org.au/LRR_Online_shop.html

# RESEARCH

Please send contributions to:
Research Editor, Stuart Thyer
PO Box 21, Williamstown, Vic 3016
e-mail: research@lrrsa.org.au

**Lawton battery-electric locomotives**

Perhaps someone may know about JA Lawton and Sons Ltd, North Terrace West, Adelaide. They were manufacturers of electric commercial vehicles but seem to have manufactured at least two 3ft gauge battery locomotives for the State Electricity Commission of Victoria (SECV), for the Kiewa Hydroelectric Scheme. They were surplus to requirements by 1954. Any information about this company and its products would be welcome.

What is known is JA Lawton and Sons Ltd were coach and motor body builders. The company went public in 1948/49 and built the MTT Adelaide's last traditional tram, H 351, in 1952. This was to have been the first of 40 such cars, but the MTT was reconstituted and decided to scrap its trams, so the order for the following 39 trams was cancelled. The large fleet of AEC and Leyland 3-door buses purchased in the late 1950s to replace the remaining trams were bodied by Lawton. Although the firm had premises on North Terrace (a photo shows it lettered 'J A Lawton & Sons Ltd Coach & Motor Body Builders' with an additional sign 'Lawton Fork Lift Trucks'), it apparently also had premises at Port Adelaide.

The information I have is that the locomotives were for sale by 1952. Three battery boxes and two chargers were also available. The details are:

- Lawton Model LLE battery locomotives
- Gauge 3ft
- Weight 4000 – 4500 lb
- Speed 3 to 4 mph exerting tractive effort of 450 lb.
- Max. tractive effort 800 lb.
- No-load speed 7 – 8 mph.
- Overall width 4ft 0in
- Originally fitted with 20 off KCL 19 batteries.
- Condition 23 Nov 1953 – Secondhand – 40%

*Source: SECV Correspondence Files (VPRS 8992/P1), Unit 344.*

*Letter 30 Nov 1953 Manager Disposals, SEC, to Thos W Ward (Australia) Pty Ltd (Thos W Ward was SECV's appointed agent for disposal of surplus equipment).*

Although I have found no reference to Lawton locomotives other than in Colin Harvey's research into SECV archives, the likelihood is that the SECV described them correctly.

*John Browning with information from Richard Horne, Colin Harvey*

**Light Railways and Aerial Ropeways**

Stuart Thyer's note in LR 238 of August 2014, p.34, raises the interesting question of possible relationships between light railways and aerial cableways. The light railway with its wagons running above the rails, which were laid on the surface of the ground, should not be confused with the aerial ropeway with its tubs suspended below the ropes, which were elevated on towers well above ground level. However to writers of the nineteenth century the technical engineering distinctions were not so clearly articulated. The following is an excerpt from a description of the aerial ropeway running from the Gladstone coal mine to a siding on the Great Western Railway line between Wentworth Falls and Katoomba in the Blue Mountains, NSW that was published in the *Sydney Morning Herald* of 13 July 1885.

"*The Gladstone Colliery belongs to the Gladstone Coal Company, Limited, who own 460 acres of land almost immediately between the Falls and Katoomba, containing the three seams of coal common to all the Blue Mountain collieries. The centre one of these is 8½feet thick, and another 4½feet, neither showing bands or fault of any significance. ... The holding comprises a complete point of country slightly to the west, and in view of the celebrated Wentworth Falls. The seam at present being worked (the middle one) has been opened out by two horizontal drives from an adit in a gorge 1½ mile south from the company's railway siding (which is almost exactly at the sixty-third milepost from Sydney on the Great Western Line), and is 1200 feet below the railway level, or 2000 feet over the level of the sea. It opens out on the side of a hill facing a gorge, and the entrance is at the bottom of a cliff nearly a thousand feet clear in depth... ... in alluding to the wire tramway line, ... The pendent railway before them had been the result of a great deal of thought, anxiety, and of immeasurable trouble to the directors. ... Second thoughts having been deemed best, the company abandoned their original intention of constructing an incline with endless wire rope down to the mine, owing to the magnitude of the obstructions to be overcome, and the consequent heavy cost. Eventually, on May 13th, 1884, they contracted with Mr. Oscar Schulze. C.E., for the construction of one of his patented pendant railways; and later on an order was given to that gentleman for the engines, boiler, rolling-stock, timber work, and foundations. The whole of the material was imported from Germany, the task completed on June 30th, and the first coal delivered next day, July 1st, 1885. Full guaranty was given to the company for the contracted capacity of the plant, which has been fully attained by the delivery of 20 tons of coal per hour. ... The delivery of coals by a "pendent railway," referred to in civilian parlance, might be likened to the landing of a wrecked crew in coal baskets along a ship's cable, albeit the former operation is performed rapidly, quietly, and without a scintilla of risk to life or limb. More practically described, the invention consists of a double track line of steel wire rope rails, one for each track, which are elevated high over the ground, supported on the ends of timbers forming the cap-pieces of wooden trestles, ranging from 12 to 9 feet high, and from 60 to no less than 800 feet apart. These ropes are of a special spiral construction, formed of soft steel, in order to flatten out to a smooth surface after short use. They are made in fixed lengths connected with steel couplings with right and left thread, and vary in diameter from 11/8 inch to 13/4 inch. One end is firmly anchored on the timber work, whilst the other is carried over a roller, and fixed hanging weight, which maintains in it a uniform strain of from four to eight tons. The whole extent of the line in question is one and a half mile. It is completed, of two sections, the lower half-mile having 1100 feet rise, with a gradient varying from 20 to 45 degrees; the upper half having several up and down gradients, and in one spot overspanning a precipitous timber-clad mountain creek, or gorge, with a free span of 800 foot length and 300 feet high. A steam motor has been fixed at the junction of these two sections (generally known as the "stretching station"), and drives two endless wire ropes one inch and 11/4 inch diameter, which are constantly circulating under the rail ropes, and to which the trucks are attached by patent steel spring couplings, which grip hold of steel collars set on the hauling rope at distances of about 270 feet. Thus, with a speed of three miles an hour, they deliver one truckload of coal (7cwt.) per minute, or about 20 tons per hour. The hauling rope, necessarily, is of best crucible steel, and maintains a uniform strain by means of weights attached to the reversing rollers at either end. The iron skips, during their aerial journeying, are suspended from two-wheeled "trucks," which run on the rail ropes. The frames pass the supports through being suspended from these trucks on the outside only; and bear also an ingenious coupling apparatus, which seizes the rope automatically, and is also automatically detached from it on arriving at the three stations, where the trucks, after being detached, run on to a siding rail, bent to form loop lines at the ends, and to pass the driving machinery at the middle station. Coal is brought to daylight from the mine in the same skips, set in pairs on four-wheeled trollies. The former are taken off the trollies and hung in the pendent trucks automatically by descending on an incline and becoming suspended in the hanging frames, which are pushed along with them on the overhead rails. In similar fashion the empty trucks arriving at the lower station are taken off the hangers and once more set on the trucks automatically. At the railway siding the pendent platform is elevated 30 feet, and the skips, after passing muster at the hands of a checkweighman, are tilted over the screens into hoppers constructed over the siding, the coal being separated into three sizes (round, small,*

*and smallest) during its descent. The automatic principle is so extensively adopted throughout that there is no need for more workmen than two shunters at each station. The motor consists of a "Rool's" boiler - a novelty in the colonies - composed of tubes entirely, which contain the water, while the fire is outside the pipes. There is claimed for them simple construction, easy erection, small space, high steam pressure, and perfect absence of danger from explosion. A self-feeding grate is especially constructed for the consumption of small coal, which at many collieries is thrown away as useless. The engines are a pair of automatic cut-offs, with double concave and convex slide-valves, acted upon immediately by the governors. A steam pressure of 120lb. will generate 50 horse-power, sufficient to work the tramway with double the required capacity, but for present requirements only 30 h.p. are used. A telephone and electric signal bells (specially noteworthy as working without a battery) connect the three stations; and with reference to those may be closed reference to the plant generally.*"

Many of the descriptive terms used in the above newspaper description could equally be used to describe a light railway. Researchers beware!
*Jim Longworth*

**Globe Mapping Resources**

Users of *Google Earth* can now tap into the mapping resources and spatial data of some Australian states, through the 'Globe'. Many states have put in place 'open access' policies, enabling their maps, imagery (including up-to-date satellite images) and other spatial data to be openly shared and accessed in one easy-to-use format. The Globe is implemented through *Google Earth* (in a .kml format), thus from a non-professional perspective, it is easy to install and browse. Instructions on using the Globes can be found on each state's website.

Making sense of the volume of data is another challenge, but here are a few of the layers within each Globe that could be useful to *Light Railways* researchers.

Satellite Imagery. In most cases, the imagery is better, higher resolution and more recent than Google's current offerings. There were examples found that were not as good, or where the lighting in the Google imaging offers a different perspective on the landscape, but it's just a single click to turn the layer on and off, so a quick comparison can be made.

Property Boundaries. To this day, some property boundaries follow old tramway right of ways, paths often not obvious on satellite imaging. The property boundaries can also assist to align historical mapping onto a contemporary landscape, as described in LR237. This is especially useful where there are not enough geographic features to align a map but some boundaries remain unchanged.

Historical Imagery. Layers in the WA and NSW Globes feature historical mapping and aerial imaging. While there is currently only a limited amount of material, it is likely that this will grow in years to come.

Contours. Queensland offers access to contours and topographic map sets.

In NSW, download from http://globe.six.nsw.gov.au/. In QLD http://www.dnrm.qld.gov.au/mapping-data/queensland-globe/about. In WA, their product is called Locate and is downloadable from http://slipfuture.landgate.wa.gov.au/Pages/LocateGettingStarted.aspx .

While other states often have data available in differing formats across various departments, they do not have the Globe format as a standard. Victoria seems to have released open access data, citing the example of Queensland's Globe, but not in a user-friendly format. Northern Territory has a product 'NT Visualiser' but only available to Government users. South Australia and Tasmania do not appear to have any data available at this stage.

These files are not without their glitches. When viewing one state's Globe data, turning on another state's Globe will make the first state disappear. A problem with Google Earth is that .kml files cannot be saved to 'my places', thus every time you quit the software, the files are lost. They are quick to reload though so this is only a minor annoyance.
*Stuart Thyer, Iain Stuart, John Cleverdon*

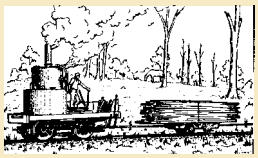
**Odd Spot "Humorous Bishops"**

Reproduced from the *Illustrated Sydney News*, 29 August 1885. Plantation Creek is in Queensland about 80km south east of Townsville, near the present-day Ayr.

"*The* Ballarat Courier *says that episcopal duty in some parts of Australia has its humorous side. One prelate, on his first journey round, was flung into deep mud by a restive horse. Rising ruefully, with his chaplain's help, and surveying the place, the bishop consoled himself with the reflection, "I have left a deep impression in that part of the diocese at any rate." Another wrote to a brother bishop who had recently been his guest:—Directly you left, I felt so lonely that I started off to the Burdekin river district. One incident reconciled me to your absence. While being drawn to the Plantation Creek wharf in a sugar truck, along a rough tram line, the horse trotting briskly, we came to a bridge across a broad, deep arm of the creek. Suddenly the wheels struck some obstacle, and my next sensation was that of an involuntary aerial flight, followed by a splash and a dive to the muddy bottom of the creek.*

*Rising to the surface, I struck out, and managed to seize a pile of the bridge, and gladly yielded to a hauling up process. Unfortunately I had taken no change of raiment, but the compassionate skipper of the 'Star of Hope' enabled me to spend a day in nautical attire, while episcopal 'shorts' and 'gaiters', etc., floated gracefully from the hand rail of the poop. If we had been 'Companions of the Bath,' our demand on the ship's wardrobe might have exceeded its supply. That Burdekin means mischief."*

*Humorous Bishops.* (1885, August 29). *Illustrated Sydney News* (NSW : 1881 - 1894), p. 22. Retrieved August 27, 2014, from http://nla.gov.au/nla.news-article64036548



# LRRSA NEWS

## *MEETINGS*

**ADELAIDE: "Dry Creek salt fields and explosives magazine – a second episode."**
Continuing discussion on the recently closed Dry Creek salt fields and explosives magazine. News of light rail matters will be welcome from any member.
**Location:** 150 First Avenue, Royston Park
**Date:** Thursday 2 October at 8:00pm

**BRISBANE: "Fiji, by John Browning"**
John Browning travelled to Fiji in early September, and will be presenting on the current operations of the sugar industry.
**Location:** BCC Library, Garden City Shopping Centre, Mount Gravatt. After hours entrance (rear of library) opposite Mega Theatre complex, next to Toys'R'Us.
**Date:** Thursday 17 October at 7:30pm

**MELBOURNE: "South Gippsland light railway history".**
Mike McCarthy will present the next instalment relating to his research into South Gippsland light railway history. The October meeting will feature the tramways of the Buln Buln Tramway Company, Pinkerton and Davies at Foster, 1872–1901.
**Location:** Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.
**Date:** Thursday 9 October at 8:00pm

**SYDNEY: "Early Railed-ways in Australia: 1788-1855."**
Well known Society member, researcher and author Jim Longworth will present his researches into 'Early Railed-ways in Australia: 1788-1855.' This presentation will focus on the 53 or so railways built in Australia before the opening of the Sydney-Parramatta line in NSW. This promises to be a revealing evening for the railway historian.
**Location:** Woodstock Community Centre, Church Street, Burwood, (five minutes walk from Burwood railway station).
**Date:** Wednesday 22 October at 7:30pm

# Heritage & Tourist NEWS

News items should be sent to heritagetourist@lrrsa.org.au Digital photographs for possible inclusion should be sent direct to Scott Gould at editor@lrrsa.org.au including the name of the location, the name of the photographer and the date of the photograph.

## QUEENSLAND

**DURUNDUR RAILWAY, Woodford**

610mm gauge

The repainting of the exterior of the former Wamuran station building has been completed and there has been steady progress on track laying at Peterson Road. Work has concentrated on connecting the set of points that was lifted into place in April and the Way and Works crew have started laying 42lb/yd rail from the level crossing back towards the existing main line. This will form the passing loop, whilst the main line will be laid in heavier 60lb/yd rail. On the 42lb/yd rails, they are using the "round-hole" sleepers with the bolted rail clips to hold the rails onto the sleepers. It has been a rapid learning experience to come up with suitable techniques for installing these clips. The bolts need to be inserted from the bottom of the sleeper, so the sleeper is rolled onto its side, the bolt inserted and the nut loosely screwed. The sleepers are then rolled over and placed at the correct spacing. The rails are lifted onto the sleepers and the process of fitting the clips started. The nuts are removed, the clips placed and the nuts replaced and tightened. Final adjustment of the sleeper location is undertaken with a crow bar placed between the clip and the rail. This is a time consuming process, but one that will not have to be repeated on these sections of track for many years. The final alignment and levelling of this track will be undertaken with ballast. However, since the crew still needs to assemble two sets of 60lb/yd points to connect up the mainline and passing loop, the ballasting is still some time away.

It is vital that the railway continues with its regular maintenance on the existing track to set up for the future. Plans are to continue the sleeper renewals in concrete or steel. A number of sleepers under rail joints will be replaced in steel. The ex-QR steel sleepers for these locations have been cut and await welding of the "shoulders" for Pandrol clips. With some careful planning, it has been found that three joint sleepers can be fabricated from two ex-QR sleepers with no wasted off-cuts. During May and June the Gemco (4wDH Gemco Funkey 1965) diesel again carried the work load with *Netherdale* (6wDM, Bundaberg Foundry, 13 of 1954) out of service most of this time having the new wheel springs made and fitted. Apart from some minor work *Netherdale* is now ready for regular use again.

Greg Stephenson, Track Day Coordinator in *Durundur Railway Bulletin,* Volume 35 Number 328, 7-8/14

**BLACKWATER ROTARY RAILWAY, Blackwater**

457mm gauge

A Bundaberg Jenbach diesel locomotive (Bundaberg Foundry, 196 of 1953) is seeing service for the Rotary Club of Blackwater, hauling ore trucks converted for passenger service around a track that is approximately 250m long. The '980' plates on this loco belong to the ex QGR C17 located at the Lions Park in Blackwater.

Railpage, 27/7/14, via Stuart Thyer

**FRIENDS OF ARCHER PARK STATION AND STEAM TRAM MUSEUM, Rockhampton**

610mm gauge

The Museum has just received "accreditation as a Rail Transport Operator" by the Department of Transport and President Phil Augustine stated that this would really lift the profile of the Friends Association as a committed, responsible, and industrious band of volunteers. There is still much to be done to review and simplify the documentation for operational and administrative procedures, but good progress is being made.

*Tram Tracks*, 8/14

## NEW SOUTH WALES

**ZIG ZAG RAILWAY, Clarence**

1067mm gauge

After the disaster of the fire, reports from the Zig Zag are mostly of progress. Terry Boardman reports that a lot of work has been done to get the interlocked points and the signals at Bottom Points back into full working order.

The Director of Rolling Stock reports that work has progressed on locomotive 218A (*The Yank,* former QGR 2-8-2 AC 16, Baldwin 69453 of 1943) and an intermediate Evans car. A start has been made on the body of the Evans car, replacing rotting timbers and preparing it for painting.

The Training Group has requested locomotive and carriages for crew training and volunteers are working on preparing three Evans cars and loco 218A for crew training exercises later this year. A second intermediate car will be made ready for passenger service after the training is underway.

Diesel locomotive 1004 (former Emu Bay Railway B-B DH built TGR 1962) will be placed over the drop pit on one road as soon as 218A is reassembled and moveable. This is to allow all wheels to be removed and re-profiled. The bogies will be inspected and repairs carried out as required. Other items such as radiator cores and air leaks in the fuel system will be attended to. A general service and full inspection will be undertaken to ready it for passenger service.

Workers have taken delivery into the Bottom Points workshop of some of the new machinery and have more waiting to come across the tracks into the workshop. The lathes and mills will be set up in a temporary location to allow workers to start machining on site again. New welding equipment has been ordered to replace what was lost in the fire.

Work on locomotive 218A is progressing well. Both the water delivery pipes have been repaired with the replacement of cracked fittings. They have been annealed and refitted to the locomotive and tidying up of the welds on the cab walls has also started. Both of the piston valves are being repaired and the cracked heads have been replaced and new bullrings manufactured to maintain the correct tolerances. The valve liners have been bored out and a new matching set of valve rings machined. The side rods have been removed for crack testing and it was found that the knuckle pin bushes were loose and require replacement along with three side rod bushes. Both of the little end pins are being replaced and work has started on the new pins.

*Switchback* number 135 6/14

## VICTORIA

**COAL CREEK COMMUNITY PARK AND MUSEUM, Korumburra**

610mm gauge

Coal Creek's 0-6-2T steam locomotive, *Count Strzelecki*, (Bundaberg Foundry, 7 of 1953, formerly Bingera Mill *Kolan*) has passed its inspection and is steaming once again after a four year break. The museum website indicates that the train will be in steam on Sundays October 19 and December 7 plus on unspecified dates during the Victorian school holidays.

Casey Cardinia Kids Facebook group via Stuart Thyer 7/14, www.coalcreekvillage.com.au 9/14

**PUFFING BILLY RAILWAY, Belgrave**

762mm gauge

On Saturday June 14 The Diamond Valley Railway chartered a special train at the Puffing Billy Railway using recently restored Climax geared locomotive, (Climax Locomotive Works, Pennsylvania, 1694 of 1928) travelling between Emerald and Gembrook and return. This was an historic trip as it was the first time the Climax had been used to pull a passenger train all the way to Gembrook. The locomotive had been to Gembrook once before when the line was reopened, however it did not haul a passenger train at all during that time. The train crossed 14A in Gembrook and 12A at Emerald on the return.

The trip ran well with the Climax running smoothly all day. The trip ran to time and the 90 passengers enjoyed their historic trip. The locomotive did slip to a stop not long after departing Cockatoo but the crew expertly lifted it with the aid of some sand. Passengers enjoyed a couple of posed photo stops as well as two photo runs.


*After four years out of service, Coal Creek Community Park and Museum relaunched* Count Strzelecki, *Bundaberg Fowler 7 of 1953, on August 10.*
*Photo: Brian Coleman*


*A charter by the Diamond Valley Railway gave Climax 1694 its second trip to Gembrook on the Puffing Billy Railway. Photographed at the Gembrook Historic station in typical June weather by Sam Daly.*

# Heritage & Tourist NEWS

The train comprised of an open NQR filled with timber for the return working as well as four of the covered NQRs for passengers with an NC van on the rear. The crew to Gembrook was driver John Hoy, fireman Adam Black and trainee fireman Matthew Cantle. The crew from Gembrook was driver Graeme George, fireman Adam Black and trainee fireman Tristan McCrumb.
Sam Daly, 7/14

**WALHALLA GOLDFIELDS RAILWAY, Walhalla**
762mm gauge
The Way and Works gang have just finished plating the entire track. Now it is starting on a new short extension behind the Thomson sheds, extending the track towards Erica. Officially this work is to enable the storage of ballast wagons and other rolling stock, in a place where they will be out of the way; a more optimistic view is that this is the long awaited beginning to the restoration to Erica.
The widening of the doors of the carriage shed at Walhalla is finished. This is to allow much needed space for a carriage to be stored there ready to be attached to the train at short notice to accommodate large crowds when necessary. A test has been conducted and the carriage fits very snugly into the shed.
Former EBR 1001 (Walkers 576 of 1963) was withdrawn from service for a compressor upgrade following the repeated failures of the old Westinghouse Air Brake compressor valves and substantial wear in the bores. The compressor installed has the same air pressure and volume output as the old unit, but is designed to operate using the engine oil supply. It also has its own inbuilt "unloader" which reduces engine load once the required air pressure is reached. The locomotive was moved to just outside the Way and Works shed to assist in the rebuild. Work commenced on Tuesday June 10, with the removal of the old compressor and the construction of a new mounting and oil, air and water connections. Other air fittings and hoses were replaced as well to eliminate air leaks. The locomotive was out of action for about three weeks, but on return is now able to operate the trains without the need for starting the noisy auxiliary compressor.
Fundraising has begun for DH72 (B-B DH Walkers 717 of 1974) locomotive restoration project which will mainly involve regauging the loco from 1067 mm to 762 mm. Over the next year the Railway hopes to attract sponsors and once the organisation has a sizable amount, it will be able to apply for a grant which will help pay for the conversion.
*Dogspikes and Diesel*, 6, 7 and 8/14

**ALEXANDRA TIMBER TRAMWAY, Alexandra**
610mm gauge
On 15 June the first fire in two years was set in our John Fowler locomotive (0-6-0T John Fowler 11885 of 1909). The boiler inspector was on site, and signed-off on the boiler repair when the safety valves were set at 150psi. A shakedown trial was held at 2.45pm on 12 July, more than two years after the loco was removed from service for boiler repairs. There are still a couple of minor faults; the safety valves are still not seating properly, the gauge glass is still leaking, the regulator still has a minor leak along, with the main steam delivery pipes on the driver's side. The lubricator has had a new pipe fitted in the smokebox.
The loco was due to be officially returned to service on the weekend of 13 and 14 September.
*Timberline* 138, 8/14

*Former Babinda Mill Malcolm Moore locomotives 19 and 20 being unloaded at their new home at Sheffield.* *Photo: Ian Larcher*

## WESTERN AUSTRALIA

**HOUGHTON WINERY AND CAFE, Middle Swan**
1067mm gauge
Houghton Winery and Cafe in Middle Swan has a small museum in the former wine storage or processing cellars. Included is a circa 1902 built rail mounted crusher 'grape mill', possibly of 3'6" gauge. The rails were situated over open fermenting tanks and the crusher was moved over a tank to tip its load. Built for manual crushing operation, the crusher was converted to petrol power in circa 1912 and electric power in the 1940s. It could crush up to 10 tonnes daily and was in use into the 1960s or early 1970s. The crusher sits on heavy rail that seems unlikely to have been part of the original track.
Johanna Whiteford 6/14

*Houghton's winery's unusual rail mounted grape mill.* *Photo: Johanna Whiteford*

## TASMANIA

**REDWATER CREEK STEAM AND HERITAGE SOCIETY INC., Sheffield**
610mm gauge
Two Ex Babinda mill Malcolm Moore locos (19, Malcolm Moore 1011 and 20, Malcolm Moore 1057) arrived at Sheffield in early August, after their trip from NSW. Some difficulties were experienced when unloading them as the tilt tray had quite a lean and the locos slid towards the side as the tray was raised, so they had to be jacked back, but were unloaded safely in the end. One was seized at first but soon freed up enough to be pushed into the shed by the Krauss. Both are a mess to look at, but have a good basic structure and will clean up well. With standard Ford diesel engines now fitted it is hoped that one can be returned to an operable state in a fairly short period of time.
Ian Larcher, 8/14

## OVERSEAS NEWS

**FIJI**
**CORAL COAST RAILWAY, Sigatoka**
610mm gauge
Fire partially damaged the Coral Coast Railway station located near the Fijian Resort in July. The early morning fire near the Queens Highway in Cuvu, Sigatoka, was contained by the National Fire Authority. NFA chief executive officer John O'Connor said the fire partially damaged the railway station. He said fire officers from the Sigatoka fire station and staff from the resort managed to the douse the fire after 5am.
Repeka Nasiko, www.fijitimes.com, 23/7/14


Victorian Hardwood Company, Powelltown, probably in the late 1930s. War (again) is just around the corner but seems a million miles from this evocative scene. What appears to be a lengthy afternoon train to Yarra Junction awaits departure. Three-feet gauge *Little Yarra* (BLW 37718/1912) has a full head of steam and its wood smoke drifts in the warm valley air. Its glory days are long gone – the name on the tender obliterated; cow catcher, headlight and brass bell are all just distant memories. The polished boiler and intricate red, white and black paint work all disappeared more than a quarter-of-a-century ago. The cab roof has lost some of its ornamental beading and the shapely funnel is disfigured with an iron band and a makeshift spark arrester. Given a light train, fair track and good conditions the "old girl" can still rattle along the main line at a good rate. But not today – four 3-ton bolster trucks have been pressed into service as bogie wagons with very impressive loads of newly-sawn timber, followed by the company's first passenger carriage and four more loads of sawn timber resting on eight bush bogies. The fireman knows he'll have his work cut-out so a good head of steam is a necessity. For the driver, life is a bit easier – a nicely padded seat, though it is somewhat offset by *Little Yarra*'s unpredictable nature; "Will it run well today – or not . . . ? It's going to be interesting coming into Yarra Junction", he muses – "Having to stop this lot at the bottom of the Little Yarra Road at the Mackley's Corner halt." Then, remembering his wife's parting words to "Buy a paper, dear – I want to see what Hitler's up to!", his thoughts jerk back to the present and the nearby sawmill's ever-present droning, screaming saws . . .- C A Bevan collection, LRRSA Archives


Assembling the traverser at Powelltown circa 1912. This traverser was used to shift tramway trucks between the various sidings and processes carried out at the sawmill. Note that the traverser frame has been pre-cut and drilled, and marked with letters and numbers to guide the assembly process. The three men in the foreground would be catching, inserting and closing the rivets, while the two men in the background are heating the next rivet in a forge using a small hand-cranked blower to force the fire. In the background are long lines of tramway trucks which will be used around the new Victorian Powell Wood Process Company sawmill once it is completed. The traverser remained in use until at least 1983. Peter Evans collection.

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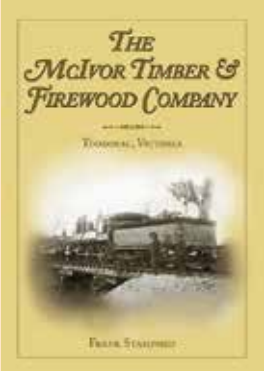


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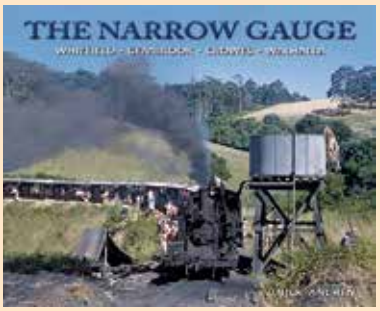


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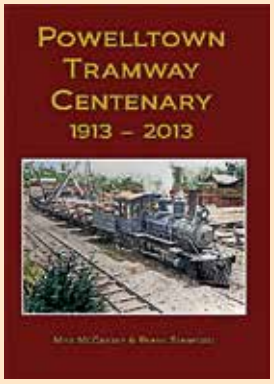


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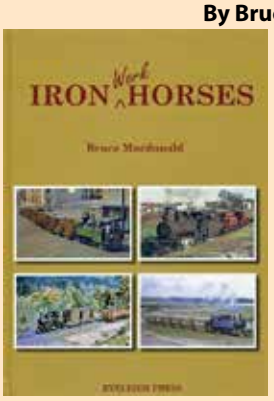


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