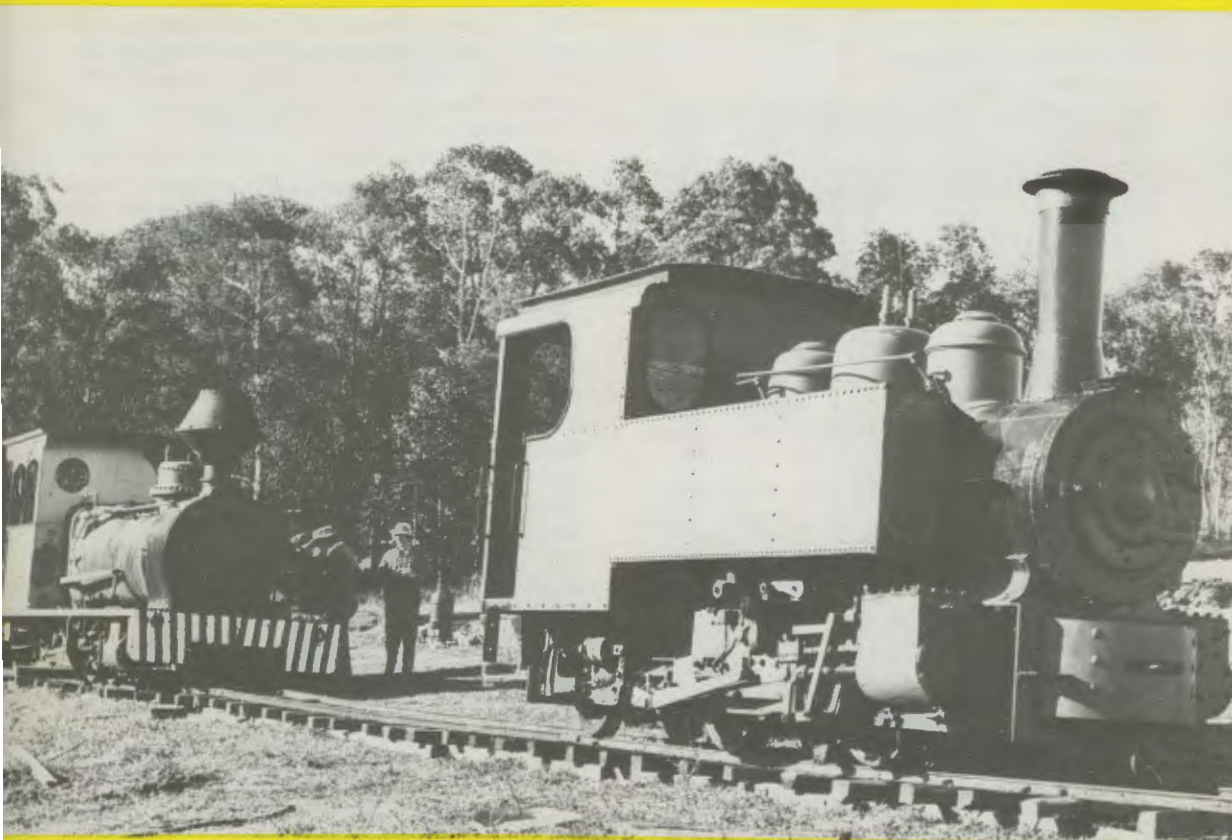


# LIGHT RAILWAYS

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## Editorial

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Cover: Locomotives *Sydney* (Hudswell Clarke 1838 of 1950 ex Victoria Mill) and John Fowler (17881 of 1929) ex South Johnstone Mill at the Ku-ring-gai Railway Society site, Kurrajong, 1978.

G. Belbin

The 1982 LRRSA annual conference highlighted the sound position of the Society as a research and publishing organisation. Publication of *Steel and Rails at Newcastle* (reviewed in this issue) is a major achievement for a small society, I have adequate material to hand for the 1982 issues of *Light Railways*, a large number of members indicate that they are working on new research projects and there has been an encouraging increase in the material being provided for *Light Railway News*.

To keep up with the volume of material being submitted to *Light Railways* it was agreed that the annual publication target should be increased to 112 pages. In response to the 1982 membership survey, it is planned that there will be at least one special issue per year.

In this issue our feature article covers the short history of the little known Sawyers Valley tramway in Western Australia. It continues an encouraging trend to provide material on a countrywide basis. There is also a healthy flow of letters to the editor and additional space has been provided in this issue to catch up with a backlog in this area.

Whilst every effort is made to ensure the accuracy of articles published in *Light Railways* errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the editor, and so help us to record the full history of Australia's light railways.

Articles and news items are always welcome and should be forwarded direct to the editor. It greatly assists if they are typed or written on one side of the paper only and double spaced.

Historical references to sums of money in *Light Railways* are in Australian pounds (£). One pound equalled two dollars on changing to decimal currency in 1966.

# THE PERTH FIREWOOD SUPPLY COMPANY LTD.

by L.G. Watson

## Introduction

To pump water from Mundaring Weir to the Eastern Goldfields eight pumping stations were required. Four were equipped with three steam driven pumps and the others had two pumps. The contract for the supply of pumping equipment was let in March 1900, with Babcock & Wilcox of Scotland supplying the boilers and James Simpson & Co., London the Worthington-Simpson high duty, triple expansion, duplex condensing engines for pumping.<sup>1</sup> Pumping began in April 1902, although the scheme was not officially opened until 1903.

The boilers were originally fired with coal supplied from the Collie coalfields, but were later modified to burn readily available firewood from nearby sources. An unusual source of fuel after 1913 was the wooden rails and sleepers of the abandoned tramway to Port & Honey Co's timber mill which branched out from Mundaring Weir.<sup>2</sup> This, however, was not an inexhaustable supply and alternative sources of firewood were sought. The second decade of the 20th Century saw the firewood supply located adjacent to the weir and not in the catchment area. Soon these supplies cut out and the Water Supply branch of the Public Works Department (PWD) had to look further afield for fuel. Large areas of suitable firewood, mainly Jarrah trees, soon became available from the trees which the Goldfields Water Supply Administration ordered to be ringbarked from 1903.

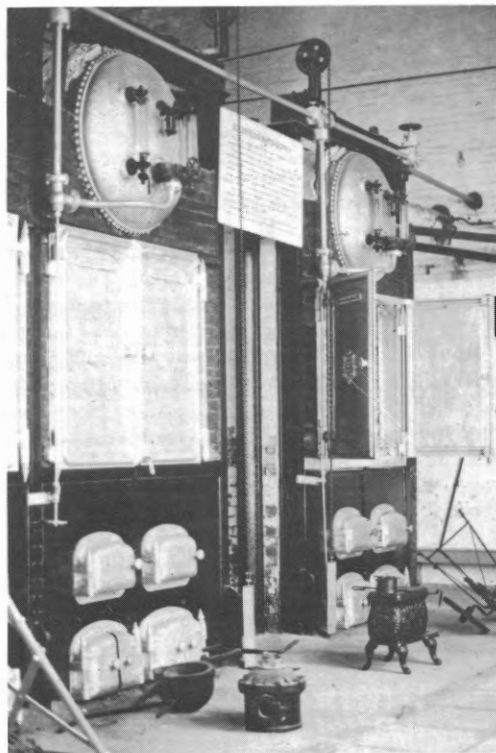
On the 6th January, 1919, tenders were called for the supply of firewood for Number 1 pumping station and also for the incinerators of the Water Supply & Drainage Department (WS&D).<sup>3</sup> For schedule number 6A, the supply of firewood for incinerators, Messrs Bryant & Waters offer was accepted on 17th of February 1919.<sup>4</sup>

For future contracts, including supply of No. 2 Pumping Station's fuel, Bryant & Waters formed a company. The Perth Firewood Supply Company Limited, in accordance with the 'Companies Act of 1893' gave notice of commencement of business on 27th September, 1919. The Company's offices were located at 80 Stirling Street, Perth.

The Waters family were land owners in the Sawyers Valley area. Jack Waters, one of the partners in the Company, knew the area well, and his brother, Tony, owned an orchard in the district. The Bryant's were a Perth family, Mr Bryant being the other partner. His three sons were to become outstanding sportsmen, all representing Western Australia at cricket during the 1920s and 1930s.

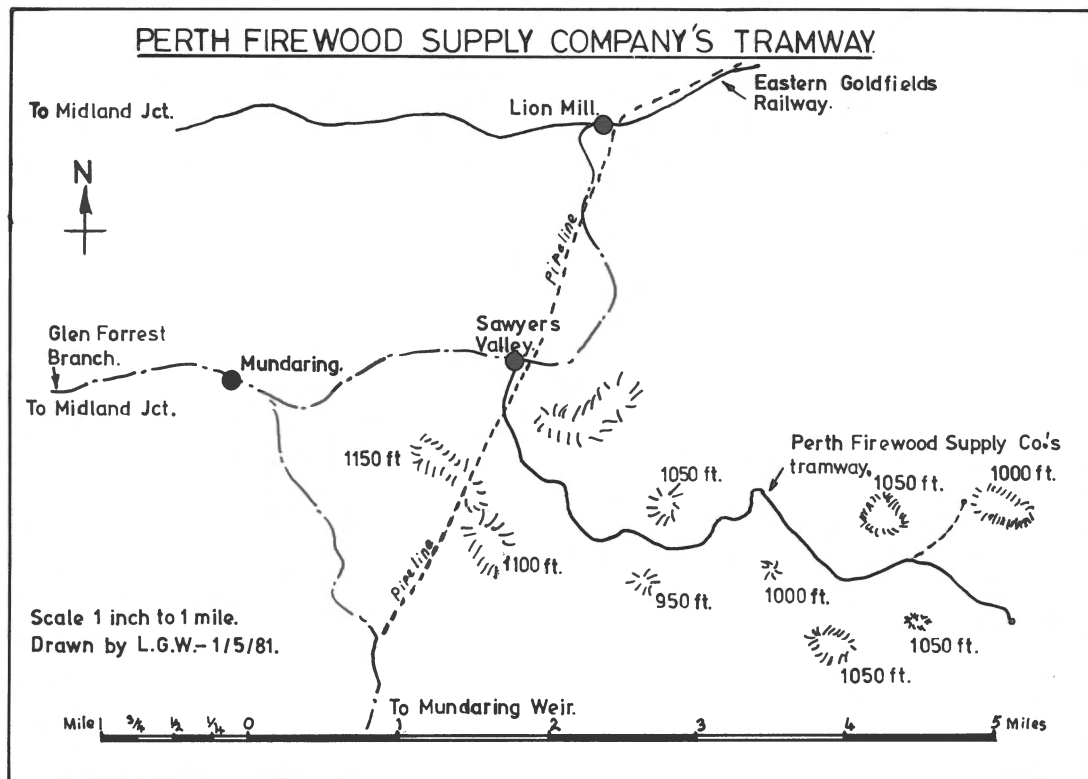
## Sawyers Valley Tramway

The Perth Firewood Supply Company obtained permission in 1919 to lay a tramway and connect it



No.1 Pumping Station boilers, O'Connor Museum, Mundaring Weir, 1981.

L G Watson



Source: Imperial General Staff map c.1920's.

with the Western Australian Government Railway (WAGR) system at Sawyers Valley. The Station master at Lion Mill was to account for traffic from Bryant & Waters to the Mundaring Weir line.<sup>6</sup>

As of April 1920 the tramway was sufficiently advanced to permit WAGR trucks to run over it for 3½ miles and a scotch block (derailing block) was fitted at Sawyers Valley. Shunting charges were set at 2 shillings and 4 shillings per 4 and 8-wheel wagon end was levied on traffic to and from the tramway, in addition to the bush haulage scale of charges on page 8 of the *WAGR Goods Rate Book*.<sup>7</sup>

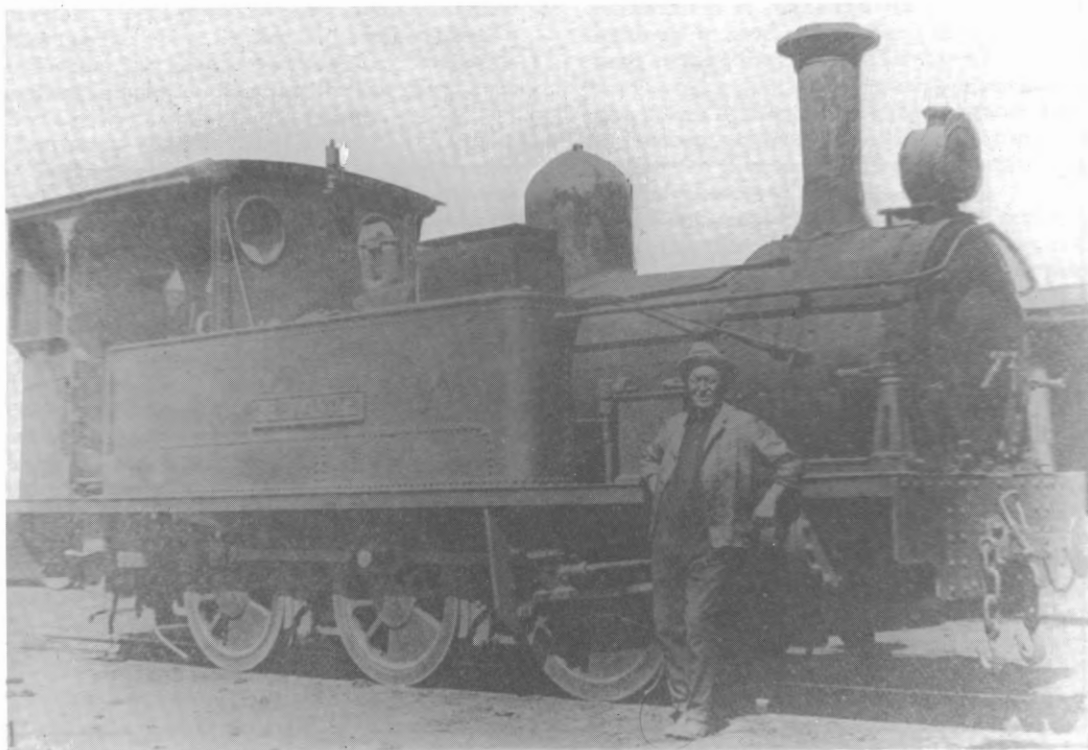
The starting point for the tramway was the WAGR station of Sawyers Valley, located 23 rail miles from Perth on the Glen Forrest branch line. The loop of the unattended station was located on the right hand side ex-Perth and was connected by hand operated points leading off the east end of the loop to Bryant & Waters' private siding. The points were locked and set for the company's road and had to be unlocked by guards when WAGR trains were shunting the east end of the yard.<sup>8</sup>

The company's line consisted of a straight shunting neck of approximately 100 yards in length continuing east from the WAGR loop. Located along this section of track was a left-hand turnout, which was the only turnout on the entire tramway. Passing the tally clerk's office, situated between the tramway and Sawyers Valley station, the line passed over Great Eastern Highway on the Perth side of Sawyers Valley and then proceeded to a point where it passed over the Goldfields Water Supply pipeline by means of an earth embankment. The length of the line was recorded as four miles in February 1921.<sup>9</sup>

Only minimal earthworks were provided on the tramway for crossing the many water courses encountered along the tramway. These did not fare well during the extremely wet weather of 1920.

#### Locomotive

The locomotive used on the Perth Firewood Supply Company's tramway was an 0-6-0T built by the English firm of Hudswell Clarke & Company, Leeds in 1891. Given works number 381 and identified as *Fremantle* by a cast nameplate attached



Fremantle photographed soon after sale by PWD to Witchliffe based timber company, April 1926. Location unknown.

Copied from Western Mail

to each side tank, she was built for EVH Keane, a prominent railway contractor in Western Australia during the 1880's and 1890's.

Some basic dimensions of *Fremantle* were:

Cylinders	12 in x 18 in
Coupled Wheel Diameter	3ft
Boiler Pressure	Originally 140 psi
	Later 120 psi
Traction Effort	Originally 7,560 lbs
(at 80% boiler pressure)	Later 6,480 lbs

With the opening of the Midland Railway Company's line *Fremantle* was purchased by them in mid 1895 for the sum of £1,475.<sup>10</sup> After a varied history with the Midland Railway Company, mostly working as the Midland yard shunter, the engine was set aside in 1919. The period of rest at Midland was not long however, as it was soon sold to Messrs Bryant & Waters for £813.

### Rolling Stock

For rail transportation of the Perth Firewood Supply Company's material, over both their own

and Government lines, WAGR G-type four-wheel trucks were used. As of the 30th June, 1919, the WAGR operated some 5285 of these high-side open trucks. Classification and basic details were:

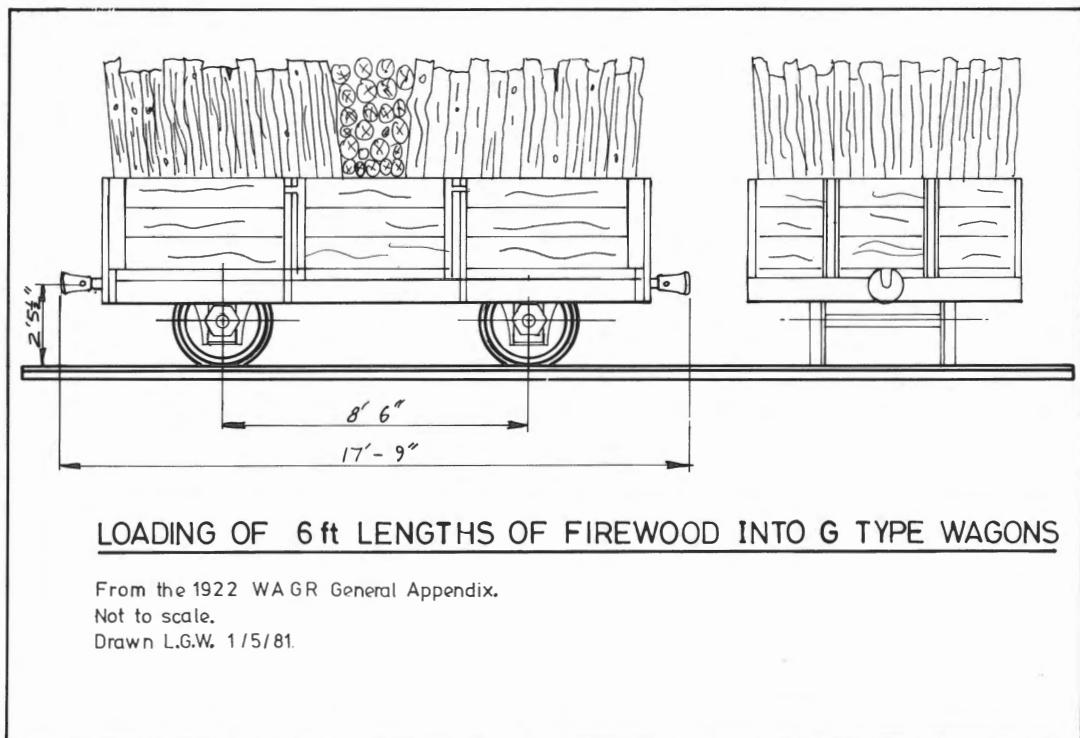
Class	No. in Service	Load
G	1000	5t-19cwt-2
Ga	761	9t- 8cwt-2
Gb	451	9t- 0cwt-2
Gc	3052	9t-14cwt-2
Gd	21	9t- 0cwt-0

(Source: *WAGR Annual Report 1919/20*)

A substantial proportion of the G type wagons were used for the firewood traffic which made up 23.3% of the total paying goods hauled by the WAGR in 1918-19.<sup>11</sup> Of course the Perth Firewood Supply Company's proportion of this traffic was small, the major source of firewood traffic being situated in the Goldfields.

For loading 6ft lengths of firewood into G type wagons special instructions were issued by the





Formation of PFS Co. tramway at a point approximately half way along its length. Thought to be the site where both Fremantle and her driver sustained much damage.

Photo: L G Watson, 1981.

WAGR.<sup>12</sup> The firewood was not to be loaded more than two feet above the side of the wagon unless a frame was used and the wood was to be stacked on end with all projections above the side of the truck being given a cant towards to centre.

## Tramway Working

The bush terminus of the tramway, which varied according to the source of firewood, had no turnout or extensive trackage and it is thought *Fremantle* pushed the empty trucks to the loading area and hauled the loaded wagons back to Sawyers Valley. Here the engine would have shunted the wagons into the loop of the WAGR station.

The woodcutters were mostly of Italian and Yugoslav extraction. They worked in teams of two and were equipped with crosscut saws, mallets and wedges. The cutters, who were paid by the cord, were required to cut the wood into 6 ft lengths and stack it for loading onto wagons.

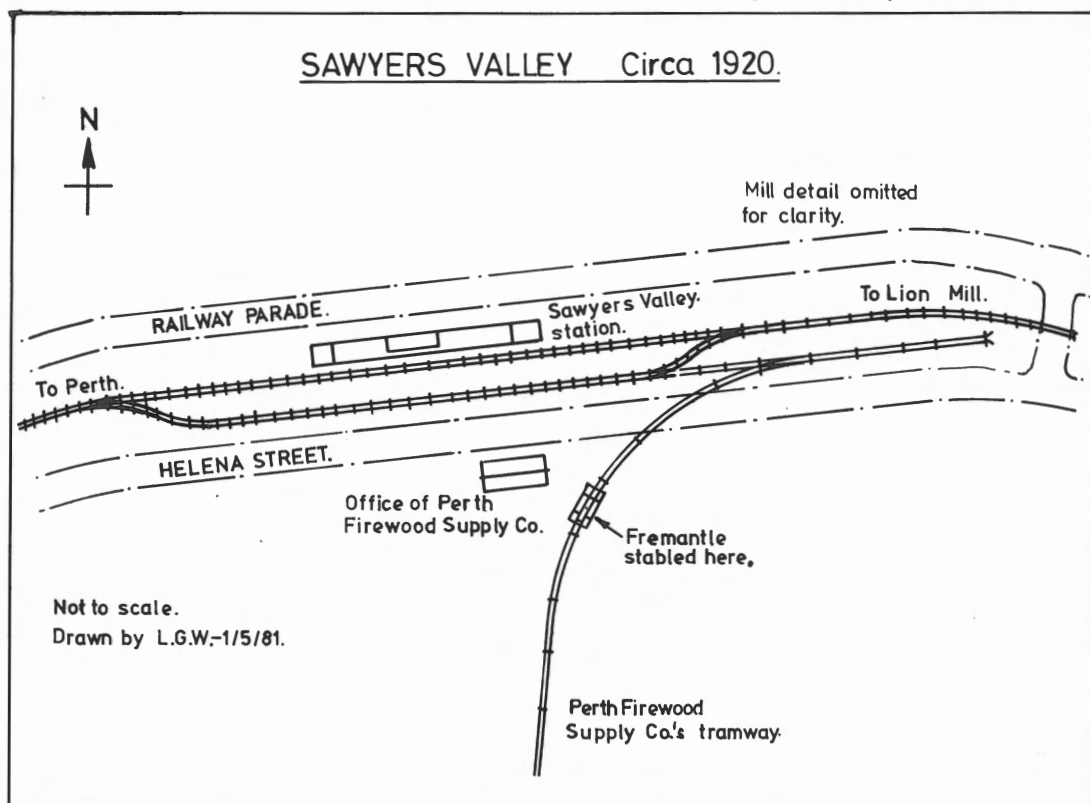
Located at the bush terminus was a portable boiler and circular saw for cutting firewood into 1 ft length blocks. These were also loaded onto WAGR wagons for sale as domestic firewood at the Company's Stirling Street, Perth yard. From

examination of maps and the formation of the tramway it appears that there were two major bush camps for the line. When the first area was worked out the track was slewed over and added to give access to a new area. The last quarter mile of the second terminus would have really made the aging 0-6-0 work as it fell 70 feet to the bush camp located adjacent to a creek.

The company, in an unusual move, decided to pay all shunting and haulage charges as goods left Sawyers Valley from May, 1920. A wagon weigh bridge was installed on the private siding and the weights supplied by the company and inserted by the company and inserted on truck labels were accepted by the WAGR for freight rates, subject to a periodical test arranged by the traffic inspector for the district.<sup>13</sup> The weigh bridge was commissioned on 31st May 1920. From July, 1920, traffic from the tramway was accounted for by Mundaring.

With the poor condition of the permanent way minor derailments were common and it was not long before a more serious accident occurred. Unfortunately driver John Ellis was injured.

John Ellis began his railway career as fireman for



the contractor on the Eastern Goldfields Railway. When work on that project finished he settled down to driving for the Midland Railway Company. In 1919 he accepted the position of driver with the Perth Firewood Supply Company to handle an engine he knew only too well, *Fremantle*. His employment with the company was short however, as the heavy winter rains of 1920 caused the streams to swell and a tramway bridge was washed away. While driving on the line Ellis saw the washaway and, unable to stop his train in time (*Fremantle* was not fitted with vacuum brake), he and the fireman jumped. The fireman fell on Ellis, causing him to fall awkwardly, breaking his hip. It never reset properly and Ellis was unable to work again. He remained an invalid until passing away in 1954.<sup>14</sup>

It seems that *Fremantle* was laid up out of service after this accident as WAGR locomotives have been mentioned as working on the tramway. The most likely class of locomotive to see service on the tramway would have been the G-class based at Midland Junction depot.

While in service with the company *Fremantle* was parked adjacent to the Sawyers Valley office, possible so staff could keep a watchful eye for pilferers. No elaborate facilities such as an engine shed or pit were provided.

### Closure

The numerous washaways and derailments caused considerable damage to the WAGR wagons and the WAGR banned the use of their rolling stock on the tramway on the week ending March 25th, 1921.<sup>15</sup>

After closure of the line the track was left *in situ* just over a year before an application was received by the WAGR from Bryant & Waters for the use of wagons for the removal of material. The WAGR replied that arrangements could be made after the track was inspected by departmental officers.<sup>16</sup> Stan Rhodes, the son of a woodcutter and then 17 years old, recalls helping Tony Waters lift the track for disposal in 1922. The fate of all the rail is not known, but some sections were found on the original location. This appears to be a Head Free rail section, American in origin, with a weight of 30 to 40lb per yard. Its origin is a mystery as the WAGR, a major supplier of rail used in the local timber industry, never used this type of rail.



Sawyers Valley office of PFS Co. photographed in August 1981. The verandah and end rooms were added in later years.

L G Watson

The company's locomotive is thought to have been sold to the Public Works Department in 1921/22, who in turn sold it to Western Australia Jarrah Forest Company in early 1926.<sup>17</sup>

The Sawyers Valley office of the Perth Firewood Supply Company was the most substantial reminder of the company's existence. The one-room, gable roofed, unpainted, weatherboard structure was purchased as a residence and added to in latter years. The building finally fell out of use in the 1970's.

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2. E. Quicke. *Mundaring Weir Among the Hills*
3. *Government Gazette*, 1919
4. *Government Gazette*, 1920
5. *Government Gazette*, 1920
6. *WAGR Weekly Notice*, 1920
7. *Ibid*
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## FROM THE ARCHIVES

*The Australian Sugar Journal*, December 8th, 1927**Locomotive Spark Nullifier**

A large gathering of sugar people and others interested in transportation assembled at Bingera on the 16th November, 1927, at the invitation of Messrs. Gibson and Howes, to witness a demonstration of what is known as the Cheney Spark Nullifier. The problem of spark arresting as applicable to locomotives whether on the main line or on local railways, is of the utmost importance, not only to sugar growers, but also to all engaged in land industry as it has been a constant source of complaint that sparks liable, especially in drought time, to destroy valuable property have been emitted from locomotive when under forced draught, especially on heavy grades.

It is claimed that Mr S Cheney, who has been for many years associated with locomotive work in Western Australia, has solved the problem after long study from intimate acquaintance with all phases of the subject.

Naturally the demonstration at Bingera aroused keen interest, and so convincing were the results shown that quite a number of orders have since been booked.

The following particulars are taken from the report of Mr J G Henry, Inspector of Machinery, who was present on this occasion:- The principle object of the nullifier is to arrest the sparks discharged from the funnel, and, Mr Henry states, "this has been achieved, as the demonstration would convince the most sceptical." He goes on to point out that "when sparks fly out of a locomotive funnel, they ascend with a bright glow, then float, then finally descend and land. At times a dull spark is seen, at other times a sluggish spark. The sluggish spark, it is obvious, will soon die. It has struck something that has impeded its flight, or has not had the full force of the exhaust behind it. It is to obtain this dying or dead spark that has been the aim of



Bingera Mill locomotive No. 118 (Baldwin 4603 of 1879) which was used for the "Cheney" patent locomotive spark nullifier trials in 1927.

J L Buckland

## "Cheney" Patent Locomotive Spark Nullifier.

100% ASSURANCE AGAINST  
RAILWAY ENGINE FIRES.

### A West Australian Invention.

IN USE ON LOCOMOTIVES IN  
AUSTRALIA, CEYLON, NEW ZEALAND.

PATENTED AROUND THE WORLD.

**The Engine Spark Problem** has baffled all the leading engineers all over the world; nearly **Four Thousand Patents** have been obtained in U.S.A. alone for Spark Arresters, but none a 100% success.

**The Problem Has Now Been Solved.** This Scientific Invention has **Novel Features and Advantages**, and is an acquisition to all Locomotives.

**The "Cheney" Spark Nullifier** is an actual assistance in keeping a regular head of steam, is economical on fuel consumption, prevents smoke boxes from burning, can be attached or removed in two minutes, either wood or coal fuel can be used with it, positively prevents fires from sparks.

Manufactured in West Australia by the

**Cheney Spark Nullifier Ltd.,**

No. 1 Howard Street, PERTH, W.A.

The Economy in Fuel in some Cases Reaches 50%.

READ THE FOLLOWING PRESS REPORTS.

Advertisement for "Cheney" Patent Locomotive Spark Nullifier, c.1927

designers of spark arresters. Thousands have been designed; but few have been near perfection. The greatest of all obstacles encountered has been to prevent the blocking up of the passages through which the sparks have to travel. "As far as I can see," remarks Mr Henry, "the Cheney Spark Nullifier has got over this difficulty, and has also reached the desired point of being able to kill the sparks. It has also gone further, as it has become a steam producer and a fuel economiser. The design has undoubtedly been the study of a practical man, who has also gone into the scientific side of the question. There is evidence of this in the curved shape cone wire frame covered with wire gauze the point of which is 18 inches in the funnel. The top of this frame is 2ft. in diameter, and on the outer edge is a lip that drops 3 inches. This lip is also covered with gauze. The sparks in rising are thrown with

great force against this curve, and are thrown outwards, while still continuing their upward course. They are finally arrested by the lip and drop on to the bottom of the case, which fits on to the outside and top of the funnel. This case also carries the cone-shaped frame or arrester. Plenty of room is provided for the escape of the sparks from the arrester to the case. Around the bottom of this case is a strip gauze which has got over the difficulty of keeping away the accumulation of sparks and fine particles of fuel.

### **The demonstration at Bingera**

Dealing more particularly with the demonstration, Mr Henry states that a Baldwin locomotive of 422 square feet heating surface was coupled to a load of 268 tons (actual weight of the train) on the 3ft 6in gauge line at Bingera Siding, and was started without difficulty. At the start of the grade which at one place is 1 in 50, and has several sharp curves, one a 5 chain curve, the train was stopped, and from this dead stop the load was started. The wheels skidded on more than one occasion: still the few sparks that were thrown out were all of very small size and dull; and instead of flying to a great height they were thrown out in all directions, some of them almost horizontal. Mr Henry states that he did not see one spark during the whole trip up that kept alight for more than ten feet from the top of the funnel.

There was no difficulty in keeping up steam on this run, and the engineer stated that undoubtedly the fuel used was less, though the trial so far had not been of long duration. The driver of the train said it was a great improvement in the steaming of the locomotive, which he had been driving off and on for years; whilst the fireman said it was easier to fire with the nullifier on. Mr Henry stated also that he had examined the smokebox after the run, and was astonished at the small amount of ashes it contained. The bottom of the box was clean from the tube plate to the exhaust pipe, and about a foot of ashes were up against the door. The loco had been running practically all the time, for five hours. In conclusion Mr Henry says, "I cannot speak too highly of the nullifier as it is working at present. Difficulties may crop up later; but from what I could see and from all the inquiries I could make, after the first difficulties are overcome, and they appear to be few, it will prove a great acquisition to all locomotives, for the reasons stated."

It may be added that Mr Cheney, whose advertisement appears in another column, has already secured a number of orders in this state, including those both from Bingera and Fairymead,

and the invention is under consideration by the Railway Department. Mr Cheney informs us that the use of his Spark Nullifier is compulsory in New

Zealand under Act of Parliament passed in the interests of fire prevention.

## TITAN ELECTRIC MAN TRANSPORTER

Keith McDonald and John Browning

The Tital Manufacturing Coy Pty Ltd, of Newcastle, a member of the BHP group, began to take a serious interest in electric man riding cars suitable for use underground on New South Wales 3 ft 6 ins gauge colliery railways when the Company's engineering department proposed the construction of a fast, battery-powered man transporter in 1971. At this time, however, the mining industry appeared to be firmly attached to the concept of diesel hydraulic man riding cars. Diesel cars can be expensive to maintain and fuel, and leave the lingering odour of diesel fumes, as well as being noisy and sometimes uncomfortable to ride in. However, they did have the major advantage of speedy travel, with most electric units then in use having an operating speed of up to 10 kph only.

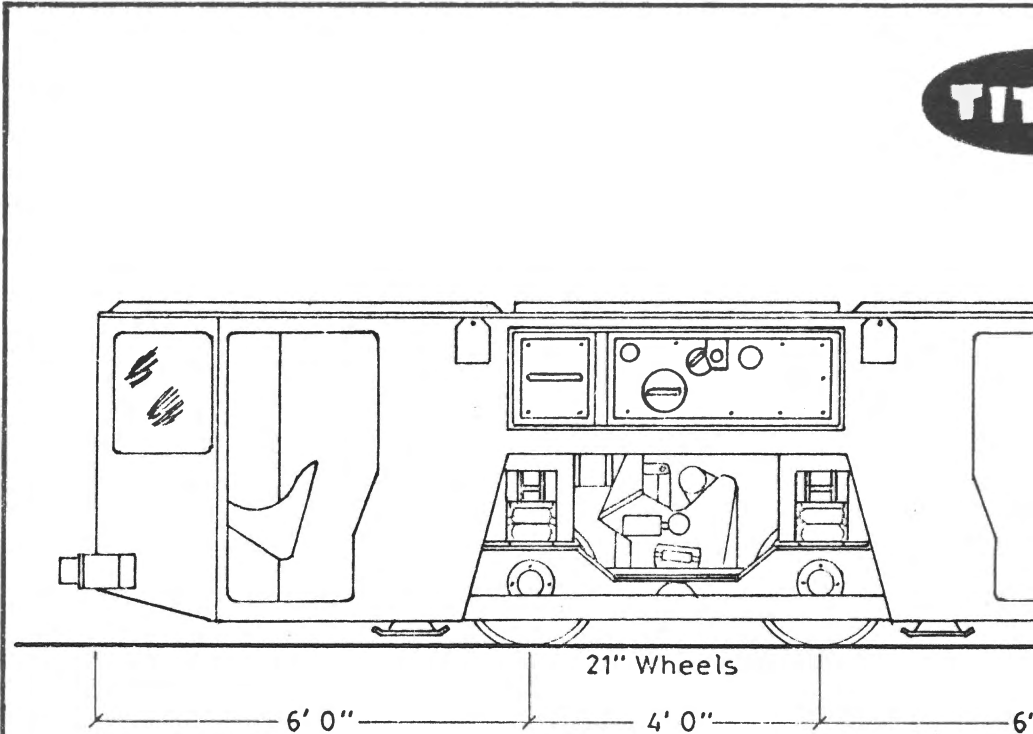
By 1974, however, the idea of an electric man transporter was considered feasible by Australian Iron and Steel Pty Ltd (AIS) another BHP company, for use in its coal mines. Close co-operation between AIS and Titan engineers identified the features required in such a car, and problem areas in previous designs. Titan engineers overcame the speed problem and produced a design capable of a top speed of 32kph on level track. In 1975, after exhaustive tests at their Mayfield plant, Titan delivered the prototype vehicle to Corrimall Colliery on the south coast of New South Wales, where more tests were carried out. It was not until 1977 that a final design was arrived at, and since that time, a further eleven units have been put into service in NSW collieries.

The cars have a capacity of fourteen men, including the driver, and have an infinitely variable range of speeds up to the maximum 32kph. Battery power enables the noise level, of paramount importance in the confined spaces of mine tunnels, to be kept below the N85 curve (which relates frequency to noise intensity). The 56-cell battery housed in the centre section of the car gives up to 390 ampere hours service at the 5 hour rating, and provides power for a 22kw electric motor. A DC to DC thyristor controller using stepless control and

incorporating current limit and overload protection is used. The electric motor drives through a gearbox and chain to both axles, which are supported by heavy duty spherical roller bearings.

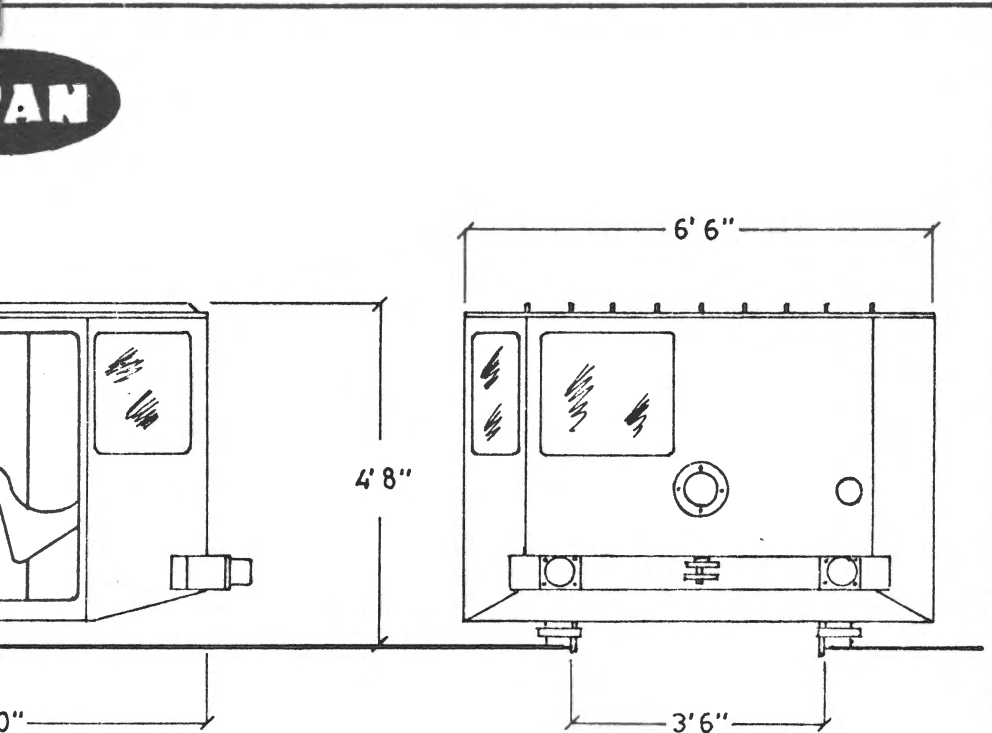
Construction of the cars is divided into three separate components, the undercarriage, consisting of side members, wheels and axles, electric motor and gearbox assembly; the chassis, which is a fabricated steel frame mounted intermediately between the undercarriage and the body, furnishing the base for the battery pack; and the body shell of fabricated steel with a passenger compartment at each end. These three components are connected by a series of rubber springs and rods, isolating vibration and providing a smoother, quieter ride, and so arranged that the combined chassis and body system can be dropped onto the rails for emergency braking. The seats in the body shell are of bench type, and consist of a steel support frame with vinyl-covered cushions and plywood backing, accommodating six men at each end, with the seventh, or driver's seat being a swivelling pedestal seat. The interior of the passenger compartments is arranged so that in emergency situations, two stretchers can be carried in lieu of passengers.

The driver's controls at each end consist of a hand-operated speed control lever, a hand-operated service brake, an emergency brake lever, foot pedals for rail sanding and dead man's control, a pushbutton air horn, power on/off pushbuttons and indicator lamps, an earth leakage audible and visual alarm, and headlight switch. Three systems of braking are provided, all being pneumatically operated. The dead man control applies two wheel flange-gripping brake blocks which are held off pneumatically, but are applied mechanically and automatically when air is expelled from the system. A second system is manually controlled by a hand-operated lever which actuates normal air brakes, and the third system is an emergency dump. When the car is operating, the body is supported on four 'air jacks'. Four brake skids are fitted to the underside of the vehicle chassis, and in an emer-



ELECTRIC MA

EMT 1001 of 1975	Corrimal Colliery	EMT 1007 of 1979
EMT 1002 of 1977	Wongawilli Colliery	EMT 1008 of 1979
EMT 1003 of 1977	Wongawilli Colliery	EMT 1009 of 1979
EMT 1004 of 1977	Wongawilli Colliery	EMT 1010 of 1979
EMT 1005 of 1977	Wongawilli Colliery	EMT 1011 of 1979
EMT 1006 of 1977	Wongawilli Colliery	EMT 1012 of 1979



# N CAR

Ellalong Colliery  
 Ellalong Colliery  
 Chain Valley Colliery  
 John Darling Colliery  
 John Darling Colliery  
 John Darling Colliery

Scale:  $\frac{3}{8}$  In. = 1 Ft.

*McDonald* 12 NOV 79.

gency the jacks are deflated, dropping the car onto the rails. The headstocks fitted have rubber buffers and a simple coupling which is for towing only.

An air operated sanding system is fitted to each car to deposit sand on the rails in front of the leading wheels as required. With a loaded weight of about eight tonnes, the cars can climb a 1-in-15 grade at satisfactory speeds. A sealed beam headlight is fitted at each end, and the tail lights are fitted to flash at a speed of less than 10kph or when stationary. This safeguard counters reduced visibility and poor depth perception in mine tunnels, where rear end collisions have led to injuries and equipment damage. Another safety feature is that if reversing the vehicle, the driver must alight and change over the side-mounted direction selector for electric and pneumatic control. When the direction selector is changed over, the controls at the end of

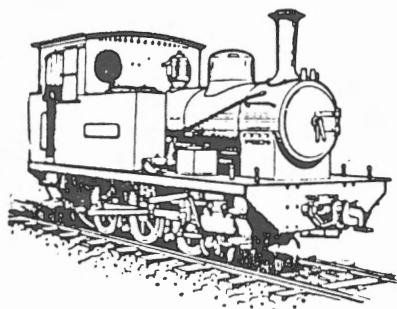
the car away from the direction of travel are rendered inoperative, with the exception of the air horn button. The changeover operation is simple and quick, but it helps ensure that the driver knows he has a clear track over which to proceed.

The twelve units so far supplied have been to the Corrimal and Wongawilli Collieries of Australian Iron & Steel Pty Ltd, the Ellalong Colliery of the Newcastle Wallsend Coal Mining Co Ltd, the Chain Valley Colliery of Coal & Allied Operations Ltd, and the John Darling Colliery of The BHP Co Ltd.

### Acknowledgements

W. H. Evans, The Titan Manufacturing Co. Pty. Ltd.

*B.H.P. Review.*



**STEEL AND RAILS IN NEWCASTLE** by Keith McDonald. Published by the Light Railway Research Society of Australia.

The development of Broken Hill Propriety Company's (BHP) Newcastle complex is the subject of this, the first in a series of books edited by Dr. J.C. Ritter.

Starting with 271 acres of swamp land - 24 acres acquired in 1896 and the rest in 1912 - BHP built their Newcastle plant, modernizing during lean times, into the vast complex of blast furnaces, coke ovens, rolling mills and all the other ancilliary plants and buildings that make up the modern, successful steel industry we know today. The history and development of this complex is covered succinctly - considering the enormity of the task - while the steps in the steel making process itself is explained in the relevant parts of the book.

Industrial railways are usually light in construction, operating on an "as required" basis but not this one.

## BOOK REVIEWS

BHP's railway at Newcastle is a highly specialised system utilising some 600 items of rolling stock, the heaviest being the Treadwell hot metal cars which tip the scales at 156 and 348 tons unloaded and loaded respectively. Twenty five diesel-electric locomotives - all fitted with two way radio - are kept busy as this progressive railway shifts around 20 million tons of material around the works annually over 3½ miles of narrow gauge and 15½ miles of standard gauge track. The use of 147 lb/yd rail in the main blast furnace area gives BHP the distinction of using the heaviest rail in Australia.

Each type of locomotive used by the system is fully described, illustrated and a scale drawing showing all the relevant dimensions provided. The noticeable exception to this treatment are the four coke quenching car locomotives. The only information given is a drawing of one in the rolling stock section. These electric locos have an unusual



appearance and at least a photo of one would have been appreciated.

The last third of the book is devoted to rolling stock diagrams. One hundred and thirty nine are supplied supported by extremely brief notes. The brevity of these notes makes reading tedious as there is a lot of repetition. This could have been avoided by grouping wagon diagrams by class enabling one general wagon description. Another small point is that no mention is made of scale in regard to the drawings. Modellers will appreciate that with a little effort several types of wagon can be produced from kits already on the market.

Priced at \$11.95 (plus \$2.55 for postage) this large format, 118 page book is excellent value. Copies of this extremely well researched and produced book are available from the publishers at L.R.R.S.A. Sales, P.O. Box 382, Mt. Waverley.

**IW**  
**LOCOMOTIVES OF NEW SOUTH WALES 1855-1980 Volume 1.** Edited by Alex Grunbach for Australian Railway Historical Society (New South Wales Division), Sydney 1981. 120pp 170 x 245 mm. Recommended price \$9.95 (hardbound) and \$6.95 (soft cover) plus postage and packing.

First published in 1955 under the title *A Century of Locomotives* to commemorate the centenary of the New South Wales Railways, this book was expanded and updated in 1965. Both editions are now long out of print and collector's items no doubt.

After a long period in gestation, volume 1 of the new series, covering the locomotives of the formative years of the system - 'singles', 0-4-2, 2-4-0, 4-4-0, 0-6-0 and 2-6-0 wheel arrangements is now available. Each type is dealt with (and illustrated) separately with appropriate accompanying descriptive notes.

Additional and in many instances new illustrations are included, together with full specifications for each class dealt with in the form of an appendix. This is augmented by appendices listing locomotive numbering and classifications, including 1889 and

1924 renumberings where appropriate, and as a bonus, a complete listing of the X10 class of 1924, comprising miscellaneous stock of obsolete locomotives, crane tanks, coal grabs, accident cranes and the like.

This first volume of the series has set a high standard to be followed by subsequent ones to cover the six-coupled tender passenger and mixed traffic locomotives; eight-coupled tender locomotives (including the Beyer-Garratts); tank locomotives, and finally diesel and electric locomotives.

As a ready reference for the locophile, this book is an invaluable document which should grace the bookshelves of anyone seriously interested in the development of the steam locomotive in New South Wales.

**JLB**

**BUSH TRAM TO THE MILL** by Bob Scott. Published by Southern Press Ltd., New Zealand.

From the Price locomotives crossing a timber bridge on the cover to the model of the same bridge 63 pages later, this book will delight the reader with its photographs and text. Logging tramways have always come up with their own special way of doing things and the author has collected some interesting examples of logging tramway memorabilia.

A magnificent trestle, supporting a Climax and the spiral, adorned by two of Mr. Price's machines, at Ongarue on Ellis and Burnandis line, an ill fated suspension bridge built over a 250 ft gorge at Utika and a Fordson powered tractor atop a log bridge set the scene. Unfortunately the practice of having two photos per page does not do some of the locomotives justice.

The section on sawmills, after a brief history of mill development, details operations and equipment in a comprehensive and well detailed study.

This well presented little book is good value at \$4.50 (\$0.15 extra for postage) and is available from LRRSA Sales, P.O. Box 382, Mt. Waverley 3149.

**IW**

#### MOUNT MORGAN RACK RAILWAY

New book by J W Knowles: a descriptive history of this intriguing Queensland rack railway which was closed in 1952. 56 pages, 27 photographs, diagrams. Available from:

ANGRMS Sales, PO Box 270, North Quay, Qld. 4000. Price \$4.00.  
 LRRSA Sales, PO Box 382, Mt. Waverley, Vic. 3149. Price \$4.50.

Both prices include postage.

# KERR STUART LOCOMOTIVES IN AUSTRALIA

by John Buckland

Thanks to Ray Ellis' inquiries of Geoff Horsman at Hunslet Engine Co., Leeds, we now have the following official list of locomotives supplied by Kerr Stuart & Co. to Australian buyers. It should be noted that as several additional Kerr Stuarts

known to have been supplied to Australia have not as yet been traced in the official Hunslet files, the list is in that respect incomplete. Those which are officially confirmed are:

Maker's No./Date	Cylinders in x in	Type	Class	Name/No.	Gauge	Purchaser/Destination/Date
643/1898	7 x 14	0-4-0T	—	<i>Cape</i>	3'0"	Davis & Soper Melbourne 10/98
685/1900	8 x 14	"	—	—	"	Davis & Soper Tasmania 6/00
718/1900	7½ x 12	0-4-2T	Skylark	—	2'0"	Frazer & Chalmers Geraldton 10/1900
739/1900	"	"	"	—	2'0"	Frazer & Chalmers Geraldton 12/1900
742/1900	7 x 12	"	"	<i>Lukee</i>	2'0"	*Mt. Zeehan Silver & Lead Mines Tasmania —/1903
743/1901	"	"	"	<i>Rajah</i>	0"	★Northern Territory Mining Syn. Darwin —/1904
746/1901	6 x 10	0-4-0T	Sirdar	HPE No. 1	2'0"	Hampton Plains Estate Co. Fremantle 6/1901
750/1902	"	"	"	<i>Leonora</i>	2'0"	Sons of Gwalia Ltd. Fremantle 10/1902
753/1902	7 x 12	0-4-2T	Skylark	HPE No. 2	2'0"	Hampton Plains Estate Co. Fremantle 2/1902
780/1908	12 x 20	0-6-0T	Triana	COC	4'8½"	Commonwealth Oil Corp. Sydney 10/1908
801/1902	7½ x 12	0-4-2T	Skylark	<i>Gwalia</i>	2'0"	Sons of Gwalia Ltd. Fremantle 10/1902
839/1906	6 x 10	0-4-0T	Sirdar	—	2'0"	Watson & Scott Fremantle 6/1906
1053/1910	7½ x 12	0-4-2ST	Tattoo	CSR No. 1	2'6"	Lewis A. Smart for Commonwealth Salt Refining Co. Adelaide 6/1910
1270/1912	12 x 16	0-4-0T (Motor)	—	—	5'3"	Victorian Govt. Railways Melbourne 9/1912
1290/1915	7 x 12	0-4-2ST	Tattoo	—	2'6"	Commonwealth Salt Refining Co. Adelaide 7/1915

## Notes

\* Despatched originally 2/1901 to T.A. Martin & Co. India. Returned and rebuilt 8/1903. Cylinders increased to 7½ in bore.

★ Despatched originally 3/1901 to T.A. Martin & Co. India. Returned and rebuilt 3/1904. Cylinders increased to 7½ in bore.

No. 643 built new for J.W. Wyett's Beaconsfield Tramway, Tasmania (Later Tasmania Gold Mining Co. No. 1) withdrawn 1915 and sold to Victorian Hardwood and Sawmilling Co., Powelltown, Victoria 1916 as 2nd No. 3. Withdrawn —/1944.

No. 685 built new for J.W. Wyett's Beaconsfield Tramway No. 2. Derelict —/1963.

Nos. 718 and 739 built new for Lake Way Gold Mine, WA. One sold to Whim Wells Copper Co. Ltd. c—/1907. One sold to Western Machinery Co. Perth 5/1910.

No. 742 built new for India and returned 1903. Rebuilt with 7½in cylinders and sold Mt. Zeehan Silver Lead Mines Ltd., Zeehan, Tas. Silver Spray Mine and named *Spray*. Sold 1921 to SA Government for use on Cobdogla Tramway, Riverland. Reboilered 1924 and sold Victoria State

Rivers & Water Supply Commission for Redcliffs Tramway. Withdrawn —/1954 and preserved.

No. 743 built new for Mt. Ellison Copper Co., near Pine Creek, N.T. Sold Cameron & Sutherland, Melbourne —/1907. Believed may have been sold Whim Wells Copper Co. Ltd., W.A. and resold c. 1914 to Cameron & Sutherland, Overhauled by Walkers Ltd., Maryborough, Q. and sold Block 10 Gold Mine, Misima Is. Papua —/1920. Resold —/1922 to Cameron & Sutherland and regauged to 3ft for sale to E.A.C. Russell's timber tramway, Gembrook Vic. c.—/1922. Withdrawn —/1939 and scrapped.

Nos. 746 and 753 built new for Hampton Plains Estate Co. gold mine, WA as Nos. 1 and 2. Latter sold c.—/1902 to Kalgoorlie & Boulder Firewood Co. Sold Public Works Department —/1924 and last used for Subiaco sewerage works construction c.—/1928.

Nos. 750 and 801 built new for Sons of Gwalia Gold Mine Ltd., Leonora, WA No. 1 out of use

c.—/1915 and probably scrapped. No. 2 sold J.E. Hall, Fremantle 5/1940. Note: Both engines said to have been built 1901-02 despite gap in builder's numbers.

No. 839 built new for Great Boulder Gold Mines Ltd., Kalgoorlie as No. 2.

Nos. 1053 and 1290 built new for Commonwealth Salt Refining Co. Ltd. operations at Muston, Kangaroo Is., SA. Abandoned c.—/1955. Company known as Aust. Salt. Co. after 1930.

No. 1270 built new to order of Victoria Railways for use as power unit in steam railcar No. 3 (built at Newport 1913). Withdrawn 8/1923 and scrapped.

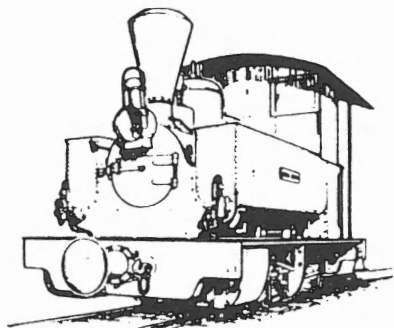
### Special Note

Kerr Stuart B/Nos. 538 and 539 (originally built by Andrew Barclay, Kilmarnock in 1888 as B/Nos. 310 and 311) were supplied in 1898 to Cullen Bullen Lime & Cement Co., N.S.W. They are not listed here as they have not yet been identified from the Kerr Stuart records.



Bingera Mill's locomotive No. 118 (ex QGR C.13 Baldwin), the subject of the story on page 89, had an eventful life. This photograph shows the locomotive after a serious accident. The date is unknown.

J L Buckland colln.



## LETTERS

### COFFS HARBOUR DISCOVERIES, LR74 FRAZER ISLAND TRAMWAY, LR 72

May I offer some comments on the first and third of these extremely interesting photos?

The 0-4-0ST locomotive apparently at work on the construction of the southern breakwater, bears no discernable characteristics to any Manning Wardle loco and is totally different from the MWs (1780 and 1781 of 1911) used at Coffs Harbour and later sold to the MSW&DB at Potts Hill. Is it possible, I wonder, if the locomotive shown could be the NSW PWD's *Burwood* built c1880 by Rogers of Newcastle, NSW for the Burwood Coal Company? I cannot accept that the track in the foreground is the North Coast railway as it is converging with the construction line and it is roughly constructed with sleepers at wide and unequal spacing.

The third photograph most certainly DOES show Andrew Barclay 237. Murray & Patterson 205 is in fact the subject of the cover illustration on LR72 where it is shown with its homemade replacement saddletank. An illustration of it with its original ogee saddletank appears on page 59 of *The Shale Railways of New South Wales*. In LR62 my letter and accompanying diagram on the AB locomotives of the Australian Kerosene Oil & Mineral Company show that the Coffs Harbour Timber Co's loco at Boambee is AB 237. One point that concerned me in studying John Kramer's photographs was that the wheel diameter of AB 237 was clearly smaller than that of the 0-6-0ST AB 222, whereas in LR62 I showed them both equal at 3ft 0½in. On re-checking my notes I have discovered that AB's order book gives the wheel diameter for 237 as 2ft 6in (which must be correct), but the rough shipping specification gives 3ft 0½in.

I must apologise for not having noted this inconsistency before writing in LR62, but at that time I had not seen a photograph of AB 237 in which the wheels were visible.

Incidentally, the plate on AB 237's cabside is most probably not a builder's plate, although AB did produce some rectangular ones in this period. Although illegible, it has insufficient words (and with the wrong number of characters) to be this, but according to Bruce Macdonald is similar to a plate he found on the cabside of AB 211/1879 (derelict at Lobster Creek, Tas.) which read "J.T. Stubbs & Co., Sydney, 1888".

### TORRUMBARRY WEIR CONSTRUCTION TRAMWAY, LR 73

To support the editors suggestion that Black Hawthorn 1134 ended up in a West Melbourne scrapyard in 1941 I have seen a photograph of it in a scrapyard, taken by Leslie Poole, and noted by him on the reverse as being in West Melbourne on 6 February 1941.

**Richard Horne**  
South Croyden, Surrey, UK.

Editors Note: Unfortunately I did not have a copy of LR62 available when preparing the notes to accompany the Coffs Harbour photographs. Consequently Richard Horne's previous letter was overlooked. My apologies for any misunderstanding this may have caused.

## NORTH WEST COASTAL TRAMWAYS 1981

Frank Stamford and Ian Crellin wrote a series of articles for 'Light Railways' on WA's NW coastal tramways that were published during 1975-6. Frank had visited the NW late in 1974 and the articles contained 1974 situations and historical information on the rail systems that had served isolated ports of the North-West. In April-May 1981 I was able to re-visit many of these ports and found there are many changes to be seen.

### **Carnarvon** (See L.R. 50 & 56)

The layout of the Carnarvon tramway has altered little since 1974 but part of the line is once again in regular use as a public tramway - the only passenger service provided on any WA jetty/harbour railway. The Carnarvon Rotary Club purchased Busselton Apex Club's *Jetty Lady* - a mini-moke on rails with two home built coaches in 1980. Since repairs to Busselton jetty following Cyclone Alby in 1978, rail access has been hindered and the *Jetty Lady* could no longer operate.

The Carnarvon jetty is one mile long and was closed to regular shipping in the 1960's. Public Works Dept four wheel Simplex diesel PW 21 is still based at Carnarvon and used occasionally for jetty maintenance work, but since State Ships stopped calling at the jetty, the *Carnarvon Express* is the first regular operation on the railway.<sup>1</sup>

A competition was held to name the train before its first run during Easter 1981 when it showed that there should be no problems in running on the jetty. A shed and short access siding were constructed near the jetty to house the train. From Easter, services were operated unofficially every weekend until the official opening on 9 May. The State Minister for Tourism, Ian Lawrence, launched the service. The Rotary Club hopes to operate every weekend and on public holidays (when weather permits) to cater for tourists and fishing parties. The train is run as required during the day with only a stipulated first and last train time. The



Carnarvon Express at the head of the Carnarvon jetty, 26 April, 1981. Note hand crane on the right.

David Whiteford

run to the end of the jetty takes about 5 minutes - if the driver doesn't stop to check his fishing lines on the way - and fares are \$1 return for adults and 50¢ children.

### PWD Rolling Stock

Since 1974, Fordson 4 wheel rail tractor NW 2 has gone. In April 1981, the motor winch flat wagon and a low side wagon were in the loco shed with PW 21. The Harbours & Marine section of PWD advised in July 1981 that PW 21 is expected to be written off by the end of 1981 and will probably be replaced by a loco from Wyndham. Only 1 of 6 low side wagons still around the depot could be identified (G 8812). Two wagons have GSR axlebox covers dated 1896. Two flat tops, a 4 wheel wagon frame, and a flat top trolley make up the rest of 12 wagons to be seen. In addition there are still two hand cranes (one on the jetty). At the PWD depot near Gascoyne Bridge is a 4 wheel louvre van of 3ft 6in gauge but its source is unknown.

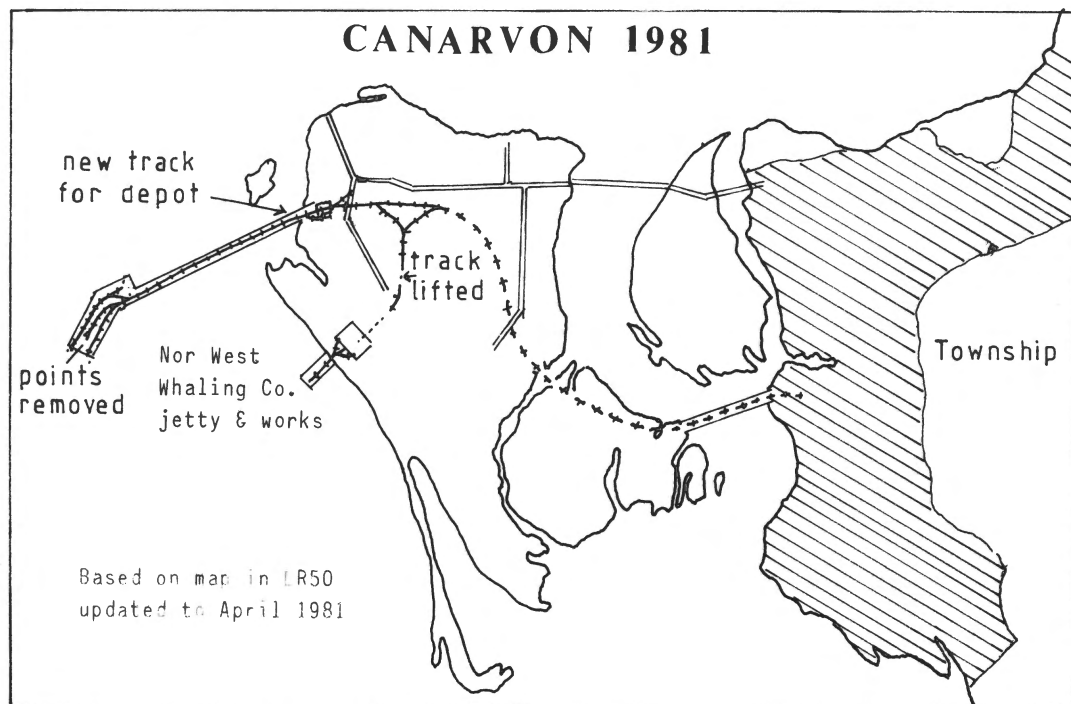
### Tramway Route

Part of the 'Lighthouse Beach' (Nor-West Whaling Co) branch has recently been removed (to provide track for the 'Express' siding). The route across Babbage Island to the townsite is still a walk track and all bridges are intact with some decking being renewed since the line was lifted. Level crossing signs at the town end (still there in 1976) have gone but those on the island remain.

### Nor-West Whaling Co.

A 2' gauge rail system operates at the Nor-West Whaling Co's prawn and fish factory at Camarvon's lighthouse beach. The line serves the jetty and has at least 3 sidings within the factory area. Motive power is unknown (human?) but there are at least two different types of trolley in use. Unfortunately access to the factory wasn't available during my visit.

**David Whitefield**  
Cloverdale, WA.







Simplex diesel locomotive PW21 in the shed at Carnavon, April 1981.

David Whiteford

## GEELONG HARBOUR TRUST TRAMWAYS LR 73

Norm Houghton's article brought back memories of a visit to Port Arlington on 20th January 1949 when visiting Melbourne on a school boys' excursion.

The journey to and from Port Arlington was made on the *SS Sorrento* (built 1909 in Hobart as *Rowitta*) from Port Melbourne pier.

By this stage the Port Arlington Pier railway only consisted of a single track although the locations of the sidings at both ends of the pier were still clearly visible from marks on the decking. At this stage the track appeared to be in poor condition, timber baulks being used in places along what was otherwise a steel tracked railway. From memory the fishing boat arm to the pier (parallel to the shore line) had been removed by 1949 leaving only the main structure at right angles to the shore.

A copy of a commercial post card purchased at Port Arlington during that visit is enclosed. This reveals that the points serving the jetty sidings were of the "stub" variety.

## BALDWIN LOCOMOTIVES No. 6114, LR 74

During 1979 a Heritage Committee was formed



Port Arlington Pier and tramway taken from near the pier head.

K McCarthy colln.

to served Kiama, Shellharbour and Wollongong councils in NSW. The main function of the committee is to inform aldermen of the significance of heritage items and sites so that the elected representatives can make a learned decision on the value of such items or sites if they are threatened by redevelopment.

The members of the committee have produced various gazetteers dealing with aboriginal sites, natural history sites, industrial sites while work is currently progressing on an architectural gazetteer of the Illawarra area. The *Industrial Sites Gazetteer* released in May 1980, consists of almost 200 pages and lists development dates and references of such sites as ports, railways, collieries, quarries, water supplies, gas works, electricity reticulation, smelters, saltworks, public transport, cordial factories, coke works etc. in the region.

Efforts have recently been directed towards the publication of a *Gazetteer of Industrial Steam Locomotives - Illawarra District* and so far 86 steam locos have been prepared. This will be magnified to almost 100 units when the various

steel works locomotives are researched. Baldwin Locomotive No 6114 (*LR 74*) appears in the *Gazetteer* and this recent article has prompted me to give *Light Railways* this sample from the manuscript so that it may prompt others to carry out similar work dealing with locomotives in other industrial areas such as Newcastle.

The Rev CB Thomas and Messrs D Estell, P Neve and D O'Brien have assisted the writer in this project while Mr J Southern is now reviewing the manuscript and making valuable additions. The Heritage Committee is willing to publish the work as well as one photo of each locomotive. The value of this publication to railway historians is quite obvious, but to other researchers the value of this *Gazetteer* is mainly as an instrument for dating photos. A view of a local jetty or colliery yard showing a steam locomotive can be placed in a more definite era by referring to the publication.

The role of a *Gazetteer* is not to interpret researched material but to present references which will give writers of future definitive histories clues to areas of research. As a result items appearing in such a publication may later be proved incorrect.

#### Sample from *Gazetteer of Industrial Steam Locomotives - Illawarra District*

##### Baldwin Locomotive Works

Philadelphia U.S.A.  
6114 of 1882.

- a Berrima Coal Mining & Railway Coy. No. 2.
- b Bellambi Coal Mining Coy. No. 2.
- c G & C Hoskins Ltd. Rhodes Pipe Works.
- d Hoskins Iron & Steel Coy. Ltd.
- e Australian Iron & Steel Ltd.
- f C.R. McKenzie, Port Kembla.
- g C.R.M. Port Kembla.

Locomotive  
4'-8½" gauge.

0-4-0ST

Drivers 36" Diameter

130 lbs/sq. in.

Tract. Eff. 5593 lbs.

Outside Cylinders  
11" D x 16"  
20 tons.

1882	One of two locos imported for use at Berrima Colliery. Earlier loco was 0-4-0 Baldwin 5159 of 1880. Known in Baldwin records as "steam motor" as against "steam dummy", nomenclature for steam tram engine in U.S.A. Berrima No 2 loco.	J. Southern notes.
1880	Berrima No. 1 was Baldwin 5159 of 1880 known as <i>Mary Vania</i> .	G. Eardley notes.
1882-1889	In use at Berrima Colliery.	<i>ARHS Bulletin</i> No. 256 p 21 Feb. 1959.
1889-1896	Possibly on loan to Box Vale Colliery, Mittagong.	<i>ARHS Bulletin</i> No. 197 p 25 March 1954.
1898	Purchased by Bellambi Coal Coy. Ltd. through agency of Henry Vale & Sons of Auburn.	<i>ARHS Bulletin</i> No. 42 p 41 April 1941.

1898-1912	At Bellambi as <i>Bellambi No. 2</i> .	D. Estell notes.
1898-1903	Worked on Ballambi to Woonona old tunnel colliery until 1903, known as <i>Nobby</i> .	<i>Railway History in Illawarra</i> C.C. Singleton.
25-5-1901	Bellambi Coal Coy. purchased South Bulli Colliery.	<i>Transporting the Black Diamond</i> G. Eardley p 47.
May 1901	Bellambi Coal Coy. purchased South Bulli Colliery as output of Woonona mine decreasing. Woonona mine railway closed west of Highway (Bulli Rd) and <i>Nobby</i> used on jetty.	J. Southern notes.
1910	Rhodes pipe works established by C & G Hoskins.	<i>Hoskins Saga</i> p 27.
19123	Loco purchased by C & G Hoskins through agency of L. Sloman for Rhodes pipe works.	J. Southern notes.
1913	Loco in service in 1913 at newly established pipe foundry at Rhodes.	Do.
1925	Overhauled in 1925 receiving a new boiler, saddle tank and steel cabin replacing original wooden one. Diamond stack removed and replaced by stove pipe.	Do.
February 1930	The pipe plant and loco transferred to Australian Iron and Steel, Cringila. Loco made transfer trip from Rhodes to Port Kembla under own steam.	Do.
27-2-1930	Loco transferred to Port Kembla.	D. Estell notes.
1931	In service shunting No. 2 Port Kembla jetty. Known as <i>Rhodes</i> .	J. Southern notes.
4-4-1937	Condemned.	D. Estell notes.
1937	Overhauled and named <i>Rabbit</i> at Port Kembla.	J. Southern notes.
3-8-1937	Loco photographed on Port Kembla jetty.	C.C. Singleton dated photo.
23-11-1937	Still working on jetty.	<i>ARHS Bulletin</i> Dec. 1937
August 1938	Loco withdrawn from service and stored.	J. Southern notes.
January 1939	Purchased by C.R. McKenzie, contractor for C.O.R. oil wharf along Port Kembla northern breakwater.	Do.
1940	Out of service and stored on harbour waterfront. Covered by tarpaulin and sheet iron and used as living quarters by squatters.	Do.
1941	Transferred to E.R. & S. yard, Port Kembla.	Do.
21-10-1941	Purchased by C.R.M. and overhauled.	Do.
March 1942	In service at Port Kembla, still named <i>Rabbit</i> .	Do.
February 1945	Withdrawn from service.	J. Southern notes.
Prior March 1946	Boiler used as sand store at C.R.M. plant, Port Kembla.	<i>ARHS Bulletin</i> No. 356
1948 c.	Frame, cabin and saddle tank transferred to B & W Steel plant at Fairymeadow. Parts derelict on west side of Highway.	p 19 Aug. 1965. J. Southern notes.
1954	Last pieces cut up at B & W Steel plant.	Do.
	Loco examined at Port Kembla and no evidence noted of two wheel trailing truck ever fitted as claimed in some historical accounts.	Do.
	The loco was never at Lithgow.	Do.
	Some accounts indicate that loco cylinders worked at 20" stroke. Actual measurement of loco indicated 16" stroke and wheel diameter to be 36".	Do.

**K. McCarthy**  
**Keiraville N.S.W.**

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Advertisement from The Australian Irrigation Colonies, 1896.